Does New Zealand need a third medical school?

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This is an important question. I would like to lay out here some of the considerations that are necessary to take into account in answering the question. The perspective I bring is that of the University of Otago's Pro-Vice-Chancellor of the Division of Health Sciences and Dean of the Otago Medical School. In these two roles I have a considerable interest in health and medical workforce issues in general and specifically in the question of a third medical school. My medical background is in general practice and public health.

Otago's Division of Health Sciences, which includes the Otago Medical School, has a strong commitment to what the World Health Organization defines as social accountability:

> " the obligation to direct their education, research and service activities towards addressing the priority health concerns of the community, region, and/or nation they have a mandate to serve. The priority health concerns are to be identified jointly by governments, health care organizations, health professionals and the public."[1,2]

For this reason, it is my belief that the focus of the third medical school discussion should be on the national interest: what investment is needed to meet the medical workforce requirements of New Zealand's diverse rural and urban communities now and in the future?

My comments in this editorial should be read with two caveats in mind. First, last year I received a verbal briefing from the Vice Chancellor of the University of Waikato about his plan to launch a bid for a third medical school but otherwise the only information I have is from general media sources. I do not have access to more detailed information about the Waikato proposal. Second, this editorial is necessarily brief and omits discussion of many important factors that I care about very much, such as the Pacific medical workforce (in New Zealand and in Pacific nations), the importance of interprofessional education, and the regulatory requirements of the Medical Council of New Zealand and the Australian Medical Council.

WHAT PROBLEM ARE WE TRYING TO FIX?

My understanding from media sources is that the University of Waikato proposal is focused on meeting the needs of New Zealand's rural and Māori communities. In particular the proposal draws attention to the need for more New Zealand-trained general practitioners to address disparities in rural health status and to reduce the reliance on oversea–strained doctors.

These are important objectives that resonate with many communities around the country. Very similar issues are evident in rural and remote Australian and Canadian communities. In identifying these objectives, it is important to distinguish between three sets of issues:

- How many doctors should we train?
- What sort of doctors should we train (demography and discipline)?
- Where do we want them to work (distribution)?

These three sets of issues, while they are related, invite somewhat different policy responses.

The issue of medical workforce supply is focused on our medical schools graduating sufficient numbers of new doctors to meet anticipated population demand over coming decades. In 2008, the government approved the funding of an additional 200 medical places to meet the predicted medical workforce requirements for the next 20 years. This increase has been implemented over the past eight years and reaches steady state in 2020. The quantum was determined from future workforce planning begun in 2005 and planning continues today through Health Workforce New Zealand. The increase in 2008 was influenced by the assumption that New Zealand would continue to lose 25% of its medical graduates to Australia, a loss that has been markedly curtailed since 2008 with the massive expansion of medical programmes in Australia (1400 graduates per year in 2000 versus 3672 by 2018 (unpublished data ***Medical Schools Outcomes Database***)).

The regulatory framework for New Zealand's medical schools dictates that medical graduates must be equipped to take up any branch of medicine. We are not permitted to graduate new doctors who are specialists – for example, we cannot pre-determine a subset who must go into rural general practice – and moreover we place a positive value on ensuring that all doctors, whatever their specialty, have a broad, general training experience.

The planned increase in medical graduates is resulting in New Zealand having more graduates per 100,000 of population than, for example, in the USA or Canada (Table 1). The overall OECD data (see source data) suggest that the existing plan for the New Zealand medical workforce is consistent with many OECD peers.

TABLE 1: MEDICAL GRADUATES PER 100,000 POPULATION IN SELECTED OECD COUNTRIES, 2000-2014

	2000	2010	2014	2020*
New Zealand	7.4	7.3	8.7	11.9
Australia	7.4	12.1	15.3	
Canada	5.1	7.2	7.9	
Ireland	14.4	17.2	21.9	
UK	7.5	13.5	13.5	
USA	6.4	6.6	7.3**	

Source: OECD (2017), Medical graduates (indicator). doi: 10.1787/ac5bd5d3-en (Accessed on 16 March 2017).

** Based on a predicted population of 4.86 million and 580 domestic graduates by 2020.*

*** 2013 data*

This in turn raises the challenge of encouraging young doctors to take up the types of roles that are needed by New Zealand's diverse communities, which I discuss further below. The challenge of achieving the right medical workforce distribution is huge, and Australia provides a fascinating case study of how it is possible to achieve a significant oversupply of doctors without addressing the issue of distribution, thereby leaving rural areas under-doctored.[3]

WHAT QUESTIONS DO WE NEED TO ANSWER IN ORDER TO GUIDE OUR DECISION MAKING?

