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IN THIS ISSUE:

ARTICLE:
A history of affirmative entry schemes at Otago Medical School

VIEWPOINT:
The Otago Medical School: 150 years of teaching, research and community service

VIEWPOINT:
Learning to care, caring to learn: the evolving nature of medical education

EDITORIAL

Reflections on Otago Medical School in its 150th anniversary year

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Contents

Editorial

8 **Reflections on Otago Medical School in its 150th anniversary year**
Peter Crampton

Articles

11 **A history of affirmative entry schemes at Otago Medical School**
Indira Fernando, Peter Crampton

20 **Students' perceived knowledge and confidence of performing extra-oral clinical examinations during Bachelor of Dental Surgery (BDS) study in New Zealand**
Guangzhao Guan, Lawanya Rathninde, Lara Friedlander, Suzanne Hanlin, Ajith Polonowita, Li Mei

34 **Medical licensing for international medical graduates in Aotearoa New Zealand since 1849: overview and timeline**
Johanna Thomas-Maude

53 **Asian and ethnic minority health research in Aotearoa New Zealand: a scoping review of grey literature (2011–2020)**
Annie Chiang, Alina Meador, Roshini Peiris-John, Rachel Simon-Kumar

95 **Experiences and perspectives of thriving (or not) as Māori and Pacific allied health professionals**
Ulima Tofi, Nicola M Kayes, Bobbie-Jo Wilson

Viewpoints

106 **The Otago Medical School: 150 years of teaching, research and community service**
Dawn E Elder

112 **Learning to care, caring to learn: the evolving nature of medical education**
Tim J Wilkinson

Clinical correspondence

116 **Herpes zoster reactivation presenting as unilateral small vessel vasculitis in a patient taking upadacitinib**
Edward H Palmer, Charles H Barter

100 years ago in the *NZMJ*

121 **Hospital Policy.**
NZMJ, 1925

Summaries

Reflections on Otago Medical School in its 150th anniversary year

Peter Crampton

Medical schools sit at the intersection of numerous and only partially reconcilable competing interests. In this editorial I reflect on some of these competing interests as they play out at Otago Medical School (OMS) and on the ongoing evolution of OMS over coming years.

A history of affirmative entry schemes at Otago Medical School

Indira Fernando, Peter Crampton

This study aimed to document the history of affirmative entry policies at the University of Otago Medical School using manual searches of records at both the University of Otago Hocken Library and the internal records of the Otago Medical school. We believe that the Otago Medical School affirmative policy is the oldest such policy in Aotearoa New Zealand, having existed in some form for seven decades. Its different iterations over the decades each reflect the prevailing social norms and attitudes at the time of their development. While affirmative entry schemes at Otago Medical School are long standing, the university has only relatively recently explicitly stated its obligations to Māori under Te Tiriti o Waitangi and the aim of reflecting in its health professional programmes the socio-demographic make-up of New Zealand's communities. Ongoing monitoring and evaluation are necessary in order to assess the effectiveness of the policy.

Students' perceived knowledge and confidence of performing extra-oral clinical examinations during Bachelor of Dental Surgery (BDS) study in New Zealand

Guangzhao Guan, Lawanya Rathninde, Lara Friedlander, Suzanne Hanlin, Ajith Polonowita, Li Mei

This study surveyed 270 dental students to understand how often they perform basic patient examinations. Around 60% regularly checked general patient features, while final-year students were more likely to assess the jaw joint. However, exams of facial muscles, lymph nodes and salivary glands were done less often. The findings suggest that students need better training in hands-on examination techniques and earlier clinical practice to build confidence. These insights could help improve dental education and better prepare future dentists.

Medical licensing for international medical graduates in Aotearoa New Zealand since 1849: overview and timeline

Johanna Thomas-Maude

This article explores the history of medical licensing for overseas-trained doctors in Aotearoa New Zealand. Since 1849, policies have often favoured doctors from the United Kingdom and other high-income countries, while others face tougher requirements like the New Zealand Registration Examination process. Despite the country's reliance on international doctors due to local shortages, many qualified overseas doctors struggle to find placements today. The article highlights how current policies may reflect old colonial biases and calls for fairer, more transparent systems to better address New Zealand's healthcare needs.

Asian and ethnic minority health research in Aotearoa New Zealand: a scoping review of grey literature (2011–2020)

Annie Chiang, Alina Meador, Roshini Peiris-John, Rachel Simon-Kumar

Grey literature (GL), or research evidence from unpublished sources, is a substantial but largely invisible repository of health information on Asian and ethnic minority (A/EM) populations in New Zealand. We analysed 167 pieces GL on A/EM health covering a 10-year period (2011–2020) from four sources: a) student theses across the eight New Zealand universities, b) research reports, c) government reports, and d) reports from non-government agencies. Our analysis found that GL offers unique evidence not found in published academic journal articles. Firstly, they point to a wider range of health conditions and their causes than are covered in published sources. Secondly, GL highlights the complex role of identity and belonging as minorities in relation to health. Thirdly, GL literature offers practical recommendations not otherwise found in published research. Finally, of all GL sources, student theses were particularly likely to offer innovative and creative thinking—despite this, their work is least likely to be recognised within health research.

Experiences and perspectives of thriving (or not) as Māori and Pacific allied health professionals

Ulima Tofi, Nicola M Kayes, Bobbie-Jo Wilson

This study explores the early career experiences of Māori and Pacific allied health professionals (AHPs) within a large public hospital. Guided by shared Māori and Pacific peoples' cultural values and practices, 11 Māori and Pacific AHPs shared in wānanga talanoa sessions. While the daily experiences of racism and ongoing colonisation were evident throughout, a key intent of this study was to offer strengths-based, solutions-focussed approaches for positive change. Support from mentors, peers and culturally affirming workplaces, systems and processes are essential for Māori and Pacific AHPs to thrive at work. This study offers practical suggestions for hospitals and organisations to better support Māori and Pacific health professionals, cultivating work environments where Māori and Pacific AHPs can excel.

The Otago Medical School: 150 years of teaching, research and community service

Dawn E Elder

This year, we celebrate 150 years of teaching, research and community service at New Zealand's first medical school. Since its founding in 1875, Otago Medical School has grown into a centre of excellence in health sciences education and research. Our staff, students and alumni have made—and continue to make—significant contributions to health and wellbeing both here in Aotearoa New Zealand and internationally. Over the last 150 years, we have seen profound changes in both our curriculum and the diversity of our student body. These changes reflect an ongoing commitment to training a medical workforce that truly represents and serves the needs of our communities.

Learning to care, caring to learn: the evolving nature of medical education

Tim J Wilkinson

This paper reflects on how Otago Medical School has trained doctors over the past 150 years and how it must continue to evolve for the future. It highlights key innovations, including rural training and better ways to assess students, while also learning from efforts that didn't fully succeed. Looking ahead, the paper discusses new approaches like personalised learning and the use of technology such as artificial intelligence. Despite all this change, the core goal remains the same: to produce doctors who are skilled, compassionate and deeply connected to the communities they serve.

Herpes zoster reactivation presenting as unilateral small vessel vasculitis in a patient taking upadacitinib

Edward H Palmer, Charles H Barter

New medications are increasing the risk of shingles. Some people are getting unusual forms of shingles. There is a vaccine available to help prevent this and people on these new medications should take it.

Reflections on Otago Medical School in its 150th anniversary year

Peter Crampton

Medical schools are beautifully complex. They sit at the intersection of numerous and only partially reconcilable competing interests. Here I reflect on some of these competing interests as they play out at Otago Medical School (OMS) and on the ongoing evolution of OMS over coming years. Primarily, OMS exists to produce graduates who are equipped to provide healthcare to our diverse and evolving communities with skill, compassion, empathy and cultural safety using diagnostic and treatment technologies that are, like the health system itself, ever evolving and changing. In addition, it is an engine room of research and innovation. Importantly, OMS is embedded in the wider health system on which it depends and which it serves. It contributes to the quality agenda, to health and social policy, to civil society and to broader social movements.

A social contract underpins the operation of medical schools in New Zealand. They are publicly funded in large part. Unlike many degrees where graduates may end up choosing diverse career options, we expect that the large majority of medical graduates will practice medicine and fulfil their part of the social contract by choosing to practice where and how they are needed. Is that expectation fair or realistic? Will it endure? Medical schools have little or no say over graduates' career choices and where they work and certainly no say over the burden of debt that graduates face that might influence their choices. Already OMS selects medical students using a set of approaches that ensure they come from a variety of backgrounds on the grounds that their own backgrounds, rural for example, will influence their future career choices. But is this enough? Should we as a society revisit the social contract, and place clearer and more specific expectations on medical graduates while at the same time removing from them the burden of mortgage-sized student debt?

Medical schools are bound by laws, regulations and rules. They work within a strict and constraining regulatory environment, where the quality of education, clinical safety and cultural safety are paramount considerations. At the same time, medical education is reliant on wide networks of literally hundreds of community-based organisations and hospitals that host medical students and provide a large component of their education. In all these settings patients and whānau have a right to be safe and to feel cared for when they interact with medical students. The safety and quality of patient care and of students' learning is reliant on trust, professionalism and the strength of relationships between the medical school and its myriad partners. What does the future hold? As the number of medical students and other professionals being trained increases, the pressure to find training places will become more intense. The social contract with the public health system includes the education and training of future generations of health professionals, but what if the health system is pushed towards increased privatisation of service delivery? The social contract won't apply and commercial considerations will most probably take precedence over training. It is hard to predict the consequences of any such shift, but they may include increases in medical student fees and the prospect that some aspects of training will be increasingly limited to working with the stratum of society that can afford private healthcare.

Medical schools are equally blessed and cursed with the burden of the social desirability of medicine as a career. The intense competition to enter medical school is partly a consequence of this social desirability. It is a blessing that medical schools attract highly motivated, bright and altruistic students. However, because of the focus on academic achievement at secondary school, medical schools also face pressures to accept students who have had the benefit of the "right" educational pathways to the exclusion of similarly capable students who may not have had the same educational opportunities. Otherwise highly suitable Māori, Pacific and rural background students were turned away from medical school entry for far too long. This is less the case now because of affirmative selection policies. These policies increase the diversity and representativeness of medical classes through raising the participation of members of

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population groups that have been historically excluded or under-represented, while at the same time complying with the academic requirements for entry into medical school. While affirmative policies continue to be contested, they are one of our most effective tools for recognising and correcting systemic barriers that disadvantage students from less privileged backgrounds.

It is a fact of medical school life that their parent universities have clear expectations of them to attract high-quality staff, to tap into rich seams of research funding, to bring international recognition and prestige to the university and to attract large numbers of aspirant first-year students. The challenge of medical school leadership—one might say the paradox—is to meet the needs of the university while still ensuring the sense of social purpose of the medical school is preserved. In particular, the medical school must continue to be responsive to society's changing expectations and needs, ensure ongoing innovation and adaptation of the curriculum and meet regulatory and accreditation requirements. These objectives must be achieved within universities that face their own internal and external pressures and sometimes don't understand medical education very well. Hence, the old cliché goes that there are two types of university—those that don't have a medical school and wish they did, and those that do have a medical school and wish they didn't.

Medical schools are critically important, and expensive, social infrastructure. It is safe to assume there will be a third medical school in New Zealand at some point in the future if the population grows as expected. At the time of writing, the decision on the Waikato medical school has not been announced. My experience working with Australian medical deans over many years is that even though a new medical school may be born out of a tawdry political process that had little to do with society's needs and more to do with a marginal seat, once the decision is made then neighbouring medical schools and their health provider partners work together in a collegial and constructive way to make everything work. In the New Zealand context, this would mean medical schools working together with hospitals and general practices to ensure adequate training placements for increasing numbers of medical students. If the Waikato medical school does not go ahead, OMS will need to decide at some point in the future when it believes it is at or beyond its optimal size for quality and logistical reasons, and advocate for a sound process to develop a third medical school.

It is very disturbing to see the current United States (US) administration's attack on its universities. Universities there appear to be under pressure to suppress African American histories, contributions and participation, and to acquiesce to other demands of the administration. Given that US culture wars have already found expression in New Zealand, how should OMS prepare for the hopefully unlikely eventuality that it comes under political pressure to take its focus off Māori participation and relegate the place of hauora Māori in the curriculum? I hope that wider society will swing in behind the university to support its commitment to Te Tiriti o Waitangi and equity of participation for Māori. I hope too that wider society will recognise and support the social and health quality dividends that result from proportionally representative participation of students from Pacific, rural, low socio-economic and other under-represented communities.

Also on the political agenda are debates about the definition of what it means to be a woman and a man and about gender diversity. Regardless of the political debates, OMS has an obligation to provide a welcoming and safe work and learning environment for all its staff and students. Despite the long history of misogyny and sexism in medicine and more generally in healthcare, over the past 30 years the proportion of females in medical classes has increased from about 50% to now being about 57%.[1] This trend is positive and helps to redress historical under-representation of women in medicine. Over the same 30-year period the proportion of female students in the University of Otago as a whole has gone from about 56% to about 62%.[1]

I love all this complexity. I look at the new generation of leaders in the University of Otago and the medical school and the strong representation of Māori and women, and I believe that OMS is well positioned to celebrate 150 years of achievements and to tackle with confidence the opportunities, complexities and challenges that lie ahead. I feel immensely privileged to have had the opportunity to work with medical school colleagues and students over many years. I wish the OMS ongoing success.

COMPETING INTERESTS
PC was Pro-Vice Chancellor of the Division of Health Sciences and Dean of the Otago Medical School over the period 2011–2018 and led the introduction of the Mirror on Society affirmative selection policy.

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A history of affirmative entry schemes at Otago Medical School

Indira Fernando, Peter Crampton

ABSTRACT

AIM: Document the history of affirmative entry policies at the University of Otago Medical School.

METHOD: Manual searches of records at both the University of Otago Hocken Library and the internal records of the Otago Medical school.

RESULTS: We believe that the Otago Medical School affirmative policy is the oldest such policy in Aotearoa New Zealand, having existed in some form for seven decades. Its different iterations over the decades each reflect the prevailing social norms and attitudes at the time of their development.

CONCLUSION: While affirmative entry schemes at Otago Medical School are long standing, the university has only relatively recently explicitly stated its obligations to Māori under Te Tiriti o Waitangi and the aim of reflecting in its health professional programmes the socio-demographic make-up of Aotearoa New Zealand's communities. Ongoing monitoring and evaluation are necessary in order to assess the effectiveness of the policy.

Affirmative entry schemes are used in Aotearoa New Zealand and internationally as a tool for improving equity in health through raising the participation of members of population groups that have been historically excluded or under-represented.[1] The definition and rationale for affirmative policies, and examples of implementation and legal challenges to affirmative policies, have been documented elsewhere.[1] The aim of this research was to document the history of affirmative entry policies at Otago Medical School. Otago Medical School was established in 1875 and was the only medical school in Aotearoa New Zealand until The University of Auckland Medical School opened in 1968. The research drew on previously undocumented records to lay out a timeline from the earliest days of affirmative action pathways for Māori and Pacific students at the University of Otago Medical School seven decades ago through to the contemporary policy. We hope that this research will contribute to greater understanding of the present-day affirmative action policy at the Otago Medical School and provide insights into possible future developments to further support representation of historically under-represented groups in Aotearoa New Zealand's health workforce.

Methods

This research was carried out over 2022–2023. Manual searches were carried out of records at both the University of Otago Hocken Library and the internal records of the Otago Medical school. These records primarily comprised of minutes of university and Medical Faculty meetings. Also of value was the correspondence on the topic of Māori and Pacific medical admissions between university leadership and internal staff and external parties. These documents enabled us to document key data points across the timeline of the institution's development and modification of affirmative action policies in the university. All available records related to Māori and Pacific students, and education, medical admissions and correspondence to/from key figures at the university were screened. A database was created with all information related to affirmative action for Māori and Pacific students at the University of Otago Medical School. From this database, correspondence and action points from the university, the Otago Medical School, government bodies and private individuals were extracted, and a timeline of events was developed, supplemented by changes in official university policy as specified in published regulations.

Results: affirmative entry schemes at Otago Medical School

The University of Otago Medical School has been in existence since its inception in 1875. It has provided many of the nation's doctors up to the present day.[2] The medical workforce in Aotearoa

New Zealand has historically been a Pākehā-dominated field, notably excluding Māori and Pacific students and professionals. Up until the early 1950s there was little or no effort on the part of the university to alter the selection and admissions processes to better serve the Māori population or address the lack of diversity among students at Otago Medical School. Figures 1 and 2 provide a summary of the main events described below. There are two time periods covered in these figures, the first being 1948–1951 (Figure 1) and the second 1974–1978 (Figure 2). These are two periods during which there were significant changes made to the affirmative action scheme at the university.

In the late 1800s and early 1900s government scholarships for Māori medical students were created. The justification at the time was that the students in question had "*usefulness as doctors among the Māoris*." At the time there was no acknowledgement of the benefits to the wider health system that a diverse workforce would provide, nor was there any acknowledgement of the capacity of these doctors to improve the care of non-Māori patients as well. Despite these early limitations, recipients of the scholarship included notable figures such as Te Rangi Hīroa (Sir Peter Buck).[2]

In 1948 the idea of introducing an alternative entry pathway to increase the number of Māori students studying medicine was discussed among the Medical Faculty. These discussions seem prompted in part by a letter from notable Māori doctor Nitama Paewai, who wrote to the New Zealand university registrar in February of 1948. The registrar subsequently forwarded the enquiry to the University of Otago.[3] In March of 1948 the Otago registrar enquired with then Dean of the Medical Faculty, Sir Charles Hercus, whether two places may be reserved for "*members of the native race.*"[4] Subsequently, advice was sought from external parties including then Director-General of Health Dr TR Ritchie, who wrote to Sir Charles Hercus on 9 April indicating his opposition to the creation of such a pathway. His opposition centred around the fear that in establishing an alternative entry pathway for Māori a precedent may be set, resulting in "*preference being given to Samoans and ultimately to other native races from other parts of the British Empire.*" Ritchie concluded that unless instructed to do so by the government, the university should not veer from the admissions process of the time.[5] Subsequent to this letter, the faculty convened to discuss the matter on 13 March and on 5 May confirmed it would follow the advice of the director-general of health and not introduce an alternative pathway. On 7 May Sir Charles Hercus wrote to the secretary of the professorial board to inform him of this decision.[6] The issue, however, was not completely dropped by the university, as Registrar Hayward wrote to the minister of education about the possibility of an alternative pathway in December of the same year.[7]

The following year, 1949, on 1 August, a letter from RTG Patrick, secretary of the Department of Island Territories, to the university asked the university to consider allocating a place for students of Pacific Island descent who had received government scholarships to study in Aotearoa New Zealand with the intention that they would then return to their homeland to practise their profession. The letter pointed out that while these students had been accepted under the scholarship programme, which started in 1945, those hoping to study medicine were not guaranteed a place at Otago Medical School, an issue which the department hoped the university would help rectify. The department's case for the allocation hinged on the argument that Pacific nations were struggling to provide healthcare due to the inability to retain "European Medical Officers", and that the students in question could not be expected to reasonably achieve to the level of Aotearoa New Zealand-raised students due to the islands' "*poor primary education*." When discussing one student in particular, Patrick noted that considering his education had been primarily based in the Pacific region, "*his having been granted matriculation is regarded as an outstanding achievement in view of his background.*"[8] The Department of Island Territories was the domain of the minister of Island territories, who was charged with administrative responsibility for Aotearoa New Zealand's territories in the Pacific. In the 1950s these included Niue Island, the Tokelau Islands and the Cook Islands.[9]

Following the request a letter was received by the registrar from then Minister for Education, TH McCombs, on 15 August 1949, in response to the query about "*admission of Polynesian students*" to the medicine programme. McCombs indicated he was in favour of the scheme as it applied to Pacific Island nationals, but not in reference to Māori admissions. His justification was that the primary reason for admitting students from the Islands was that they could, in the absence of European doctors, provide medical services for communities

in the Islands. As there was an abundance of Pākehā doctors in Aotearoa New Zealand, this rationale would not apply to Māori.[7] The intention behind the creation of admission pathways at the time appears to have been not to address barriers to accessing medical education, nor to enrich the health workforce by promoting diversity, but more to train a workforce that would provide services that Pākehā doctors did not want to provide.

On 16 August Registrar Hayward wrote to the Department of Island Territories seeking clarification about potential candidates from the Pacific Islands who may be "*part European youths*" and whether they would fit the "*general definition of 'Polynesian'*."[10] This language provided an early indication of the university's intention to use blood quantum when determining eligibility for the alternative programme. In September of 1949 the university Admissions Committee for Second Year Medical and Dental School began discussing candidates, including those put forward by the Department of Island Territories.[11] In November of 1949 CE Quinn at the Department of Island Territories responded to the query about potential applicants by clarifying that many would be of "*part Native blood*" but were bonded to work in the Islands and would be "*under* [the Department's] *control at all times*."[12] In December of 1949 the Medical and Dental Admissions Committee confirmed that they would be taking two applicants under the alternative entry scheme, including both Māori and Pacific Island students.[13] On 23 December the registrar formally notified the other Aotearoa New Zealand universities of the scheme and invited them to supply information about any students they had who may have been eligible for the scheme.[14] It is hard to know exactly what drove this policy shift within the university and the effect that external influences had. It appears that continuous efforts by university staff members to create a scheme for both Māori and Pacific Island students was a driving force behind the pathway's ultimate creation.

In January of 1950 the Medical and Dental Admissions Committee confirmed the eligibility of two candidates, one from Otago and one from Victoria University.[15] These students were both Māori and would become the first such students admitted to medicine under the alternative entry scheme.

Throughout 1950 several parties called for changes to the policy. On 12 January the Department of Island Territories sought changes to the proposed regulation by asking that the regulation enforce a native Pacific Island blood quantum rather than a European one. The secretary suggested the wording be:

> *"Applicants born in the Island Territories administered by New Zealand who are either of whole or part Polynesian blood, who undertake to serve in the Islands Medical Service for five years after qualification."*[16]

The University of Otago Council discussed and agreed to the revisions on 28 February.[17] A further query about the regulation's wording came on 23 March from the director of education, who pointed out that there was a scheme of co-operation between Aotearoa New Zealand and other Island nations, including Tonga and Fiji. This fact was considered by the council, and the director acknowledged the university's consideration in a follow-up letter in April, where he reiterated that while the scheme at the time did not allow for medical students from these nations to be trained in Aotearoa New Zealand, this may be the case in the future.[18]

Having undertaken consultation and discussion about the new policy, the Medical and Dental Admissions Committee requested that the formal University Regulations for admissions to the courses be changed to reflect the new scheme.[19] In 1951 *The University Calendar* was updated to reflect the new policy.[20] In the years that followed, the scheme developed and, in 1957, for the first time, there were more eligible applicants than there were places.[21] In December of the following year, the Medical and Dental Admissions Committee noted that Māori students were struggling to provide adequate evidence of their Māori whakapapa to meet the blood quantum requirement.[22] In spite of this students continued to apply to the programme and over time the number of applicants increased. In spite of this, the lack of obligation on the part of the university to fill these places was an ongoing barrier to entry. When considering admissions for the class of 1961, no applicants were accepted under the pathway despite there being four applicants.[23]

The affirmative programme continued to provide two places for Māori and Pacific Island students. In May of 1974 there was a meeting of the Medical Faculty to discuss increasing the number of students admitted under the policy from two to six, as well as to include students of Pacific

Island descent who were from New Zealand.[24] These changes were confirmed by the university Board a few days later, allowing for the number of students to increase to six once the total number of students accepted into the medicine course increased to 200, and to include Aotearoa New Zealand-based Pacific Islanders.[25] In June of that year Chairman Taylor began drafting the regulation change.[26] The university was contacted later that year by the Māori and Island Affairs Department and advised that further changes to the regulation needed to be made. As a result, the wording of the regulation was changed to include students from Tokelau and Niue.[27]

The University Calendar in 1975 reflected the changes, with the three categories of students accepted under the entry pathway being:

> "*a) a Maori applicant who is of at least 50 percent Maori Blood or,*
>
> *b) a Polynesian, other than Maori, born or permanently residing in New Zealand and of at least 50% Polynesian blood or,*
>
> *c) an applicant born in the Cook Islands, Niue, or the Tokelau Islands who is not of wholly European Blood* […] *or, an applicant born in Western Samoa who is not of wholly European Blood* […] *or an applicant nominated by the Government of Fiji who is not of wholly European Blood* […] *or, an applicant nominated by the Government of Tonga who is not of wholly European Blood* […].*' Who had agreed to be bonded to their respective nations for a predetermined period."*[28]

In 1974 the *Māori Affairs Amendment Act* defined Māori as any person of Māori descent, thus pushing against the idea of blood quantum.[29] Following this change, in 1976 the university began to discuss the validity of using blood quantum as part of the selection criteria. In May 1976 the dean of the Medical Faculty reported in a meeting that the vice chancellor had agreed to the removal of blood quantum from the regulation.[30] On 7 July Faculty minutes indicated that the calendar regulations had deleted both "*the words 'who is of at least 50 per cent Maori blood'* […] [and] *the words 'and of at least 50 per cent Polynesian blood'*."[31]

While the entry scheme allowed selected students admission to medicine, by 1976 it was becoming clearer that there was insufficient support for these students while they studied. In August of 1976 the Faculty discussed the need for better support of alternative entry students and Professor AD MacKnight agreed to write to departments in an attempt to coordinate better academic support for these students.[32]

In 1977 *The University Calendar* was published specifying that there were six places for students of Māori and Pacific whakapapa and made no mention of blood quantum.[33] The affirmative programme continued but was not well known to people outside of the university community. In 1985, however, the treatment of one applicant made national headlines and became a media story that propelled the scheme into the limelight. The applicant's complaint led to the governor general's appointment of Tipene O'Regan as special visitor to the university. O'Regan's subsequent report highlighted a toxic and racist culture having developed around the affirmative action policy, with students being denied right of appeal and not being provided with appropriate support. Despite these findings being published in O'Regan's report, the university elected not to adopt any of the report's recommendations. The surrounding publicity exposed public perceptions of the scheme, with openly racist commentary about the students applying and admitted under the pathway being published in news outlets.[34]

Despite initial reluctance to change, in 1985 the university created a working party to look into medical admissions policies. In 1987 the working group published a report of their findings that recommended that the scheme move away from a discrete number of spaces and instead allocate a maximum 10% of places in medicine for Māori and Pacific students.[35]

In 2012 the scheme was overhauled and the Mirror on Society policy was adopted.[36] This policy, for the first time, referred to the university's obligations to Māori under Te Tiriti o Waitangi and aimed to address under-representation in the health workforce of different groups through altering selection policies into the university's health professional programmes. The under-represented groups included Māori, Pacific peoples, refugee-background, rural-background and low socio-economic-background applicants.[36] The policy emphasised the value of and need for a health workforce broadly representative of Aotearoa New Zealand's communities and the important role played by healthcare professionals from under-represented groups in addressing health inequities.[36] In 2020 a legal challenge was brought

against the University of Otago by parents of an unsuccessful medical school applicant, claiming that the affirmative policy was discriminatory. This legal challenge resulted in extensive media coverage and public discussion about affirmative action. The legal challenge was settled outside of court.[37]

In 2022 some relatively minor regulatory changes were made to the Mirror on Society policy and it was renamed Te Kauae Parāoa policy.[38] In the 2019–2023 period Māori students comprised about 20% of domestic students commencing medicine each year[39] (about 23% of the total population aged 20–24 years were Māori in the 2023 Census).[40]

Discussion

To the best of our knowledge this is the first published account of the history of the development of affirmative selection policies at the University of Otago Medical School. We believe that the Otago Medical School affirmative programme is the oldest such policy in Aotearoa New Zealand, and this research has allowed a historical evaluation of the changing criteria over time, as well as a rationale for changes in the numbers of students selected via the affirmative scheme. Its different iterations over the decades each reflect the prevailing social norms and attitudes at the time of their development.

