The proposal for a third medical school in New Zealand: a community-engaged graduate entry medical program

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ABSTRACT

New Zealand has a maldistributed workforce that is heavily dependent on recruiting international medical graduates. Shortages are particularly apparent in high needs communities and in general scope specialties in provincial regions. The University of Waikato in partnership with the Waikato District Health Board has proposed a third medical school for New Zealand which will concentrate on addressing the workforce needs of disadvantaged rural and provincial communities. The proposed program is a community engaged, graduate entry medical course.

The University of Waikato, in partnership with the Waikato District Health Board, has submitted a proposal to the Government to set up a community-engaged medical program that will help address a number of critical medical workforce issues facing our provincial and rural communities, including the shortages of general practitioners and specialist disciplines with a general scope.[1] In particular, this program is aimed at addressing the health needs of our disadvantaged provincial and rural communities. It is proposed that it will be a four-year graduate entry program that will purposefully select students who are committed to serving communities and populations with the greatest need.

New Zealand has wide disparities in health, especially in our rural and Māori communities.[2,3,4] This is evidenced by the high amenable mortality rates in the more rural district health boards, such as Northland, Tairawhiti, Lakes, Whanganui and Hawkes Bay.[5] Regional variations in the distribution of doctors[6] has also led to an increasing dependence on the importation of international medical graduates (IMGs) to address the shortages.[7] These shortages have been present for decades and, despite increased funding to the existing two medical schools, which commenced with the extra rural origin places in 2002, the shortages have continued.

The New Zealand health system imports twice as many overseas doctors each year than it trains locally. For example, from 2009 to 2013, we registered 1,806 New Zealand graduates and 5,945 IMGs.[7] If we want to produce New Zealand-trained doctors to serve our under-served communities then we need a new paradigm where we select a different sort of student, provide them with a new curriculum and train them in a different environment. We argue that it is time to establish a third medical school with a fundamentally new model of medical training and academic culture to complement the two existing programmes.

Community engaged

The transformation of medical education from a pre-clinical (science-based) plus clinical curriculum to an integrated systems-based approach has been occurring in many jurisdictions.[8] This has been facilitated

where universities have engaged with their communities to ensure that their education and research are aligned with the health system's needs. Community-engaged medical programs are formed through a partnership between the educational providers and the communities they serve.[9] It is believed that they improve medical education while at the same time meeting community needs and advancing health equity agendas.[9] Where a new school has been started in a rural location, such as Northern Ontario School of Medicine (NOSM) in Canada and James Cook University (JCU) in Australia, the impact on the regional and rural workforce has been positive.[10,11]

The Waikato District Health Board strategic plan has recognised health inequities as a priority and plans to use a multilevel approach to eliminate health inequity for Māori.[12] Māori have the greatest health disparities with the highest levels of amenable mortality, the highest admission rates to hospital[13] and the poorest access to accessible healthcare.[14] The creation of a new medical school by the University of Waikato in partnership with the Waikato District Health Board provides the potential for partnership with communities to be built from the outset, engaging with rural communities, Iwi, Pasifika, general practitioners, primary care organisations and the NGO sector. Consultation on the needs of each community and the development of the program are an essential component of the foundation of the medical school.

While further research is needed on the relationships between learners, teachers and the community,[15] key components include investment in training centres in each community, community involvement in the selection of students, the development of the curriculum and ongoing involvement in the governance of the program to ensure it is meeting community needs.[16]

Changing face of medicine

With the ageing population and the increase in long-term conditions, it has been recognised that the focus of health care needs to change.[17] There is a greater emphasis on improving health through health promotion and preventive health services as well as in reducing health inequalities. In 2001, New Zealand adopted a Primary Health Care Strategy,[18] with the aim of improving health and reducing inequalities. It noted "the ratio of practitioners to patients is not closely matched to population need (some of the lowest number of doctors are in places of highest need)".

In 2007, the 'Better Sooner More Convenient' discussion document was released, seeking to shift health care provision to "a high-quality patient-centred health system that cares about the wellbeing of New Zealanders". It noted that the numbers of general practitioners had been falling since 1999 and the importance of reversing that trend.[19] In 2016, the New Zealand Health Strategy; Future Direction was launched. In its foreword, the Minister noted "The health sector will need to be adaptable in coming years as developing technology changes how services can be delivered in ways we do not yet understand.

