On solutions to the shortage of doctors in Australia and New Zealand

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ABSTRACT

- The World Health Organization estimates a current global shortage of 4.3 million health workers.
- Australia and New Zealand compare unfavourably with other Organisation for Economic Co-operation and Development (OECD) countries in respect to doctor numbers.
- The overall shortage of doctors in Australia and New Zealand is exaggerated by the disciplinary, cultural and demographic maldistribution of the doctors relative to need and utility.
- Australia and New Zealand are the most reliant of the OECD countries on foreign doctors.
- An increase in spending on health promotion and disease prevention is essential. However, it is unlikely that the demand for doctors will be significantly reduced by compressions of morbidity in the later years of life or that there will be a substantive increase in either the percentage of the community employed in health services or in the output from the current workforce.
- Doctor shortages are better addressed by alignment of elements of the education and health systems with each other and with patient care needs, and by innovative health provider training and employment.

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Although the Australian and New Zealand health systems are two of the best in the world by any measure,[1] both countries have a shortage of doctors, and there are ethnic, regional and discipline-related shortfalls in health and related services.[2-9] This is partly because Australia and New Zealand have only 80% and 70%, respectively, of the average number of doctors per capita seen in Organisation for Economic Co-operation and Development (OECD) countries.[10] It is also partly because these doctors are also disciplinarily, culturally and demographically maldistributed in respect to need and utility.[11]

A key driver for reform of the medical workforce is the recognition that current health costs are unsustainable. The United States spends about 16% of gross domestic product (GDP) on health. Although 31% of this is consumed by bureaucracy,[12] it is still disappointing that about 45 million citizens have limited access to health care.[13] Health services in Australia employ about 9% of all workers and cost about 10% of GDP.[14] The latter is increasing by 0.5% per annum, so it will double in less than 20 years. The New Zealand Treasury has made a similar forecast,[15] which is in line with Nobel Laureate Robert Fogel's prediction that Western economies will spend about 20% of GDP on health by 2020.[16] This increase in Australasia will occur in a milieu of relatively fewer taxpayers, as the "baby boomers" leave the workforce, and a reliance on foreign doctors to meet a growing demand for health services.[5,10,17,18]

The World Health Organization (WHO) estimates a current global shortage of 4.3 million health workers.[7] In 2008, the WHO also identified Australia and New Zealand as the most dependent of OECD countries on foreign doctors;[10] 43% and 52% of doctors currently working in Australia and New Zealand, respectively, are foreign-born. Thus, both countries are relying on recruiting foreign doctors at a time of global shortage. This reliance is already threatened by various factors, such as Indo-Asian doctors choosing to stay at home to attend to a growing affluent middle class, the related recent decision by the Indian Government to recognise overseas-trained doctors, and a growing and increasingly specialised health workforce in the US.[9,19,20]

Our intention is to identify solutions to doctor shortages and to compare Australia and New Zealand in this context, as these countries are similarly configured, collaborative and interdependent, and yet have some different strategies in place (Box). The New Zealand medical workforce is also strongly affected by long-term emigration to Australia (between 182 and 681 doctors per annum over the past decade), such that what happens in the Australian health system is of immediate concern to New Zealanders.[10]

We must first acknowledge the complexity of health workforce planning; probably the only truism is that any plan is inevitably wrong. The effective variables include:[4,5,17,18,21]

- sociocultural and economic changes;[5,22]
- the demand-side effects of ageing, and the supply-side effects of feminisation and generational changes;[18,23]
- pharmaceutical and other health-related industry developments and marketing;[22-25]
- changes in the relationships between health "accountants", public health advocates and clinicians;[26]
- changes in relative remuneration between and within medical and other groups;[11,23]
- trials of alternative health service models versus the power of established guilds;[11,23,27]
- international and private versus public recruitment and retention changes;[10]
- changes in medical indemnity;[23] and
- changes in other factors that influence clinical decision making.[15]

A small change in hours worked illustrates this complexity.[28] The effect of every doctor in New Zealand working 1 hour less per week is equivalent to 300 doctors retiring. Recognition of the above limits to planning leads to the following conclusions: doctors must be able to be rapidly cross-trained and retrained and redeployed; all health professionals need generalist and interprofessional training; and there is a need for new educational models.