A strength of this study was the use of previously undocumented archival material. A limitation of this research is that there is no single organised set of records related to affirmative entry schemes at the Otago Medical School and therefore it was difficult to determine the completeness of the database. The archives at both Otago Medical School and the Hocken Library may not have contained all data points related to the subject of affirmative action and parts of the correspondence, especially those with private individuals external to the university, may not have been complete. None of the records that were explored for this research had been digitised, and therefore electronic searches of historical documents were not possible. As is usual with historical research, we have on occasion made inferences based on historical context. Further research in this area would be valuable to try and identify new data points that may add to this narrative history.

Aotearoa New Zealand's health workforce remains highly unrepresentative of the communities that it serves,[1,41] with resulting consequences for the quality and effectiveness of healthcare for many groups in society. While affirmative entry schemes at Otago Medical School are long standing, the university has only relatively recently explicitly stated its obligations to Māori under Te Tiriti o Waitangi and the aim of reflecting in its health professional programmes the socio-demographic make-up of Aotearoa New Zealand's communities. Ongoing monitoring and evaluation are necessary in order to assess the effectiveness of the policy.

Figure 1: Timeline of affirmative action policies at the Otago Medical School 1948–1951.

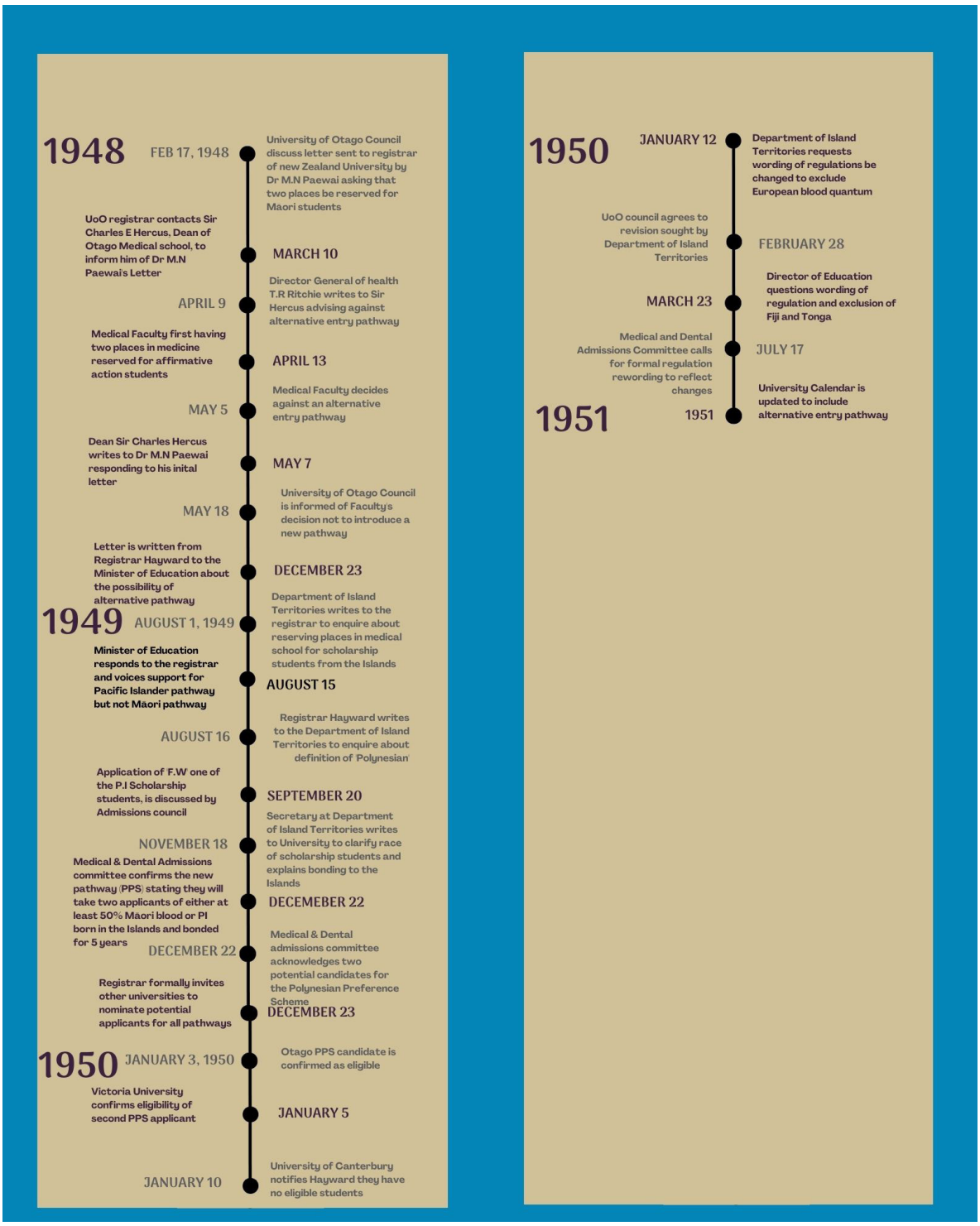
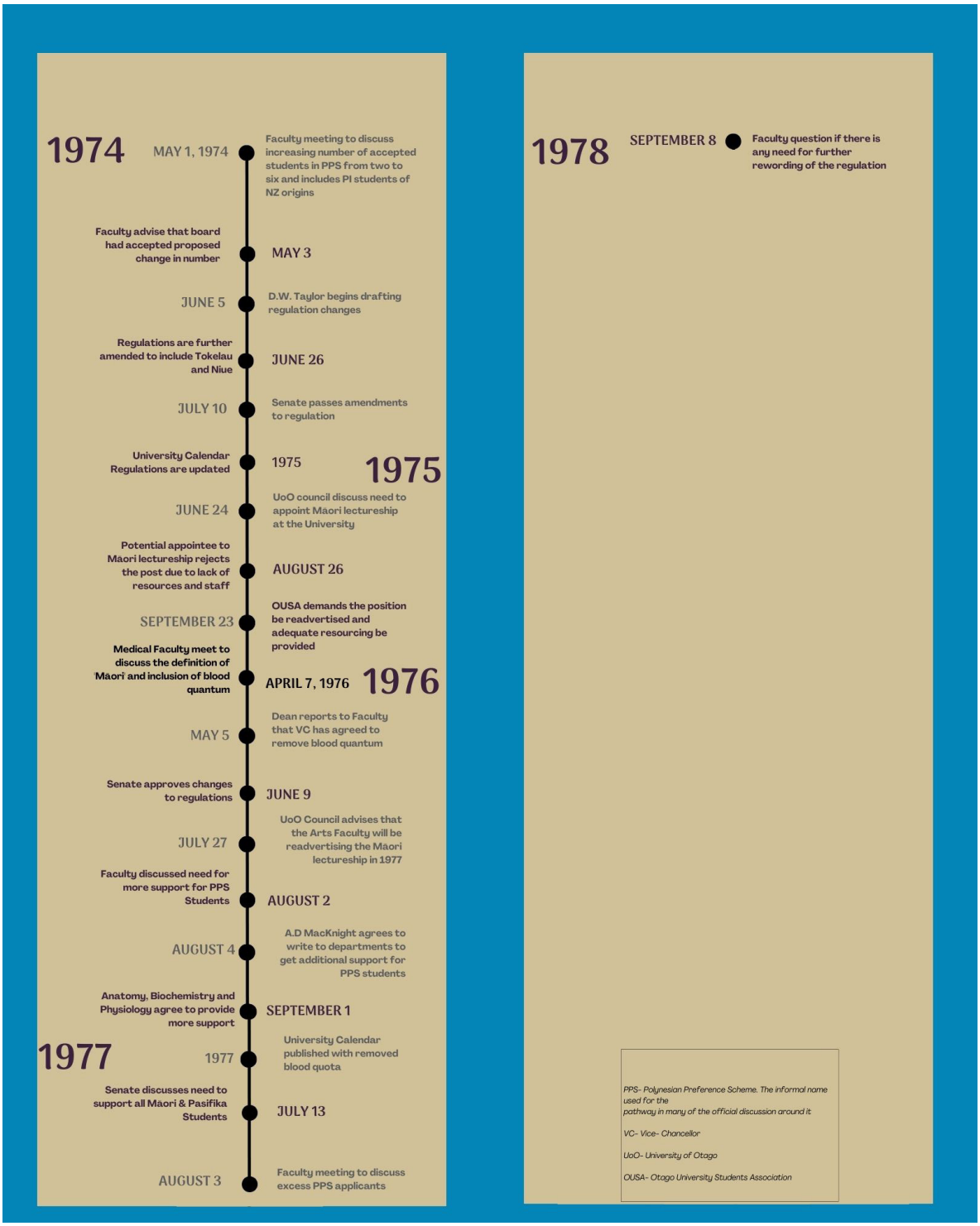


Figure 2: Timeline of affirmative action policies at the Otago Medical School 1974–1978.



COMPETING INTERESTS
PC was Pro-Vice Chancellor of the Division of Health Sciences and Dean of the Otago Medical School over the period 2011–2018 and led the introduction of the Mirror on Society affirmative selection policy.

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Students' perceived knowledge and confidence of performing extra-oral clinical examinations during Bachelor of Dental Surgery (BDS) study in New Zealand

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ABSTRACT

AIMS: To investigate students' self-perceived understanding and confidence in performing extra-oral examinations on patients during their Bachelor of Dental Surgery (BDS) education and training in New Zealand.

METHOD: A mixed-methods, cross-sectional study design was used to explore the understanding and perceived confidence of students who were in their third, fourth and final years of training in performing extra-oral examinations on patients. A questionnaire containing Likert and open-ended questions was distributed to 270 students.

RESULTS: A total of 270 questionnaires were distributed to BDS3, BDS4 and BDS5 dental students, with an 80.7% response rate. Approximately 60% of students conducted general patient observations consistently, with no significant difference across year levels. Temporomandibular joint assessments were more frequently conducted by BDS5 students, while muscle of mastication, lymph node and salivary gland assessments were less consistently performed. Confidence varied across examination types, with over two-thirds expressing uncertainty in conducting some assessments. Many students felt that structured electronic templates and anatomical knowledge were helpful; however, they noted a need for improved training on palpation techniques and earlier integration of hands-on clinical practice.

CONCLUSION: Most students perceived they were well taught and felt confident in the extra-oral examination of a patient. Students of all levels of experience believed they would benefit from curriculum development and additional modes of teaching to aid their learning and improve their ability to perform an extra-oral examination.

Extra-oral examinations form the initial part of dental examinations when patients present for oral healthcare. The extra-oral examination of a patient is the initial and essential part of assessment, which needs to be performed thoroughly and systematically to ensure nothing is missed.[1] This includes assessing the face, head and neck region for the presence of swellings, discolouration, asymmetries and other abnormalities.[2] A good knowledge of head and neck anatomy is important to identify any departures from "normal" and facilitate the early detection of pathology or disease.[1]

The Bachelor of Dental Surgery (BDS) programme in New Zealand is a 5-year degree. The first year of the BDS degree is a common health science year for students seeking entry to several health professional programmes including medicine, dentistry, pharmacy and physiotherapy. Admission to dentistry occurs in the second year (BDS2) of the BDS degree and is competitive. The programme is arranged into three vertical themes that deliver papers from BDS2 to BDS5: "The Dentist and the Patient", "Biomedical Sciences" and "The Dentist and the Community". BDS2 is a largely pre-clinical year, and students begin managing patients under supervision for comprehensive care in BDS3. The BDS curriculum framework is horizontally and vertically integrated to enable students to engage in the didactic teaching and learning underpinning clinical practice activities in different disciplines that are appropriate for the stage of learning.[3]

Examination of a patient is introduced in BDS2, as part of Dentistry and the Patient. Each year of the BDS curriculum builds on prior learning and experience, and aligns horizontally with other papers such as Biomedical Science and Dentist in

the Community. Oral medicine is taught didactically through lectures and assessed clinically as part of patient care. In BDS3, patient clinics are introduced, and students work in pairs or trios under close supervision of academic clinical specialists or general dental practitioners. Students have increased clinical practice as they develop independence, and identification of pathology is an essential competency for graduation.

By the end of the final year (BDS5) students need to have met the competencies for independent practice, which are aligned with the New Zealand Dental Council's standards framework for oral practitioners and are similar to international standards.[4] Higher education institutions in the United Kingdom follow a similar curriculum in order to teach the fundamentals of dentistry while following the expected learning outcomes outlined by the General Dental Council.[5] The framework for European dental undergraduates reflects the principles of the Bologna process and coincides with the 48 countries that form the European Higher Education Area.[6] In the United States of America (USA), curriculum requirements are framed by the Commission on Dental Accreditation, which has expected competencies and associated theoretical knowledge that must be addressed during dental school.[7]

Previous qualitative and quantitative studies have found that extra-oral examinations are only performed superficially, if at all, by dental students. In 2001, a study conducted in Maryland reported that clinicians omitted extra-oral examinations as they felt they did not have the time, it was an invasion of the patient's personal space and they had inadequate knowledge for conducting these exams.[8] In 2019, at Iwate Medical University's School of Dentistry in Japan, a questionnaire revealed that only 43.6% of dentists routinely performed oral cancer screenings at the first appointment, and that there was no significant difference between specialists and clinical experience.[9]

In 2005, a study of dental students' knowledge of oral cancer screenings in South Carolina indicated that 74.8% had knowledge of the clinical appearance of an early oral cancer lesion, and 63.2% had knowledge that cancerous lymph nodes when palpated are hard, painless, mobile, or fixed. Only 55.2% of students were able to identify the most likely sites of oral cancer.[10] Another study conducted in Italy in 2007 found that 64.8% of dentists believed that they were prepared to perform extra-oral exams and palpate oral structures.[11] Furthermore, several studies found that there was a general lack of knowledge and skills regarding oral cancer screenings and extra-oral examinations, and that dental students and qualified dentists perceived this as a deficiency in their learning.[11–13]

Although similar studies have been conducted on the oral cancer screening aspect of the extra-oral examination, they have not focussed on the overall extra-oral screening of a patient. To our knowledge there have not been any studies conducted in New Zealand concerning extra-oral examinations performed by dental students.

The aim of this study was to investigate students' self-perceived understanding and confidence in performing extra-oral examinations on patients during their BDS education and training in New Zealand.

Method

Ethical approval was obtained from the University of Otago Human Ethics Committee (D20/359), and Māori research consultation was undertaken with the Ngāi Tahu Research Consultation Committee. A physical copy of the anonymous questionnaire was distributed to BDS3, BDS4 and BDS5 students at the beginning of their morning lectures. Respondents were asked not to confer with others and were provided approximately sufficient time to complete the questionnaire. BDS students do not provide patient care until the third year and so BDS2 students were excluded from this study.

The questionnaire was guided from the expected learnings within the undergraduate oral medicine curriculum and perceived strengths and limitations in students learning by oral medicine staff. The questionnaire comprised five questions that described the participant characteristics (year group, gender, age, ethnicity and previous qualifications), 25 multi-choice questions (including Likert scale and multiple selection) and three open-ended questions that provided context to responses and enriched the data (Appendix). Questions were designed to explore the following core topic areas:

1. General observations (observing the patient's general appearance)
2. Temporomandibular joint (TMJ) assessment
3. Muscles of mastication assessment
4. Lymph nodes assessment
5. Salivary glands assessment
6. Overall programme attitudes and comments

Statistical analysis

Data were analysed by using Statistical Package for the Social Sciences (SPSS) version 23 (SPSS Inc., Chicago, Illinois) and Microsoft Excel (Microsoft Corp, Redmond, Washington). Continuous variables were expressed as mean +/- standard deviation (SD) if normally distributed, or as median and quartiles if they had a skewed distribution. Categorical variables were described as counts and percentages. A bivariate analysis of categorical variables was conducted using the Chi-squared test, and P-values were calculated. A P-value <0.05 indicated statistical significance. The qualitative responses to the open-ended questions were transcribed verbatim and NVivo 12 (Lumivero, Denver, Colorado) was used to assist in the organisation and reflexive thematic analysis of the data using a general inductive approach. Initially, thematic coding, which involved separating textual data units for manual coding, was performed. Using an iterative approach, coding was checked for consistency, refined and organised, and any contradictory views were discussed to reach consensus agreement. The codes were then compared, and patterns from frequent and recurring ideas were used to develop overarching themes and subthemes. The similarities, differences and relationships among the themes were examined to identify any new themes.

Results

A total of 270 questionnaires were distributed across the BDS3 (N=94), BDS4 (N=78) and BDS5 (N=98) dental student cohorts. A total of 218 responses were received, with a response rate of 80.7% (Table 1). Across the year groups, the response rates were 87.2% for BDS3, 74.4% for BDS4 and 79.6% for BDS5.

General observations

Within the student cohorts, 60.5% of BDS3, 53.4% of BDS4 and 61.5% of BDS5 stated that they conducted a general observation of their patients all the time. About a third of the students stated that they did not always conduct a general observation. No statistical significance was found among BDS3, 4 and 5.

Of the students who did not conduct a general observation all the time, 40.2% had a lack of understanding of how to conduct one, 27.2% deemed it unnecessary, 19.5% said it was time consuming and 12.6% had various other reasons for not conducting a general observation. Regarding opinions on why general observations are not consistently conducted, a statistically significant difference was found (X^2=13.1; P<0.05), with BDS5 students performing them more frequently than BDS3 and BDS4 students.

Around half of the students in each year level felt confident when conducting general observations (Figure 1). The most commonly recorded items of the general observation were physical disabilities, facial symmetry and lip competency (93.1%, 89.4% and 87.2% respectively) (Figure 2).

TMJ assessment

Most of the BDS students (93.9% of BDS3, 84.2% of BDS4, 75.6% of BDS5) stated that they conducted a TMJ assessment of their patients all the time. However, regarding the overall frequency of how often TMJ assessments are conducted across the groups, a statistically significant difference was found between the three groups (X^2=13.0; P<0.05), with the BDS5 students conducting examinations more often than BDS3 and BDS4.

Of the students who did not conduct a TMJ assessment all the time, 47.2% deemed it unnecessary, 30.6% indicated a lack understanding of how to conduct one, 11.1% said it was time consuming and 11.1% cited “other reasons”.

The proportion of students that felt confident conducting a TMJ assessment was fairly similar between the year groups, with 68.3%, 67.2% and 55.1% for BDS3, BDS4 and BDS5 respectively (Figure 1). The most commonly recorded items were TMJ sounds (97.2%), locking (86.2%) and tenderness to palpation (84.4%) (Figure 2).

Muscles of mastication assessment

More than half of the students stated that they conducted an assessment of the muscles of mastication all the time (59.8% of BDS3, 63.2% of BDS4 and 62.8% of BDS5). Additionally, a smaller proportion of students reported conducting this assessment most of the time (29.6% of BDS3, 17.2% of BDS4 and 20.5% of BDS5).

Among those who did not conduct a muscles of mastication assessment all the time, the most common reason was a lack of understanding (64.4%), followed by the perception that it was unnecessary (13.6%) or time-consuming (9.8%), or was due to other reasons (12.1%).

Confidence levels varied, with more than one-third of students in each year group feeling confident about conducting this assessment, while less than two-thirds did not feel confident

(Figure 1). The most commonly recorded assessment components were tenderness, referred pain, muscle contraction and range of movement (Figure 2).

Lymph nodes assessment

About one-third of all students—BDS3 38.3%, BDS4 37.9% and BDS5 26.9%—stated that they conducted an assessment of the lymph nodes on their patients all of the time

Of the students who did not conduct a lymph nodes assessment all the time, 56.6% had a lack of understanding of how to conduct one, 14.5% deemed it unnecessary, 13.2% said it was time consuming and 15.8% had various other reasons for not conducting one.

TThe proportion of students who felt confident when conducting a lymph node assessment was 55.6% of BDS3, 45.6% of BDS4 and 51.3% of BDS5 students (Figure 1). With regard to the total components recorded, a statistically significant difference was found between the three groups (X^2=26.4; P<0.05), with the most recorded aspects being size, tenderness to palpation and site (Figure 2).

Salivary glands assessment

Approximately one-third of all students stated that they conducted a bimanual examination of the salivary glands on their patients consistently, with 37.8% of BDS3, 26.8% of BDS4 and 24.4% of BDS5 students reporting this practice.

Of the students who did not conduct a salivary glands assessment all the time, 61.3% had a lack of understanding of how to conduct one, 13.4% deemed it unnecessary, 19.7% said it was time consuming and 5.6% had various other reasons for not conducting one.

The proportion of students who felt confident when conducting a salivary gland assessment was 35.4% of BDS3, 31.6% of BDS4 and 26.9% of BDS5 students, while over two-thirds of all students reported not feeling confident performing this assessment (Figure 1). The most recorded items were site, tenderness to palpation and size (Figure 2).

Overall perceptions of teaching regarding extra-oral examinations

Overall confidence and extra-oral examination teaching satisfaction

Overall, 6.1% of BDS3, 7.0% of BDS4 and 5.1% of BDS5 students felt very confident conducting a full extra-oral head and neck examination. Most students (59.0%) across all three year groups felt confident conducting a full extra-oral head and neck examination (Figure 3). Furthermore, 60.0% of students indicated that they did not complete a full extra-oral examination all the time, with the most common reasoning being a lack of understanding on how to conduct one properly. Most students felt satisfied or neutral with their understanding of extra-oral examinations (Figure 3).

Opinions on aspects of satisfaction of the teaching

Students perceived that the emphasis on using a systematic approach and having access to an electronic template was most helpful for clinical workflows.

1. "*The general flow of the history and examination of the patient's first appointment is good as we have an electronic form to have a structured approach. A part of this form is the extra-oral component.*" – BDS3 student

Students also highlighted the usefulness of having background anatomical knowledge.

2. "*General anatomical knowledge of the head & neck as well as knowing where the landmarks are was taught well in second year in preparation for clinical years.*" – BDS4 student
3. "*The importance of palpating lymph nodes is very well highlighted, as well as training on how to identify TMJ issues.*" – BDS3 student

Comments from students reflected their learning stage at different years.

Opinions on aspects of improvements of the teaching

Most students struggled with understanding and interpreting palpation techniques, particularly when differentiating between normal and abnormal tissues.

4. "*I would like to know how to interpret findings of certain abnormalities (a hard node or soft, rubbery node). I also don't know the proper technique of palpating the lymph nodes, muscles of mastication, or salivary glands (specifically bimanual salivary gland palpation).*" – BDS4 student
5. "*What could/should we expect when there is an abnormality, and what does it feel*

like? I am also unsure of when I should be referring cases and don't know what should be classified as severe." – BDS5 student

Some students suggested the implementation of small group tutorials, and earlier learning in the programme to help improve upon these gaps of knowledge.

6. "*Maybe there can be more clinical presentations and tutorials on how exactly we carry out extra-oral techniques. I am a more hands-on learner and being able to do it on patients or other students will be very helpful. Although the theoretical notes are essential in providing the knowledge of what to do as well.*" – BDS5 student
7. "*Clinical sessions on how to conduct full E/O* [extra-oral] *exam, including a description of what we might come across; what it might look/feel like, and what is normal/abnormal.*" – BDS3 student
8. "*We got one lecture from an oral medicine specialist in fourth year but by then it was too late as we were already seeing patients. Streamline lecture content followed by clinical sessions to practice extra-oral exams. It would be most helpful to have this in second or third year instead*." – BDS5 student

These quotes were used to generate a word cloud (Figure 4) highlighting the main themes discussed by the students.

Discussion

A mixed-methods, cross-sectional study design was used to explore the understanding and perceived confidence of students who were in their third, fourth and final years of training in performing extra-oral examinations on patients. First, this quantitative study explored clinical-year students' self-reported understandings when performing an extra-oral examination and their confidence levels. The study showed varying results from the different year groups with regard to the frequency of conducting the different aspects of an extra-oral examination. While there was a higher frequency of conducting most aspects of the extra-oral examination in their third year of study, the frequency gradually decreased with each succeeding year group. This may be due to the closer supervision in BDS3, which gradually decreases as students become more independent.

This study had some limitations. There may have been some confounding bias from background experiences of participants, such as a previous oral health–related degree or employment in dental hygiene or dental assisting. Variation in the clinical experiences and supervision may also have contributed to the differences in students' clinical protocols and knowledge. Furthermore, the higher response rate from BDS3 students compared with BDS4 and BDS5 students may have influenced responses and as such may reflect the students' stage of learning.

This study revealed the confidence level and knowledge gaps of dental students and may provide a reference for the development of potential solutions and improvements for teaching extra-oral examinations within the BDS curriculum. Statistically significant differences were found in the view of the different year groups with regard to why general observations were not conducted all the time, and with regard to how often a TMJ assessment was carried out. Students who did not conduct an extra-oral examination most commonly reported a lack of understanding about the technique or the increased time that was needed to complete the examination, and some felt it was unnecessary. This perception may be attributed to students receiving didactic teaching on clinical examination of a patient in both the Biomedical Sciences and the Dentist and the Patient papers. Although they are being provided with comprehensive teaching because learning is in two areas of the curriculum, it may be perceived by students as diluted or less important. Further, the increasing expectations for efficiency and speed with each succeeding year of study may impact how students approach clinical tasks and prioritise elements of the examination process. This highlights the importance of reflection, reinforcement and the assessment of techniques for examining a patient at each stage of learning.

Self-reported understanding and confidence levels were similar for all students, and this was not affected by stage of training. Overall, students perceived they were confident conducting an extra-oral examination. More than half of those who participated in the study felt confident in making general observations and TMJ assessments. However, most students did not feel confident with assessing lymph nodes, muscles of mastication and salivary glands. In a similar study, involving Malaysian dental students, Awan et al. found 53.3% of students felt that they had sufficient knowledge

about the detection of oral cancer, and this was further enhanced as students progressed in their academic training.[14] In the current study, most students were satisfied that they had sufficient knowledge to perform extra-oral examinations. Interestingly, senior students appeared to be more likely to be dissatisfied with their knowledge when it comes to performing an extra-oral examination. This may explain the low level of performance in some of the subcategories related to the extra-oral examination. Although the theory behind an extra-oral exam is taught through lectures, students may feel unable to take this theory and apply it in a clinical setting. Furthermore, students usually conduct an extra-oral examination independently and often without direct observation by supervising clinicians. This is then reviewed by the supervisor at the time of treatment planning so real-time feedback, learning and students' confidence performing lymph nodes, muscles of mastication and salivary glands assessments can be enhanced at chairside.