The support of being one team with a common purpose provides the base for adaptation and innovation needed for value and high performance that will in turn lead to a sustainable and enduring public health service". The strategy recognises " … the need to continually invest in training so that our health workforce has the skills needed to meet the health needs and expectations of caring for New Zealanders".[20]

Serving highest needs and meeting the shortages and maldistribution of doctors

It is recognised that simply making health care equally available does not lead to fair and equitable outcomes. The poor outcomes for Māori and the number of children living in poverty are a particular emphasis within most DHB health strategies. While treatment differences have been noted, the solution to these problems are wider and require an appreciation of population-based solutions. Over the last 20 years, the New Zealand health system has depended on recruiting doctors from all over the world to come and meet the health care needs of the least popular specialties.[21] Psychiatry, geriatrics, rehabilitation medicine, palliative care and obstetrics and gynaecology all have more than 50% IMGs as registered practitioners.[7]

In 2008, the Medical Training Board noted that New Zealand had an overall shortage of medical practitioners, evidenced by the use of locums and reliance on overseas-trained

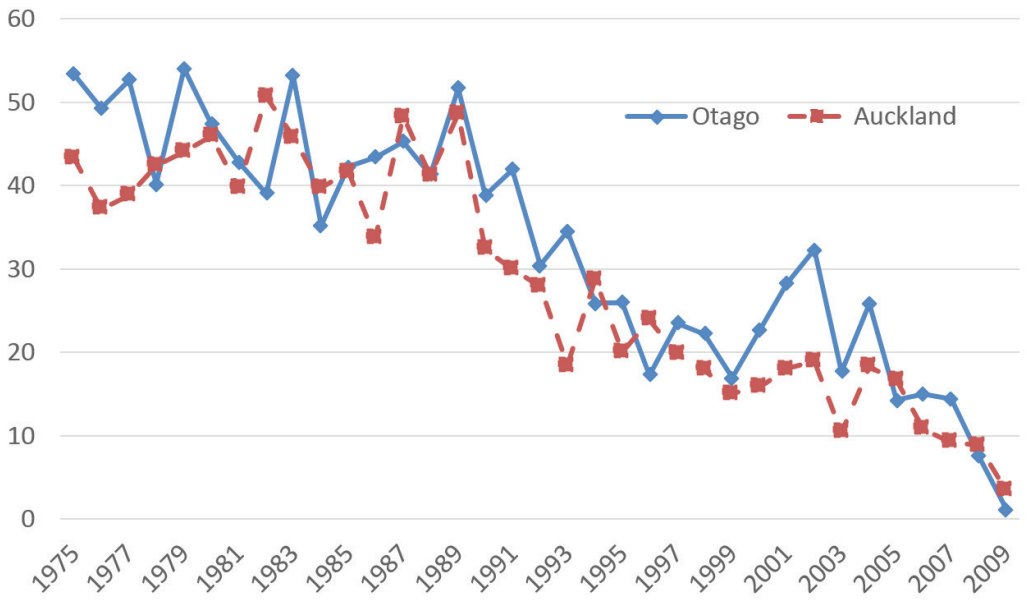
doctors, which they predicted would be exacerbated in the future as the population ages. They also noted there was a 'maldistribution' of the available medical workforce, with rural and non-metropolitan areas finding it increasingly difficult to recruit and retain doctors.[22] Despite the increasing number of medical students being trained we are still dependent on the recruitment of large numbers of overseas trained doctors, most of who are not vocationally registered and work under supervision. Only a quarter of the over 1,000 IMGs registered each year remain working in New Zealand.

Overseas-trained doctors have a greater propensity to practice in minor urban and rural areas and in less affluent communities than New Zealand trained doctors.[23] However, there is often a cultural disconnect between these doctors and the communities they serve. It will be important to address the overall number of doctors that we need to train to meet our workforce needs, given estimates on population growth. For example, conservative projections suggest Auckland will reach a population of two million by the early 2030s. The New Zealand active medical workforce has increased by on average 2.9% per annum from 2000–2014 (8,615 to 12,848), and at this rate of increase there will be 20,000 registered doctors in New Zealand by 2030 or an additional 7,000 doctors in the next 13 years. However, the demographic of the current medical workforce (with 40% over the age of 50) will lead to a considerable loss of doctors due to retirement over the same time period.[25] This attrition, coupled with an ageing and increased population, means that the current output of the existing two New Zealand medical schools will not come close to meeting the medical workforce need.

