The widening gap between clinical, teaching and research work

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ABSTRACT

- Demand for medical education is increasing, and clinicians are struggling to maintain involvement in teaching and research activities.
- The settings of clinical training are changing and diversifying.
- The traditional model of medical education and the sustainability of academic medicine are under strain.
- Better support is required to ensure continued integration of research and education with clinical activities.
- Better coordination is required to overcome fragmentation within the medical education system, to ensure appropriate recognition for teaching and research across all clinical settings.

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The roles of clinician, educator and researcher have traditionally been central pillars of the discipline of medicine. The synergy created by combining these roles adds value to all three, facilitating high-quality teaching, clinically relevant research and evidence-based practice.[1-3] However, current trends in Australia are placing pressure on the sustainability of academic medicine, and on the traditional ways of delivering medical education and undertaking medical research.

Pressures on academic medicine

Growing workforce requirements

Demand for medical educators is increasing because of both rising numbers of medical students and changed models of education. Between 2005 and 2012, the number of graduates from Australian medical schools will grow by 81%, with 12 new medical programs commencing since 2000.[4] Although there is neither evidence nor consensus about how to estimate the size of the academic medical workforce that will be needed,[5] it is clear that increased medical school intakes will necessitate more medical academics. In the United Kingdom, data on medical academic staff have been collected annually since 2000 by the Medical Schools Council[6] (the UK equivalent of Medical Deans Australia and New Zealand). The Association of American Medical Colleges maintains a similar collection for the United States.[7] In Australia, a standardised national dataset for education and research capacity would provide clearer guidance on academic workforce needs.

In 2006 (latest available data), there were 650 Australian medical practitioners whose primary role was medical educator, representing around 1% of the total medical workforce.[8] This represents an increase of 222 (52%) since 2000.[9] During the same period, the total medical workforce grew by 22%, while the number of enrolled medical students increased by 40%.[8-10] With seven new medical programs commencing in 2007 and 2008, creating increases in the order of 20% on 2006 student numbers, we expect a continued need for growth of the medical education workforce.

Most of the newer medical schools use a problem-based learning approach, and many existing medical schools have also shifted to this model. Based on small-group teaching and adult learning theory,[11] it is a resource-intensive method, requiring higher staff–student ratios than traditional lecture-based methods, further increasing academic medical workforce requirements.

Pressure on education and research in clinical settings

The need for greater resources to meet student demand extends beyond universities. Medical practitioners whose primary role is clinical have always played a significant part in teaching and research. In 2006, 20% of medical practitioners with a primary clinical occupation reported providing some medical education.[12] Over a third of specialists were involved in education (36%), along with 18% of specialists-in-training, 10% of primary care clinicians and 8% of hospital non-specialists. For clinicians who provided medical education, the average time spent was 4.7 hours per week.[8]

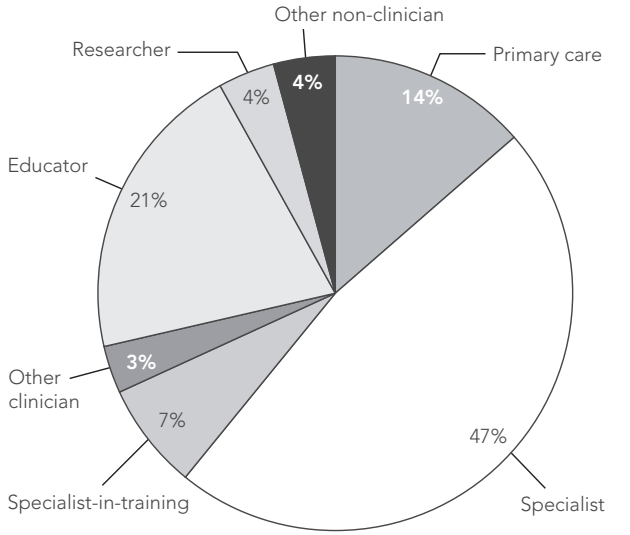
Because the clinical medical workforce is much larger than the medical education workforce, the contribution of clinicians to medical education in terms of total time spent is substantial. In 2006, clinicians provided almost three-quarters of total medical teaching hours — specialists provided almost half (47%), and primary care clinicians provided 14% (Box 1). Available data do not indicate the stage of education provided (student, intern or registrar), but this probably varies between specific clinical and non-clinical medical occupations. Many clinicians involved in education have honorary appointments. Yet, the system of adjunct or honorary appointments, which has been an important contributor to university medical programs, is highly variable and often lacks transparency and clear expectations.[13]

