Lost opportunities with Australia's health workforce?

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ABSTRACT

- Concerns have been raised about the capacity of the health workforce to meet increasing future health care demands.
- Strategies aimed at improving workforce supply, at least in Australia, are focused heavily on education (ie, increasing the number of training places in key health professions) and recruitment (ie, recruiting overseas-trained health care professionals).
- Data from the 2006 Australian Bureau of Statistics census of population and housing indicate that while many Australians hold health professional qualifications, many are either not in the workforce or not employed within the health occupation they hold qualifications for.
- Some immediate solutions for increasing the health workforce are to attract qualified health professionals who are either not in the workforce or are working outside the health occupation back into their occupational role; to increase worker retention for those still working within the occupations they trained for; and to explore strategies for better retention of new graduates.

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It is widely believed that Australia is facing a health workforce and skills shortage.[1] The Australian Medical Workforce Advisory Committee[2] estimated a nationwide shortage of general practitioners in 2002 of between 800 and 1300 (3.5%–5.6% of the GP workforce), while the Australian Health Workforce Advisory Committee[3] anticipated a shortfall of registered and enrolled nurses in 2006 of between 10 182 and 12 270 (5.3%–6.4% of the nursing workforce). The World Health Organization estimates a current shortfall of about 4.3 million health workers across the globe.[4] Concern has been expressed that a shortage of health workers could lead to reduced coverage of health services and the provision of suboptimal care.[4,5]

Ageing populations and the associated increase in the prevalence of chronic disease, and greater complexity of care, together with a more informed and assertive health consumer with increased expectations for health care,[6] collectively place greater demands on the health system and thus, the health workforce. In addition, an increasing mean age of the health workforce is widely viewed as a precursor of a fall in health workforce supply.[7] We suggest that a range of competing factors are operating to influence health workforce supply, with the net balance over time difficult to predict. For instance, in Australia, despite the increase in the average age of the health labour force, the health workforce is continuing to grow in absolute numbers and relative to the total workforce.[8]

The net effect of the feminisation of the health workforce is also unclear. While female practitioners work on average fewer hours per week than their male counterparts,[1] the substantial increase in labour force participation by women over recent decades (from 43% in 1979 to 59% in 2009)[9] has generated a large increase in workforce supply. If these trends continue, workforce participation rates of women are expected to increase even further.[10] An observed mean reduction in the number of hours worked per week (from 36 hours in 1979 to 32 hours in 2009)[11] is probably also a reflection of higher rates of part-time work (up from 18% in 1985 to 30% in 2009).[12]

Several approaches to expanding and maintaining the health workforce are being pursued in Australia and elsewhere. These include attracting overseas-trained health professionals; increasing the number of university training places; employing strategies to expand and extend the roles of existing and new professional groups; adopting measures to promote staff retention; and implementing strategies to attract back into clinical or broader occupational roles those who have left their profession.

This article describes the qualifications and employment status of 12 distinct health professions by drawing on data collected in the 2006 Australian Bureau of Statistics (ABS) census of population and housing (Box 1). In doing so, we hope to better inform the health workforce debate, and provide an impetus for further research into health workforce planning.

Background: increasing workforce supply

Recruitment

Much of the recent focus on workforce planning in Australia has been on recruitment, with a particular emphasis on recruiting overseas-trained professionals. For example, in 2006, almost a quarter (22.8%) of the Australian medical workforce comprised overseas-trained medical graduates;[16] and similarly, in 2005, around one in five nurses (21%) employed in Australia was overseas-trained.[17] Heavy reliance on overseas recruitment of health professionals has been questioned, especially in regard to ethical recruitment issues, sustainability and impact on the health workforce of developing countries.[18]

Education and training

In recent years, the number of national education and training places in key health professions has been considerably expanded, with medical undergraduate training places increasing by 37%, and nursing places by 24%, in the period 2005–2008.[19,20] While it is unclear how these increases affect net workforce supply, it is apparent that the rising number of training places in some disciplines has been countered by the number of professionals leaving the workforce. For example, in 2008, the annual report of the New South Wales Physiotherapists Registration Board reported 460 deletions from the register in the financial year 2007–08, yet only 409 new full registrations in the same period.[21] Similar net reductions were also reported in optometry[22] and pharmacy[23] in the same period. Given the time required to train health professionals, and the ongoing exits, not only is some delay anticipated in increasing health workforce numbers, but the net effect is uncertain.[1,24]

The deregulation of Australian university places from 2012 does not address the lack of infrastructure in the workplace to support clinical placements. Access to high-quality clinical supervision, physical infrastructure and suitable patients cannot

1 The Australian census of population and housing (CPH)

What is the Australian CPH?