Qualitative findings in the second part of the study indicated that most students felt they were well taught. However, there were perceived weaknesses in some areas that could be strengthened to enhance their learning—for example, through use of hands-on clinical demonstrations and tutorials, which have been used in other areas of dentistry to improve knowledge gaps and to help students apply knowledge to clinical practice.[13] An experimental study among undergraduate nursing students in Brazil considered a group who had an intervention of an instructional module for lymph node palpations, and a control group without the instructional module. The findings showed a statistically significant difference between the intervention and control groups, with those who had the instructional module more accurately able to identify the size, consistency, coalescence and mobility of lymph nodes.[15] Further, a prospective cohort study conducted in the USA explored medical students' knowledge of head and neck cancer screening before and after an educational fair on this topic. The results indicated that students' understanding of conducting head and neck examinations as well as knowledge of risk factors and symptoms had significantly improved compared with before the event.[16] A module that provides more in-depth knowledge and understanding of examinations with preclinical examples and opportunities for hands-on clinical experience would be highly beneficial for dental students, particularly in the area of nodule palpation.

Currently, only 71.9% of general dental practitioners in New Zealand routinely screen the head and neck region.[17] Greater emphasis within the BDS curriculum will help to ensure that extra-oral examinations are conducted thoroughly when students graduate and become practicing dentists. Inclusion of seminars and small group tutorials could provide more knowledge and experience in extra-oral examinations for students, allowing them to develop a better understanding of the technique and become more confident in conducting a thorough examination on patients. Information packs or instructional videos demonstrating correct technique and common errors would also be beneficial and could be used for ongoing professional development for new graduates and dentists.

Conclusion

Most students perceive they are well taught and feel confident performing extra-oral examinations of patients. Students were more confident performing a general observation and TMJ assessment but were less confident performing assessments of lymph nodes, muscles of mastication and salivary glands. Students of all levels of experience believe they would benefit from curriculum development and additional modes of teaching to aid in their learning and clinical practice.

Table 1: Demographic characteristics of the BDS (Bachelor of Dental Surgery) students (N, %).

	BDS3 (N=82)	**BDS4 (N=58)**	**BDS5 (N=78)**
Gender			
Male	27 (32.9%)	27 (46.6%)	31 (39.7%)
Female	55 (67.1%)	31 (53.4%)	47 (60.3%)
Ethnicity			
European	20 (24.4%)	6 (10.3%)	9 (11.5%)
Asian	42 (51.2%)	31 (53.4%)	52 (66.7%)
Māori or Pacific	8 (9.8%)	14 (24.1%)	8 (10.2%)
Other	12 (14.6%)	7 (12.2%)	9 (11.6%)
Previous qualification			
No	63 (76.8%)	36 (62.1%)	69 (88.5%)
Yes	19 (23.2%)	22 (37.9%)	9 (11.5%)
Bachelor of Oral Health	2 (10.5%)	2 (9.1%)	0 (0.0%)
Bachelor of Dental Technology	2 (10.5%)	0 (0.0%)	2 (22.2%)
Bachelor of Pharmacy	1 (5.3%)	0 (0.0%)	0 (0.0%)
Bachelor of Science	9 (47.4%)	12 (54.5%)	5 (55.6%)
Other	5 (26.3%)	8 (36.4%)	2 (22.2%)

Figure 1: The proportion of students that felt confident in conducting TMJ, general observation, lymph nodes, muscles of mastication and salivary glands assessment across third-, fourth- and fifth-year dental students.

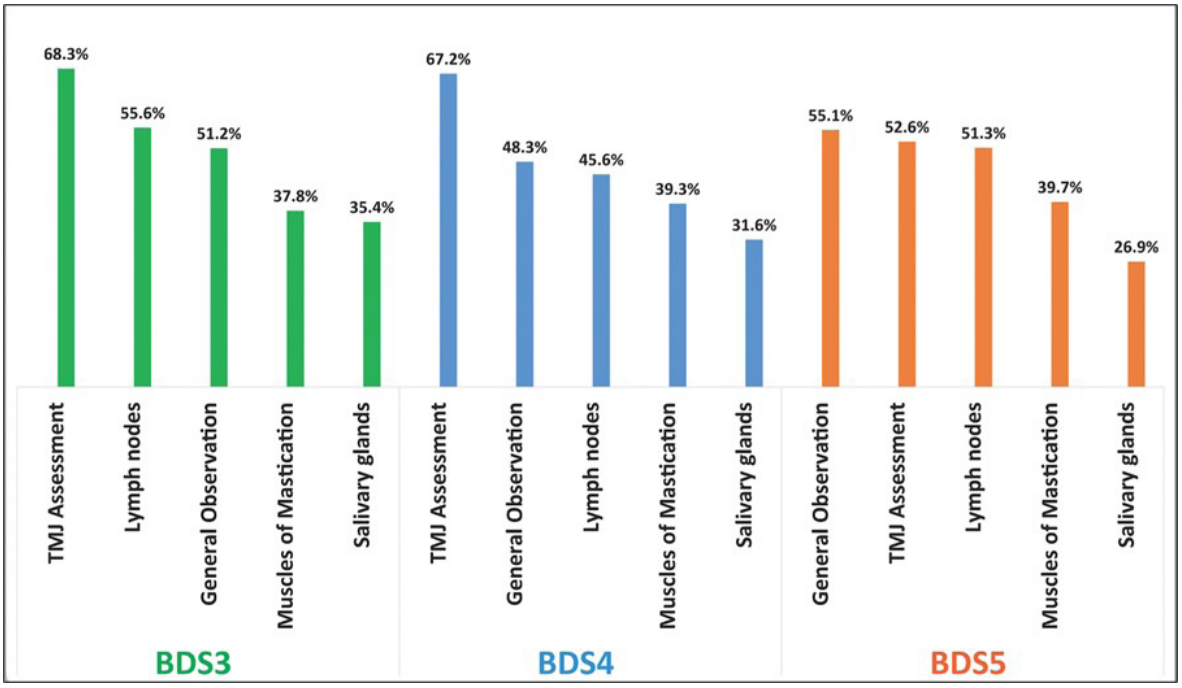


Figure 2: The most recorded items during extra-oral examination.

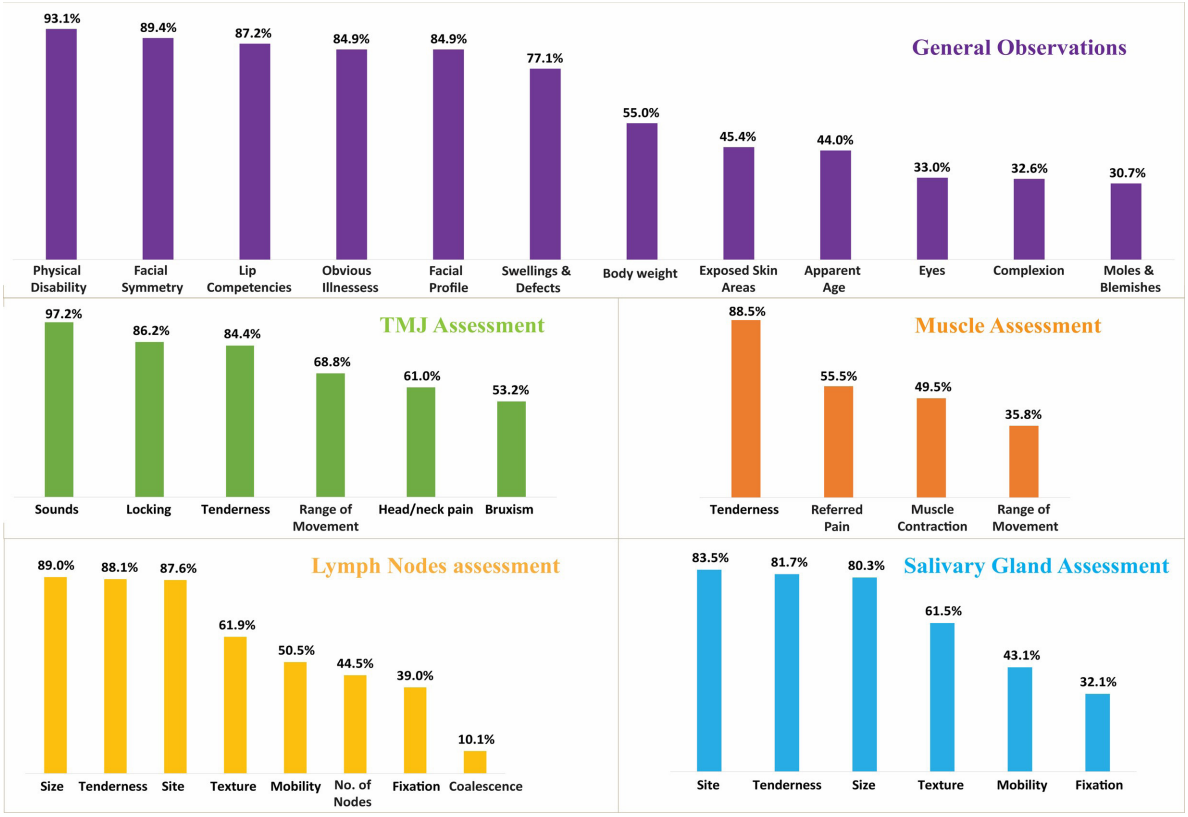


Figure 3: Student's satisfaction of their extra-oral examination knowledge and their confidence in performing extra-oral examination.

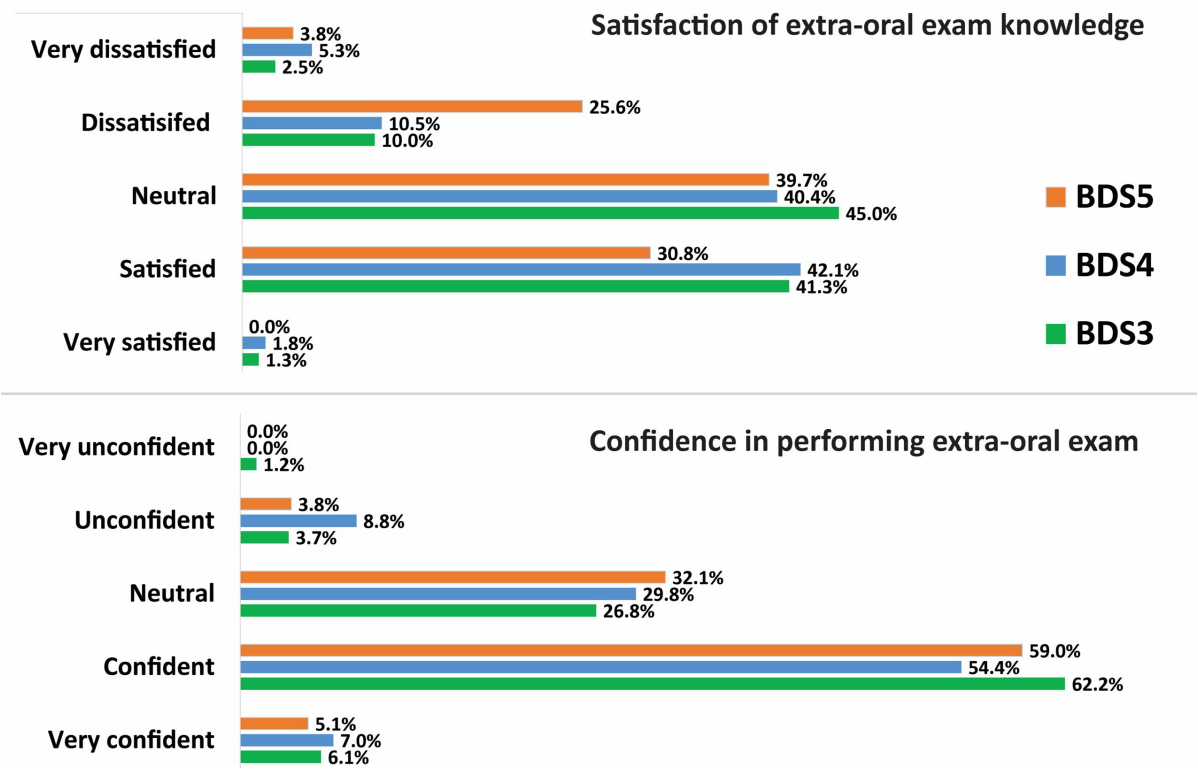
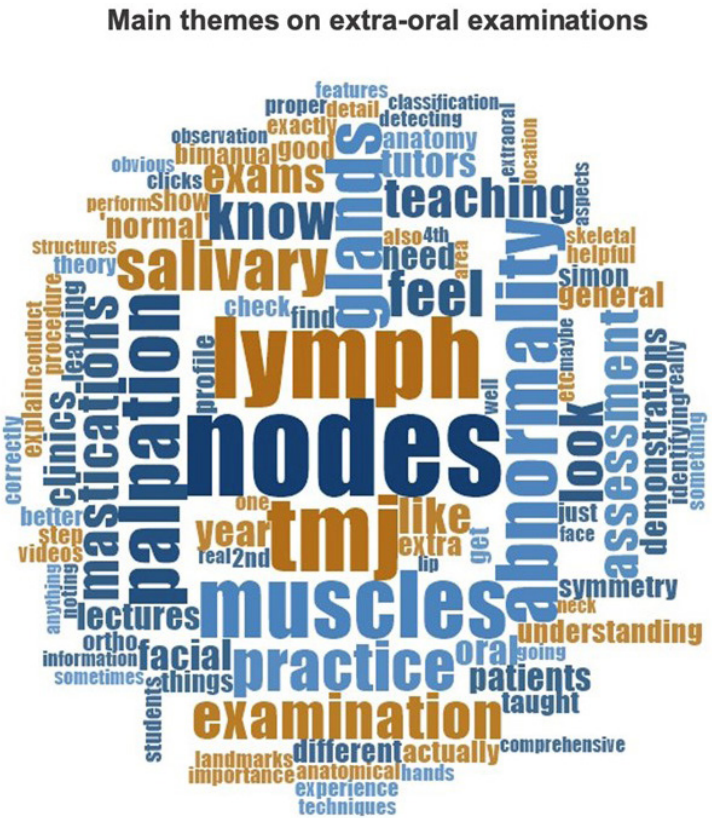


Figure 4: Word cloud highlighting main themes on extra-oral exams from the open-ended questions, created by NVivo 12. Font size correlates with the greater frequency of the word used in quotes related to students' impression of the programme.



COMPETING INTERESTS
The authors declare that they have no competing interests.

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AVAILABILITY OF DATA AND MATERIALS
Data available on request due to privacy/ethical restrictions.

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Appendix: Exploring competencies in dental students when performing extra-oral examinations

Please answer the following questions below by inserting a tick (✓) in the box next to your answer.

1. Which year of Bachelor of Dental Surgery course are you currently in?
- ☐ BDS 3
- ☐ BDS 4
- ☐ BDS 5

2. Gender
- ☐ Male
- ☐ Female
- ☐ Other

3. Ethnicity
- ☐ New Zealand European
- ☐ Maori
- ☐ Pacific Islander
- ☐ Asian
- ☐ Others (please specify _____)

4. Age _____ years old

5. Do you have any previous qualifications?
- ☐ Yes
- ☐ No

If yes, please select from the list below:
- ☐ Bachelor of Medicine and Bachelor of Surgery
- ☐ Bachelor of Oral Health
- ☐ Bachelor of Dental Technology
- ☐ Bachelor of Pharmacy
- ☐ Bachelor of Science
- ☐ Others (please specify _____)

Section A: Clinical examination aspects

General Observations

6. How often do you conduct a general observation of the patient?
- ☐ All of the time
- ☐ Most of the time
- ☐ Sometimes
- ☐ Never
- ☐ Only if the patient mentions something of concern

7. If you don't conduct a general observation all the time, what is your reasoning?
- ☐ Takes too much time
- ☐ Lack understanding of how to do it
- ☐ Deem it unnecessary
- ☐ Other (please explain _____)

8. How confident do you feel conducting a general observation of the patient?
- ☐ Very confident
- ☐ Confident
- ☐ Neutral
- ☐ Unconfident
- ☐ Very unconfident

9. When conducting a general observation of the patient, which of these do you assess and record? (Tick all that apply)
- ☐ Body weight
- ☐ Physical disability
- ☐ Obvious illnesses
- ☐ Apparent age, relative to chronological age
- ☐ Complexion (e.g. pallor with anaemia, yellow with jaundice)
- ☐ Exposed skin areas on the head & neck, as well as hands
- ☐ Facial symmetry
- ☐ Facial profile
- ☐ Eyes (including blinking rate, limited ocular movement, ulcerations, discoloration of sclera, corneal scarring, conjunctivitis)
- ☐ Lip competencies (including muscle tone, colour, texture, ulcerations, lesions, angular cheilitis, etc.)
- ☐ Visible enlargements & defects
- ☐ Moles & blemishes

TMJ Assessment

10. How often do you conduct a TMJ assessment of the patient?
- ☐ All of the time
- ☐ Most of the time
- ☐ Sometimes
- ☐ Never
- ☐ Only if the patient mentions something of concern

11. If you don't conduct a TMJ assessment all the time, what is your reasoning?
- ☐ Takes too much time
- ☐ Lack understanding of how to do it
- ☐ Deem it unnecessary
- ☐ Other (please explain _____)

12. How confident do you feel conducting a TMJ assessment of the patient?
- ☐ Very confident
- ☐ Confident
- ☐ Neutral
- ☐ Unconfident
- ☐ Very unconfident

13. When conducting a TMJ assessment of the patient, which of these do you assess and record? (Tick all that apply)
- ☐ Range of movement (e.g. maximum pain-free jaw opening, lateral deviations, trismus)

- ☐ Tenderness (using bilateral palpation)
- ☐ Sounds
- ☐ Locking
- ☐ Bruxism
- ☐ Head/neck pain

Muscles of Mastication Assessment

14. How often do you palpate ALL the muscles of mastication (masseter, temporalis, lateral pterygoid, medial pterygoid muscles) of the patient?
- ☐ All of the time
- ☐ Most of the time
- ☐ Sometimes
- ☐ Never
- ☐ Only if the patient mentions something of concern

15. If you don't palpate the muscles of mastication all the time, what is your reasoning?
- ☐ Takes too much time
- ☐ Lack understanding of how to do it
- ☐ Deem it unnecessary
- Other (please explain _____)

16. How confident do you feel on the anatomical landmarks of the muscles of mastication?
- ☐ Very confident
- ☐ Confident
- ☐ Neutral
- ☐ Unconfident
- ☐ Very unconfident

17. How confident do you feel palpating the muscles of mastication of the patient?
- ☐ Very confident
- ☐ Confident
- ☐ Neutral
- ☐ Unconfident
- ☐ Very unconfident

18. When conducting a muscles of mastication assessment of the patient, which of these do you assess and record? (Tick all that apply)
- ☐ Range of movement
- ☐ Tenderness
- ☐ Referred pain
- ☐ Muscle contraction

Lymph Node Assessment

19. How often do you palpate ALL the lymph nodes of the patient (i.e. cervical, supraclavicular, submandibular, submental, preauricular, postauricular, and occipital nodes)?
- ☐ All of the time
- ☐ Most of the time
- ☐ Sometimes
- ☐ Never
- ☐ Only if the patient mentions something of concern

20. If you don't palpate all the lymph nodes all the time, what is your reasoning?
- ☐ Takes too much time
- ☐ Lack understanding of how to do it
- ☐ Deem it unnecessary
- ☐ Other (please explain _____)

21. How confident do you feel palpating the lymph nodes of the patient?
- ☐ Very confident
- ☐ Confident
- ☐ Neutral
- ☐ Unconfident
- ☐ Very unconfident

22. If the patient has an abnormality, which of these do you assess and record? (Tick all that apply)
- ☐ Site
- ☐ Size
- ☐ Texture
- ☐ Tenderness to palpation
- ☐ Fixation to surrounding tissues
- ☐ Coalescence
- ☐ Mobility
- ☐ Number of nodes felt

Salivary Gland Assessment

23. How often do you do a bimanual examination of ALL the salivary glands of the patient (i.e. parotid, submandibular, submental, sublingual glands)?
- ☐ All of the time
- ☐ Most of the time
- ☐ Sometimes
- ☐ Never
- ☐ Only if the patient mentions something of concern

24. If you don't conduct a bimanual examination of the salivary glands all the time, what is your reasoning?
- ☐ Takes too much time
- ☐ Lack understanding of how to do it
- ☐ Deem it unnecessary
- ☐ Other (please explain _____)

25. How confident do you feel conducting a bimanual examination of the salivary glands of the patient?
- ☐ Very confident
- ☐ Confident
- ☐ Neutral
- ☐ Unconfident
- ☐ Very unconfident

26. If the patient has an abnormality, which of

these do you assess and record? (Tick all that apply)
- ☐ Site
- ☐ Size
- ☐ Texture
- ☐ Mobility
- ☐ Fixation to surrounding tissues
- ☐ Tenderness to palpation

Section B: Clinical examination confidence

27. How comfortable do you feel performing a full extra-oral head and neck examination?
- ☐ Very comfortable
- ☐ Comfortable
- ☐ Neutral
- ☐ Uncomfortable
- ☐ Very uncomfortable

28. Do you ever find yourself skipping over certain aspects of an extra-oral examination (e.g. skipping certain nodes, skipping over asymmetries, skipping general observations)?
- ☐ Yes
- ☐ No

29. If yes, what is your reasoning?
- ☐ Takes too much time
- ☐ Lack understanding of how to do it
- ☐ Deem it unnecessary
- ☐ Other (please explain _____)

Section C: Teaching curriculum & student attitudes:

30. Overall, how satisfied are you with your knowledge of extra-oral examinations?
- ☐ Very satisfied
- ☐ Satisfied
- ☐ Neutral
- ☐ Dissatisfied
- ☐ Very dissatisfied

31. What aspects of extra-oral teaching are you most satisfied/happy with?

32. What aspects of extra-oral teaching do you think could be improved?

33. Do you have any other comments regarding extra-oral examinations?

Thank you for taking the time to complete this questionnaire.

Medical licensing for international medical graduates in Aotearoa New Zealand since 1849: overview and timeline

Johanna Thomas-Maude

ABSTRACT

AIM: This paper aims to contextualise the current state of medical registration for international medical graduates (IMGs) in Aotearoa New Zealand by providing a historical overview of medical licensing policies for IMGs since 1849.

METHOD: This paper and accompanying timeline were prepared from a document analysis of 306 historical and current medical licensing policy documents and other grey literature, including parliamentary Acts and Bills, annual reports, workforce surveys and media reports.

RESULTS: Medical licensing policies originated in the colonial era and have historically privileged doctors from the United Kingdom, Ireland and other Commonwealth countries. The New Zealand Registration Examination pathway for IMGs who did not qualify or work in accepted countries was established in the 1990s, although its origins can be seen in policies from as early as 1905.

CONCLUSION: Although medical licensing policies have been adapted over the past 175 years, these changes tend to follow a pattern of oscillation between stringency and leniency, rather than linear progression. As a result, there are striking similarities between contemporary and colonial medical licensing policies in the way IMGs are categorised and distinguished that could benefit from further clarification and consideration by policymakers.

In light of chronic medical staffing shortages, almost 900 new doctors are needed annually for a modest 3% workforce increase in Aotearoa New Zealand.[1] However, local medical schools only produce approximately 550 doctors per year, meaning Aotearoa New Zealand continues to "*rely on importing doctors from other countries*."[1] International medical graduates (IMGs) thus constitute over 40% of Aotearoa New Zealand's medical workforce and play a crucial role in national healthcare provision.[2] Within this context, policies relating to medical registration differentiate between IMGs depending on their country of training, creating a complex landscape with varied professional outcomes.[3,4] With growing public attention on the challenges some IMGs face with medical licensing,[5] particularly those required to take the New Zealand Registration Examination (NZREX), one stated aim of the 2023 governmental coalition agreement between the National and Act Parties is to "*better recognise people with overseas medical qualifications and experience for accreditation in New Zealand*."[6] In seeking to understand where these current challenges with recognition of IMGs originated, this paper provides a historical overview of medical licensing policies since 1849.

Method

This paper and accompanying timeline (see Appendix) were prepared based on a document analysis of 306 historical and current medical licensing policy documents and other grey literature that concluded in October 2023. This analysis occurred as part of a broader project exploring the experiences of IMGs of different backgrounds with medical licensing in Aotearoa New Zealand,[7] with the purpose of contextualising these experiences.

All distinct parliamentary acts and bills related to medical licensing for IMGs on the New Zealand Legal Information Institute database (n=30) were included, along with the *Gazette* notices associated with this legislation (n=23). Furthermore, all annual reports (n=40), medical workforce surveys (n=22) and newsletters since 2021 (n=18) published on the Medical Council of New Zealand (MCNZ) website were reviewed. In addition, media reports spanning historical (1849–1979, n=61) and contemporary (1980–2023, n=112) periods were analysed. Key sources for these reports included *Papers Past*, the *NZ Doctor*

online archives and prominent news sites (*NZ Herald*, *RNZ*, *Stuff*, *1News* and *Newshub*). News articles were identified with the search terms "doctor* OR medic* AND overseas OR international OR foreign" and then filtered for relevance to IMGs in Aotearoa New Zealand.

Results

Historical medical registration policies set the scene for contemporary licensing pathways. This section first summarises the contemporary context of medical registration for IMGs, before providing a historical overview.

Specialist registration

The MCNZ provides two main specialist registration pathways for IMGs with a recognised postgraduate specialist qualification beyond their primary medical qualification. First, the Vocational 3 licensing pathway is designed for specialist IMGs without prior accreditation in Australia or Aotearoa New Zealand. Vocational 1 and Vocational 2 registration pathways are applicable to medical doctors with postgraduate qualifications from a specialist college in Australia or Aotearoa New Zealand. Although these specialists may have originally completed their undergraduate qualifications overseas, those trained in Australia are generally considered equivalent to those trained in Aotearoa New Zealand, owing to joint accreditation processes between the MCNZ and the Australian Medical Council (AMC). As such, this discussion focusses on the Vocational 3 pathway, designed for specialist IMGs without prior accreditation in Australia or Aotearoa New Zealand. This pathway has no definitive registration requirements, as the MCNZ makes licensing decisions for these IMGs on a case-by-case basis, in collaboration with the respective New Zealand or Australasian specialist college.[8]

Second, *locum tenens* registration of up to 12 months is available for specialists in a narrower list of fields. This option is limited to those licensed with specific medical boards and colleges from Australia, Aotearoa New Zealand, the United Kingdom (UK), Ireland, Canada, the United States of America (USA) and South Africa, provided they have worked for at least 20 hours per week for at least 22 of the last 36 months.[9]

General registration

In addition, the MCNZ offers five general registration pathways. First, Australian medical graduates typically undergo a licensing process similar to New Zealand medical graduates (NZMGs). They work under supervision in either Australia or Aotearoa New Zealand for 2 years after graduation to achieve full registration, facilitated by joint MCNZ and AMC accreditation processes.[10] Second, the competent authority pathway operates in a similar way, but is designated for doctors who trained in the UK or Ireland and worked there for at least 1 year.[11] The key requirement of these two general registration pathways is the origin of an IMG's primary medical qualification, with different available options depending on their years of experience.

