

International medical students and migration: the missing dimension in Australian workforce planning?

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Over the past decade, Australia has experienced dramatic growth in the ratio of doctors to patients in metropolitan areas. At the same time, the number of locally qualified doctors prepared to work in regional areas has decreased, despite the introduction of select incentive schemes. In response to this and other distribution problems, Australia has become increasingly dependent on conditionally registered international medical graduates (IMGs), whose qualifications have not been fully accredited in Australia, to work in four under-supplied areas of medicine competing for their services:¹⁻⁶

- at the level of junior doctors and non-specialist medical officers in public hospitals (as interns, residents and registrars);
- as general practitioners located in “areas of need”;
- in public-sector specialty programs, particularly in the fields least attractive to Australian medical graduates, such as emergency medicine and psychiatry; and
- as occupational trainees engaged in medical specialist forms of practice in public hospitals.

Amid growing community and professional concern about the calibre of care provided by conditionally registered IMGs across Australia, recent research has analysed their visa status, location and demographic characteristics; the extent to which they work intermittently or continuously as they seek full registration; and the new work-based pathways to registration emerging as alternatives to undertaking the once generally compulsory Australian Medical Council examinations.⁶⁻¹²

However, no accurate data have been gathered on an increasingly important workforce phenomenon: the proportion of international students who qualify to practise medicine in Australia, and then remain by means of what is termed a “two-step migration” process — step 1: medical student; step 2: skilled migrant (in their case, first as doctors-in-training) — the missing link in Australian medical workforce research.

For medical students seeking to remain in Australia, access to internships is a vital first step on the path to permanent resi-

ABSTRACT

Objective: To investigate the potential contribution of international medical students at Australian universities to the Australian medical workforce.

Design, setting and participants: A prospective survey in 2006–2007 of 619 international medical students in their final 2 years of undergraduate- and graduate-entry medical courses across eight Australian universities, followed by a 2009 survey of 88 international medical graduates of the University of Melbourne (most of whom were respondents of the earlier survey), assessing the correlation between students’ intended place of internship and their actual place of internship.

Main outcome measures: The survey respondents’ preferred internship location; the proportion of respondents who intended to remain in practice in Australia long term; and correlation between respondents’ intended internship locations and actual placements in their first postgraduate year.

Results: Of the 619 international medical students surveyed in 2006, 358 (58%) responded. Most planned to undertake Australian internships and seek permanent-resident status, although a third were undecided about their long-term plans. Nationality was a highly significant variable. Most preferred city rather than regional or rural training locations and expressed interest in migrating to Australia. The 2009 survey of the University of Melbourne’s 2008 medical graduates showed a high correlation between students’ plans in their last two years of study and outcomes in their first postgraduate year, with 73% accepting Victorian internships for 2009.

Conclusion: International medical students studying at Australian universities represent a substantial and highly acceptable medical workforce resource for Australia. Their requirement for internships needs to be considered in, and should influence, infrastructure planning.

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dence. Their employment rates are exceptional — far exceeding those achieved by IMGs recruited across all immigration categories.¹³⁻¹⁵ By definition, former international medical students who possess Australian qualifications are young, acculturated to Australia, have good English language ability, and pay their own educational fees.¹⁶ According to the Department of Immigration and Citizenship, many acquire temporary employment visas, sponsored by hospitals in the first instance.

Our study aimed to produce data, useful to medical workforce planning bodies, on the characteristics of international medical students most likely to seek Australian medical registration; the key determinants of the decisions international students make about internship location; and the correlation between where students in their final years of study intend to work as interns and where, as first-year postgraduate interns, they are actually placed.

METHODS

First, in 2006, we undertook a survey of 619 international students in the final 2 years of their course (Years 5 and 6 for undergraduate students and Years 3 and 4 for students in graduate medical courses) at eight universities across Australia. Students responded on a voluntary and anonymous basis. The participating universities were: Melbourne (136 respondents); Monash (83); Adelaide (72); Western Australia (22); Queensland (14); Newcastle (11); New South Wales (7); and Flinders (7). Questionnaires were handed to students in person, or delivered by post or electronically. Respondents were asked to provide personal demographic and educational data; information about their preferred internship location; and reasons underlying their choice of location for internship and future medical practice.