The Australian CPH is conducted every 5 years by the Australian Bureau of Statistics (ABS). The census acquires important information about the size and distribution of the Australian population, as well as key characteristics of the population, such as occupation, employment, level of education, and income in the week prior to census night. The 60-item, self-enumerated, compulsory household survey is completed by all people who are in Australia or any of its territories on census night, including overseas visitors. The last census was conducted on 8 August 2006, and was completed by an estimated 97% of people in Australia.[13] Response rates for 38 of the census items ranged from 84.2% to 99.2% (mean, 94.0%).[14] Census data are therefore highly representative of the Australian population. To ensure data are also of high quality, a number of measures are put in place to reduce the risk of error, particularly:

- use of easily understood language and simplified response sets (to reduce respondent error);
- use of automatic processing and sample checking (to reduce processing error);
- allocation of a "not stated" code to incomplete items or imputation of data using other information on the census (to reduce partial response error); and
- household collection and manual scanning of completed census forms (to reduce undercounting).[15]

How does the Australian CPH collect and code data relating to occupation and qualification?

Several questions within the CPH solicit responses relating to occupation and qualification, including "What is the main field of study for the person's highest qualification completed?", and "In the main job held last week, what was the person's occupation?". For the 12 clinical professions that are directly involved in the primary care of persons with chronic disease, the occupations and qualifications are coded as follows ("field of study" means "specific field of study for the non-school qualification"):

- Complementary and alternative therapies (CAM) therapist: includes chiropractors, osteopaths, naturopaths, acupuncturists, traditional Chinese medicine practitioners and other undefined CAM practitioners, but excludes massage therapists. The field of study is confined to chiropractic, osteopathy, naturopathy, acupuncture, traditional Chinese medicine and undefined CAM, and excludes massage therapy.
- Dentist: includes dental surgeons, dental specialists and dental practitioners. The field of study is confined to dentistry, and excludes dental assisting, dental technology and dental studies.
- Dietitian/nutritionist: includes dietitians and nutritionists. The field of study is confined to nutrition and dietetics.
- Generalist medical practitioner: includes general practitioners, resident medical officers, medical interns and medical officers (navy), but excludes internal medicine specialists and other specialist physicians. The field of study is confined to general medicine and general practice, and excludes internal medicine and other medical specialities, as well as medical studies.
- General nurse: includes registered general nurses and registered psychiatric nurses, but excludes enrolled nurses, nurse assistants, nurse managers, nurse educators, nurse researchers and midwives. The field of study is confined to general nursing, and excludes midwifery, mental health nursing, community nursing, critical care nursing, aged care nursing, palliative care nursing, mothercraft nursing and family and child health nursing.
- Occupational therapist: only includes occupational therapists. The field of study is confined to occupational therapy.
- Optometrist: includes optometrists, but excludes orthoptists. The field of study is confined to optometry, and excludes optical science and optical technology.
- Pharmacist: includes hospital pharmacists, industrial pharmacists, community and retail pharmacists and pharmaceutical officers (army). The field of study is confined to pharmacy.
- Physiotherapist: includes physiotherapists and physical therapists. The field of study is confined to physiotherapy.
- Podiatrist: includes podiatrists and podiatric surgeons. The field of study is confined to podiatry.
- Social worker: only includes social workers. The field of study is confined to social work, and excludes welfare studies.
- Speech pathologist: includes speech therapists and speech pathologists, but excludes audiologists. The field of study is confined to speech pathology. ◆

easily be expanded. To address this issue, the Council of Australian Governments[25] has agreed to commit additional funding to undergraduate clinical placements and professional development of supervisors. However, this comes with considerable costs and logistical and quality assurance challenges.