In considering a third medical school, in general terms a number of questions must be answered in order to enable decision makers to make an informed decision. The following list of questions (Table 2) is by no means exhaustive, but it gives a flavour of the type and scope of questions that need to be answered. For example, in considering the problems that another medical school might cause or make worse three points are noted in the table: 1) recruitment of medical academic staff to a new medical school would inevitably involve loss of key staff from existing medical schools; 2) redistribution of hospital and community clinical training opportunities refers to the proposed introduction of a further 240 undergraduates into the upper North Island (60 students in each of the four years of the proposed Waikato programme), which in turn would put severe pressure on available training places. Additional training placements would be difficult to find particularly in critical specialties such as general practice, paediatrics, psychiatry, obstetrics and gynaecology; 3) additional pressure on the postgraduate training pipeline was reflected, for example, in 2016 when the DHBs had to create 47 extra first-year house surgeon positions to employ graduating category one applicants (New Zealand graduates who were New Zealand/Australian citizens or permanent residents); despite this increase in positions nine category one first-year house surgeon applicants were not matched to a job.

TABLE 2: QUESTIONS WE NEED TO ANSWER IN ORDER TO GUIDE OUR DECISION MAKING

1. What are the medical workforce needs in relation to:

- Numbers of doctors
- Distribution of medical workforce
- Demography of medical workforce
- Discipline/specialty of medical workforce?

2. To what extent are these medical workforce needs under the control of medical schools and medical education?

- Student selection, curriculum and assessment criteria are under the control of medical schools
- Health system factors (see Table 3) are under the control of the Ministry of Health, District Health Boards, PHOs, iwi and communities

3. To what extent are these needs related to postgraduate training and support?

- From a policy perspective, the training pipeline from undergraduate study to vocational specialisation is an integrated system
- Without further investment, there is finite capacity within the DHBs and community-based health providers to employ and vocationally-train increasing numbers of medical graduates

4. For those medical workforce needs that are under the control of medical schools, to what extent are they being addressed already and to what extent would another medical school help?

- Selection of regional and rural-background students
- Selection of Māori students
- Selection of Pacific students
- Training experiences in regional and rural areas

5. What problems might another medical school cause or make worse?

- Recruitment of medical academic staff
- Redistribution of hospital and community clinical training opportunities
- Additional pressure on the postgraduate training pipeline

WHAT POLICY INSTRUMENTS ARE EFFECTIVE IN ADDRESSING RURAL MEDICAL WORKFORCE ISSUES?

As the Waikato proposal focuses on meeting the needs of rural communities, it is important to pay heed to two sets of factors: 1) the system-wide issues that bear on rural recruitment and retention, and 2) in relation to medical education, the international evidence on training medical students who actively choose to take up rural careers.

Of these two sets of factors, system-wide issues are probably the most important as no matter how effective medical education is, if the employment conditions in rural areas are not attractive for graduates rural communities will continue to struggle to attract and retain young doctors. System-wide issues are chiefly the responsibility of the Ministry of Health, the District Health Boards, PHOs, iwi, and rural communities (Table 3).

TABLE 3: HEALTH SYSTEM FACTORS THAT HELP OR HINDER THE RECRUITMENT OF RURAL DOCTORS

1. Working conditions: • On-call obligations • Presence of a highly skilled primary health care team (nurses, midwives, receptionists, manager etc) • Defined pathways of care that meet the patients' needs • Provision for annual leave, sick leave and educational leave • Physical infrastructure that is fit-for-purpose • Salary structure commensurate with urban community-based and hospital-based colleagues
2. Career development opportunities • Provision for peer support • Provision for continuing medical education • Provision for further postgraduate training and career development • Access to an active academic community • Provision for training medical students and doctors across the spectrum of junior medical students, senior medical students, first and second year house surgeons, and vocational trainees • Perceived status of role
3. Social opportunities • Work opportunities for partner • Educational opportunities for children • Opportunities to develop a personal social network

In terms of the role of medical schools in graduating students who are more likely to choose a rural career, the international evidence suggests that two strategies work:[4-6] 1) recruiting medical students who either come from a rural area or who have had significant rural exposure during their childhood and school education, and 2) providing all students with positive and enriching learning experiences in rural settings. Over the past decade or more both Otago and Auckland medical schools have implemented policies in response to this international evidence. For example, at Otago we routinely select at least 50 students each year specifically on the basis of their rural background. This affirmative selection pathway is called the 'Rural Origins Sub-Category' and offers preferential entry to medical school for students with a rural background who also meet academic admissions standards. We know that these students are more likely to want to work in rural areas. By the same token, we also know that neither we nor rural communities can force them into rural jobs if the system-wide issues are not propitious.

At Otago we provide a variety of rich and positive learning experiences in rural communities. All Otago students have a rural/provincial experience during their training, including many who have a year-long experience in rural or provincial settings (the fifth-year Rural Medical Immersion Programme and the sixth-year provincial placements).