In contrast, the third pathway requires doctors to demonstrate recent clinical experience in a country deemed to have a "comparable health system" (CHS), regardless of the country of primary qualification. According to publicly available information, the MCNZ determines whether a country is considered as having a CHS based on public health indicators such as life expectancy, mortality rates, the doctor-to-population ratio, the similarity of the registration system and public health expenditure per capita.[12] There may be additional factors that impact MCNZ decision making in this space behind the scenes. However, publicly available information suggests that the determination of CHS countries is based on these indicators of human and economic development, rather than being directly related to the nature of the training of the practitioners. A fourth pathway that has been recently established for general registrants is also available to IMGs who have successfully gained full registration and worked for 1 year in Australia or the UK.[13]

The fifth pathway, NZREX, is considered the final recourse if an IMG is not eligible for any of the pathways discussed above. These candidates are required to complete additional international medical knowledge examinations, and have their clinical skills assessed in the NZREX or, as of 2023, the UK's Professional and Linguistic Assessments Board clinical examination (PLAB 2).[13] They must then complete supervised work (Postgraduate Year 1 [PGY1] and Postgraduate Year 2 [PGY2]) alongside NZMGs to obtain their full registration.[14] Due to the limited number of PGY1 positions, which are prioritised for NZMGs, NZREX doctors often face significant delays obtaining a supervised placement,[4] which can result in them being unemployed for several years or failing to become registered before their NZREX pass expires after 5 years.

Timeline of medical licensing history

Figure 1 offers an overview of medical licensing policies since Aotearoa New Zealand became a British colony in 1840, organised to reflect their correspondence with current processes and categorisations. A detailed timeline of medical licensing policies can be found in the Appendix.

The colonial era

The historical evolution of medical registration in Aotearoa New Zealand has provided the foundation for current medical licensing policies, such as the competent authority[11] and CHS[12] pathways, which distinguish between IMGs based on country of training and/or experience, rather than their individual qualifications. Aotearoa New Zealand's first *Medical Practitioners Act* of 1849 (enacted in the province of New Munster) defined a "medical practitioner" as someone recognised by a college of physicians or surgeons in Great Britain or Ireland, or those who had served as medical officers in the British armed forces.

1867 saw the first overarching national policy on medical registration in Aotearoa New Zealand. The *Medical Practitioners Act 1867* mandated the creation of Aotearoa New Zealand's first medical board and the publication of a public register of accepted practitioners in the *Gazette* newspaper. Legally qualified practitioners from the UK and Ireland were entitled to automatic registration, while all other applicants were required to demonstrate completion of a medical qualification with at least 3 years of training for assessment by a medical board. However, the 1867 *Act* was soon repealed and replaced by the *Medical Practitioners' Registration Act 1869*, following Parliament's relocation from Auckland to Wellington, and the need for a medical board was removed.[15] It was only with the onset of the First World War that the *Medical Practitioners Act 1914* finally established a new medical board to oversee medical practitioner regulation, known after the enactment of the *Medical Practitioners Amendment 1924* as the "Medical Council of New Zealand" (MCNZ).

As outlined in Table 1, the *Medical Practitioners Registration Act 1905* shares significant parallels with contemporary medical licensing pathways, with automatic recognition of NZMGs, and UK and Irish graduates and registrants. The *Act* further included a prepared list of overseas qualifications and experience deemed "*equal in status to that of New Zealand*" by the governor-general.[16] Today, the CHS registration pathway aims to recruit IMGs from countries where the health system and standard of medicine are considered to be "equivalent",[17] bearing clear similarities to the colonial notion of qualifications that were "equal in status". For IMGs not meeting these criteria, the option was available to take an examination at the University of Otago medical school, representing the earliest iteration of the concept of the NZREX medical licensing examination.

An influx of IMGs

The next significant development in medical registration occurred with the enactment of the *Medical Practitioners Act 1950*, which introduced the concept of "conditional registration" (now known as *provisional registration*). As a prerequisite to obtaining full registration, conditionally registered doctors were required to work at an approved hospital or institution for a duration specified by the minister for health.[15] This essentially constituted a compulsory internship, akin to PGY1. Apart from this change, licensing pathways remained nearly identical to earlier policies. Doctors eligible for registration in the UK or Ireland, including Australian medical graduates, were considered eligible to practice in Aotearoa New Zealand, although they could be refused at the MCNZ's discretion. Graduates with diplomas from other foreign universities approved by the MCNZ required a minimum 6 years of study and, at the MCNZ's discretion, were required to take further courses or examinations in Aotearoa New Zealand, or may have simply been refused.

Medical services in Aotearoa New Zealand were said to be in a "state of crisis" by the beginning of the 1970s[18] due to staffing shortages. This crisis prompted changes that allowed more than 200 IMGs per year to enter the country and work.[19] As a result, IMGs became instrumental in the local medical landscape, with a notable surge in the 1960s and 1970s, particularly from the UK, Ireland, Canada, Sri Lanka and South Africa.[20] By 1980, IMGs constituted 33% of the medical workforce, triggering concerns about an oversupply of doctors.[21] The contentious decision was made to reduce medical school admissions in Aotearoa New Zealand by a quarter[22] and, alongside this, immigration applications from doctors required approval from the Department of Health before a visa was granted.[23] This shift reflected a move from actively encouraging medical migration to address local workforce shortages, to restricting the inflow of IMGs.

Despite these fears of a surplus, however,

Figure 1: Historical overview of key policies indicating who was eligible for medical licensing in Aotearoa New Zealand since 1849 (source: Johanna Thomas-Maude).

Table 1: Comparison of general registration pathways in 1905 and 2024.

Pathway	1905[16]	2024[10,11,12,13,14]
New Zealand medical graduates (NZMG)	NZMGs were automatically eligible for registration	NZMGs are automatically eligible for registration
Australian medical graduates/registrants	Australian medical graduates were eligible for registration (because they were eligible for British registration)	Australian medical graduates are eligible for registration IMGs with general registration in Australia are eligible for general registration
British and Irish graduates/registrants	All practitioners registered or eligible to register in the UK or Ireland were entitled to registration	Doctors with a primary medical degree from the UK or Ireland, and 1 year of general medical experience in that country, are eligible for registration under the competent authority pathway IMGs with general registration in the UK are eligible for general registration
Comparable health systems	Governor in council (now known as the governor-general) prepared a list of foreign qualifications he considered to be "*equal in status to that of New Zealand*", and such IMGs were eligible for registration	IMGs are eligible for registration if they have worked 20 hours per week for a minimum of 33 months within the past 48 months, in a country the MCNZ designates as a "comparable health system"
New Zealand Registration Examination (NZREX)	IMGs whose qualifications were not deemed "equal in status" could apply for registration after completing the final examination at the University of Otago medical school	To be eligible for registration via PGY1, IMGs must pass an approved medical knowledge examination and complete the NZREX or the UK's PLAB 2 clinical skills examination

IMG = international medical graduates; UK = United Kingdom; MCNZ = Medical Council of New Zealand; PGY1 = Postgraduate Year 1; PLAB 2 = Professional and Linguistic Assessments Board.

workforce shortages were prevalent in rural and under-privileged areas.[20] In 1982, Aotearoa New Zealand was reported to have a lower ratio of medical practitioners (130 per 100,000) than Canada, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, Switzerland, the UK, the USA and Australia.[23] Aotearoa New Zealand continues to have fewer doctors per capita than most of these countries,[24] which are all classified as CHS.[12]

In addition, policies introduced in the 1980s began to distinguish more specifically between IMGs based on their country of origin, echoing earlier colonial policies. Graduates from the "old white Commonwealth"[20]—the UK, Ireland, Australia, Canada and South Africa—were automatically eligible for general medical registration. In contrast, IMGs from other countries received a 2-year temporary registration and had three opportunities to pass a registration examination to continue practicing in Aotearoa New Zealand. The first of these examinations was the Probationary Registration Examination in New Zealand (PRENZ), encompassing an English language competence assessment, a written medical knowledge examination and a clinical skills examination.[25]

The origins of NZREX

After its establishment in 1983, the PRENZ examination was phased out by 1989 and replaced by the NZREX. This change required IMGs who trained outside of the "old white Commonwealth"[20]

or the USA to take a screening examination of medical knowledge and English language abilities before being granted a 2-year temporary registration. The key difference was that temporary registration was only granted *after* passing the first two components, marking a shift towards more stringent policies. By 1997, however, the NZREX screening examinations were phased out and replaced by international medical knowledge examinations from the USA and, later, Australia, the UK and Canada.[14] The purpose of these examinations was to ensure doctors required to sit them had the necessary skills and knowledge to integrate successfully into the health system of Aotearoa New Zealand.

However, challenges were identified early on with both the PRENZ and NZREX. Candidates faced difficulties accessing the necessary exposure to the local medical system, resulting in low pass rates. While opportunities have been explored over the past three decades for clinical attachments, observerships and bridging programmes, only 52% of candidates (2,045 of 3,907) passed the clinical component of the PRENZ and NZREX between 1984 and 2023.[26]

A noticeable increase in total attempts and successful passes can be seen in the MCNZ's annual reporting when NZREX became briefly compulsory for all IMGs seeking general registration (except for Australian medical graduates) in 1996.[26] At this time, hospitals became concerned that this would result in staffing shortages, particularly in rural areas. As a result, MCNZ announced a new exemption for doctors from the "old white Commonwealth"[20] and the USA, making them eligible for temporary registration of up to 3 years.[27] During this time, registration data show that most IMGs from the UK, Canada, Ireland, South Africa and the USA took advantage of this exemption from the NZREX. For example, in 1999, there were 254 temporary registrants from the UK, compared to just six taking the NZREX.[28]

Nevertheless, even with these doctors able to obtain temporary registration without sitting the NZREX, the total number of IMG registrations still decreased in the late 1990s.[26] While other factors may have contributed to this decline, it is possible that the examination requirement for registration beyond 3 years acted as a deterrent for doctors from countries now considered as CHS. Furthermore, the examination was held four to five times per year until 2012, for up to 28 candidates at a time.[26] However, offerings were since reduced to three per year, and reduced even further since 2020 and the COVID-19 pandemic. At the time of writing, in 2024, NZREX sessions are only being held twice annually,[14] although these doctors may now take the UK's PLAB 2 clinical skills examination in lieu of the NZREX.[13] The impacts of these changes are as yet unmeasured.

Conclusion

The historical evolution of medical licensing policies reflects a responsiveness to shifting workforce demands in Aotearoa New Zealand, while maintaining certain characterisations and distinctions between IMGs from different backgrounds. Stringency increased in the 1970s and 1980s amid concerns about an excessive influx of IMGs, with exceptions made for doctors who trained in the "old white Commonwealth".[20] Subsequently, in response to predicted workforce shortages, exceptions to government requirements for all IMGs to take the NZREX in the late 1990s privileged IMGs from the UK, Ireland, Australia, Canada and South Africa. There is a historical precedent for more flexible medical licensing processes in response to workforce shortages, which suggests there may be room for movement in response to the current workforce crisis that has been exacerbated by COVID-19.[5]

Rather than a linear progression of change, medical registration policies for IMGs have appeared to oscillate between stringency and more relaxed regulations over the decades. This oscillation reflects the tensions and complexities in ensuring rigorous standards of medical practice are upheld, while also ensuring processes are viable for qualified IMGs hoping to contribute to the understaffed health workforce. The stated aim of the MCNZ, as seen in their annual reports, is to "*protect the public, and promote good practice.*"[26] However, it is unclear at times how aspects of current processes directly reflect this aim of public protection. For example, the significant delays NZREX doctors face in obtaining the PGY1 positions required for registration, even after passing the examination and being considered by the MCNZ as equivalent to an NZMG,[4] are incongruent with staffing shortages[1] that negatively impact the public when seeking healthcare. This is an example where policy does not appear to translate well to practice.

Furthermore, this historical overview also raises questions about the relationship between some policies and this aim of upholding medical practice standards. It is unclear, for instance,

whether there are data to support how the socio-economic development indicators specified as determining the "comparability" of a health system[12] directly translate into IMGs most able to integrate safely into Aotearoa New Zealand's health workforce. Additional points of consideration, such as a propensity for culturally safe practice, are not publicly mentioned as points of criteria in shaping the list of countries considered to be "comparable", despite cultural safety being a priority in national healthcare provision.[29] In fact, it is pertinent to note that the NZREX clinical skills examination, designed specifically to assess competency within the Aotearoa New Zealand health context, includes elements of cultural safety that are not assessed for IMGs on other licensing pathways prior to becoming registered to practice. In addition, countries such as Japan, which perform very highly on the stated comparability indicators,[24] were not included in the 2024 list of CHS countries.[12] It would be helpful, therefore, if further information was publicly available around how such medical licensing policies for IMGs uphold the MCNZ's stated aim of protecting the public, and what other criteria are considered in this decision-making process.

Despite this oscillation between stringency and leniency, some key consistencies have remained. Categories originating in the colonial era continue to differentiate between doctors from the UK and Ireland,[11] countries deemed "equal in status" or "comparable",[12] and the rest of the world. Given these contemporary links to policies that were implemented under British imperialism, the recent decision to recognise the UK's PLAB 2 clinical skills examination raises questions around why a British examination that does not account for the specific cultural context and challenges associated with equitable healthcare provision in Aotearoa New Zealand would be considered a viable alternative to the NZREX. Efforts to improve recognition of IMG medical qualifications and streamline processes thus need to take into account potential colonial legacies, with policymakers making data available to demonstrate how current criteria and categorisations directly contribute to public protection through medical regulation.

More systematic monitoring of IMG licensing policies, and the rationale behind these, could also be beneficial in understanding why some IMGs are included and others are excluded. It may also be useful to explore other models, such as that of the USA (a CHS), where all local graduates and IMGs are required to take the same examinations and meet the same standards to become registered.[30] Moreover, criteria relating to cultural safety could be brought to the forefront when determining which IMGs are considered competent to practice in Aotearoa New Zealand. Further consideration and research into alternative options for rigorous yet equitable registration processes are thus recommended, in order to explore ways to better serve the needs of Aotearoa New Zealand's understaffed medical workforce and, by extension, the public.

COMPETING INTERESTS
Nil.

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Appendix

Detailed timeline of medical licensing history in Aotearoa New Zealand since 1849

The following timeline (refer to Appendix Table 1) provides a more detailed historical overview of the policies relating to medical licensing since Aotearoa New Zealand became a British colony. The table describes who was eligible for registration in Aotearoa New Zealand, organised according to how they most correspond with the categorisations of medical doctors in place in 2024:

- **NZMGs:** New Zealand medical graduates.
- **Specialists:** The distinction between graduate (primary medical qualification) and postgraduate specialist qualifications was not clearly established in policy until 1971. Members of a recognised British college of surgeons, for example, would likely be considered specialists now, although no such distinction was made in nineteenth and early twentieth century policy. Those who would now be classified as *specialists* registered through whichever available pathway applied to them at the time.
- **Australian:** This category refers to Australian medical graduates, or general registrants applying on the basis of having obtained full medical licensing in Australia.
- **United Kingdom (UK)/Ireland:** Doctors with primary medical qualifications and/or training in the UK and Ireland, or general registrants applying on the basis of having obtained full medical licensing in the UK.
- **Comparable:** Doctors from other countries whose qualifications and/or experience were considered acceptable and/or equivalent to NZMGs.
- **NZREX:** Doctors required to retrain or take a licensing examination to work in Aotearoa New Zealand.

Pathways shaded in grey were not applicable at that time.

Appendix Table 1: Historical overview of key policies indicating who was eligible for medical registration in Aotearoa New Zealand since 1849.

NZMGs	Specialists	Australian	UK/Ireland	Comparable	NZREX
1849[1]					
			Recognised by a college of physicians or surgeons in the UK or Ireland; and/or Served and trained in the British armed forces as a medical officer		
1869[2]					
		Australian medical graduates were entitled to registration[3]	All practitioners registered or eligible to register in the UK or Ireland	All other applicants with medical qualifications requiring at least 3 years of training assessed for acceptability by the registrar-general	
1905[4]					
NZMGs automatically eligible for registration		Same as above	Same as above	Governor in council (governor-general) prepared a list of qualifications from foreign institutions (which provided at least 5 years of training) that he considered to be "*equal in status to that of New Zealand*"	IMGs whose qualifications were not deemed "equal in status" could apply for registration on completion of the final examination at the University of Otago medical school

Appendix Table 1 (continued): Historical overview of key policies indicating who was eligible for medical registration in Aotearoa New Zealand since 1849.

NZMGs	Specialists	Australian	UK/Ireland	Comparable	NZREX
1914[5]					
Same as above		Same as above	Same as above	A "medical board" was responsible for assessing individual applications from IMGs with at least 5 years of training and could refuse a candidate at their discretion	No mention of the option to register after examination
1924[6]					
Same as above			Same as above, but British and Irish were no longer automatically entitled to registration and could be refused at the MCNZ's discretion	Same as above, but the Medical Board was renamed as the Medical Council of New Zealand	Examination option re-established for those whose degrees were not recognised by the MCNZ The MCNZ also made provisions for some IMGs to complete a 3-year retraining programme in Otago[7]
1950[8]					
NZMGs entitled to conditional registration		Australian medical graduates eligible for conditional registration at the MCNZ's discretion	Medical practitioners licensed or eligible to be licensed in the UK and/or Ireland were eligible for conditional registration at the MCNZ's discretion	There was no clear distinction between IMGs with acceptable qualifications and those required to take further examination Instead, conditional registration was available to IMGs from foreign approved universities requiring a minimum 6 years of study who, at the discretion of the MCNZ, could have been asked to take further courses or examinations, or simply be refused A 1964 amendment first gave the MCNZ the authority to assess IMG English language competency,[9] which has been included in all licensing policies since	

Appendix Table 1 (continued): Historical overview of key policies indicating who was eligible for medical registration in Aotearoa New Zealand since 1849.

NZMGs	Specialists	Australian	UK/Ireland	Comparable	NZREX
1968[10,a]					
Same as above	The first list of approved specialist qualifications was published in 1971, including those from Australia, the UK, Ireland, Canada, South Africa[11] and the USA[12]	Australian graduates now specifically mentioned on the list of qualifications recognised for conditional registration at both the general and specialist levels	Same as above	In 1970, other qualifications (beyond those accepted in Australia or the UK/Ireland) recognised for conditional registration were from Canada, South Africa, Hong Kong, Singapore, Sri Lanka (Ceylon) and Malta[13] By 1979, this only included Canada and South Africa[14]	Other IMGs were eligible for probationary registration upon recognition by the USA ECFMG[7] Temporary registration of up to 2 years was introduced in the 1980s while candidates prepared for probationary status on completion of New Zealand licensing examinations: the PRENZ (1984–1989) and then the NZREX (1989–1997) From 1990, a screening examination (first part of the NZREX) was also required before temporary registration was available[15]
1995[16,b]					
NZMGs eligible for probationary registration (which required the completion of an internship as a house officer to progress to general registration, i.e., PGY1)	Shift to accepting specialist qualifications on a case-by-case basis[17] However, general registration was a prerequisite for vocational registration,	Graduates from Australian institutions were eligible to apply for temporary, probationary or general registration without examination, depending on	Officially, all IMGs (except for Australian IMGs) were required to take the NZREX, as doctors from the UK, Ireland, Canada and South Africa were no longer automatically eligible for registration However, the MCNZ "*ruled that for a limited period these*		Temporary licensing option phased out for candidates preparing for the NZREX, who now had to pass the examination before they could work as

Appendix Table 1 (continued): Historical overview of key policies indicating who was eligible for medical registration in Aotearoa New Zealand since 1849.

NZMGs	Specialists	Australian	UK/Ireland	Comparable	NZREX
	meaning specialists without recognised primary qualifications were diverted to the NZREX[18]	their experience[19] From 2000, NZMGs and Australian graduates with completed internships could apply for immediate general registration on a case-by-case basis[20]	*doctors could still apply for temporary registration under the new Act*" [21] for up to 3 years From 1998, this also applied to doctors from the USA[22] This "limited period" of exemption from the NZREX lasted for the entire length of time before the new *Health Practitioners Competence Assurance Act 2003*[23–25] Temporary registration thus changed in meaning from previously applying to those on the NZREX pathway preparing for probationary registration to those from countries previously accepted for conditional or general registration, in order to avoid severe workforce shortages[26]		doctors in any capacity[27] The majority of doctors who took the NZREX during this time continued to be from countries outside of the UK, Ireland, Canada, South Africa and the USA[20, 26–31]
2003[32,33,c]					
NZMGs eligible for provisional registration until internship requirements (PGY1 and PGY2) are complete	IMGs assessed and granted full vocational registration or provisional vocational registration (pending supervision for at least 12 months and completion of any other MCNZ requirements), or referred to a general licensing pathway Special purpose registration available for *locum tenens* specialists from Australasia, the UK, Ireland, South Africa, Canada and the USA to work for	Requirements for Australian medical graduates were now identical to those of NZMGs	Medical degree from a list of UK or Irish universities only, plus 1 year minimum experience (this could include an internship year, and the country where this experience should be completed was not specified)	Must have worked for 36 months continuously, at least 30 hours per week, in a listed comparable health system to obtain provisional registration Must then work at least 1 year full-time with satisfactory supervisory reports to be eligible for full general registration In 2004, comparable health system countries included Australia, the UK, Ireland,	Hold a medical degree from the WHO World Directory of Medical Schools or the ECFMG FAIMER Directory, and have passed USMLE steps 1 and 2, and NZREX The Australian Medical Council multiple-choice examination was accepted from 2006 as an alternative to USMLE steps 1 and 2,[35] with the first mention of acceptance of the UK PLAB 1 examination from 2009[36]

Appendix Table 1 (continued): Historical overview of key policies indicating who was eligible for medical registration in Aotearoa New Zealand since 1849.

NZMGs	Specialists	Australian	UK/Ireland	Comparable	NZREX
	up to 6 months, if they worked at least 30 hours per week for 24 of the past 36 months			Canada, the USA, the Netherlands and Germany[33] By 2005, Austria, Belgium, Denmark, Finland, France, Italy, Norway, Sweden and Switzerland had been added[34]	After NZREX, candidates must work under supervision for at least 1 year (PGY1) in a hospital OR general practice in Aotearoa New Zealand, with satisfactory supervision reports All IMGs (including those on other licensing pathways) must pass (or be exempt from) the MCNZ's English testing policy (in 2004 this was 7.5 overall in the IELTS Academic Module, with at least 7.0 in all individual components)
2010[37]					
Same as above	Same as above for vocational registration (case-by-case basis) From 2010, specialists applying for *locum tenens* positions were only required to have worked 20 hours per week over 24 months of the last 36 months	Same as above	Primary medical degree from approved competent authority (UK or Irish medical councils) and 1 year of general medical experience Unlike earlier, it is clearly specified that the 1 year of prior work experience required must be in a competent authority country	Have worked for 36 months (minimum 30 hours per week) during the 48 hours prior to application in a comparable health system (listed on website) and have full or general registration in a comparable health system; OR be satisfactorily participating in a training programme recognised by the	Primary medical degree from an approved medical school listed on the website, an approved medical knowledge examination as listed on website, and completion of the NZREX within 5 years of this NZREX candidates must then either complete the four rotations of PGY1 OR apply for an exemption

Appendix Table 1 (continued): Historical overview of key policies indicating who was eligible for medical registration in Aotearoa New Zealand since 1849.

NZMGs	Specialists	Australian	UK/Ireland	Comparable	NZREX
				American specialty boards or Canadian colleges	on a case-by-case basis to work directly in primary care if they worked at least 5 years in general practice previously In 2009, English language policy changed to require 7.5 in Speaking and Listening in IELTS, and 7.0 in Reading and Writing for IMGs[36]
2012 onwards					
Same as above	*Locum tenens* was extended to allow special purpose registration for up to 12 months, instead of just 6 months in 2012[38] From 2013, *locum tenens* applicants now only required 22 months (minimum 20 hours per week) of active clinical practice prior to application (1,760 hours worked)[39] Current listed approved qualifications from Australasia, Canada, Ireland, South Africa, the UK and the USA[40]	Same as above From 2018, the Australian general registrants pathway was introduced, where doctors who completed Australian medical licensing examinations and 12 months supervised practice in Australia could apply for provisional registration[41]	Same as above A 2022 update states clearly for the first time that competent authority refers only to UK and Irish graduates[42] From June 2023, the UK general registrants pathway was introduced for IMGs who have completed UK medical licensing examinations and PGY1 in the UK, making them eligible to bypass the NZREX and receive provisional registration[43]	From November 2013, comparable health system doctors were now only required to have 33 months recent clinical practice (minimum 30 hours per week) during the past 48 months, equating to 3,950 hours (but only a maximum of 40 hours per week count)[39] From 2023, working 20 hours per week is now considered sufficient (for a minimum of 33 months within the past 48 months), and a wider range of experience is accepted for doctors	Same as above In 2014, the option to complete the PGY1 year in primary care for NZREX graduates was removed, so requirements for registration were identical for NZREX candidates and recent NZMGs and Australian graduates[46] From June 2023, IMGs who have completed the UK medical knowledge and clinical examinations (PLAB 1 and 2) do not also need to take the NZREX to apply for PGY1 positions[43]

Appendix Table 1 (continued): Historical overview of key policies indicating who was eligible for medical registration in Aotearoa New Zealand since 1849.

NZMGs	Specialists	Australian	UK/Ireland	Comparable	NZREX
				applying to work in rural settings[42] Comparable health system countries increased to 22 by 2012 with the inclusion of the Czech Republic, Greece, Iceland, Israel, Singapore and Spain,[3] and 23 in 2018 with the addition of Portugal[44] In 2024, 24 countries are recognised, with Hong Kong being the most recent addition[45] From 2022, comparable health system applicants need to have worked in the "same area" of medicine as the role they are applying for, OR a "similar area"[42]	A pilot programme for 10 NZREX graduates to complete PGY1 in a primary care setting is currently underway, alongside a pilot bridging programme[47] From December 2022, English language policy requires 7.0 in all four individual components of IELTS or a minimum score of 350 in the Occupational English Test Medical Module[48]—the Occupational English Test was also added to the policy between 2009 and 2022, but it is unclear when that change was made

NZMG = New Zealand medical graduate; UK = United Kingdom; NZREX = New Zealand Registration Examination; IMG = international medical graduate; MCNZ = Medical Council of New Zealand; USA = United States of America; ECFMG = Educational Commission for Foreign Medical Graduates; PRENZ = Probationary Registration Examination in New Zealand; PGY1/PGY2 = Postgraduate Year 1/Postgraduate Year 2; WHO = World Health Organization; FAIMER = Foundation for Advancement of International Medical Education and Research; USMLE = United States Medical Licensing Examination; IELTS = International English Language Testing System; PLAB 1/2 = Professional and Linguistic Assessments Board clinical examination.