However, with greater numbers of students needing clinical placements, clinicians are struggling to cope. Furthermore, many sectors of the Australian medical workforce, such as general practice, are currently experiencing workforce shortages, which are expected to continue.[14,15] These shortages strain the capacity of clinicians to meet the demand — pressured clinicians are likely to prioritise provision of clinical services over the less urgent demands of teaching and, particularly, research.[16]

Training no longer takes place exclusively, or even predominantly, in the public hospital sector. This shift is a result of both lack of capacity within traditional settings and changing patterns of clinical service delivery. As the burden of disease shifts to chronic conditions,[17] and length of stay in acute settings decreases,[18] primary care and ambulatory settings become increasingly prominent. Private-sector settings are being used more for training, but the mechanisms to support and recognise teaching by clinicians vary significantly across these settings.

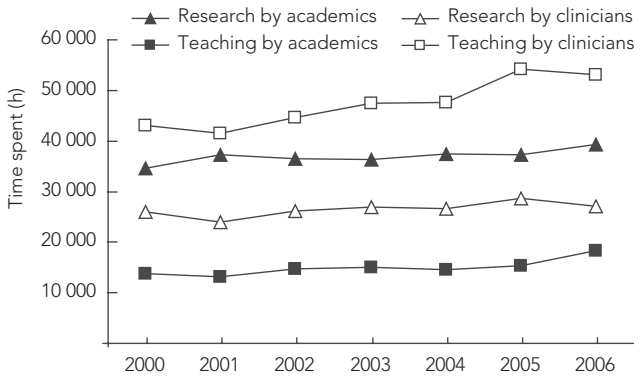
Teaching functions in public hospitals are funded by a complex mix of sources, including general state government hospital funding, state and federal government funding for vocational trainee positions, and specific funding agreements with individual universities for medical students. General practitioners are eligible for teaching activity payments through the Practice Incentives Program, and about one in five Australian general practices

1 Proportion of total time spent on medical education in Australia, by main occupation, 2006*



* Total time spent on medical education was calculated from national medical labour force survey data as follows: the average number of hours per week spent in medical education (stratified by main occupation)[8] was multiplied by the estimated number of medical practitioners in each occupation group who provided at least 1 hour per week of education (the latter calculated from the proportion in each occupation who reported undertaking medical education[12] and the benchmark medical workforce numbers for 2006[8]). ◆

2 Total time spent on medical teaching and research by academics (medical educators and researchers) and clinicians in Australia, 2000–2006*



* Data were derived from references 8, 12 and 21–25. See also footnote to Box 1. ◆

currently claim this incentive.[19] Medical specialists have no equivalent program to support teaching activities within their own private practices. The interim report of the National Health and Hospitals Reform Commission (NHHRC) noted that many contributions to medical education receive little explicit resourcing or acknowledgement.[16]

Support for research is even more limited, and medical research is more divorced from clinical settings than medical education. The core medical research workforce, which in 2006 comprised 1149 medical practitioners,[8] was responsible for just over half of all estimated research time in that year.[12] Only 7% of clinicians reported undertaking research in 2006.[12] Specialists had the highest proportion involved (15%), compared with 8% of specialists-in-training, and negligible numbers of primary care clinicians (1%) and hospital non-specialists (2%). The average time spent in medical research by clinicians who undertook this work was 6.6 hours per week in 2006.

The demands of service delivery and changed funding models in public hospitals are straining the capacity of clinicians to undertake education and research.[20] Data from the Australian Institute of Health and Welfare suggest that both the teaching hours and research hours of clinicians are decreasing. Total teaching hours for clinicians, which increased between 2000 and 2005 due to increased numbers of clinicians and slight increases in average hours per week, dropped in 2006, when lower proportions of all clinical occupations reported involvement in education compared with 2005 (Box 2). Total research hours for clinicians changed little between 2000 and 2005, and then decreased slightly in 2006, again attributable to lower proportions of clinicians involved. Although these data raise the possibility of a downward trend in the amount of academic work being done by clinicians, more detailed data collection and analysis are warranted.

Potential solutions

The changes described above are putting pressure on the traditional model for educating successive generations of doctors and the sustainability of academic medicine. Although the consequences of deteriorating academic capacity within the medical workforce may be less immediately obvious than deficits in clinical capacity, they are still important. Ongoing programs of clinically relevant research are essential for continued improvements in the quality, efficacy and efficiency of health service delivery.[16,20] More broadly, a strong and productive academic sector is at the core of maintaining and developing all disciplines in medicine.