Retention

A more immediate solution to maintaining and increasing the health workforce is to attract back into the workforce those qualified health professionals who are either not in the workforce or working outside their health occupation. Studies involving various health professionals describe several common influences on retention, including professional satisfaction, personal recognition and appreciation, interprofessional rapport, workload, work environment, resource availability, flexibility of working arrangements, level of autonomy and financial rewards.[26-30] This work also suggests that retention can be modified by attending to factors such as rates of pay, workplace conditions, working hours, scope of practice, alternative methods of financial reimbursement (eg, greater access to Medicare for private practice, or to salaried, government-funded community-based practice), career progression, training and employment opportunities. This has been shown in England, where a National Health Service-designed workforce model was successful in increasing the clinical workforce between 1997 and 2005. Over this period, the supply of medical consultants increased by 49%, GPs by 20%, nurses by 27% and allied health professionals by 36%.[31] Strategies adopted included funding additional clinical staff, administrative personnel and medical and nursing school places; improving working conditions; and providing more employment opportunities.[31]

In considering possible strategies for retaining clinicians or attracting qualified people back into a clinical or broader occupational role, differences across health professions have, to date, largely been ignored.

Methods

The 2006 ABS census of population and housing, through questions about qualifications and labour, provides comprehensive data on the health workforce status of all Australians

2 Australia's actual and potential health workforce, as at 8 August 2006*†

	TNP aged < 65 years with non-school qualification in field§	TNP (%) with qualification in field who are employed‡		TNP (%) with qualification in the field who are not employed¶	TNP employed in the occupation (title of occupation)**††	% of persons with qualification in field who are employed in occupation
		Across all industries of employment	In health care and social assistance industry only			
CAM	12 089	9 682 (80%)	5 980 (50%)	2 342 (19%)	8 262 (CAMT)	68%
Dentistry	11 716	10 266 (88%)	8 832 (75%)	1 450 (12%)	8 616 (Dent)	74%
Dietetics/nutrition‡‡	6 335	4 970 (79%)	2 448 (39%)	1 365 (22%)	2 556 (Diet)	40%
General medicine/ general practice	46 830	42 566 (91%)	38 554 (82%)	4 264 (9%)	33 169 (GMP)	71%
General nursing	289 330	236 257 (82%)	190 451 (66%)	53 073 (18%)	169 734 (RN)	59%
Occupational therapy	9 618	8 257 (86%)	6 039 (63%)	1 361 (14%)	6 803 (OT)	71%
Optometry	3 414	3 155 (92%)	2 826 (83%)	259 (8%)	2 993 (Opt)	88%
Pharmacy	19 068	16 362 (86%)	2 904 (15%)§§	2 706 (14%)	14 262 (Phar)	75%
Physiotherapy	15 713	13 624 (87%)	11 425 (73%)	2 089 (13%)	12 091 (PT)	77%
Podiatry	2 257	2 037 (90%)	1 801 (80%)	220 (10%)	2 048 (Pod)	91%
Social work	25 202	21 050 (84%)	10 516 (42%)	4 152 (17%)	12 258 (SW)	49%
Speech pathology/ speech therapy	5 117	4 478 (88%)	3 054 (60%)	639 (13%)	3 853 (SP)	75%

CAM = complementary and alternative medicine. CAMT = complementary and alternative medicine therapist. Dent = Dentist. Diet = Dietitian/nutritionist. GMP = general medical practitioner. Opt = optometrist. OT = occupational therapist. Phar = pharmacist. Pod = podiatrist. PT = physiotherapist. RN = registered nurse. SP = speech pathologist. SW = social worker. TNP = total number of persons.

* Based on data from the 2006 Australian population census.[33] † Practitioners are limited to those directly involved in the primary care of persons with chronic disease. ‡ Number of persons aged < 65 years who hold a non-school qualification in the field, and who are employed in the respective sector. Data exclude persons who have completed a higher qualification in another field. § Data exclude persons who have completed a higher qualification in another field (see Box 1 for description of the Australian census). ¶ Number of persons aged < 65 years who hold a non-school qualification in the field, and who are either not in the labour force or unemployed. Data exclude persons who have completed a higher qualification in another field. ** Based on data from the 2006 Australian population census.[34] †† Limited to persons aged < 65 years. Qualification data exclude persons who have completed a higher qualification in another field. Occupation data exclude persons who are employed in the occupation if the occupation is not the main job held. ‡‡ May include qualifications that do not confer eligibility for accreditation as a dietitian or nutritionist. §§ Data exclude pharmacists who are employed in the retail industry. ◆

(Box 1). Census data are therefore useful for describing the qualifications and employment status of the Australian health workforce, and for establishing whether there are differential retention rates across health professions. In our analysis, retention rate was defined as the percentage of people aged under 65 years with a qualification in a specific field who were employed in that occupation (not necessarily in a clinical role).