We propose four categories of solution to doctor shortages:

- compress the years of morbidity in later life;
- increase the percentage of the community employed in health services and increase the output from the current workforce;
- align elements of the education system and health system with each other and with patient care needs; and
- identify and employ "disruptive innovations".[27]

Some current Australian and New Zealand initiatives to resolve shortages in the medical workforce

	Australia	New Zealand
Initiatives to reduce the demand for health services by compressing the years of morbidity in later life		
	♦ A plethora of public health and preventive health programs	♦ A plethora of public health and preventive health programs
Comment	*Any benefit will be opposed by epidemics (eg, obesity and diabetes) and by commercially driven consumption of health services by an affluent "worried well" and a continuing demand for acute services*	
Initiatives to increase the percentage of the community employed in health services, and to increase the output from the current workforce		
	♦ Almost 100% increase in domestic medical student numbers	♦ 10% increase in domestic medical student numbers
Comment	*Despite these increases, both countries look to have an ongoing reliance on overseas-trained doctors of more than 25%*	
	♦ Graduate-entry accelerated-learning medical curricula ♦ Major reform of College programs being discussed — common modular system in early development ♦ Development of nurse practitioner and physician assistant programs	♦ Major reform of College programs being discussed — common modular system in early development
Comment	*A decline in the Indo-Asian recruiting base and increased vulnerability to recruitment from the United States is probable*	
	Reform of medical training and career structure is needed to accommodate feminisation and generational effects	
	♦ Corporatisation and setting of key performance indicators based on throughputs	♦ Corporatisation and setting of key performance indicators based on throughputs
Comment	*A United Kingdom 10-year trial of clinical governance in a milieu of corporatisation has not delivered the benefits expected and has caused conflict, a loss of morale and early retirement*	
	♦ Recruitment programs for health workers	♦ Recruitment programs for health workers
Comment	*There will be relatively fewer younger people, and individual productivity gains will be opposed by generational phenomena and the effect of feminisation, work–life balance, litigation and practice safety, unionisation, indebtedness, demographic changes, profitable low-utility practice, and practitioner emigration*	
	Iterative media criticism of health services and providers, and remuneration available in other careers will also limit recruitment	
Initiatives to better meet the health need by aligning elements of the education and health system with each other and with patient care needs		
	♦ Relative values study undertaken by the Australian Medical Association, but not applied	
Comment	*A non-partisan approach will almost certainly be needed for such reform*	
	♦ New schedule of fees for physicians in the 2007 federal budget ♦ New National Accreditation and Registration Scheme for doctors	♦ Proposals for single employer for junior doctors
Comment	*An increase in desirable workforce qualities, such as a bias to generalism and flexibility in respect to deployment, will require a change in the employment of junior doctors from a service to an apprenticeship model, and a significant reform of College training schemes*	
	A cultural change is essential in the publicly funded health system, as health workforce development should be a primary output. This will be facilitated by the adoption of health-workforce-related key performance indicators by all health governors and managers	
	♦ Primary-care-based medical curricula ♦ Rural medical schools and immersion programs	♦ Formation of the combined Universities and College Working Group to increase academic general practitioner teaching capacity ♦ Rural immersion programs
Comment	*Restoration of true apprenticeship of junior doctors is urgently needed*	
		♦ Preferential admission programs for people of Maori, Pacific Islander and rural origin
Comment	*Maori and Pacific Admission Scheme unlikely to achieve ethnically balanced medical workforce due to failures in the secondary school education system*	
Initiatives to increase health service supply by the identification and adoption of innovative models of training and of employing health workers		
	♦ Formation of the Australian Health Workforce Institute ♦ Role of the doctor being debated in the context of the cost and time to train versus utility of role ♦ Limited employment of nurse practitioners	♦ Role of the doctor being debated in the context of the cost and time to train versus utility of role ♦ Limited employment of nurse practitioners
Comment	*Punitive training schemes and inappropriate focus on general schemes of practice has limited application*	
	Generic shortage of all health professional groups makes retraining schemes unlikely to have net utility	
	♦ Physician assistant schemes being introduced	♦ Community health worker models in development
Initiatives to achieve a national non-partisan-devised and complete reorganisation of the fiscal basis of the health system, including an agreement on the balancing of private and taxpayer contributions		
	♦ Renegotiation of the Australian Health Care Agreements	♦ New Zealand Treasury has formed a health reference group
Comment	*A cultural change is essential in the publicly funded health system, as health workforce development should be a primary output. This will be facilitated by the adoption of health-workforce-related key performance indicators by all health governors and managers* ♦	

To these, an underpinning consideration can be added; deficiencies in the Australian and New Zealand health workforces will not be adequately addressed until there are national non-partisan-devised and complete reorganisations of the fiscal basis of the respective health systems, including agreement on the balancing of private and taxpayer contributions. Our recommendations require coordination. The recently configured Australian Health Workforce Institute is a joint venture of the University of Queensland and University of Melbourne, and would be an ideal coordinating body.