We have identified a range of strategies that could be implemented by universities, health providers and governments to ensure an adequate medical academic workforce and a sustainable, quality medical education system (Box 3). The importance of a coordinated approach cannot be overemphasised, given the current lack of integration between stages of medical education; the multiplicity of funding sources, accreditation authorities, and individual arrangements within and between institutions such as universities and hospitals; and the lack of career pathways for medical researchers and educators.[13,27]

Recognition of education and research work

Unless medical education and research work are perceived as being valued, they are at risk of erosion. Recognition can be achieved by quarantined time, or through payment structures at all levels — from individual payment mechanisms for private providers through to funding agreements for hospitals — that recognise and reward education and research work. In light of recent observations that financial incentives can engender more business-style relationships in medicine,[28] it is important that arrangements support, rather than undermine, traditional professional values and roles. The NHHRC interim report presents specific proposals to improve and embed supports for research and teaching by clinicians, including activity-based payments, research networks, health service reporting on research activity, and enhancement of

3 Strategies to support and enhance medical education and research

Universities

Use simulation: Increase the use of simulation, including high-technology, high-fidelity simulations for procedural skills training, computer-based systems, simulated environments, and paid real patients (eg, those with stable chronic conditions).

Improve honoraries system: Increase the availability of formal university appointments for clinicians, with transparent arrangements in regard to expectations (eg, minimum number of hours of teaching) and rewards (eg, access to university facilities and resources).

Support teaching-only staff: Remove the expectation that all medical educators can and should do research. Ensure adequate recognition for teaching-only staff within academic career structures.

Promote research: Increase the prominence of research through increased time in basic medical training programs, enhancement of Bachelor of Medical Science programs, and development or enhancement of combined-degree programs (eg, MB BS/PhD).

Recruit senior clinicians: Target senior clinicians who are post-retirement age for the public health system but have capacity to make an enormously valuable contribution to the academic workforce.

Support general practice: Ensure general practice is supported and strengthened in the academic setting.

Health facilities

Shift placements: Place medical students in rostered shifts during days, evenings and weekends in teaching hospitals to maximise access to patients and education about multidisciplinary teamwork, and to recognise that not all learning in hospitals depends on the presence of senior consultants.

Teaching spaces: Ensure properly designed (preferably purpose-built), specifically designated spaces for teaching within hospitals and other major teaching sites.

Recognise research and teaching work: Recognise and reward time spent by clinicians in research and teaching (eg, through quarantined time, and inclusion in workload matrices or provider activity payments).

Federal and state governments

Clinical academic workforce "thinktank": As part of the new national health workforce agency,[26] convene a working group to ensure a coordinated, systematic approach to development and enhancement of the academic medical workforce, with the establishment of monitoring systems for the clinical academic workforce as a first task.

PIP for specialists: Maximise the use of private specialist clinics for student placements by providing Practice Incentives Program (PIP)-style payments at an adequate level for teaching medical students in private specialist clinics.

Capital support: Provide funding support for capital or infrastructure developments as required to ensure there are adequate teaching facilities in both major clinical teaching sites and private clinics. ◆

existing programs, such as clinical research fellowships. A UK academic described recent developments in the UK to improve translational clinical research capacity, noting that Australia currently lacks a strategic approach.[29]

A systematic approach to education and research

Targeted support for academic departments of general practice has been proposed as an important strategy to ensure future sustainability and relevance of academic medicine,[30] and the NHHRC interim report proposes specific support for clinical education in underdeveloped settings,[16] which, on the basis of our data, would include general practice. The Primary Health Care Research, Evaluation and Development Strategy has succeeded in increasing the publication output of general practice, but it remains a fraction (2%–5%) of the publication output of specialist medicine.[31] The presence of general practice within the academic medical workforce and the capacity of primary care clinicians to contribute to research and education should be further strengthened as a key strategy to sustain the academic workforce.

Current reforms include, as well as the NHHRC, the establishment of a new national agency to oversee health workforce policy, planning and reform. This agency (yet to be named) was announced by the Council of Australian Governments in late 2008 and will supersede the National Health Workforce Taskforce. It will provide a much needed strategic approach linking education and training with workforce planning and policy, and promoting innovation and reform.

This climate of reform offers a rare opportunity to address systemic problems undermining the research and training capacity of the medical profession in Australia. Although we have limited our discussion to the problems facing the medical academic workforce, similar exploration is needed in nursing and allied health. Better support is required to ensure integration of research and education functions with clinical activities, and better coordination is required to overcome the fragmentation within the medical education system, to ensure appropriate recognition for academic activities across all clinical settings.

Competing interests

None identified.

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