[a] In addition to "conditional registration" for those with recognised qualifications, "probationary registration" was introduced for IMGs with non-approved qualifications to register without having to go through formal retraining upon consideration of their medical knowledge and English competency by the MCNZ. "Temporary registration" was introduced for those preparing to take examinations and apply for "probationary registration". IMGs could apply for "conditional registration" after completing their probationary period and passing required examinations and/or completing supervised work to an acceptable standard. "Temporary" and "probationary" registration were therefore only for IMGs with qualifications that were not automatically recognised for "conditional registration".

[b] With the new *Act* in 1995, "conditional registration" was renamed as "probationary registration" for all doctors (not just IMGs) who were not yet eligible for full registration (usually less experienced practitioners).

[c] "Probationary registration" is now referred to as "provisional registration".

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Asian and ethnic minority health research in Aotearoa New Zealand: a scoping review of grey literature (2011–2020)

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ABSTRACT

AIMS: A wealth of knowledge, especially on ethnic and migrant health, is located in "grey literature" (GL), i.e., material that is not formally published. This article reviews four types of GL: a) student theses, b) research reports, c) government, and d) non-government unpublished research on Asian and other ethnic minority (A/EM) health in Aotearoa New Zealand, covering a decade between 2011 and 2020.

METHODS: A range of flexible data collection methods was used for each GL category. The application of inclusion and exclusion criteria resulted in the selection of 167 articles for review.

RESULTS: Key themes on methodologies, participants and identities, acculturation, barriers to health and recommendations for changes in healthcare are highlighted in the findings. In general, there was greater representation of intersectional identities, deployment of non-Western methodologies to address A/EM health problems and a broader diversity of health conditions addressed in GL compared with published A/EM research.

CONCLUSION: All four GL categories are important knowledge bases for A/EM health in ways not captured in published research, with student research in particular offering creative and cutting-edge conceptual health frameworks. There needs to be greater visibility of GL, especially non-conventional frameworks and methodologies for A/EM health knowledge.

Research on, about and by Aotearoa New Zealand's rapidly growing "ethnic" (henceforth, Asian and ethnic minority [A/EM]) populations—namely groups identifying as having Asian, Latin American, Middle Eastern and African origins—is an emerging field in health research. As a population category, A/EM, who comprise nearly 17% of the population,[1] are known for their diverse ethno-cultural, linguistic, nationality, generational, migration and visa/residency status.[1]

In 2021, three of the current authors co-published the findings of a 10-year scoping review of academic research publications on A/EM in the *New Zealand Medical Journal*.[2] The findings of our original review were based on—and, indeed, limited by its focus on—published research, overlooking the particular relevance of "grey literature" (GL). There is a thriving community and voluntary sector that produces evidence for reasons including visibility, policy impact and funding, which is likely to be published in non-traditional formats and in multiple languages. As New Zealand's A/EM population grows generationally, there is also an increase in student research on ethnic health issues, which are often unpublished. This paper, a companion to the original, is a scoping review of GL on A/EM populations in New Zealand.

GL is gaining prominence as a reliable source of data for research and policy. The Cochrane Group defines GL as "*literature that is not formally published in sources such as books or journal articles*."[3] GL refers to "manifold document types", both in print and electronic formats, produced by non-commercial publishers, distinguishing it from for-profit "white literature". Understandably, there is vast diversity among GL and who produces it, which informs their credibility. Garousi et al.[4] classify GL on the basis of *credibility* and *outlet control* into works of high (which includes books, theses, reports) medium (annual reports, news articles) and low (blogs, emails, tweets). Recognition of GL allows for representation of ideas in diverse formats and of authors, communities and publishers who may not meet conventional standards of mainstream publishers. In academic publishing spaces, which are known to be disadvantageous to minority scholarship, this recognition is

especially validating.[5–7]

Recognising the value of GL, we conducted a scoping review of GL on A/EM health in New Zealand covering a 10-year period (2011–2020) with the aim of determining the scope and coverage of this literature as well as broadly mapping its focus areas. A scoping review is typically the preferred strategy for appraising literature when the breadth of scholarship in a field is unclear and it is premature to pose specific questions, as in the case of a systematic review.[8] Our scoping review aims to map and classify the body of GL in this field, identify prominent themes and potentially appraise its contributions to the body of A/EM health research in New Zealand. The paper discusses the implications of the findings for A/EM health research and practice and also evaluates GL as a source of evidence. The GL included in this review are student theses, research reports and reports from government and non-governmental organisations (NGOs).

Methods

GL search strategy

Given the dispersed and non-codified nature of GL, standard data searches (e.g., database keyword searches) are often insufficient to provide assurance that the key literatures have been identified. Furthermore, given that there are multiple categories of GL, each requires a different search strategy. Consequently, a multifaceted and iterative search approach was adopted.

This scoping review focusses on GL in four categories: a) student research, b) research reports, c) government reports, and d) NGO reports. As such, it adheres to the guidelines for "high credibility" sources.[4] To be included in the review, the literature had to be published between 2011 and 2020 (both years inclusive), written in English and have a clear focus on any A/EM population group in New Zealand. Different search methods were undertaken for each of these categories, which are described below.

a. **Student research:** Theses and dissertations at the masters and doctoral levels were extracted from the online databases of eight universities in New Zealand (The University of Auckland, Auckland University of Technology, Massey University, University of Waikato, Victoria University of Wellington, Lincoln University, University of Canterbury and University of Otago), along with NZResearch.org, which houses a comprehensive selection of research from these universities as well as smaller polytechnics. The search strategy used to search these databases is provided in Appendix Table 1.
b. **Research reports:** Research reports are non-peer-reviewed publications that are outputs of university-based research projects. A three-pronged approach was undertaken to find research reports. First, relevant research centres housed at the eight New Zealand universities were identified and their websites were manually searched for reports that matched the inclusion criteria. Next, the search strategy listed in Appendix Table 1 was used to search NZResearch.org for research reports. Finally, a "filetype:pdf" Google search of the search terms in Appendix Table 1 was conducted in order to find all relevant PDF documents. The latter search strategy resulted in the inclusion of additional pieces of GL of all four categories.
c. **Government reports:** Reports from New Zealand government agencies such as the Ministry of Health or Ministry of Social Development were obtained through manual searches of the websites of each organisation listed on the New Zealand government website.
d. **NGO reports:** There is a thriving ethnic NGO sector in New Zealand, representing its diverse multicultural profile. Many are specific to ethnicities or nationalities (e.g, Indian NGOs or Latin American NGOs) although several are pan-ethnic in focus (such as the Migrant Resource Centre or The Asian Network Incorporated). For this scoping review, NGO reports were manually extracted from the websites of each NGO listed on the Ministry for Ethnic Communities' Community Directory.[9]

Study inclusion and exclusion

Papers were included if they a) fit into one of the four categories of GL, and b) included participants who identify with an A/EM group. Literature was excluded where the identification of ethnic group was non-specific; for example, where the only ethnic group referred to in a paper was the composite "Asian" which was not further disaggregated. Title and abstract screening for inclusion was done by AM in consultation with

the team.

As shown in Figure 1, a total of 32,381 pieces of GL were initially identified. After the removal of 670 duplicates, 31,711 were selected for screening. Title and abstract screening excluded 31,452 pieces of literature. The most common reason for exclusion at this stage was not having an explicitly health-related focus, and therefore not addressing the aims of the review. The 259 remaining reports were then selected for full-text review. Appendix Figure 1 shows individual PRISMA flow diagrams for each of the four types of GL. A further 92 articles were excluded as they did not meet the inclusion criteria and did not address the aims of the review, resulting in a total of 167 pieces of GL included in this review.

Data extraction and thematic analysis

Each paper was reviewed to identify the ethnic group(s) and population group of interest, broad research area and field of study. Ethnic groups were coded exactly as they appeared in the literature. A coding sheet was collated using Microsoft Excel. The coded identifiers for the documents were analysed quantitatively to determine the overall profile of the body of GL.

This was followed by detailed qualitative thematic analysis based on the substantive content of the articles. The key themes and their descriptions are presented separately. Following established qualitative analyse practices of creating codes from which themes were collated, each GL item was read across three main fields: methodology, findings and recommendations, with individual authors focussing on at least one of these fields. Using an inductive approach, codes were determined based on *frequency of word use* (e.g., acculturation, cultural competency) or *substantive content classification* (e.g., methodological approach or participant types). Themes were then generated around these codes, drawing on similarities and differences among them. All codes and themes were cross-checked and verified across authors. The key themes and their descriptions are presented separately for each field below.

Author positionality

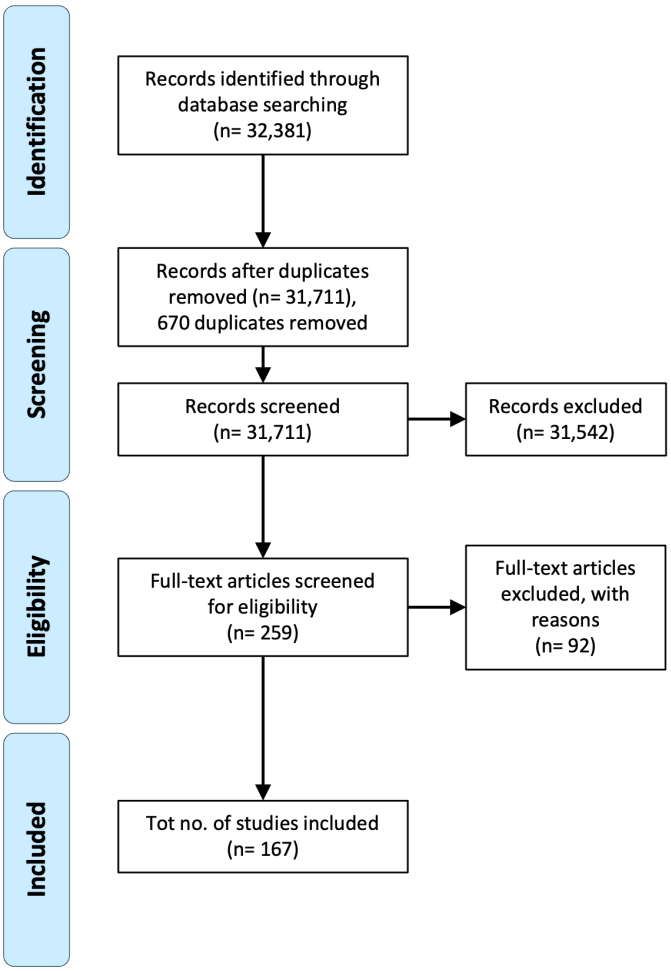
The research was undertaken by a transdisciplinary team comprising epidemiologists, public health researchers and social scientists. All authors on the paper are migrants to New Zealand and three are of A/EM ethnicity. While the quantitative segment followed objective protocols, the qualitative component was informed by the authors' "insider" perspectives of the community and of their disciplinary backgrounds. This breadth was also helpful given that GL was found in diverse disciplinary fields. For instance, the focus on the underpinning methodological philosophy or construction of A/EM as a subject group in health would be of interest to social science frames of health, whereas appraising recommendations and actions would be a public health priority.

Results

Profile of GL

Table 1 summarises the 167 studies that were selected for review. The majority (100/167) of the GL research is disseminated through theses, with 71 masters- and 29 doctorate-level theses captured by our inclusion criteria. Of the masters theses, 63% (45/71) adopted a qualitative methodology, 18% (20/71) utilised quantitative methods and 8% (6/71) were mixed-methods studies, compared with 52% (15/29), 10% (3/29) and 34% (11/29) of doctoral theses, respectively. There was a steady publication rate of A/EM-related government reports over the 10 years. The majority (29/37) of government reports were descriptive in nature, providing descriptive statistics about A/EM populations,[10–18] descriptive accounts of ethnic experiences or customs,[19–28] evaluation of existing policy or services[29–32] or review of existing literature on A/EM communities,[24,33–37] most of which included some recommendations for practice or future opportunities for more research. The remaining eight government reports were prescriptive, setting out future services plans,[38–41] guidelines[42,43] or training resources[44,45] for working with A/EM communities. NGO and research reports were published more sporadically, with gaps in publication in both types of literature between 2015 and 2017. NGO reports focussed on refugee health and services access,[46–48] sexual and family violence,[49–53] mental health[54–57] and experiences of the COVID-19 pandemic.[58,59] Research reports similarly focussed on the needs of refugee populations,[60–62] as well as sexual health of African communities[63–65] and Asian men who have sex with men,[66] and the wellbeing of youth.[67,68] Compared with the peer-reviewed literature on A/EM communities in New Zealand published in the last 10 years,[2] there was a greater diversity of A/EM ethnicities represented in theses and government reports. While the inclusion rate

Figure 1: PRISMA flow diagram.



of Chinese populations was comparable between theses and peer-reviewed literature, this proportion decreased for Indian populations while increasing for African populations. The increased literature on African populations intersects with the relatively large body of GL on communities from refugee backgrounds and the intersections between African communities and sexual health research.

Interest in the study of women's health experiences and outcomes is prominent among theses. Research focussed on women included topics such as appearance, weight and nutrition,[69–74] experiences of pregnancy and motherhood,[75–79] as well as intimate partner/family violence[80–82] and female genital mutilation[83,84] that was absent from the body of peer-reviewed literature in the last decade.

While the body of peer-reviewed articles published between 2010 and 2019 was largely focussed on chronic physical health conditions, this was not a dominant area of interest in student-led research. Mental health, particularly that of refugee,[85–89] youth,[88,90–92] Korean[93–95] and Chinese[92,96] populations, was prominent in the theses captured. Among other forms of GL, research focussed on deaths resulting from suicide and its prevention,[24,27,56] mental health needs[33,37,48,55,57] and appropriateness of mental health services for A/EM communities.[23,61,97] In addition, there was interest in the experiences and wellbeing of the A/EM health workforce.[98–105]

Results of thematic analysis

In addition to the profile findings of the GL research, substantive analyses identified the following dominant themes.

Conceptual framing

Compared with the peer-reviewed published outputs, GL (particularly theses) employed diverse theoretical frameworks to frame the

concerns of the A/EM populations. While some studies drew on traditional public health frameworks (such as Health Belief Systems or Berry's acculturation theory[106,107]), a significant proportion of thesis research employed narrative, ethno-methodology, anthropological, participatory, critical, feminist and interpretive methodologies as these better represented the contradictions and tensions in the lived realities of these communities. A growing body of emerging researchers sought a fusion of cultural epistemologies within Western research models. Thus, creatively, student theses used Afri-centric philosophy,[108] *Guanxi* Confucianism,[96,109] Indian psychology,[110] Burmese cultural concepts (such as *apegan*/social isolation, *oaksukwede*/internal fragmentation and *thwesenyinyut*/social solidarity),[85] Filipino folk philosophy[111] and Islamic value-frameworks,[112] among others, to define the health and wellbeing needs of their community.

Participant categories

As summarised in Appendix Table 2, the GL highlighted research on A/EM populations in three categories: first, by ethnicity or migrant status (e.g., migrants, refugees, Asian, Middle Eastern) highlighting discrepancies in cultural values and dislocation in healthcare access; second, there was a focus on A/EM as hospital or community programme service users (e.g., palliative care users, hospital patients, users of parenting programmes, resettlement programmes) evaluating current programme approaches and the incompatibility of existing models of care for migrant communities; finally, GL focussed on A/EM professional healthcare workers (e.g., A/EM healthcare practitioners, mental health professionals, international medical graduates, community therapists) to highlight problems with recruitment pathways, under-utilisation of skills and retention of A/EM healthcare providers.

Significantly, the GL reflected complex, intersectional representations of A/EM groups, typically within student research. For example, instead of a generalised category such as "ethnic or Asian women", research specified women of Black African descent;[113] older South Korean women;[74] Muslim women;[112,114] diasporic South Asian young women;[80] and pregnant Chinese women.[71] Similarly, children and youth were studied in 11 different ways and the African population as 10 distinct identities. Finally, student theses were more likely to capture the marginalised among minority A/EM groups. For example, the research corpus focussed on gender-diverse youth[91] or South Asian women experiencing period poverty.

Barriers to health and help-seeking

Barriers to healthcare services and help-seeking for A/EM communities were a dominant theme in the GL (Appendix Table 3). Across the four categories, studies highlighted *structural barriers* such as pre-migration trauma; poorly translated health messages;[37,46,47,65,66,115–117] access to social determinants such as housing, employment, financial resources, social capital; *values-based barriers* such as stigma from mainstream society and feelings of being "othered" and a lack of trust in services;[25,36–44,48–51,106,115,118] cultural beliefs and values, especially in relation to mental health services and women's lives.[24–27,48–50,80,90,95]

Of special note were barriers experienced especially by young people including acculturation and adaptation to New Zealand life, and consequent clash with cultural and parental expectations. The role of religion as influential in health and wellbeing was another emergent theme. Studies highlighted religious influences in (lack of) physical activity among Muslim women,[112] and in fostering conservative attitudes to sex education in Black African communities[119] and in food preferences.[120] However, religion was also integral to resilience and coping,[86,121] and in the construction of positive ethnic identity.[111]

Acculturation

Acculturation, the opportunities and challenges of "living in two worlds"[122] and its implications for health and wellbeing, was a dominant and repeated theme, particularly within student research (Table 2). Although published research does reflect on acculturation to some degree,[2,122] within GL this aspect is particularly well developed. Acculturation, which shapes new pluralistic identities and value frames, is an expected part of the migration journey.[123–127] It also impacts changes in lifestyles, especially in diets[71,99,128–130] and health-seeking behaviours.[35,76,131] Studies pointed to acculturation as distinct from assimilation and a reconciliation of two different cultures. Where acculturation was successful, it was associated with better physical and mental health, sense of belonging,[92,93,112,124,125] improved sexual health knowledge,[131] employment satisfaction[132,133] and ability to negotiate between pluralistic health knowledges.[76,90,134,135]

Studies note, however, that acculturation is unevenly adopted by the A/EM community

and therefore is also an underlying cause for stress and conflict[95,118,136–138] and feelings of being "stuck".[76,77,90,112,113,119,122,123,125,139] Women and young people—namely, 1.5th- and 2nd-generation A/EM—were more likely to struggle with negotiating a "third space". For women, there was a desire to be free of some of the burdensome expectations of their culture without being seen as "un-Asian" or "un-African".[22,24,25,49,75–77,112,113,139] For young people, differential acculturation could potentially result in intergenerational conflict and mental distress.[95,119,140]

Analysing recommendations

We also analysed the recommendations emerging from all four strands of the GL with a strong theme across all categories being the need for cultural responsiveness (Table 3, Appendix Table 4).

To meet mental health needs, there were recommendations to establish cultural and linguistic mental health services,[89,93,140] improve culturally competent skills of health professionals[76,90,125,141] and educate the community to improve access to mental health services.[141] There were special recommendations for women who experience violence, including for culturally specialised and community-based services.[81–84]

Recommendations also highlighted the importance of primary healthcare services creating partnerships with A/EM community groups,[107,118,142] including for intersectional groups.[91,143] Whole-of-government approaches were proposed for refugee-specific health services,[88,144] including innovative art-based approaches to engage communities and facilitate social connections.[85,89] There were also recommendations for the provision of culturally appropriate food in hospitals.[120,130,145]

Several studies made recommendations on prevention, such as prevention of tuberculosis,[146] period poverty[147] and domestic violence,[81] and on enhancing quality of life of elderly migrants.[148] Prevention studies highlighted the importance of culturally tailored health messaging,[131] culturally informed services for HIV prevention,[119,149] improving cultural awareness of health professionals in relation to screening[114,150] and ways to improve physical activity among South Asian migrant women.[151]

Theses/dissertations and reports recommended recruiting more A/EM professionals in mainstream healthcare services,[143] and improving employment conditions to minimise service disruptions reliant on A/EM professionals.[101,103] Research and NGO reports had recommendations related to addressing racism and discrimination, both at a structural and interpersonal level, and highlighted the importance of community voice in decision making.

Recommendations for future research also featured in the GL. Future research suggestions included implications of Western dietary habits for children,[128] mental health risks and user-friendly services,[92,95,152] therapy needs to address oppression experienced by A/EM sexual and gender minority youth,[91] sex education skills among A/EM parents[119] and risk factors for increased blood pressure in primary school children.[153] In women's health, improved intersectional understandings of family violence,[80] risk of pregnancy complications,[69] psychological services for women[75,77] and cervical screening uptake[114] were recommended. Further research is also needed on elder care delivery,[101] critical life events[154] and caregiving.[155]

Discussion

The scoping review of the GL provided substantive and original knowledge on A/EM health in New Zealand. Some broad observations are noted here. First, studies in GL canvas a broader diversity of topics than is found among published A/EM health research. Rather than a disproportionate focus on "ethnic diseases",[2] GL scholarship draws attention to issues not typically covered in such scholarship including body image, queer sexuality, parenting and sex education, among others. The GL scholarship, especially student research, showcased a particular focus on mental health and wellbeing issues; for new migrants, these centred around the challenges of settling into a new country, and for a younger generation, questions around identity and belonging were prominent.

A second observation is that the GL literature was more likely to focus on A/EM sub-groups often overlooked in published health research, allowing for more visibility of health issues for African, Middle Eastern and Latin American populations compared to published research in academic journals and books. GL research was also more likely to examine intersectional identities or complex identifications beyond merely being a homogenous "Asian" or migrant or refugee. A third observation relates to risk and protective factors. While GL confirmed what is already known in health equity research, highlighting the focus on structural determinants (such as employment, housing, etc.), institutional blindness (e.g., in health messaging) and structural discrimination (such as racism), it also

showcases innovations in A/EM health through use of holistic, transdisciplinary, critical (highlighting imbalances in power) and non-Western frameworks (e.g., Afro-centric, Indian, Chinese epistemologies). The pervasiveness of acculturation in health outcomes was a prominent theme, reflecting both alignment and antagonisms between cultures, particularly impacting women and young people. These facets deserve attention within mainstream theories of A/EM health equity.

A final observation relates to recommendations for change. There is an overwhelming call across all strands of GL for cultural responsiveness in healthcare that includes, but is not limited to, designing culturally appropriate services, diagnostic tools and health messaging. Cultural responsiveness *vis-à-vis* recruitment and retention of diverse personnel is another key theme that was prominent in this research.

This GL analysis is limited in that the literature covers the decade prior to COVID-19 and significant changes to migration policy and health sector reforms. At one level, the needs of the community are likely to be consistent despite these changes. However, there is also a possibility that the implications of the new landscape limit the findings of this analysis. That said, responses to these changes on migrant health are best captured in GL, reinforcing the value of this body of scholarship.

Conclusion

Our scoping review of GL is a companion to a previously published review of a 10-year analysis of published research on A/EM health in New Zealand. A detailed process for identifying and including "high credibility" GL was undertaken, culminating in a final corpus of 167 documents in four categories—namely, student research, NGO reports, research reports and government reports. GL tends to be considered as inferior to published health research but, contrary to this widely held view, our review affirms GL as a substantial repository of A/EM health research and knowledge. Indeed, GL research may offer opportunities for greater visibility of marginalised groups and opportunities to develop innovative frameworks for health and equity. Our review of GL also highlights the more prominent focus on recommendations and their application. Several recommendations, particularly around culturally competent healthcare, advance guidelines for practice and are foundations for evaluating existing practices (see Appendix Table 4). The GL also offers new areas to further research unique to ethnic communities; for example, there is scope to explore acculturation and intergenerational relationships as part of public health research. There is also the potential for ethnic methodologies to be the basis for practical screening and diagnostic tools.

In all, our main takeaways from this study are: a) GL literature offers practical recommendations not otherwise found in published research, b) GL student theses are a particular space for innovative and creative thinking during the period under consideration, but these are often unpublished—improving avenues for their work is a priority. Although all four categories were important knowledge bases for A/EM health, student research particularly offered creative, cutting-edge and "home-grown" conceptualisations that acknowledged hybridity of A/EM identities and lived realities. Yet student research is also the least likely to find its way into publication and recognition within mainstream health knowledges. This oversight needs to be corrected as it is within this sphere that innovations for future understanding of A/EM health are likely to emerge.

Table 1: Number of grey literature publications by year, ethnic group, population category and broad area of research.

	Theses/dissertations	Governments reports	NGO reports	Research reports
Year of publication				
2011	10[75,76,85,86,90,98,114,136,141,156]	4[16,19,29,33]	1[46]	3[60,63,67]
2012	11[69,70,77,78,87,99,108,112,118,157,158]	6[15,20,30,34,42,43]	1[100]	3[64,116,159]
2013	10[79,88,96,128,142,149,160–163]	6[13,14,21,31,44,45]	2[47,54]	2[65,68]
2014	13[71–73,80,83,93,101,143,148,164–167]	3[10,22,23]	1[48]	2[66,168]
2015	11[84,94,110,119,123,124,137–139,154,169]	4[24–26,35]	0	0
2016	7[81,95,102,107,134,151,170]	2[12,38]	0	0
2017	13[82,122,125,150,152,171–178]	4[11,18,39,40]	0	0
2018	4[74,146,179,180]	2[32,181]	1[55]	2[61,62]
2019	9[89,91,103,104,119,127,128,153,182]	1[27]	6[49–53,56]	0
2020	12[92,113,115,131,144,145,147,155,183–186]	5[17,28,36,37,41]	3[57–59]	3[105,117,187]
Ethnic group				
Chinese	41[69,71,79,81,90,91,96,98,103,104,115,129–131,136–138,141,145,148,150,152,154–157,162–167,169,171,174,176,178,183,185,186]	13[11,12,15,17,18,20,22–24,26,27,45,181]	4[54,55,57,100]	6[66–68,105,116,117]
Indian	16[69,78,98,102,103,110,120,136,150,154,160–162,171,173,180]	6[11,13,15,18,26,181]	5[50–52,57,100]	6[67,68,105,116,159,187]
African	12[69,83,84,102,108,113,119,125,146,149,158,164]	4[10,16,28,181]	1[52]	8[63–65,68,105,159,168,187]
Korean	11[74–76,93–95,136,142,143,152,166]	5[11,17,20,23,24]	3[54,56,57]	2[105,116]
South Asian	11[70,80,107,120,134,147,151,153,170,172,182]	5[12,17,26,28,42]	1[58]	1[66]

Table 1 (continued): Number of grey literature publications by year, ethnic group, population category and broad area of research.

	Theses/dissertations	Governments reports	NGO reports	Research reports
Southeast Asian	4[69,130,162,172]	5[17,26,27,42,181]	1[100]	1[116]
Other Asian	7[69,153,161,162,165,170,172]	10[10–13,15,18,26,27,42,181]	0	4[67,68,159,187]
Latino	4[69,118,123,124]	3[10,16,181]	3[50,51,53]	1[68]
Middle Eastern	1[72]	4[10,16,42,181]	0	3[68,159,187]
Filipino	5[98,102,139,165,175]	1[11]	1[57]	1[105]
Japanese	3[103,142,154]	2[11,20]	1[57]	0
Sri Lankan	2[102,103]	1[11]	1[54]	0
Muslim	3[14,103,112]	1[21]	0	0
Fijian Indian	2[73,99]	0	1[54]	1[187]
East Asian	1[180]	1[42]	0	0
Malaysian	2[136,166]	0	0	0
Vietnamese	2[154,165]	0	0	0
Sikh	1[184]	0	0	0
Population category				
Refugee	9[85–89,122,128,144,177]	12[19,22,25,30,31,33–35,37,40,41,43]	4[46–48,51]	4[60–62,116]
Migrant	8[77,82,87,89,101,154,174,179]	8[17,19,28,31,36,37,40,41]	3[49,51,59]	1[66]
Women	26[14,69–84,94,108,112,113,122,131,147,175,182]	4[13,25,44,45]	0	1[168]
Youth	5[95,137,162,165,174]	0	1[48]	2[67,68]
Children	6[143,153,161,170–172]	1[29]	0	0

Table 1 (continued): Number of grey literature publications by year, ethnic group, population category and broad area of research.