Compressing the years of morbidity in later life will be difficult in the context of epidemics such as obesity and diabetes, especially in Indigenous communities,[3,11] and will be adversely affected by health service consumption by the affluent "worried well".[22,23] There will also be relatively fewer workers, and individual productivity gains will be opposed by generational phenomena and feminisation, work–life balance, litigation and practice safety, unionisation, indebtedness, demographic changes, profitable low-utility practice, and practitioner emigration. Indeed, health planning should probably begin with the assumption of a mean 37.5-hour working week.[28] We also suggest a cautious response to recommendations to address medical shortages by retraining nurses or other health workers, given that there are current and predicted shortages in almost all health disciplines.[5,17,18] We are not saying that provider roles will or should not change, but rather that we need to encourage careers in health work, and create new and satisfying roles for the consequent recruits.

The proposals more likely to have utility are based on elements of the education and health systems being better aligned with each other, to increase health literacy and to focus on patient care needs, and on identifying and employing innovations.[27] We have already proposed ways of closing the "ethnic gap" and correcting some of the disciplinary, cultural and demographic maldistribution of doctors.[3,11,23] In response to the shortage of indigenous doctors,[4] New Zealand is further advanced in respect to affirmation programs. However, unless there is a dramatic improvement in Maori "success" at secondary school, and especially in the sciences, the target of 10% of the medical workforce being Maori by 2020 will not be met. Maori make up 15% of the New Zealand population but less than 3% of New Zealand doctors. Despite bridging and school liaison programs, and more than 36 years of affirmation, only 10% of medical students at the University of Auckland are Maori.

Our first suggestion is that there should be a debate about the role that doctors should play in the health system. In our opinion, the principal justification for a provider who takes 15 years to train to individual competency, and at considerable cost, is the need for patient differentiation and care planning and oversight. These functions must be of high quality if a health service is to be outcome-focused and cost-effective. If doctors in 2025 are to be employed to sclerose varicose veins, Australia will need many more than 3500 medical graduates per annum. By contrast, if doctors are to be employed in narrower and predominantly cognitive roles, then the non-medical health workforce will have to be extensive and protean. This is a rationale for active role extension; at present, it is passive and could be seen cynically as doctors "giving away" those duties that are unpleasant and unprofitable.

Some generic doctor "attributes" need to be agreed on and must be sufficiently robust to stand the test of time, as they will determine learning outcomes and responsive curricula and pedagogies. We have previously suggested that the doctor of the future should be professional, redeployable, innovative, a physician–scientist, resilient and sceptical, and should have skills in health psychology and have a cognitive and general scope of practice.[23] The over-riding need is that they can lead and work as members of health care "teams".

Our next suggestion is the promotion of "generalism". There is a financial and health-outcome basis for arguing that doctors should be largely employed in general scopes of practice.[24] For example, North American data show that for every extra general practitioner per 10 000 population, there is a 9% decrease in mortality among people who have a myocardial infarction; by contrast, there is a 2% increase in mortality after a myocardial infarction for every additional specialist.[25] Too few of our graduates have an interest in general practice. Australia and New Zealand have a plethora of experts on narrow areas of health and a dearth of the "generalists" who are so valuable in the management of multi-system problems, particularly in older people.[29]

The loss of appeal of generalism is global.[19,20] These declines are largely explained by relative remuneration. This distortion of career choice and practice arises from a 70-year-old actuarial decision to fund medical units of practice, such as an operative procedure, rather than time expended.[22] To the acceptance of medical education designed to showcase general scopes of practice must then be added a "relative values" study and realignment of remuneration and need. The recommendations of the original Australian relative values study were not ratified federally,[21] although new attendance items for complex assessments by physicians were included in the 2007 Australian federal budget. Fear of waiting-list blow-outs and other undesirable outcomes has prevented any relevant political bravery; the "cost of health" by 2025 may be such that the political will might at last override the self-interests of the financially privileged elements of the medical profession.