An additional strategy that we have adopted at Otago is the provision of targeted postgraduate training opportunities for rural doctors. There is emerging evidence that these programmes are having a positive impact on New Zealand's rural hospital medical workforce.[7]

Is our investment in the above educational initiatives having the desired effect? For Otago medical graduates from 2012 to 2014, over 50% have not yet made a career decision, but of those who have, 22.2% have chosen general practice and another 4% have chosen rural practice; of those who have not decided, for 36.6% their first or second choice is general practice; a further 7% have chosen rural practice as their first or second choice (unpublished data ***Medical Schools Outcomes Database***).

THE MĀORI MEDICAL WORKFORCE

New Zealand has a shameful record of not training enough Māori doctors, and our Waikato colleagues have drawn attention to this issue by placing an emphasis on training more Māori doctors. Six years ago, in response to this poor record and other issues of under-representation in health professional groups, Otago developed a policy called 'Mirror on Society'.[8] This policy states:

> Ideally the make-up of health professional classes should be equivalent to holding a mirror up to society. In order to achieve this we aim to attract and support the most academically able students from a wide variety of backgrounds. The gender, ethnic, socioeconomic and rural/urban composition of our graduates should, more or less, reflect the diverse communities in Aotearoa.

The sociodemographic profile of health professional students is important because, in part, these characteristics influence future career choices in terms of place of practice and types of populations served.[4,5,9] We believe indigenous health is a crucial area of responsibility for New Zealand's universities. These Universities have a dual obligation to both honour the contractual obligations defined in the Treaty of Waitangi and to take action to correct the inequitable health and education outcomes experienced by Maori.

The following figure shows the trend in Otago's Māori medical student numbers over the past decade. Last year 45 new Māori doctors graduated from Otago and this year 62 new Māori students were taken into the programme (21% of the domestic intake into medicine). The University of Auckland is also markedly increasing its numbers of Māori medical graduates. New Zealand is on the way to having at least a representative number of Māori doctors. The trend illustrated in Figure 1 has required considerable investment over a long period of time. Outreach into high schools, a bridging programme, a dedicated pathway of admission and ongoing student support are all required to overcome educational inequity and ensure a graduation rate for Māori students commensurate with non-Māori students.

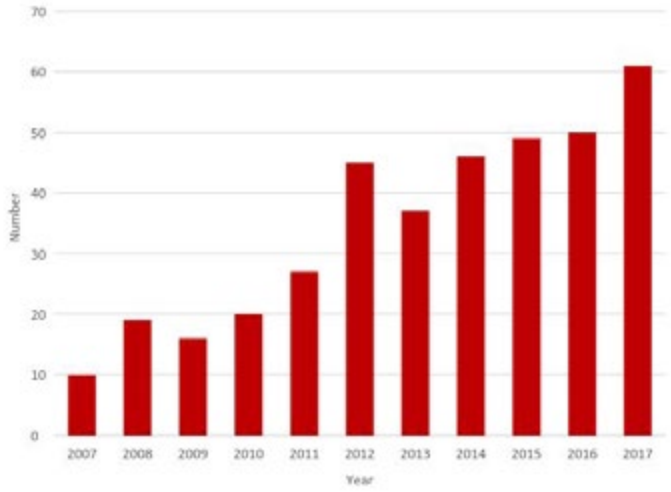

Figure 1: Number of Māori medical students at entry, Otago Medical School, 2007-2017

DOES NEW ZEALAND NEED A THIRD MEDICAL SCHOOL?

It is clearly a challenging task to draw together the information required to provide satisfactory answers to all the questions and issues listed above. A third medical school is a huge social investment for our small country. The system, through its leadership structures, most notably the Ministry of Health and the Tertiary Education Commission (through which we receive our funding), must in the first instance define the problem, in its own terms, that this investment is aiming to address. A number of different conclusions may be drawn. For example, if it is determined that New Zealand needs to train a higher number of doctors, then at some stage another medical school may be needed. If it is determined that our current medical students need more rural exposure during their training, then investment in rural infrastructure and support is needed; if we need more Māori graduates, then more pipeline support before medical school may be needed; if we need more graduates to select general practice as their career, then further investment in system-wide rural infrastructure may be required.

While there no easy fix for rural medical workforce shortages, the University of Otago is committed to playing a significant role in finding the best solutions and ensuring that any new investment results in the maximum gains possible for rural communities and their healthcare workforce.

In the absence of both a thorough and impartial analysis and wide consultation with the numerous stakeholders, it seems hasty to jump one way or the other on the question of a third medical school. There is considerable potential to inflict net harm on our rather fragile and stressed health system by inserting a third medical school into the mix without first undertaking very careful analysis and planning. We need to heed the views of the many individuals and organisations that have a vital interest in the complex issues that surround medical education and postgraduate career pathways. The question of a third medical school carries with it many potential risks and benefits, and my plea to decision makers is ***festina lente*** -- make haste slowly.

ACKNOWLEDGEMENTS

Over the past seven years there have been occasional discussions and debates about the merits and timing of a possible third medical school, and in this paper I have drawn on the wisdom and insights of many colleagues.

I am grateful for the comments on an earlier draft of this editorial provided by colleagues.

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