	Theses/dissertations	Governments reports	NGO reports	Research reports
Parents	3[77,95,143]	0	0	0
Older peoples	5[74,101,139,148,167]	0	1[54]	1[117]
LGBTQIA+	2[91,150]	0	0	1[66]
Disability	1[143]	2[21,29]	0	0
Broad area of research				
Chronic health conditions	11[99,129,146,153,163,169,172,179,180,184,186]	0	0	0
Body composition/diet	14[69–73,120,128,130,145,157,161,170,171,182]	0	0	0
Mental health	23[77,85–96,103,108,110,124,125,141,152,154,165,177]	5[23,24,27,33,37]	4[48,55–57]	1[61]
Addictions	4[137,138,162,183]	3[17,22,25]	0	1[116]
Reproductive/sexual health	18[69,71,75,78–84,113,114,119,131,149,150]	6[13,19,28,36,44,45]	5[49–53]	6[63–66,168,187]
Health practice/service provision	21[83,88,96,98,99,101–104,115,118,134,145,155,158,160,163,164,176,180,185]	13[13,14,20,29,31,32,35,38,39,42–45]	2[47,100]	3[62,105,159]
Patient perceptions/service utilisation	11[71,73,92,93,107,114,134,150,156,166,167]	1[33]	3[47,49,59]	1[65]
Settlement experience/identity	12[76,77,90,104,108,122–125,136,136,162,174]	0	2[48,59]	1[66]

Table 2: Themes that intersect with acculturation.

	Theses/dissertations	Government reports	NGO reports	Research reports
Acculturation				
Acculturation leads to new value frameworks	73,76,124–127	22,24,25	48	65,75
Acculturation is associated with better health-seeking behaviours	35,76,131	24,27	-	63
Acculturation improves ability to negotiate between plural health knowledges	35,76,134,135,185	-	-	-
Acculturation impacts dietary habits	71,99,128–130,169	35	-	-
"Healthy migrant effect" diminishes over time as acculturation occurs	175	11,12,15,18,40	-	-
The desire to acculturate (e.g., to "fit in") leads migrants to adopt health-harming behaviours (increased alcohol consumption, gambling)	138	12,17,22,25	-	116
Acculturation can have positive effects (e.g., improved English levels, physical and/or mental health, feelings of safety and/or belonging)	93,112,124,125	35	-	65,66,75
The strength and effectiveness of the welcome given to migrants and/or refugees by service providers impacts their feeling of belonging and speed of acculturation	-	-	46,47	61,75
Acculturation stress				
Acculturation stress leads to health-harming behaviours (e.g., problem gambling)	124,136,138	17,24	-	116
Acculturation stress negatively impacts mental health	89,95,124,136,139	24	55	116
Acculturation stress is significant for migrants shifting from collectivist to individualistic societies	136	-	56	63
Acculturation conflict				
Different rates of acculturation can lead to intergenerational conflict or tension within families	76,88,95,119,140	22,24	49,56	62,75,116

Table 2 (continued): Themes that intersect with acculturation.

	Theses/dissertations	Government reports	NGO reports	Research reports
Acculturation impacts women and young people more with respect to traditional practices	76,77,112,113,139	22,24,25	49	75
Acculturation conflict is often experienced between children and parents (children adopt values and lifestyles of new country while parents expect them to uphold traditional cultural values)	76,88,95,119	22,24	-	62,75
Acculturation may feel like being "stuck between two worlds" as migrants try to hold onto traditional culture but adapt to New Zealand society	76,77,90,112,113,119,122,123,125,139	22,25	48	62,65

Table 3: Summary of recommendations for health service improvements.

Area of focus	Cultural responsiveness						Ethnic minority workforce			Holistic approach to care		Addressing racism and discrimination	Empowering and providing opportunities in decision making	Column total
	Creating culturally responsive services and policies	Improving culturally competent skills of health professionals	Developing partnerships and building trust with community	Creating culturally appropriate health messaging, (including education on New Zealand's health system)	Using ethnic-specific diagnostic tools and criteria	Improving ethnic/group-specific data collection, reporting	Foster growth of ethnic workforce	Addressing hardship in employment	Creating culturally safe workspaces	Whole -of-government or population health approach	Improving information sharing between services			
Addiction services	● (3)		● (1)	● (2)			● (1)			● (1)	● (2)	● (1)		11
Antenatal services				● (1)										1
Cervical/breast screening service		● (2)		● (2)										4
COVID-19 services	● (1)		● (1)	● (2)		● (1)				● (2)				7
Cultural case workers							● (2)	● (1)						3

Table 3 (continued): Summary of recommendations for health service improvements.

Dementia care services	● (1)	● (1)	● (1)	● (1)										4
Diabetes and cardiovascular disease services	● (1)			● (4)	● (2)									7
Disability care services	● (2)	● (1)	● (3)	● (1)										7
Elderly care services										● (2)				2
Electronic health records						● (1)								1
Family planning, contraception services	● (1)			● (2)										3
Family violence prevention services			● (3)	● (2)		● (1)				● (2)			● (2)	10
General practice/ primary health organisation services	● (3)	● (4)				● (2)					● (2)			11

Table 3 (continued): Summary of recommendations for health service improvements.

Health services overall	● (5)	● (1)		● (1)		● (2)	● (2)			● (2)	● (2)		● (1)	16
Hearing-care services	● (1)													1
HIV/AIDs prevention services	● (4)	● (2)	● (1)	● (4)									● (1)	12
Hospitals									● (1)					1
Mental health and psychological services	● (14)	● (9)	● (4)	● (8)		● (2)	● (2)	● (1)		● (1)	● (2)			43
Nursing services								● (1)	● (1)			● (1)		3
Nutrition and dietetic services	● (5)			● (2)										7
Oral health services	● (1)			● (1)										2
Paediatric services			● (1)	● (2)			● (1)			● (1)				5
Palliative, hospice, advanced care services	● (2)	● (1)	● (1)	● (1)									● (1)	6

Table 3 (continued): Summary of recommendations for health service improvements.

Physical activity and wellbeing services	● (1)		● (3)										● (1)	5
Primary healthcare and health promotion services			● (5)	● (2)										7
Refugee health services	● (6)	● (5)		● (2)		● (1)				● (7)		● (1)		22
Sexual violence prevention services		● (1)	● (1)	● (1)						● (1)		● (1)	● (2)	7
Stroke care services		● (1)												1
Suicide prevention services										● (1)	● (1)		● (1)	3
Tubercu-losis care services										● (1)				1
Ultrasound services					● (1)									1

Table 3 (continued): Summary of recommendations for health service improvements.

Women's health (violence, female genital mutilation, period poverty)	● (10)									● (1)				11
Youth health services	● (3)	● (1)		● (2)		● (2)				● (1)			● (1)	10
Row total	64	29	25	43	3	12	8	3	2	23	9	4	10	

Note: numbers in brackets refer to total recommendations per cell.

COMPETING INTERESTS
None.

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Appendix

Appendix Table 1: Search terms for theses/dissertations and research reports.

1	(East Asian or Chinese or Japanese or Korean or Hong Kong or Taiwan)
2	(Southeast Asian or Filipino or Cambodia or Vietnamese or Burmese or Indonesian or Malay or Lao or Thai)
3	(South Asian or Indian or Bengali or Fijian Indian or Tamil or Punjabi or Sikh or Sri Lankan or Sinhalese or Bangladeshi or Pakistani or Nepalese)
4	(Middle Eastern or Arab or Afghani or Assyrian or Egyptian or Iranian or Persian or Iraqi or Israeli or Jewish or Jordanian or Kurd or Lebanese or Moroccan or Palestinian or Syrian or Turkish)
5	(Latin American or Argentinian or Brazilian or Chilean or Colombian or Mexican or Peruvian or Uruguayan or Paraguayan or Ecuadorian or Venezuelan or Dominican or Haitian or Guianese or Hispanic or Latino or Chicano or Guatemalan or Salvadoran or Honduran)
6	(African or Jamaican or Kenyan or Nigerian or West Indian or Somali or Eritrean or Ethiopian or Ghanaian)
7	health
8	New Zealand
9	(Immigrant or Migrant or Refugee or Asylum Seeker)
10	(1 or 2 or 3 or 4 or 5 or 6) and 7
11	9 and 11

Appendix Table 2: Participant groups covered in review corpus and their intersections.

	Theses/dissertations	Government reports	NGO reports	Research reports
Participant identity				
African	Women,[113] immigrant women,[108] migrants,[146] East African women,[83] Black migrants and refugees,[149] Zimbabwean immigrants,[113] Zimbabwean households,[164] Somali refugees,[86] Eritrean refugees,[84] parents,[118] leaders and members[158]	Living in Auckland,[16] crowded household[181]		HIV-positive,[63,64] Black[63,65]
Middle Eastern	Women,[72] Muslim women[112,114]	Living in Auckland,[16] crowded household[181]		
Latin American	Spanish-speaking,[118] Hispanic,[124] Latino[123]	Living in Auckland,[16] crowded household[181]		
Asian	Women: Chinese,[69,71,79,81,131] Korean,[74,76,94] Indian,[69] South Asian,[70,80,147,175] Indo-Fijian,[73] older,[74] migrant,[76,79,94] recently immigrated,[175] diasporic[80] Men: men who have sex with men,[150] smokers[183] Gender diverse: sexual and gender minority[91] Children and youth: South Asian,[153,170] Chinese,[137,174] Asian,[162] Korean,[95] Indian,[171] immigrant students,[95] refugees,[84,128,177] healthy term infants,[170] adolescents, 1.5/2nd generation, diasporic[174]	Living in Auckland,[16] crowded household,[181] suicide decedent[24,27]	Chinese,[55] South Asian,[58] Wellington,[55] Auckland[58]	Chinese,[117] men who have sex with men,[66] older migrants[117]

Appendix Table 2 (continued): Participant groups covered in review corpus and their intersections.

	Theses/dissertations	Government reports	NGO reports	Research reports
	Ageing: Chinese,[115,148,167,178] Filipina,[139] type 2 diabetes[169] Migrant and refugee: Korean,[93,143] Indian,[173] South Asian,[107,151] Chinese,[104,138] raising children with disabilities[143] Other: Chinese,[155,163] East Asian and Indian adults,[180] adults with pre-diabetes and type 2 diabetes[180]			
Migrant and refugee	Asian,[82] African,[82] Middle Eastern,[82] Somali,[84] Eritrean,[84] Indonesian,[84] Kurdish,[84] youths,[88,122] mothers,[60,77] international students,[136] living with FGM,[84] survivors of family violence[82]	Living in Auckland,[22] women,[25] men who use violence,[28] former refugees who arrived in New Zealand between 1993 and 1999,[34] recent migrants,[22] victims of family violence[36]	Living in Auckland,[59] living in Wellington,[47] living in Manawatū,[47] Colombian,[47] Myanmar,[47] Bhutanese,[47] women,[49] recent migrants,[59] former refugees,[47] refugee-background communities,[46] refugee youth in the first 12 months after arrival in New Zealand,[48] victims of family violence[49]	African,[168] Middle Eastern,[168] Asian,[168] refugee women,[75,168] subjected to FGM[168]
Other		Living in Auckland,[33] Muslim[33]		
Professional participants				
	Health service providers,[158] Chinese,[98] Indian,[98] Fijian-Indian,[99] mental health professionals,[96,103] TCM practitioners,[185] professional translators (Chinese–English/	Service providers of community initiatives targeting family violence in refugee and migrant communities,[19] healthcare practitioners working with refugees,[43]	Overseas-trained nurses,[100] community members and therapists working to prevent and respond to sexual violence[50–53]	Healthcare practitioners enrolled in CALD Cross Cultural Training Course,[159] A/EM healthcare practitioners working within an Auckland district health board[105]

Appendix Table 2 (continued): Participant groups covered in review corpus and their intersections.

	Theses/dissertations	Government reports	NGO reports	Research reports
	English–Chinese),[115] female nurses,[99] elder care delivery,[101] key stakeholders in refugee healthcare,[144] international medical graduates,[102] maternity care and health providers[79]	healthcare practitioners working in emergency quota refugee areas who have completed CALD training[32]		
Service users				
Asian	Chinese,[130,145,152,156,166,176] Korean,[152,166] Filipino,[130] Indian,[120] South Asian,[120] East Asian,[165] Southeast Asian,[165] migrant healthcare users,[142] palliative care patients,[176] health consumers in Christchurch,[166] adult hospital patients,[120,130,145] primary care patients with mental health issues,[152] participants of a low-intensity CBT programme called Living Life to the Full[165]	Living in Auckland district health boards,[10,11,18] living within Counties Manukau District Health Board,[38,39] living within Waitematā District Health Board,[11,18,26,42] living in Christchurch,[20] AMHCSC service users,[23] East Asian,[20] utilising palliative care and hospice services,[20] Asian Advance Care Planning patients,[42] first time users of inpatient mental health services,[26] undergoing cervical screening[13,44,45]	Patients with dementia who utilise AACT services[54]	
Migrant and refugee	Access play therapy at Parentline Services in Hamilton[89]	Living in Auckland district health boards,[30,31,40,41] living within Waitematā District Health Board, [40,41] new migrants,[31,40,41] former refugee,[40,41] refugee Muslim women,[31] current asylum seekers,[40,41] participants in The Muslim Women's Swimming Project,[31] participants of Auckland District Health Board		

Appendix Table 2 (continued): Participant groups covered in review corpus and their intersections.

	Theses/dissertations	Government reports	NGO reports	Research reports
		RHC,[30] participants of community initiatives addressing family violence in refugee and migrant communities[19]		
Other		Living in Canterbury,[14] MELAA patients within Auckland district health boards,[10] disabled Muslim individuals and their families accessing Waitematā District Health Board services,[21] Child Disability Service Project,[29] culturally and linguistically diverse patients[14,29]		Ghandi Nivas clients,[187] secondary school students[67,68]

NGO = non-governmental organisation; FGM = female genital mutilation; TCM = traditional Chinese medicine; CALD = cultural and linguist diversity; A/EM = Asian and other ethnic minority; CBT = cognitive behavioural therapy ; AMHCSC = Asian Mental Health Cultural Support Coordination Service; AACT = Alzheimer's Auckland Charitable Trust; RHC = Refugee Health Collaborative; MELAA = Middle Eastern, Latin American, and African.

Appendix Table 3: Social determinants of health and barriers to health.

	Theses/dissertations	Government reports	NGO reports	Research reports
Barriers to service utilisation				
Access	141	11,14,29	-	61,63,64,67,68,75
Cost	-	11,14–18,26,40,41,181	46,51,52,54	61,67,75,168,187
Transportation	167	11,14,15,17,26,40,41	-	67,68
Language barrier	79,83,88,92,104,115,124,141,143,156,167	10,11,11,14–17,19,20,22,23,26–28,30,34,36,37,39,41–45	46–48,52,54–56,59	61,66,75,187
Different cultural understanding of health	79,83,88,118,134,148,155,156,163	14–16,21,32,35,43,44	49,50,52	63,66,75,116,159
Lack of culturally competent healthcare	79,91,123,145,156,163,165,167,183	11,14–18,21,23,24,27–30,32–35,37–45	46,47,49–52,54,56,58	61,63,65,66,75,116,159,168
Lack of trust/previous negative experience	107,118,143,169,178	14–16,21,24,26,29,33,38,42,44,45	46,50–52,59	63,65,66,68,75,116
Racism and discrimination	60,123,158	12,26–28,33,34,37,38	46,50,59	61,63,65
Lack of empowering interactions with health providers	107,183	-	46	63,75
Lack of knowledge about New Zealand health system and services	143	11,14,15,17–20,22,23,26,28,29,35–37,39–41	47–49,51,52,54,59	67,75
Service providers and users have differing perceptions of standards of care and expectations for treatment	60,88,143,156,163	14,15,43	46	75

Appendix Table 3 (continued): Social determinants of health and barriers to health.

	Theses/dissertations	Government reports	NGO reports	Research reports
Practitioner lacks understanding of patients' specific cultural context/issue	83,156,158	14,32,34,43	-	61,63,65,66,168
Lack of culturally appropriate and/or preferred hospital foods	120,130,145	-	-	-
Barriers to seeking help				
Spiritual, cultural and/or traditional beliefs	81,88,93,96,113,114,119,131,144,152,158,165	19–21,26,33,37,43,44	54,57	63,65,66,75,116,117
Stigma	88,91,137,146,158,165	14,15,17,19,21,22,25–28,33,110	49–51,54,56,57,59	63,65,66,75,116
Believed problem was not severe enough to seek help	-	26	-	68
Different understanding of health issue	-	-	32,54	75

Appendix Table 4: Key themes on recommendations for future research.

Specific area	Theses/dissertations	Government reports	NGO reports	Research reports
Child and youth health				
Ethnic differences in fat mass	170	-	-	-
Risk factors for raised blood pressure	153	-	-	-
Westernisation of dietary habits	128	-	-	-
User-friendly mental health services	-	-	-	-
Prevalence and factors associated with depressive symptoms	95	-	-	-
Oppression experienced by sexual and gender minority youth and their therapy needs	91	-	-	-
Sexual health services, gender equality and racial discrimination	174	-	-	-
Skills and confidence of parents around sex education for children	119	-	-	67
Identify and address risks, adverse outcomes and unmet youth health needs	-	33	-	67
Experience of racism by migrant generation, the role of social media, potential of education system to improve inclusion	-	27	-	-
Reasons for high rates of hospitalisations for respiratory diseases among MELAA	-	16	-	-
Women's health				
Theory and practice of cultural safety to support diverse groups of mothers	60	-	-	-

Appendix Table 4 (continued): Key themes on recommendations for future research.

Specific area	Theses/dissertations	Government reports	NGO reports	Research reports
Beauty practices among older women	74	-	-	-
Relationships and inequality and family violence	80	-	-	-
Interaction of ethnicity and obesity and pregnancy complications	69	-	-	-
Muslim women, of varying ethnicity and generational status and cervical screening uptake	114	-	-	-
Sexual violence	-	-	50–53	-
Family violence across life cycle, type, risks, ethnic specific, public discourse, intergenerational impacts	-	-	49	-
Alcohol use and harm	-	25	-	-
Reasons for higher rates if assisted deliveries and caesarean sections	-	16	-	-
Reasons for higher hospitalisations due to kidney and urine infections among MELAA groups	-	16	-	-
Reasons for discontinuation or non-participation in physical activity	-	31	-	-
Elderly care				
Impact of migrants on elder care delivery	101	-	-	-
Bridging understandings of caregiving in families caring for older adults and carer support services in New Zealand	155	-	-	-

Appendix Table 4 (continued): Key themes on recommendations for future research.

Specific area	Theses/dissertations	Government reports	NGO reports	Research reports
Long-term health conditions and risks				
Ethnic-specific tools for identification and management of chronic/long-term conditions	99	-	-	-
Diabetes and cardiovascular risks	175	16	-	-
Migrants' perceptions on current diabetes education and health information	169	-	-	-
HIV among men who have sex with men, women and younger people	-	65	-	65
Use of Asian-eCHAT to detect mental health issues and support clinicians in providing stepped-care support	152	-	-	-
Evaluation of effectiveness and performance of smoking cessation interventions	183	-	-	-
Drinking culture among migrants	138	-	-	-
Osteoporosis and sun exposure	-	15	-	-
Injury and safety				
Higher risk of adverse outcomes among injured migrants compared with non-migrants	179	-	-	-
Perceptions on feeling safe across multiple care settings	176	-	-	-
Family violence among those with disabilities and rainbow ethnic groups	-	-	49	-
Role of family and extended networks on suicide risks	-	27	-	-

Appendix Table 4 (continued): Key themes on recommendations for future research.

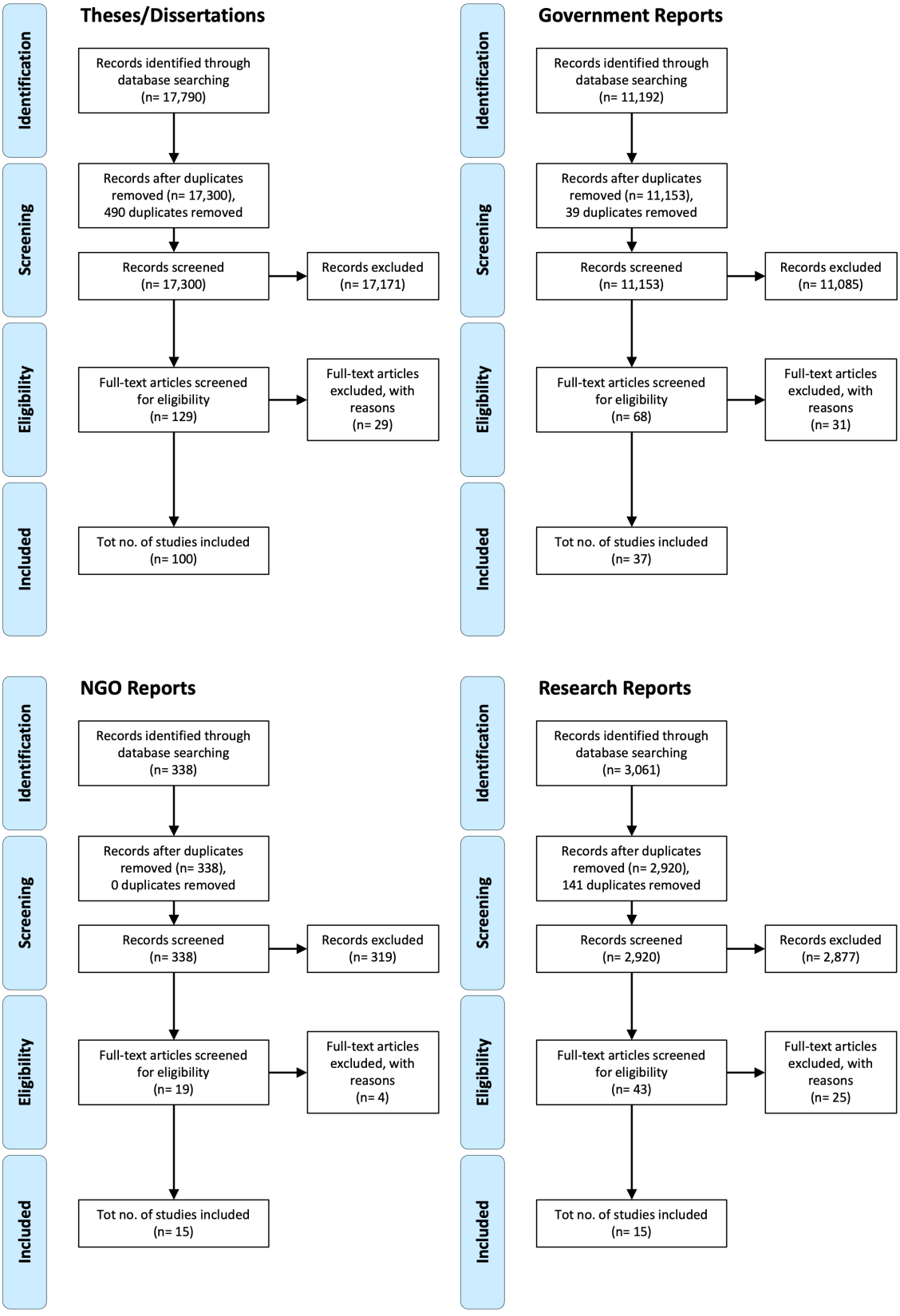
Specific area	Theses/dissertations	Government reports	NGO reports	Research reports
Best practice of suicide prevention and postvention based on examples from overseas	-	24	-	-
Falls and pressure sores in residential care	-	15	-	-
Theoretical or culturally appropriate models and resources				
Testing of theoretical or culturally appropriate models and resources to increase uptake of physical activity among women	112	-	-	-
New approaches to guide people towards happiness	110	-	-	-
Psychological services for migrant mothers	77	-	-	-
Support of leisure consumers to cope with critical life events	154	-	-	-
Diabetes care among older migrants	169	-	-	-
Development of palliative and hospice care models for Asians in collaboration with community	-	20	-	-
Refugee health				
Experiences of refugee men and youth	-	34	-	75
Alcohol use and harm	-	25	-	-
Problem gambling				
Online gambling and potential for dissemination of online interventions	-	-	-	116
COVID-19				
Ethnic specific information on health and social impacts	-	-	58	-

Appendix Table 4 (continued): Key themes on recommendations for future research.

Specific area	Theses/dissertations	Government reports	NGO reports	Research reports
Palliative, hospice and advanced care				
Investigate care needs, including end-of-life care, counselling and bereavement support	-	20	-	-
Health needs				
Assessment, community health needs, barriers to care, intergenerational health issues, trend analyses	-	15,16	-	-
Ethnicity coding				
Ways to improve for MELAA groups	-	16	-	-

NGO = non-governmental organisation; MELAA = Middle Eastern, Latin American, and African.

Appendix Figure 1: PRISMA flow diagram by type of grey literature.



Experiences and perspectives of thriving (or not) as Māori and Pacific allied health professionals

Ulima Tofi, Nicola M Kayes, Bobbie-Jo Wilson

ABSTRACT

AIM: To explore the perspectives and experiences of Māori and Pacific allied health professionals (AHPs) regarding what enables them to thrive or flourish in their first 2 years of practice, within a large public hospital setting.

METHODS: A qualitative study grounded in shared Māori and Pacific peoples' values and practices was undertaken, which drew on tenets of appreciative inquiry (AI) with thematic analysis of wānanga talanoa (referring to traditional and culturally informed Māori and Pacific processes, which provide a physically, spiritually and culturally safe space for discussion, knowledge sharing and co-creating meaning). Participants were Māori or Pacific AHPs (n=11) employed at a publicly funded, urban health organisation.

RESULTS: Three interrelated themes were constructed, including: 1) valuing cultural intelligence, 2) surviving, rather than thriving, and 3) it takes a village. Participants provided a range of ideas for how things could be different, which underpin tangible recommendations for health organisations to support Māori and Pacific AHPs to thrive.

CONCLUSION: Informed by both Māori and Pacific peoples' values and principles, this study highlighted experiences, challenges and opportunities relevant to thriving as Māori and Pacific AHPs in their first 2 years of practice. Rather than minimising the impact that negative experiences of ongoing colonisation and racism have on AHP wellbeing, the purposefully adopted strengths-based approach highlighted collective strengths and solutions for positive change.