The distribution of doctors by medical specialty is also a concern. In June 2016, we obtained data from the Medical Council of active medical practitioners by gender, year of qualification, medical school of qualification (Auckland, Otago or IMG), vocational registration (GP or other) and by region of practice. We calculated the proportion of vocationally registered GPs as a proportion of the registered medical practitioners for each year of qualification from 1975 onwards. We used the population data from the Medical Council 2013/2014 publication by DHB to calculate the number of doctors and number of GPs per 100,000 for each of the four Health Regions (Northern, Midland, Mid Central and Southern).

We found that the most deprived region with the highest proportion of Māori (the Midland Region) has 13% fewer doctors than the rest of the country (253 compared to 292 doctors per 100,000). Traditionally, the

Figure 1: Percentage of medical school graduates vocationally registered in general practice by year of qualification (Source MCNZ 2016).



general practice and specialist workforces have been of similar size, meaning that we expect half of our graduates to become GPs. However, the proportion of graduates from the two existing medical schools becoming vocationally registered in general practice, has halved from over 45% prior to the 1990s to less than 20% this century. (See Figure 1). Between 1997 and 2009, New Zealand graduated 3,770 doctors,[7] of whom 2,498 (66.2%) were still registered as practising in New Zealand in 2016. 393/2,498 (15.7%) of these doctors were vocationally registered in general practice (144/1,147 (12.5%) males were registered as GPs and 249/1,351 (18.4%) females). Despite the increased number of GP training posts that have been created, this trend is unlikely to change with the 2013 cohort of final year students, indicating that only 15% of them were considering GP as their first choice of career and only 2% said they wanted to live in a community of less than 10,000.[26]

Graduate entry

The 2011 HWNZ report on graduate entry programs noted that there was "a perception that current medical graduates are from a narrow band of the population and that the medical workforce would be stronger for greater diversity in educational and social background."[27] Currently, the students admitted to the programs are more likely to come from privileged schools and be of high socio-economic status.[28]

The literature review carried out by HWNZ noted that graduate entry programs "can produce comparable educational outcomes in shorter training time and for less cost; may increase diversity in entrants to medical study and can help the profession achieve a better match between medical graduates and the general population; can draw on students with more life experience and may help to change the culture of medicine; can result in increased student motivation, benefits to student well-being, improved learning strategies and professional outcomes.

Graduate entry can provide the opportunity for a wider range of students to meet the academic requirements for entry to medicine. The quality of the high school attended becomes less significant with graduate entry, allowing wider opportunity for students from low-decile, rural and provincial schools to demonstrate the required academic standing. Graduate entry also allows students more time to demonstrate their commitment to the ethos of the school through volunteering and work experience during their undergraduate degree, and through the development of community support for their application for medical school.

At present, approximately 25% of students entering the two New Zealand medical programs are graduates. These students are required to spend a further five years of study before graduating. A more intensive four-year graduate entry program could easily achieve the same exposure to teaching, while saving graduates a whole year of student debt and the opportunity costs of entering the workforce a year earlier.

Student selection

Three pillars influence the medical workforce, including selecting the right people, giving them the right experience during medical school and providing the right incentives after qualification.[29] The very substantial excess in demand for places in medical training programs in New Zealand and the high academic standing of those applying for entry to medical training creates an opportunity to focus the selection of students on the characteristics that are most likely to lead to desired health workforce outcomes. While there is some evidence that graduate entry programs per se may change the nature of the students, the diversity is related more to selection policies than the nature of the program.[27]

The proposed University of Waikato Medical School will select students who have demonstrated high levels of academic achievement in an undergraduate degree and are predominantly from the communities in which medical practitioners are required. For instance, there is evidence that recruiting rural students will help the retention of doctors practising family medicine in rural areas.[30] We will be seeking students who demonstrate a strong commitment to the ethos of a community-engaged medical school, to public and community service and to reducing health inequities. This will include seeking Māori students who can demonstrate engagement with their community, especially rural

communities. In particular, we want to meet the challenge of addressing improved health care access in provincial and rural communities. We recognise that we will need to develop appropriate systems, structures and processes to support effective community involvement in the provision of doctors to these populations, for example, Māori health teaching and learning.[31] Linking with the Leaders in Indigenous Medical Education (LIME) Network will help ensure that we can build on the excellent work that is already in place in supporting the education of Māori doctors for the New Zealand workforce.[32]

Longitudinal placements

Community-engaged medical training focuses on students learning about medicine through supervised interaction with patients in a community setting. Community-engaged graduate entry medical programs minimise the time that is spent learning medicine in university classroom and tertiary hospital settings, and maximise the time spent in community placements. Typically, most of the last two years of the four-year degree is spent in community placements. This approach to training has the effect of ensuring that the students build a deeper understanding of, and a stronger affinity with, clinical care in the community setting. It also leads to a greater proportion of students becoming doctors in the communities where they were trained.[33,34]