Data were analysed for 12 clinical professions directly involved in the primary care of people with chronic disease. The professions analysed were also essential to the multidisciplinary health care team. Professions meeting these criteria for which data were too generic (eg, psychology) or not available (eg, exercise physiology) were excluded from the analysis. Chronic disease was chosen as a specific area of focus because: the majority of national health priority areas are chronic conditions; chronic diseases are a leading cause of morbidity, disability and death across the globe; and chronic diseases are a significant economic burden for the health system.[32] The focus on the primary care workforce was important also, as primary care plays a central role in the prevention, detection and management of chronic disease; and the primary care workforce is pivotal in implementing the National Chronic Disease Strategy and National Preventative Health Strategy.

Results

Our analysis showed that many Australians with health professional qualifications are either not in the workforce or not employed within their occupation, and that this varies considerably by profession (Box 2). The highest rates of retention in the health care industry are evident in optometry (83%), general practice (82%) and podiatry (80%). Considerably lower rates of retention are apparent for dietetics and nutrition (39%), social work (42%) and complementary and alternative medicine (CAM) (50%).

Retention rates by age cohort also differ markedly across the health professions (Box 3). While most demonstrate a general decline in retention rates at 20–34 years of age (by 7% on average), a plateau at 35–49 years, and a rapid fall after 50 years, the variation across disciplines is stark. In occupational therapy (OT) and speech pathology, for example, around 80% of those qualified are working in their occupation at 20–24 years of age, falling to a plateau of about 61% for speech pathology and 53% for OT in the 35–54-year age group, and then falling thereafter; so that at 65–69 years, about 10% of those qualified are still working in their profession. On the other hand, more than 40% of people with qualifications in dentistry are still working as dentists at 65–69 years of age.

3 Proportion of persons in Australia in each 5-year age group, with a non-school qualification in the field, who were employed in that occupation as at 8 August 2006*

	Age group (years)									
Occupation	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69
CAM	21%	26%	24%	24%	23%	31%	29%	27%	20%	23%
Dentistry	54%	64%	66%	65%	67%	68%	72%	69%	61%	42%
Dietetics/nutrition†	38%	43%	32%	29%	25%	29%	34%	23%	13%	6%
General medicine/general practice	54%	67%	53%	52%	57%	60%	63%	60%	53%	40%
General nursing	61%	62%	55%	50%	48%	47%	46%	40%	26%	9%
Occupational therapy	81%	71%	59%	53%	54%	54%	51%	40%	23%	8%
Optometry	85%	85%	79%	81%	79%	78%	80%	68%	58%	39%
Pharmacy	74%	73%	66%	64%	62%	64%	61%	59%	45%	33%
Physiotherapy	86%	77%	69%	68%	71%	70%	68%	59%	37%	18%
Podiatry	89%	90%	81%	79%	75%	77%	72%	50%	37%	16%
Social work	40%	39%	34%	32%	33%	31%	32%	29%	21%	8%
Speech pathology/speech therapy	85%	81%	68%	62%	62%	61%	56%	47%	31%	9%

CAM = complementary and alternative medicine. * Based on data from the 2006 Australian population census.[33] Data excludes persons who have completed a higher qualification in another field. † May include qualifications that do not confer eligibility for accreditation as a dietitian or nutritionist. ◆

Podiatry, optometry and physiotherapy have similar trajectories, but have a higher initial retention rate of over 85%, which stays above 68% until age 55 years. In contrast, social work, dietetics and CAM have a flatter pattern across the age range, with retention rates never exceeding 43%.

It seems also that people working in female-dominated professions (defined as ⩾ 80% female) — for example, nursing, OT, physiotherapy, social work, speech therapy and dietetics — are more likely to exit the profession before the age of 50 years than people employed in less female-dominated occupations (defined as < 50% female) — for example, optometry, general practice and dentistry (Box 3).

Workforce age profile also varies across professions. The general nursing and medical workforce have considerably older profiles than do speech pathology, OT or dietetics. Although an older workforce tends to be viewed with concern, it can be a reflection of high rates of retention. For example, the older medical workforce reflects longer training and high retention rates, with 40% of GPs and 42% of dentists aged 65–69 years still practising. This compares with 6% of dietitians and 8% of OTs and social workers (Box 3).