The recent increase in medical student numbers in Australia was designed to increase the generalist and primary care workforce, especially for rural areas, and to both meet the increasing health needs of an ageing community and reduce the reliance on foreign doctors. Some are concerned that the expansion in student numbers is excessive.[30] However, we calculate that to maintain existing health service levels in 2025, taking into account the additional health burden of ageing Australia and assuming that as much as 20% of existing medical duties are taken up by other health professionals, Australia will still need to import about 25% of the medical workforce.[10,18] Generational factors and the effect of the increasing feminisation of the medical workforce will likely result in these calculations being optimistic.[23] Australia has little to gain by giving attention to retaining doctors, as the annual export of doctors is only about 5%.[10] In contrast, the annual export of doctors from New Zealand is about 25% of the workforce, and this is mainly to Australia. The recent increase in New Zealand's medical student numbers of just over 10% is clearly inadequate, and even if every expatriated New Zealand medical graduate was to return home, the country would still need half the current number of foreign doctors.[10] Our argument is not to discourage medical migration. However, when more than 40% of doctors are overseas-born, as is the case in both countries, it is difficult to argue that there is a local medical culture. The other issue here is the almost certain decreasing availability of appropriately trained foreign doctors.

There is also an ethical argument for medical "self-sufficiency". In this context, Australia is the epitome of an "irresponsible" developed country in that it, along with New Zealand, is relatively the greatest importer of doctors and nurses. Among OECD countries, only France, Spain and the US contribute less than Australia to the global health workforce.[10]

In addition to the shortage of service providers, there is also a shortage of medical academics. This is partly explained by the capitated level of publicly funded health research, which for New Zealand and Australia is 19% and 64%, respectively, of that in the United Kingdom, and 8% and 27%, respectively, of that in the US.[31]

Our third suggestion is to field-trial health innovations. As the generic role of the doctor is agreed, probable shortfalls in service provision can be identified, and it should be possible to identify suitable new roles for established health professions and novel health practitioners. One essential attribute of future health workers will be the ability to recognise and employ suitable innovations, even if this causes a personal role change. This is not the usual case, nor is it common outside the health sector.[27] An example is the inter-guild and intra-guild politics that limited the implementation of nurse practitioners and that resulted in such role confusion as nurses triaging undifferentiated patients for doctors. As we have opined, differentiation is one of the few practices that make it possible to argue that doctors should be strongly rooted in science and so slow and expensive to train.[23]

There are also examples of how not to promote diversification of the health workforce. Within days of George Salmond of the New Zealand Ministry of Health advocating "Fred Hollows-type technician cataract surgeons", the *New Zealand Herald* editorial page featured a response from surgeons titled "Dangerous plan makes little sense".[32] Perhaps a reasonable idea, but doomed before rational debate.

The key to successful innovation is a willing employer and an explicit job description, consequential learning outcomes, pedagogies and curricula and, most importantly, a robust, supportive evidence base. In Queensland, we are testing the local utility of the North American concept of a physician assistant.[33,34] Similar schemes exist in the UK.[35] One proposed option for Auckland is a scheme for training community health workers, based on a partnership between a health authority employer, who is responsible for the job description, and an educational institution. This innovative scheme includes a common health science year and a second modular year that addresses a specific job. The idea is that, as needs change, the workers can be quickly retrained by doing the requisite module, and then can be redeployed. The potential exists to reverse-engineer such flexibility, assuming it is successful, into the established health guilds, which remain silo-like.

In terms of trials like these, what is success? Take, for example, a physician assistant, nurse endoscopist, technician cataract surgeon, or community health worker; how can outcome be measured to reassure disrupted guilds and other interested parties? In addition to conventional quality measures,[15] all affected craft groups will need to be involved so that they have some ownership. Unconventional measures will also be needed to address key desirable outcomes, such as the recruitment of future health professionals from communities that have high health need and traditionally low health-worker representation.[4] Our ambition is that workers in these new positions will act as role models, that the training will be accessible, and that while most of the graduates will enter service, that some will enrol in the more established health professions as proposed in the Skills Escalator Model of the UK National Health Service.[36] One possible measure of success will be how closely the health provider community reflects the needs of the community which it serves.

In summary, there is a shortage of doctors in Australia and New Zealand, and this needs urgent attention. Most importantly, the role of doctors in the future health care workforce needs to be agreed if any planning is to be sensible. Finally, consequential trials of alternative models of health provider training and employment are already well overdue.

Competing interests

None identified.

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