Despite widespread acknowledgement of the importance a diverse health workforce carries for addressing inequities in Māori and Pacific peoples' health, there is an absence of research exploring how Māori and Pacific allied health professionals (AHPs) are enabled to thrive as health professionals. Māori and Pacific peoples are under-represented in our allied health workforce and may face unique stressors compared with their non-Māori, non-Pacific counterparts. Broader health and disability workforce research highlights that Māori and Pacific peoples experience cultural isolation, cultural safety concerns including racism or discrimination, and increased tensions of being Māori or Pacific in a Western-centric and biomedical-dominant health system.[1] These stressors pose potential challenges for all Māori and Pacific AHPs, but particularly those in their early years of practice when adjusting to new roles and organisational environments and systems.[2] While emphasis has been on increasing the number of Māori and Pacific health professionals in Aotearoa,[3–5] there is also equal responsibility to look beyond just "target numbers" and consider one's ability to thrive within a given profession and specific work environment.[6]

Although there is increasing evidence highlighting consistent health system failures in addressing the needs of Māori and Pacific peoples more broadly,[7–10] the evidence base as it relates to allied health and thriving in the initial years of practice remains limited. Further, the experiences of Māori and Pacific AHPs, including what supports them to thrive in their roles, have not been investigated. As such, this research sought to explore, share and learn from the experiences of Māori and Pacific AHPs to understand their own perspectives on what enables and supports them to thrive as Indigenous practitioners within the health sector. It is expected that insights from this research will inform and guide actionable steps to develop culturally supportive and safe healthcare environments that embrace Māori and Pacific Indigenous AHP practices and values.

Methods

This was a qualitative study grounded in Māori and Pacific cultural frameworks,[11–14] drawing on the tenets of appreciative inquiry (AI). AI has alignment with the research intention of providing a positive, affirming and strengths-based

approach to transformation, asking how things could be different rather than what's wrong with them.[15,16] The research specifically drew on the *Discovery* and *Dream* steps of AI, bringing to life the experiences of Māori and Pacific AHPs working in an urban-based health organisation.

This research was instigated and led by the primary author, who is a Māori Samoan AHP. It was precipitated, at least in part, due to his personal experiences navigating a health career within non-Māori, non-Pacific working environments, and having spent time listening to colleagues sharing similar experiences. Co-authors include an experienced Pākehā qualitative health researcher with an interest in advancing the role of the allied health workforce in Aotearoa health systems, and a Māori health and allied health researcher of Ngāti Tūwharetoa descent. Ethics approval for this study was obtained from the Auckland University of Technology Ethics Committee (AUTEC Number 20/377) on 27 January 2021.

Sampling and recruitment

Māori and Pacific AHPs were eligible to take part if they were currently employed at the research locality (an urban publicly funded health organisation). Purposive sampling was used to capture a diversity of experiences, stories and knowledge of Māori and Pacific AHPs. This was to ensure participants possessed the adequate mix of political and cultural understanding to allow for robust and dynamic contributions to the

Table 1: Data analysis steps.

Step one	Familiarisation: Each audio recording was listened to twice, and each transcript read twice, allowing a deep familiarisation with the data. With subsequent engagements, sentences or terms were highlighted and annotated, while being cautious not to jump to conclusions.
Step two	Initial coding: The research question guided initial coding of extracts from the wānanga talanoa.
Step three	Generating initial themes: Codes and extracts were examined and grouped into rough themes. As an example, this examination of codes resulted in the generation of "leadership", "support" and "service" as potential themes.
Step four	Reviewing themes: This step involved checking and reviewing the initial themes against the research question and aims, with the goal of refining, and then organising the data into themes and sub-themes. It was clear that initial themes had a lot of overlap, and it was challenging to decide where some of the ideas from the wānanga talanoa might best fit. It was also difficult not to get lost in one's own experiences, assumptions and views. We drew on an iterative and recursive process, revisiting the data and the audio recordings, and listening for tone, context and emotion to guide final theme selection.
Step five	Defining and naming themes: Braun and Clarke[17] urge developing and determining a narrative for each theme and deciding on informative names for each. *Valuing cultural intelligence*, *Surviving, rather than thriving* and *It takes a village* were constructed through this process. A final theme, *Being at our best* reflects the recommendations shared in this paper.
Step six	The write up: As the name suggests, this step involved the writing up of key findings under the aforementioned themes.
Additional step	After kōrero with members of my advisory whānau, I (primary author) was reminded that in a Western context, data can be viewed as both a possession and as pieces of individual information or statistics to be analysed. In a Fa'a Samoa context, however, what is termed "data" are people's stories, thoughts and experiences. Furthermore, Fa'a Samoa dictates this "data" is not mine; it has been gifted to me for safe keeping. Therefore, it is my responsibility as a Samoan to ensure the findings accurately represent those who entrusted their "data" to me. In a Samoan context, this means engaging with participants throughout the data analysis process to ensure the interpretation of findings reflect the shared stories.

research. Key sampling characteristics therefore included ethnicity, profession, work setting, gender, time since qualification, stage of career, stage of life and level of cultural knowledge.

Data collection

Consistent with Māori and Pacific research practices,[12,13] data were collected via a total of three in-person wānanga talanoa sessions with 11 Māori and/or Pacific AHPs. Two sessions consisted of five people each, while one person requested a one-to-one session due to an unforeseen scheduling clash. Length of wānanga talanoa sessions ranged from 60 to 80 minutes. The primary researcher, who as noted above is of both Māori and Pacific heritage and familiar with cultural practices, guided each session with appropriate cultural processes that reflected the unique mix of each group. Protocols included opening with karakia lotu (prayer); holding space and time for whanaungatanga; using Māori and Pacific languages/terminology; reflecting personal experiences; appropriately applying humour and challenge/provocation; and the sharing of kai (food). The outlined practices supported a culturally safe environment and gave participants the freedom to communicate verbally, physically, emotionally and spiritually. Each session followed a similar format, layered by cultural protocols and markers that ensured each session elicited its own unique feeling, different to the other but no less authentic, humbling or insightful.

Data analysis

Data were analysed using reflexive thematic analysis following the six-step process outlined by Braun and Clarke.[17,18] Table 1 provides an overview of how these steps were applied in this research (see Table 1). While the steps reflect a somewhat linear process, it was more iterative and recursive in reality.

Findings

Eleven Māori and Pacific AHPs took part in the wānanga talanoa, including physiotherapists (n=4), occupational therapists (n=2), dieticians (n=2), pharmacists (n=2) and one speech and language therapist. Length of professional service ranged from 5 months to 15 years. Although this research was specifically interested in the initial 2 years of practice, more experienced participants had the benefit of being able to step back and reflect on their experiences as a new graduate.

As noted in Table 1, three themes were constructed—*valuing cultural intelligence*; *surviving, rather than thriving*; *it takes a village*—which provide insight into the unique pressures Māori and Pacific AHPs faced in their first 2 years of practice. Each theme is discussed in more detail below. Pseudonyms are used to maintain privacy. Each pseudonym is a different Pacific language for numbers one to 11.

Valuing cultural intelligence

All participants agreed that a strong sense of identity or connection to culture helped guide and inform their clinical practice. Cultural identity was perceived as critical to who participants were as an AHP and they expressed being at their best when they felt enabled to bring their whole self into their role and draw on their innate ways of being in their practice.

> *"I will never stop being Māori, but I could stop being a physio. And so, I'm never not gonna walk in the room and not be Māori."* – Vitu

Participants perceived their sense of understanding and engaging with their own culture influenced how they cared for people from different cultures, including the value they placed on culture as a source for recovery.

> *"I think it's influenced my understanding what culture means and how to kind of relate to someone and how to kind of make them feel like their culture is important. Making them feel empowered by their culture, making them feel like that matters."* – Nima

Participants were driven by a sense of responsibility, connection and commitment to the local community and a desire to have a positive impact.

> *"I'm here because I was born and raised here in* [this community]. *I'm here because I'm from here and because our people are here, and I don't want our people to be here* [in the hospital]. *I want them out there, thriving. Being healthy. Making the right decisions. That's why I'm here."* – Lua

Participants perceived their culture provided them with a unique skillset that could support

engagement and outcome. Indeed, it was a resource routinely called upon by others in their work environment, with participants routinely sought out to be a translator or connector.

> *"It is a skill, lived experience is, and yeah … your skill in … your chance to be able to connect with other people so that they can engage the service to get a good outcome for them."* – Hongofulu

However, participants also acknowledged experiencing personal and professional tensions, as their cultural skillset in the workplace was valued in some spaces but not others, and at times was taken for granted. For example, on one hand being called upon to "*double as an interpreter for our service*" – Tolu, but then when "*wanting to rep being Māori* […] *people telling me I'm not brown enough or I'm not, I don't know the language, so what do I know.*" – Ono.

Instead of feeling valued for "*the fact that you can speak a different language, you can engage with these patients better than the rest of your colleagues*" – Iwa, participants felt they were expected to take on the cultural load without acknowledgement: "*Oh, you can do that too and so we'll just take advantage of that*" – Iwa. This was particularly challenging for new graduates who were still grappling with the usual challenges that come with the transition to an autonomous practitioner.

In summary, participants perceived that their sense of cultural identity was important to who they were as a practitioner, and it gave them a unique ability to relate to and connect with the communities they served. Their cultural intelligence was a significant resource routinely drawn upon by others in their organisation when it had practical utility for them. However, participants perceived there was a lack of systemic value attributed to this resource and limited understanding around the increased responsibilities and tensions inherently associated.

Surviving, rather than thriving

Participants struggled to respond to questions about thriving in the workplace, as their reality was "*very much about surviving* […] *just getting through day-to-day or week-to-week*" – Tasi. They felt hindered in their ability to thrive as Māori and Pacific AHPs due to the systemic barriers they faced. Their stories included examples of structural or institutional racism, personally mediated racism in the form of racial stereotyping and micro-aggressions, and internalised racism manifesting in the erosion of self-belief and confidence. This theme reflects the disadvantages, barriers and challenges participants experienced, on top of routine challenges that come with working in healthcare in the formative years of one's career. Tasi reflected that thriving would be:

> *"Not having to deal with little racist remarks, and even procedures or how things are done. So, not having to fight those kinds of things and not having to deal with those aggressions in the day-to-day."* – Tasi

Most participants were the only Māori or Pacific person in their teams. They spoke about not feeling culturally safe and frequently being put into culturally unsafe positions by seniors or colleagues. Tekau mā rua recalls:

> *"I was doing everything for anyone. I was like a PSA* [Public Service Association] *delegate, doing tikanga best practice for all the* [health professionals] *here* […] *There wasn't anyone else to do it and I just didn't, hadn't learnt then how to say no, I guess* […] *it is hard to stand up when you're a new grad."* – Tekau mā rua

Participants expressed a sense of weariness caused by the continued exposure to culturally unsafe spaces "*because there's only so many times one person can advocate for themselves*" – Vitu. They also reflected on the absence of support for their cultural needs, compared to investment in their clinical and technical skills.

> *"I think my clinical skills and all that, they're well taken care of, yes. But me as a person, me as a* [mixed ethnicity] *person, I ain't getting that from nowhere."* – Tasi

This was perceived as a manifestation of institutional racism, which stifled participants' ability to thrive at work, especially in their initial years of practice.

Tasi reflected that "*If I'm stuck worrying about trying to push Māori stuff, basic stuff, then I'm not allowed to actually think creatively of how we can actually do this kind of stuff*", highlighting the cumulative impact this enduring pressure may have on one's ability to be the kind of health pro-

fessional they want to be, hindering the potential for their cultural resources to be fully realised.

> *"The lack of culturally safe spaces made it challenging to raise concerns; I've thought of many different ways I can try and bring it up, but I don't have the confidence to bring it up. I don't know how to, or whether or not it's safe enough to bring it up."* – Nima

Nima's reflections highlight the complexity that exists in trying to confront the unacknowledged tensions. Participants talked about the "extras" that come with being a Māori or Pacific AHP. Participants felt an ever-increasing burden, often tasked with fixing issues that were not their responsibility, and which should have been addressed by management and leadership.

> *"It's hard because the burden that is placed on you culturally is massive, especially when you are like one or like, very few. Being the only one since 2017 has taxed me emotionally. It took me a long time to actually learn that it wasn't my job to upskill or educate these people. That was a failure in the system."* – Iwa

There was an expectation that seniors would provide support, without protected time, structural supports or appropriate remuneration that recognised the extra responsibilities "[be]*cause it's expected*" – Iwa, and "*that puts the burden on us and leads to us burning out as well*" – Tekau mā rua. This expectation and burden was not placed on their non-Māori, non-Pacific colleagues and demonstrates the inherently biased and culturally unsafe working environments at play. These environments contributed to some participants struggling with their identity as Māori or Pacific when they were embedded in a system that did not value what that offers.

> *"Like, I love being Māori, but sometimes I hate being Māori here. Here it's shit to be Māori 'cause then you're the point of call for everything and it's a tick box for everyone else."* – Vitu

Participants suggested broader systemic issues impacted their ability to thrive because "[I] *just feel like I'm trying to fit into a place that's not made for me*" – Ono. They described a predominance in approach, thought, feeling and attitude that resulted in them either having to fit in and conform or change the way they were in the workplace environment.

> *"When I was in a very Pākehā environment, I would try to act in that same way so that I'm accepted into that group and so that they will listen to me.* […] *It's hard acting white, but it's also … it's harder being the different one in the room."* – Tasi

Participants spoke of a lack of organisational support for things Māori or Pacific and an organisational system that was not only difficult to navigate, but counter-productive and disempowering for them.

> *"You start to realise how the system is just not, that it's not, it's not supporting those values and aspirations that we have."* – Fa

In summary, thriving was an aspiration, but the lived reality of many participants was an overarching sense of survival. Their stories highlighted that unfair expectation was routinely placed on Māori and Pacific AHPs, which impacted how they felt in relation to themselves and how they felt perceived by colleagues. These stories reflect an organisational failing to provide a culturally supportive and uplifting environment in which Māori and Pacific AHPs can thrive.

It takes a village

Participants shared a view that having appropriate mentors, supervisors and support people around them, and going into the right team setting and environment, played a role in promoting positive experiences. Tolu reflected on positive mentorship from a senior Pacific colleague, which he attributed to their similar value system and shared cultural understanding:

> *"She wanted me to be my own clinician, and she created that safety net for me. I felt confident enough to go off, because she trusted my clinical reasoning."* – Tolu

Others similarly spoke about the importance of culturally aligned leadership that allowed them "*to practice in more a holistic and probably a Māori-centric way*" – Tasi.

There were also examples highlighting the role

of non-Māori, non-Pacific leaders in creating safe and supportive working environments.

> *"The manager in this role, although she's European, she is a lot more open to understanding who I am. So, in that sense I feel comfortable enough to share my family, my situation, what I believe in, what I don't believe in with her … I feel really safe in this job, because I know that if I do challenge the status quo I have support behind me."* – Lua

A key characteristic of positive support was taking the time to get to know and understand who they were as a person and "*believing, people believing in me. I think that's probably where I am my best*" – Tasi. This helped to build self-confidence and instilled a sense of belief in themselves.

> *"Having the right person to be there and to listen and to understand. And not to make excuses for what I was saying, but to guide me in a way that's gonna be productive. And then that's when it turned around, and it took me probably two or three years as well to fully be confident in myself and to be able to stand up and advocate for myself."* – Fa

New AHPs shared how the right kind of support also served to mitigate self-doubt, which is common with new graduates and is compounded in marginalised groups like Māori and Pacific peoples due to prevailing attitudes and systems.

> *"I find myself second-guessing a lot of my capability and if I'm meant to be here, like if I'm smart enough. And just also feeling like I can't do much independently."* – Ono

Allies—non-Māori, non-Pacific colleagues—also contributed as part of the broader village. Participants described this support manifesting in several ways and reflected that it could include both conscious and unconscious behaviours.

> *"Finding allyship as a big thing. So, I have a colleague who's doing the reo Māori course at, like in the hospital, and having her do that meant that I wouldn't get asked for Māori translations. But she is then promoting te reo Māori, which like even in it's, like that's her 1%, but it's 1% off me. And that is, that to me like it means support that she probably doesn't even know she's giving me."* – Vitu

Allyship also encompassed the efforts of colleagues to understand them better as a Māori or Pacific person, not just a homogenous AHP.

> *"Being surrounded by colleagues who make the effort to understand who I am as a Samoan who lives in* [local suburb]*."* – Lua

For others, it was as simple as having their non-Māori, non-Pacific colleagues offering words of support and encouragement. This indicated a recognition of the extra load Māori and Pacific AHPs carry.

A common thread was the notion of giving back, which is grounded in important Māori and Pacific values of manaakitanga and reciprocity. All participants spoke of someone who believed in them at some stage, and the importance of passing that on to the next person.

> *"If people didn't care about me and if people didn't take time to spend with me in those first years, it would've been a bit different. And I think, I've had a lot of people who've invested time into me, and energy. And so, I try as best I can, I know I can do better, but I try to return that by doing it with other people."* – Tasi

In summary, participants reflected that it took a collective effort to create an enabling environment in which Māori and Pacific AHPs could flourish. Being surrounded by people who took time to understand them and who invited them to bring the whole of themselves into the work environment instilled a sense of belief and confidence in themselves as Māori and Pacific AHPs. This created the context for a virtuous cycle, where they were enabled to provide support to the next generation of Māori and Pacific AHPs.

Discussion

The findings of this research make visible the views and experiences of Māori and Pacific AHPs. The three themes highlight the struggle between aspiration and reality, commitment and disillusionment for Māori and Pacific AHPs navigating work in a hospital setting in their

first 2 years of practice. The findings highlight an interesting juxtaposition for Māori and Pacific AHPs. On one hand, their shared experience of growing up as Māori and Pacific in Aotearoa and their shared cultural identity is a strength that uniquely positions them to connect with, understand and attend to the needs of people from such communities. On the other hand, they are embedded within a system that often functions in ways that are inconsistent (or indeed conflict) with their personal and cultural values, and where they are subject to the cumulative effects of institutional racism, reducing their capacity to bring the whole of themselves into their role as AHPs. Despite this, AHPs who took part in this research identified key experiences, moments or interactions that provide insights into how things could be different. Our findings champion the collective strengths of Māori and Pacific AHPs and offer solutions for positive change in the contexts in which they work.

Research exploring Māori and Pacific AHPs' experiences at work has been limited. Even research in the broader Māori and Pacific health workforce is surprisingly limited, focussing primarily on their participation in the health and disability workforce with strategies predominantly generated for tertiary health education providers.[7,19] Nonetheless, our findings do resonate with research that has been undertaken. Wilson et al. (2022) provided a powerful overview of the working lives of Māori nurses, which they argue has been characterised by racism, discrimination and marginalisation, perpetuated by Māori nurses being excluded from, or silenced in, forums seeking to address Māori nursing workforce deficits.[20] Research in health adjacent roles similarly reflect that Māori and Pacific members of health advisory groups feel isolated, undervalued, experience frustration with not being taken seriously and express overall discomfort with meeting processes and environments.[21] Furthermore, Māori scientists have reported operating across two worlds, with their "*cultural double-shift*" having detrimental effects on career progression and leading to burnout and stress.[22] Our findings highlight that these challenges persist for Māori and Pacific AHPs, signalling a failure to address these systemic issues. Hence, taking a strengths-based approach and offering a way forward has been a key priority in our research process.

Drawing on the "Sea of Islands" to support Māori and Pacific AHPs to thrive at work

In his seminal 1995 offering, Pacific academic Epeli Hau'ofa rallied for a conscious shift in the way people perceived the Pacific. He presented the prevailing discourse of the Pacific Islands as tiny, underdeveloped, dependent states.[23] Hau'ofa put forward the "Sea of Islands" concept as an alternative narrative, whereby the sea was not something that separated, but rather connected the islands. From this perspective, the sea is viewed as supporting connection to the wealth of language, culture and resources across the moana, providing communities with a strengthened sense of pride and collective relationality. The "Sea of Islands" concept resonated with the findings, reinforcing the Māori and Pacific AHPs' values and sense of responsibility to community, interconnectedness, reciprocity and belonging. It also provides a framework to prompt non-Māori, non-Pacific colleagues to consider what connects us, and what systemic and structural barriers hinder those connections. When participants' ancestors voyaged across the vast ocean, they were not bound by borders and restrictions, but rather by their own understanding, awareness of and connection with the environment. As present-day voyagers, a "Sea of Islands" lens reminds us, regardless of their background, that AHPs have a shared desire to contribute to improving the lives of those around them, clients and colleagues alike. Collectively, AHPs possess abundant resources with a richness of culture, language, relationships, reciprocity and interdependence grounded in service and purpose.

How do we create the context for our "Sea of Islands" to flourish?

Our findings offer a range of opportunities for individuals, leaders and organisations to realise the aspirations of the "Sea of Islands". Consistent with the tenets of AI used in this research, which includes envisaging a possible future, an underpinning aspiration was to document what participants felt they needed to be at their best at work. As such, during wānanga talanoa participants provided practical ideas and strategies they believed would support them as Māori and Pacific AHPs to shift from surviving to thriving at work. Table 2 provides an overview of key recommendations generated through that kōrero. As noted in Table 1, while these recommendations

were initially constructed as a fourth theme, *Being at our best*, we have opted to include them in this final section as they represent a pathway forward.

The recommendations align with and draw on contemporary understandings of cultural safety, arguing for the critical role of structures and organisations in creating culturally safe environments and the importance of reflexivity on power relationships in health interactions.[24] This conceptualisation of cultural safety extends to and invites organisations to address systemic issues and power structures to achieve equity within the workforce and working environment. To that end, Table 2 is formatted to serve as a reflection and planning tool for individuals, teams and organisations to engage reflexively and identify opportunities for change. Māori and Pacific AHPs may consider using it as a tool to examine structural supports available when considering employment opportunities.

Conclusion

Our findings highlight that providing opportunities for cultural development, recognition of cultural knowledge/intelligence and culturally safe and enriching work environments are key ingredients to enabling Māori and Pacific AHPs to thrive at work. This supports previous work highlighting the importance of being able to be Māori or Pacific in the workplace.[7,8,19,25,26] For Māori and Pacific AHPs to thrive at work, they must be able to practice as their Indigenous selves. To enable this, there must be an organisational shift in what knowledge and skills are valued and how they are recognised.

Table 2: Reflection and planning tool—supporting Māori and Pacific AHPs to thrive at work.

Cultural development	**Areas of strength**	**Areas to strengthen**	**What am I/are we doing to advance?**
Establish a progressive cultural supervision programme for Māori and Pacific staff.			
Establish and resource an in-house whānau network as an extension of a cultural supervision programme (Tuakana–Teina framework).			
Actively encourage and support participation in the above (e.g., proactively offering at the outset to all eligible staff, protected time to allow attendance).			
Encourage and resource cultural development as a normal and expected life-long practice.			
Leadership	**Areas of strength**	**Areas to strengthen**	**What am I/are we doing to advance?**
Offer and provide specific career/leadership development programmes to enable Māori and Pacific AHPs to transition into senior management and leadership roles.			
Set service/organisational targets for numbers of Māori and Pacific peoples occupying senior allied health leadership roles.			

Table 2 (continued): Reflection and planning tool—supporting Māori and Pacific AHPs to thrive at work.

Support existing allied leaders to adopt a kaitiakitanga approach to leadership, focussed on building relationships, trust and upholding mana of those around them (mana: often crudely translated to prestige, influence, status or spiritual power, though meaning for Māori is more nuanced).			
Allyship	**Areas of strength**	**Areas to strengthen**	**What am I/are we doing to advance?**
Implement mandatory cultural safety training incorporating topics such as Te Tiriti o Waitangi, decolonisation, health equity, anti-racism, privilege, being a good ally and local history for all staff.			
Adopt and implement cultural models of health as standard practice for all (not just in cultural services).			
Valuing the unique skillset	**Areas of strength**	**Areas to strengthen**	**What am I/are we doing to advance?**
Provide professional development that includes access to Indigenous knowledge development.			
Recognise cultural knowledge/intelligence as a specialised skillset and remunerate appropriately.			
Incentivise Māori and Pacific staff to pursue further research underpinned by Māori and Pacific cultural worldviews.			
Cultural safety	**Areas of strength**	**Areas to strengthen**	**What am I/are we doing to advance?**
Anti-racist praxis: How do my surroundings (self, team, organisation) support and prioritise anti-racism work?			
Critical self-reflection: How do my surroundings (self, team, organisation) support and prioritise critical self-reflection?			
Power and privilege: How do my surroundings (self, team, organisation) support and prioritise recognition and unpacking of power and privilege?			

AHPs = allied health professionals.

COMPETING INTERESTS
Nil.

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The Otago Medical School: 150 years of teaching, research and community service

Dawn E Elder

ABSTRACT

This viewpoint reviews 150 years of teaching, research and community service at Aotearoa New Zealand's first medical school. From a shaky start just 6 years after the establishment of the University of Otago in 1869, the Otago Medical School (OMS) has established itself as a centre of excellence in health sciences teaching and research, with its staff and alumni also making significant contributions to the wider community both here in Aotearoa New Zealand and internationally.

Early days

This year marks 150 years of teaching, research and community service at the University of Otago's medical school currently known as the Otago Medical School (OMS). Its founding is credited to James Macandrew, the Otago superintendent from 1867 to 1876, a strong advocate for both the University of Otago and OMS.[1] It was an audacious plan to add a medical school to the teaching calendar of New Zealand's first university, which had opened in 1869 just 6 years earlier.[2] The first professor, Millen Coughtrey, gave his inaugural lecture in May 1875. An entrance examination was organised and an *Anatomy Act* passed to allow the use of cadavers for teaching. By 1876, two students had passed the entrance examination, but one later changed to law. Dorothy Page describes the school in 1876: "*one professor, one student, one classroom and one cadaver*."[2] From 1877 to 1885 a 2-year course was offered, and students would then go to the United Kingdom (UK), most often to Edinburgh, and be awarded a degree from that institution rather than Otago. Wright-St Clair's list of doctors registered in New Zealand from 1840 to 1930 includes at least 60 doctors who commenced medical studies at Otago and completed overseas.[3]

The school's first medical graduate, William Ledingham Christie, did not have funds to travel and so had a short break in his studies while the school added to the teaching staff so that his degree could be completed in 1887.[4] Another 23 male graduates followed, and then the first woman, Emily Siedeberg, graduated in 1897. The second woman graduate, Margaret Cruickshank, completing in 1898, was the first woman doctor registered in New Zealand, as Emily Siedeberg had gone immediately overseas for further studies.[2]

Otago University had welcomed women students from 1871, and so on paper there was no overt barrier to their admission to the medical course.[5] The reality was otherwise. The first professors and lecturers at the medical school were not enthusiastic and excluded women from some lectures, notably when genital anatomy was discussed.[2] Women were made to sit in the front row and at least one lecturer continued to address the class as "gentlemen" at the start of each lecture.[6] However, those women who recorded their experience wrote positively about their teachers and it seems that the staff came to mostly respect and support the women students, who were clearly able and did well in their studies.[6,7] Bigger problems arose after graduation when women had difficulty finding jobs as house surgeons and in practice in the community. Discrimination was experienced from male colleagues and hospital administrators but also at times from other women.