Discussion

Examining the ABS census questions on qualifications and occupation provides a wealth of information about the Australian health workforce and also raises many questions. We found, for many health professions, a large gap between qualifications and employment. This is not an issue confined to Australia. Similar qualification–employment gaps are also observed in New Zealand.[35,36] However, these gaps are likely to be underestimated, as people holding a higher qualification in a field not directly related to their health occupation will not be included in the overall count of people who hold a qualification for that health occupation. At the same time, we acknowledge shortcomings in the ABS data, such as the low specificity of some census occupational definitions, which is one reason why this work is a call for further research.

The qualification–employment gap observed across 12 health occupations is increasingly being recognised as a potential source of workforce supply by state and federal governments, with initiatives such as the federal government's Bringing Nurses Back into the Workforce program and Queensland Health's re-entry scholarships. In NSW, for example, the implementation of several strategies led to the recruitment and re-entry of more than 5000 nurses (an additional 15%) into the NSW public health system between January 2002 and July 2005.[1]

Given the large numbers of trained health professionals who are not working in their field of training, the issue for these occupations is not about increasing training opportunities, but about looking at reasons for the low retention rate, especially in contrast to other health disciplines. The longitudinal tracking of student progress throughout their training program and beyond, not dissimilar to the tracking of Australian medical students by means of the medical schools outcomes database,[37] would be particularly helpful in understanding the competing opportunities for employment for selected occupations, as well as the factors that drive people to exit these health occupations or migrate to careers outside the health sector.

While education has intrinsic benefits, and not all who train in a particular field will be suited to, or enjoy working in that field, the high cost of educating clinicians, especially in arranging and supporting clinical placements, means the issue of retention is of special importance. Any major failure to retain clinical staff implies a considerable level of waste, and means one of three things: too many people are being trained relative to demand; motivation to enter the profession is not congruent with experience; or employment is not matching training, clinical, personal or family need. This is not to argue that clinical training is not an appropriate entry to other roles, or that some people will not change their career choice over their working life. It simply suggests that, given the considerable cost of expanding training

places, alternative approaches to workforce supply need to be simultaneously considered.

The cost of training health professionals, as seen in the funds received by universities for their training, is considerable. The training of allied health professionals costs $18 000 per year (in 2009), equivalent to $72 000 over a 4-year training period. For medical students the cost is $28 000 per year (in 2009), or $168 000 for a 6-year degree and $112 000 for a 4-year degree.[38] Of this, the student contributes 42% and 32%, respectively. Accounting for drop-outs, and the considerable additional costs of clinical training (including the organisation of training places), the actual cost per student who completes his or her undergraduate education is actually much higher. If the primary aim of government investment is to supply more health professionals in areas for which retention rates are low, as is the case for dietetics/nutrition, social work and CAM, the real cost of training a cohort of health professionals is increased. On the other hand, the higher training costs in medicine and dentistry are accompanied by higher retention rates, which suggests a better return on investment.

The health workforce is clearly influenced by patterns of retirement. For instance, the proportion of people who are unemployed or not in the labour force increases in most health occupations from the age of 55 years (10 years before retirement age). This may be influenced by many factors, both voluntary and involuntary.[39] However, studies also suggest that retirement is highly influenced by conditions of employment. This is clearly suggested by the stark differences in patterns of retirement across the 12 health occupations. It is possible that the "early retirement" group could be attracted back into the health workforce through the provision of specific incentives or general workplace policies.[40]

Conclusion

Data from the 2006 ABS census draw attention to the existence of substantial differences in workforce retention rates between 12 distinct health professions directly involved in the primary care of people with chronic disease. Some professions are highlighted as having markedly low retention rates, with only 25% of dietitians still practising at 40–44 years of age, compared with 67% of dentists. Reasons for the disparity and the especially low retention rates in some areas are in urgent need of exploration, not only to address apparent workforce shortages but also to address the considerable waste that low retention rates imply. Contrary to conventional wisdom, an older workforce is not necessarily a sign of a profession "in trouble", but is rather a reflection of high retention rates and the fact that many people are working beyond the traditional retirement age. In contrast, a low average age may be symptomatic of early loss from the profession, which is a cause for concern. It is clear from these data that issues that have an impact on workforce retention and turnover are profession-specific, and that strategies aimed at improving health workforce retention should be tailored towards each occupation, rather than the broader health workforce. It is hoped this article will help redefine the questions for future health workforce research.

Competing interests

None identified.

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