Under the University of Waikato proposal, each student will spend at least a year of the four years in community placements. There will be a high level of community engagement with their education and community support for the students on clinical placements. By comparison, the rural training schemes run by Auckland involve placements outside the hospital setting that are as short as seven weeks,[35] while the Otago rural immersion program is only available to 20 students per year.[36]

To facilitate this approach to training, the University of Waikato proposal involves a commitment to invest in the physical infrastructure and the supervisory capability in 15 community education centres in the Midland Region. This will require additional investment, but has been shown in the Australian and Canadian settings to provide excellent educational experiences for students.[37, 38] The aspiration for the University of Waikato Medical School is to follow a similar model and achieve outcomes similar to the Northern Ontario School of Medicine (NOSM).

Challenges and concerns

The New Zealand health system faces a number of challenges in ensuring it has the medical workforce available to meet its future needs, which will require a multi-faceted approach by government and others. This proposal cannot address all such workforce challenges but offers a way forward. We recognise the concerns of existing providers and other bodies and have established mechanisms to address these. One concern from the two existing medical schools is the possible impact on clinical placements for their programs. Our proposal aims to create additional capacity both within the community as well as in Waikato Hospital.

As with the NOSM (which is based in a city of similar size to Hamilton with the support of linked community health providers across the region), the proposed program does not preclude students from other schools also being accommodated. Another concern is that the Medical Council only has access to a limited number of postgraduate year 1 (PGY1) house officer positions and these have not been increasing at sufficient pace to meet the demand from the existing programs. However, we also have an overall deficit in house officers in New Zealand. For example, in 2016, 268 IMGs who had qualified in 2013 or 2014 were working in New Zealand hospitals. The 2016 RDA strike was principally about long hours and the reliance on excessive rosters, another symptom of the deficit in junior doctors. So the shortage of PGY1 positions does not mean we have sufficient doctors—the bottleneck needs to be addressed—but the Waikato proposal will not need to be taken in to account until 2024 at the earliest, and local solutions, such as increasing the number of community placements available, will help to meet the demand.

The shortage of general practitioners in our most needy and rural communities is not simply an undergraduate medical education issue. The numbers and nature of our postgraduate training also need to adjust, and there need to be the appropriate incentives in place to retain doctors in the

less popular specialties and locations.[29] Fundamentally, the working conditions and status of general practice needs to improve to make the specialty more attractive.

The solution

We believe the time has come to re-imagine medical education within New Zealand. Our proposal will provide additional choice for those wanting to become doctors serving our provincial and rural populations where there are disproportionally high needs communities and patients. We acknowledge setting up a new medical school has increased start-up costs. However, some of the resources can be sourced through the University of Waikato.

The Waikato DHB has invested in staff and facilities to support training and research over many years. The community is also ready to support this initiative. The main additional cost is in developing the longitudinal placements—but as noted above this can be seen as a social investment, which has an immediate positive impact on the communities involved.[39] Our proposal involves the community in selecting students and in developing the program that will produce the doctors that they need for the next half century and beyond. We will promote a model of education that is based on a team approach with an emphasis more on longitudinal attachments and less on the management of the complex episodic care of patients in tertiary institutions.

Waikato DHB has pioneered inter-professional learning in its nursing and allied health programs, and this approach, in conjunction with our other tertiary partners, would be expanded into medical education. We need to have students who have more exposure to the use of technology and especially the use of health information, telehealth and virtual care technologies to drive efficiency and better health outcomes. Again, the Waikato DHB has already shown its commitment in this arena.[40] Most of all we want to see a model where student learning is based within the communities they will serve in the future, that students are aware of their concerns and will work jointly with their communities in finding solutions. Our proposed third medical school will provide real choice for graduates who wish to enter medicine. The unique curriculum and new academic culture will create a new breed of doctor; selected from the communities they will serve, supported throughout their careers by tailored professional development and modern technology to ensure they have satisfying and enjoyable professional lives serving the New Zealand public health service.

Competing interests:
Dr Town was retained as a consultant to the Business Case project currently being considered by the Government and paid fees for reviewing the drafts of the BC and attending relevant meetings; Dr Tapsell is the Director of Clinical Services for the Mental Health and Addictions service, Waikato District Health Board; Dr Lawrenson is both an employee of the University of Waikato and Waikato District Health Board; Dr Murray reports as Chief Executive Officer, Waikato District Health Board.

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