Then, in May 2009, the 2008 graduating class of international medical students at the University of Melbourne (88 students) was surveyed to assess the proportion accepting

internship (first postgraduate year) places in Victoria, and to compare their Year 5 intentions with actual placements. We selected this group of students because the University of Melbourne is Australia's primary destination for international medical students (22% of national share in 2007). University of Melbourne students also constituted the highest proportion of the 2006 survey respondents (136 surveys completed across the 2 final years, including an 89% response rate from medical students proceeding to internship places in 2009).

The study was approved by the University of Melbourne Human Research Ethics Committee.

RESULTS

Of the students surveyed in their final 2 years of undergraduate and graduate medical courses in 2006, 358 responded (58% response rate overall). The percentage of respondents by university was: Melbourne (38%); Monash (23%); Adelaide (20%); WA (6%); Queensland (4%); Newcastle (3%); NSW (2%); Flinders (2%); and other (2%).

Most respondents (82%) nominated Australia as their preferred country for internship training; 7% expressed an interest in returning home; while 10% were undecided (Box 1). Students' longer-term plans were uncertain, with the largest group of respondents (35%) undecided about where they would practise medicine in 10 years' time, compared with 33% who preferred to be in Australia and 28% in their country of birth.

Most students preferred to be placed at city hospitals for internship training (58%), with regional hospitals also surprisingly popular (29%). Few students (3%) nominated a rural location, though 9% were undecided. The strongest influence on their choices was "location" (23%), followed by "interesting medical work" (21%), "working conditions" (21%), "access to friends and relatives" (12%), and "good colleagues" (12%). Interestingly, "salary" and "natural environment" were the weakest influences (6% and 2%, respectively).

A multivariate analysis of the data by respondents' country of origin (Box 1) showed that 84% of Malaysian students, the largest birthplace group, preferred to undertake their internship training in Australia (reportedly, new graduates in Malaysia may be required to work long shifts under relatively hierarchical supervision). The desire to remain in Australia was strongest in Middle Eastern and African students, while stu-

1 Internship location preferences of 358 international medical students in their final 2 years of undergraduate or graduate courses, by source country or region, 2006

Source country or region	Australia	Home country	Undecided	Other
Middle East and Africa (n = 22)	91%	9%	0	0
Malaysia (n = 201)	84%	6%	10%	1%
Non-Commonwealth Asia (n = 54)	83%	6%	9%	2%
Singapore (n = 36)	83%	3%	14%	0
Other (n = 15)	80%	20%	0	0
English-speaking background countries (n = 30)	66%	17%	17%	0
Total (n = 358)	82%	7%	10%	1%

dents of English-speaking backgrounds were the most interested in returning home.

Sex did not indicate significant differences in outcomes. Eighty-three per cent of men and 82% of women wished to remain in Australia, although men were less certain about their decision (12% uncertain compared with 1% of women). Students of English-speaking backgrounds were more interested in rural internships than other groups (10% compared with 2% of Malaysians), with Asian students from non-Commonwealth countries the least interested. Female students were more willing to work in regional or rural sites (39% compared with 22% of men). Overall, those most interested in Australian internships were students who had completed secondary schooling in Australia (91%) or students who had commenced medical training outside Australia (91%).

The correlation analysis found that international students' intentions during training underestimated rather than overestimated the actual number of students who stayed in Australia. Seventy-three per cent of the University of Melbourne's 2008 graduates secured Victorian internships in 2009 — identical to 2008 outcomes, and higher when graduates who took up interstate places are considered. As shown in Box 2, two-thirds of these graduates undertaking the first year of internship were in urban rather than regional locations.

DISCUSSION

It is clear that international graduates of Australian medical schools represent a major health workforce resource for Australia. Based on our survey data, around 82% of graduates seek to complete their internships in Australia, particularly Asian, Middle Eastern and African graduates. Many are willing to work in regional areas, and wish to migrate to Australia. Data from

our 2009 survey indicate an exceptionally high correlation between where University of Melbourne graduates intended, when in their final years, to undertake their internships and where they actually were in their first postgraduate year. Further, interviews conducted by one of us (LH) over 3 years (2006–2009) suggest that a preference for

2 University of Melbourne international medical graduates' Victorian internship locations, 2005 to 2009*

Hospital/health service	2005	2006	2007	2008	2009 (n = 88)
Urban					
Alfred Health	0	0	0	0	0
Austin/Northern	7	10	8	15	13
Bayside Health	0	1	0	1	0
Eastern Health	3	7	7	6	4
Melbourne Health	2	1	1	8	5
Peninsula Health	9	14	0	5	1
Southern Health	3	8	5	5	6
St Vincent's	5	5	5	7	8
Western Health	10	4	10	7	9
Total	39	50	36	54	46
Regional					
Ballarat Health	2	3	2	0	0
Barwon Health	0	0	4	5	4
Bendigo Health	2	0	1	1	4
Total	4	3	7	6	8
Rural					
Gippsland	0	0	0	0	0
Goulburn Valley	1	3	4	4	8
Mildura	0	0	1	1	2
Total	1	3	5	5	10
Total placements	44	56	48	65	64

*Data tabulated by the Faculty International Unit, Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, May 2009. ♦

3 Main source countries for international medical students enrolled in Australian undergraduate and graduate entry courses, December 2008*

Source country	Numbers enrolled
Malaysia	1075
Singapore	511
Canada	360
Indonesia	138
United States	79
Botswana	77
Brunei Darussalam	67
Hong Kong SAR	50
Republic of South Korea	42
Norway	27
China	21
Taiwan	19
Japan	15
Sri Lanka	15
India	13
All other	156
Total	2665

* Unpublished analysis by A Langley of Australian international student enrolment data from the Department of Education, Employment and Workplace Relations, Canberra, February 2010. ♦

urban Australian internships prevails across most Australian states. This is an issue of urgent concern considering the rapid forthcoming contraction in availability, from 2010, in internship places in NSW.

By 2006, 45% of Australia's degree-qualified medical workforce was overseas-born, compared with 40% a decade earlier. As many as 6000 medical practitioners are imported by Australia each year, on either permanent or temporary resident visas.¹³ By 2008–2009, most temporary-sponsored migrants worked in areas of “health care and social assistance” (9620 compared with 10 050 in 2007–2008),¹⁷ including 4340 registered nurses, 2560 general medical practitioners and 1810 medical practitioners “in training” (520 in NSW, 510 in Victoria and 330 in Queensland).

This last group, doctors-in-training, included many recently qualified graduates with Australian degrees.¹⁸ In December 2008, 2665 such students were enrolled in Australian entry-to-practice courses (undergraduate and graduate), compared with 963 in 1996 and 1505 in 2004.^{19–21} Primary source countries were Malaysia (1075) and Singapore (511), with Botswana (77) and

Norway (27) the key African and European sources, respectively. Demand for graduate entry medical courses was markedly different. By 2008, Canada had become the primary source for Australia of postgraduate students (360), followed by the United States (79) (Box 3). In 2010, 90 postgraduate Canadian students commenced their medical studies at the University of Queensland, in contrast with Malaysian and Singaporean students, who show little attraction for graduate courses.

No published research exists on the number of international students who remain in Australia after qualifying here. Indeed, a recent paper defining medical workforce sources omitted them as a resource, focusing rather on measures such as “Extending the role of existing health professionals ... Creating new types of health workers ... Improving efficiency (in the current workforce)”.²² However, in the recent decade, Australia has developed unprecedented reliance on its former international students as skilled migrants.²³ Most skilled migrants in 2006–2007 were sourced in Australia rather than offshore (62%), compared with 58% in 2007–2008. The migration process these students go through exemplifies Australia's transition to two-step migration. By June 2010, 630 000 international students were enrolled in Australian courses across all education sectors. Many convert their visa status to permanent residence and stay, including by 2005 around 66% of students from India and 38% from China.^{23–26}

Given Australia's rising demand for doctors, it is important to include the numbers and needs of international medical students in medical workforce planning generally, and in internship allocation in particular. They represent a major potential resource for Australia, with minimal employment barriers compared with IMGs.

COMPETING INTERESTS

Leslyanne Hawthorne received a seeding grant of \$25 000 from the University of Melbourne for the research reported in this article, and other health workforce studies.

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