The early years of the school were shadowed by financial uncertainty and lack of support for the school from potential students. Professor Coughtrey resigned 2 years after his appointment in frustration. Edinburgh-trained, John Halliday Scott was the next appointee as professor of anatomy and physiology and was named dean in 1891 when the Faculty of Medicine was formally created. It is he who can be credited with getting the fledgling school on its feet.[2] John Malcolm, the second professor appointed to the new physiology

chair, arrived in 1905 somewhat surprised to find himself in a poverty-stricken university where he even had to buy his own chair to sit in. However, he soon earned a good reputation with students and set up his research with the laboratory rats he had brought with him by sea.[8] As to be expected, he arrived with more rats than he started with!

Despite these two enterprising early professors, the school was slow to establish itself as the favoured place of medical training for young New Zealanders. Truby King and New Zealand's first Māori doctor Māui Pōmare had both gone overseas to study, King to Edinburgh and Pōmare to Chicago. A number of women also went overseas to train in medicine.[3] Sir Gordon Bell, later professor of surgery at Otago, grew up in Marlborough, but trained in Edinburgh, graduating in 1910. There were 17 New Zealand students in his class, and he writes "*The Otago Medical School, then a stripling of some 30 years, was making its way but the day lay ahead when it would hold first claim on New Zealand nationals.*"[9] It was not until 1915 that graduating class numbers rose above 20, and in 1923 there was a marked increase, with 65 graduates documented related to the influx of returned servicemen after World War I and perhaps a sense that return to the "home" country was now not so appealing.[2] Today the annual intake to second year is 312 domestic and up to 20 international students.

What is a medical school?

Dorothy Page in her book *Anatomy of a Medical School* outlines what it takes to "create" a medical school:[2]

> *"The essential elements are easy enough to identify: teachers, buildings and a special relationship with a hospital. But that is not enough: the teachers must be academically specialised and highly qualified, the buildings must contain laboratories for research as well as rooms for teaching, and the hospital must be up-to-date and well-staffed, with enough patients to provide a variety of teaching experience for medical students. The whole must be sufficiently flexible, and well enough resourced, to be able to change over time as medical science, medical practice and society's expectations of it change. A medical school also needs students who are academically able, mature and committed to the science and art of medicine..."*

Not all these components were in place when the University of Otago started to offer a medical course, but the succession of enterprising deans following Scott ensured the ongoing development of the school as a centre for teaching and research. Now in 2025 all these elements are in place, along with extensive relationships with iwi, primary care and other community-based partners. The school has thrived but continues to go through times of structural change, review and apparent limitations in funding that are stressful for staff and students. This is the nature of running a medical school. The school has constantly evolved in response to both internal and external influences, and in 2025 we can look back with pride on 150 years of achievements in teaching, research and community service.

A major review in 1968 recommended development of clinical schools in Christchurch (first students 1973) and Wellington (first students 1977). The northern schools initially taught only the final 3 years of the medical programme but have since developed strong postgraduate teaching and research capabilities and teaching in other health sciences programmes. The School of Biomedical Sciences remains an important part of our combined history, but OMS currently comprises the Dunedin School of Medicine (DSM), including the early learning in medicine programme, and the advanced learning clinical programmes at the University of Otago, Christchurch (UOC) and the University of Otago, Wellington (UOW). In September 2025 the name of the school will revert to the original name of Faculty of Medicine at the University of Otago. While this Faculty of Medicine is primarily about training doctors, it also makes a large contribution to health sciences research, and multidisciplinary teams of scientists and clinicians contribute to the training of both medical and science students.

Teaching: medical students and beyond

Undergraduate teaching

The profile of students attending OMS has changed over the last 150 years. Initially students needed good financial support to meet the university fees and were mostly male and Pākehā. Francis Bennett (1925) outlines his struggles to be admitted to medical school in his memoir published in 1980:[10]

> *"At the present day I certainly would not have been accepted as a medical student. But the modern insistence on high entry marks in the sciences is all wrong. Medicine is an art. It deals with human beings and not with the shaped bricks of science. The poor student who becomes an excellent doctor is a commonplace in the medical history of New Zealand."*

Francis Bennett had a successful career despite his early struggles. Our best graduates have understood that medicine is an art but also have been grounded in the science that underpins the daily decisions made for their patients and their research.

The first Māori graduate, Te Rangi Hīroa (1904), was also the first medical graduate to receive an honorary degree from the university (1937). The first Māori wahine to graduate was Rina Moore (1949). The first Pacific graduate was Jione (Tom) Dovi (1934) from Fiji, and the first female Pacific graduate was Viopapa Annadale-Atherton (1964) from Samoa. Kathleen Anneui Pih-Chang (1929) was the first Otago Medical School graduate of Chinese descent, and the first male graduate of Chinese descent was Roy Ting Shang Law (1947). Initially women medical students were significantly under-represented, as were Māori and Pacific medical students.

In 2012 the term "mirror on society" was first used by Peter Crampton, then dean of OMS, to suggest that any medical class intake should reflect the breadth of the society from which it is drawn. Now about 60% of medical students are female.[11] However, it is not only the gender balance of the medical class that has changed considerably over the decades. Affirmative selection programmes for Māori and Pacific students were first implemented in the late 1940s and early 1950s,[12] but it was not until the introduction of the Mirror on Society policy in 2012 that the numbers of students admitted through these pathways increased.[13,14] This policy, later renamed Te Kauae Parāroa, implemented five affirmative pathways respectively for Māori, Pacific, rural background, low socio-economic background and refugee background students. The medical class now richly reflects much of the diversity of New Zealand society.

In the early years of the medical school, all teaching of basic science and clinical medicine was directed at medical students and taught by medically qualified lecturers. Molly Marples (1944) came to Otago when her husband was appointed to the chair of zoology in 1937 and studied medicine, then specialised in microbiology. In 1946, Dr Marples was appointed to the staff of what was then the Department of Bacteriology and Public Health. She subsequently proposed and promoted a major change in this department whereby science students were taught microbiology as well as the usual medical student classes.[15] This course, which first became available to science students in 1949, was the beginning of the development of the now School of Biomedical Sciences, which teaches many science undergraduates and supports postgraduate study, as well as teaching in the early medical school curriculum.

Many other innovations in teaching have occurred in more recent decades. For example, starting in 2000, the medical school's early community contact programme worked in partnership with Ngāti Porou Hauora to provide students with week-long learning experiences in small Māori communities around the East Cape Region.[16,17] In 2001 the DSM established a 7-week rotation in rural health. From 2007 the rural medicine immersion programme became available for 5th Year students in all three clinical schools and continues to this day.[18] In 2011 an initial pilot interprofessional education (IPE) programme was developed at UOW with medical, dietetic and physiotherapy components.[19] This was followed by the launch of the Tairāwhiti IPE programme in 2012. The aim is now to have all medical students experience IPE during their course. In 2020 the school was awarded the Association for Medical Education in Europe (AMEE) ASPIRE to Excellence award for assessment in the MBChB programme.

Postgraduate teaching

The first graduate of OMS was also the first to meet requirements for the Doctor of Medicine (MD) degree. In the early days this involved presenting a thesis and passing a written and oral examination in the relevant subject area.[20] The Doctor of Philosophy (PhD) degree was first introduced at Otago in the 1920s but it was some time before medical PhDs were undertaken, with some earlier students heading to institutions like Oxford for a DPhil. Now a wide variety of postgraduate qualifications are available through the various OMS departments. For some students the first experience of research is through a summer research project or the Bachelor of Medical Science programme, which was first developed by Charles Hercus in 1926.[2] Since 2001 students

have also been able to do an intercalated MBChB and PhD programme, with 23 students currently enrolled in this programme.

Research: a national and international profile

Charles Hercus is often lauded as the first staff member to promote research at OMS, but the first two professors, Scott and Malcolm, were keen to do research. Teaching staff were few, however, so they were overwhelmed by their teaching load, a concern frequently expressed by staff today 150 years later who often also have heavy clinical loads. Early research focussed on infectious disease (Professor Champtaloup), nutrition (Professor Malcolm and Dr Muriel Bell) and thyroid disease (Professor Charles Hercus and Dr HD Purves). Later, Horace Smirk founded the Dunedin Hypertension Research Group, which became internationally renowned. The second professor of physiology, John Eccles, studied synaptic transmission in the central nervous system, and in 1951, with LG Brock and JS Coombs, reported successfully inserting microelectrodes into nerve cells of the central nervous system and recording the electrical response produced by excitatory and inhibitory synapses for the first time.[21] John Eccles left Otago soon after this work was published but it formed the basis of later work for which he was jointly awarded the Nobel Prize in Physiology and Medicine in 1963. He mentored one of the school's early woman graduates, Marianne Fillenz (1948), and encouraged her to do a DPhil at Oxford. This was the start of a distinguished career in physiology research and teaching. Other students taught physiology by Eccles were Graham "Mont" Liggins (1948), whose later research on antenatal corticosteroids for prevention of respiratory distress in the preterm newborn has saved many infant lives, and William Liley (1954), who would pioneer the technique of intrauterine transfusion for Rhesus haemolytic disease in the foetus. There will be many other similar stories where dynamic academic staff have inspired medical students in training and mentored them into a particular clinical and/or research pathway post-graduation.

Since those early days research outputs from the various departments of the OMS and School of Biomedical Sciences have been diverse and, in many areas, highly impactful. The Dunedin Multidisciplinary Health and Development Study began at OMS and the Christchurch Health and Development Study remains linked to OMS at UOC. Both studies have had national and international impact. There are many other successful research initiatives that could be mentioned focussing on a wide range of topics: the Housing and Health Research programme at UOW, the Christchurch Heart Institute at UOC and the early research on the long-term effects of childhood sexual abuse that came out of the Department of Psychological Medicine at DSM, to name just a few. Sadly, it is not possible to highlight all the many major research successes of the school over 150 years in this short paper.

Community service and the sharing of expertise

A number of alumni and staff have made notable contributions to wider society nationally and internationally using their medical expertise. Many have been respected leaders in their field, taking on service roles in their colleges and associated organisations, but others have served the community in a more voluntary capacity, including a number working as missionaries. Margaret Neave (1943) trained as a paediatrician and worked tirelessly overseas for organisations like Volunteer Service Abroad and Save the Children. Beryl Howie (1949) not only worked as an obstetrician and gynaecologist in Ludhiana, India, but also made it her mission to train local graduates to carry on her work. Fred Hollows (1956) is well known for his work overseas restoring sight to many who had no other hope of treatment. A number of alumni have contributed to health services in Nepal alongside Sir Edmund Hillary as documented by Michael Gill (1962) in his book *Himalayan Hospitals*.[22]

For others, community service has been through roles as members of parliament and in local body politics. Alumni who became local mayors have included Herbert Barclay (1889) in Waimate, Kenneth McAdam (1893) in Oamaru, William Anderson (1920) in Queenstown and Denis Rogers (1941) in Hamilton. Gertrude Atmore (1919) was mayoress in Ōtaki where she supported her husband in his mayoral role. She was the local general practitioner and widely respected, the town erecting a memorial plaque in her honour.

An early alumnus, William Chapple (1890), was a member of Parliament (MP) in both New Zealand and the UK. Between 1909 and 1914 Te Rangi Hīroa was MP for Northern Māori. David McMillan (1929) was an MP from 1935 to 1943

and during that time made significant contribution to the development of the 1938 *Social Security Act*. Gerard Wall (1947), a Labour MP from 1969 to 1987, was speaker of the House from 1985 to 1987. Peter Tapsell (1952), an MP from 1981 to 1996, undertook a number of ministerial roles and a term as speaker of the House, the first Māori to hold this role. Paul Hutchinson (1970) was in Parliament from 1999 to 2014 and was chairperson of the health committee from 2008 to 2011. More recently, Ayesha Verrall (2004) entered Parliament in 2020 and was minister of health in the Ardern and Hipkins Labour Governments.

The medical school in 2025

So, where are we now in 2025? We have a health system that is stressed and our graduates, like other doctors working in New Zealand, must determine how to work in this system while still respecting the promises of the oath made at their graduation. In recent years Ineke Meredith (2003) and Izzy Lomax-Sawyers (2020) have written about their experiences working in health in the early part of their careers.[23,24] Reading these books, it is clear that the training systems of the last 25 years have produced two excellent doctors who, by the stories they tell, demonstrate they understand the art of medicine and the science and knowledge that needs to sit behind the practice of that art. So, curriculum change comes and goes, but we are producing young doctors we can be proud of who understand that medical school is just the beginning of a career in medicine and that learning needs to be lifelong.

OMS has come a long way from the early days of one professor, one student, one classroom and one cadaver. There are now many professors and other academic and non-academic staff, many students, both medical and undergraduate science students in the School of Biomedical Sciences, and many postgraduate students who are enrolled in diploma, master's and PhD programmes. We are very ably supported by a wide range of professional and technical staff. There are established research groups recognised for their excellence both nationally and internationally, and we have a campus that has extended beyond Dunedin to Christchurch and Wellington, with outlying centres for student placements around the South Island and lower third of the North Island. Our student base now more closely reflects the community that it both represents and is being trained to minister to. Our university has a new te reo name, Ōtākou Whakaihu Waka, which reflects that we are a place of many firsts. However, while firsts at OMS are important and celebrated, we also value replicating and expanding on good science. And in regard to our leadership, having a second female dean appointed in our first 150 years is as important as the appointment of the first female dean in 2005. Our university has a new tohu that reflects how we want to work together in academia and in our clinical environments through communicating channels. This symbol is particularly apt for describing the multidisciplinary environment that must be in place to build a strong medical school and a functioning health system. All in all, a very solid foundation to build on for the next 150 years.

COMPETING INTERESTS
DE is currently supported as Chair of the organising committee for the 150th anniversary celebration of the Otago Medical School.

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Learning to care, caring to learn: the evolving nature of medical education

Tim J Wilkinson

ABSTRACT

As Otago Medical School marks its 150th anniversary, this paper reflects on what it means to train doctors for both today and the decades ahead. It traces the school's evolution from its nineteenth-century foundations through key innovations in curriculum, clinical training and rural health, highlighting the ongoing balance between tradition and change. While early efforts mirrored global trends, Otago has grown into a leader in areas such as assessment, interprofessional education and Indigenous health. This paper explores future challenges including competency-based education, personalised learning and the integration of artificial intelligence, arguing that these developments must be grounded in enduring values: professionalism, teamwork and community engagement. The central task remains unchanged: to train doctors who are not only knowledgeable and skilled, but also compassionate and committed to those they serve.

What does it mean to train a doctor—not just for today, but for the decades ahead? Medical education has always been a balancing act: between art and science, theory and practice, tradition and innovation.

This question takes on particular significance as Otago Medical School marks its 150th anniversary. We are invited not only to celebrate a proud legacy, but to reflect on how that legacy equips us to meet the needs of tomorrow. To do so, we must look in both directions: back, to the traditions that have shaped generations of Otago-trained doctors; and forward, to the innovations that will shape how future graduates serve their communities.

When Otago Medical School was founded in 1875, it stepped into a centuries-long tradition of learning, mentorship and evolving ideas about what makes a good doctor. Early pioneers like James Macandrew, Millen Coughtrey and John Scott helped lay the foundations for a distinctly New Zealand approach to medical education. Their stories and the medical school's history, told in greater depth elsewhere in this issue,[1] remind us that Otago's legacy is not just one of longevity, but also of adaptation, leadership and a deep commitment to community.

A legacy rooted in global traditions

The heart of medical education has always centred on the expert–apprentice relationship. This tradition stretches back to Charaka in 500 BC India, Bian Que in 400 BC China and Hippocrates in 300 BC Greece.[2] Over time, this model evolved: the United Kingdom (UK), in 1421, became one of the first countries to require university approval for a medical qualification;[3] the nineteenth century brought a shift toward hospital-based teaching[3] and the emergence of formal clerkships and residencies, pioneered by William Osler.[4]

Dorothy Page defined a medical school by "*teachers, buildings and a special relationship with a hospital.*"[5] Today, we still value expert faculty—but they teach in small-group tutorials and clinical rotations. Our "buildings" include community clinics as well as simulation centres, and our relationships extend to iwi, primary care sites and rural practices as much as to tertiary hospitals. This networked approach—faculty, peers and community practitioners working together—reflects where we have got to.

Otago Medical School was founded during a time of global change in medical education, when clinical immersion was beginning to balance with university-based learning, and medical schools were expanding in the UK.

Initially, Otago offered a 2-year curriculum, with students completing their studies overseas, usually in Edinburgh. A full 4-year curriculum was introduced in 1885, and by 1923 a 6-year course included allowing students to complete their final year in Dunedin, Christchurch, Wellington or Auckland.[6] One of Otago's earliest and most successful innovations was the establishment of the trainee intern year in 1974.[7] Around that same period, clinical experiences expanded into community and general practice settings—a shift that recognised the importance of medicine beyond hospital walls.

Between tradition and innovation

In its early decades, Otago was largely a follower of international trends—understandably so. But as confidence grew, so too did the school's appetite for innovation. This tension between honouring tradition and embracing change has remained.

Two notable exemplars illustrate this:

The first relates to problem-based learning (PBL). Originating at McMaster University in the 1960s and first adopted in Australia by Newcastle Medical School in 1978,[8] PBL offered a more student-centred approach.[4] In 1986, Otago began developing its own PBL curriculum, starting with paper-based cases. There were also proposals for earlier clinical contact.[6] By 1988, however, the full PBL model was abandoned—a disappointment at the time, but a catalyst for future improvements. The process stimulated curricular refinement: Christchurch shifted its clinical sciences course of lectures each afternoon to a single afternoon focussed on underpinning sciences and pathology; Wellington began trialling PBL in Years 4–5.[6] By 1997, Otago introduced an integrated case-based curriculum in Years 2 and 3, refined further in 2008. While a pure PBL model never took hold, the ripple effects of that effort helped shape today's more integrated, system-based and clinically focussed curriculum. This curriculum is now very similar to those offered in many other medical schools.

The second case started in the late 1990s when Australia was setting up graduate-entry programmes. In 2001, planning began at Otago for a dedicated graduate-entry stream so that graduates could do a 4-year course rather than the 5-year offering. A hybrid undergraduate/graduate programme was developed, but in 2004, just before an accreditation visit and amid financial concerns, the university halted the initiative. Some staff left to help establishgraduate-entry programmes elsewhere, and elements of Otago's planning would later influence the programme at Wollongong Medical School. Again, while the plan wasn't realised at Otago, it seeded thinking and talent that shaped medical education more broadly.

Innovation fully realised

Not all innovation at Otago came with such hiccups. The school has a proud record in several areas, perhaps most visibly in rural medical training. In 2000, James Cook University was the first in Australia to focus on rural training,[8] and by 2007, Otago had launched its Rural Medical Immersion Programme. This highly successful 5th Year placement immerses students in rural settings using a longitudinal integrated clerkship model—such immersion increases the odds of pursuing rural medicine more than sixfold.[9] All students benefit from some rural exposure—even if they never practice in those settings—because understanding the needs of rural colleagues is essential to team-based care. This led to the philosophy of "a lot for a few, and some for everyone", which means that today, Otago medical students are placed in 57 towns and localities across New Zealand, 48 of them rural or regional, working with 135 medical practices.

Otago has also achieved global recognition in other areas. It was the fifth medical school worldwide to receive the ASPIRE Award for excellence in medical education assessment—particularly in assessment of professionalism.[10,11] Its work in interprofessional education[12] has been commended by the Australian Medical Council. Its efforts in Hauora Māori and Indigenous curriculum development have earned international attention,[13] and its admissions policies have contributed to a student body more reflective of New Zealand society.[14]

Otago is now recognised as a leader in rural health, assessment, interprofessional learning and Indigenous health—not simply catching up, but helping set the pace.

Looking to the future

If past trends are any guide, future innovations in medical education will require not just vision, but agility. One emerging movement is competency-based medical education, which shifts the focus from time spent to outcomes achieved. Ideally, students would graduate once they meet rigorous standards—not just after 6 years—allowing greater flexibility in pacing.

Flexibility may also come through place. Some Australian programmes now offer their entire 4-year graduate-entry courses in rural locations. These models are still being evaluated, but they point to a future where training is increasingly tailored—in both time and setting—to better align with healthcare needs.

Simulation, too, offers new flexibility, allowing students to practise essential skills in a controlled environment, and helping to ensure all learners

meet competence standards, regardless of the variability in clinical placements. It complements, rather than replaces, the serendipitous and unpredictable encounters of real patient care.[4]

Of course, individualising training brings challenges, especially with large cohorts of students, financial constraints and current methods of funding university degrees. But it also aligns with broader technological opportunities. No discussion of the future is complete without mentioning artificial intelligence (AI). While AI raises questions about how medicine is practiced and students are assessed, it may also help us personalise education by adapting content, pace and delivery to the learner.

Still, not everything will—or should—change.

Throughout centuries of medical education, certain qualities have endured: professionalism, communication, problem solving and the ability to help patients improve, or at least make sense of, their health. The doctor's role as an expert has evolved into a role within teams. Likewise, teachers have moved from being knowledge holders to learning facilitators. Medical schools no longer own learning resources exclusively; instead, students and staff evaluate and co-curate such materials from many sources.

Amid these advances, a new future tension is emerging: how far training should be personalised when healthcare is rarely practiced alone. We assess students as individuals, but the work is always in teams. Learning may be increasingly individualised, but care must always be collective.

The challenge and the commitment

As we look ahead, the real challenge is to personalise learning without losing the power of collective practice. Medical training can and should reflect individual trajectories, but medicine itself remains a team sport.

The future of medical education lies in blending innovation with enduring values: shaping doctors who are not only clinically skilled, but committed to ongoing improvement, their patients and their communities. Technologies will evolve. Tools will change. But our commitment to professionalism, collaboration and patient-centred care must remain unshakeable.[15]

Training tomorrow's doctors means holding paradoxes in tension: learning that is personal, but never solitary; practice that is founded on scientific knowledge but always adaptable to individual patients; innovation that enhances, but never eclipses, the human aspect of medicine. Technology will keep changing how we teach, but it must never change why we teach. Our task is to shape doctors who are not only skilled and adaptable, but deeply connected to the people and communities they serve. That commitment—to care, to professionalism, to collective purpose—is what must endure, even as we continue to balance past wisdom with future innovation.

COMPETING INTERESTS
TJW was the Otago MBChB programme director 2013–2021 and acting Dean of Otago Medical School 2022–2025.

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Herpes zoster reactivation presenting as unilateral small vessel vasculitis in a patient taking upadacitinib

Edward H Palmer, Charles H Barter

Varicella zoster virus (VZV) is a neurotropic human herpes virus belonging to the genus *alpha herpesviridae*. The virus is responsible for primary infection resulting in varicella/chickenpox and reactivation from latent infection causing herpes zoster (HZ) reactivation, also known as shingles, in the setting of diminished cell immunity. HZ reactivation occurs worldwide and has an age-dependent incidence, with risk being highest in the elderly. The diagnosis of HZ reactivation is made clinically based on its typical presentation of a vesicular exanthema in a cutaneous nerve distribution, and treatment initiated in the first 72 hours reduces acute symptoms.[1] HZ reactivation can have a range of clinical presentations, although cutaneous small vessel vasculitis is seldom reported, with only a handful of cases in the literature to date.

Case

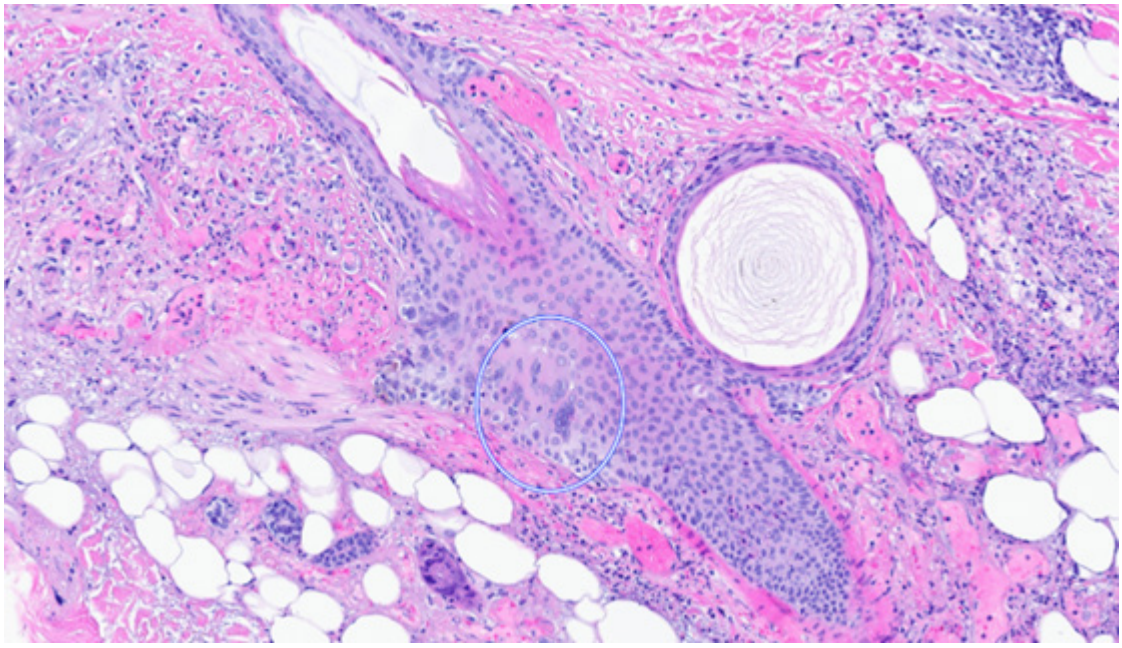
A 76-year-old Māori woman presented to our emergency department (ED) for evaluation of a painful rash. She reported that 5 weeks prior she developed painful red papules on the right lower leg, which subsequently developed into ulcers in the week prior to presentation. She denied a history of vesicles or other systemic symptoms. Prior to presentation she had sought medical attention in Australia while on vacation and had been investigated with a lower limb ultrasound to assess for deep venous thrombosis, which she reported was normal, and had trialled a course of antibiotics to no effect. On initial assessment examination the right lower leg showed well-demarcated ulcers with sharp edges and shallow bases. The patient had no other examination features to suggest systemic vasculitis, and the lesions had not spread since they first appeared. The patient reported no changes in medications and no exposure to any new topical agents or supplements.

The patient had a background history of rheumatoid arthritis (RA) diagnosed in 1994, currently managed with methotrexate 20mg weekly and upadacitinib 15mg daily. Other medical conditions included ischaemic heart disease with prior coronary artery bypass grafting, type 2 diabetes, treated latent tuberculosis and hypertension. Her other medications included folic acid, cholecalciferol, aspirin, losartan, atorvastatin, amlodipine, doxazosin, metoprolol, furosemide, pregabalin and solifenacin.

Following admission to the hospital's general medicine service, wound care and analgesia were provided, and investigations to the underlying cause were initiated. A differential diagnosis was formulated, and this included embolic disorders, infective entities and autoimmune small vessel vasculitides. Routine blood tests showed a mild inflammatory picture and a long-standing normocytic anaemia. Chest radiograph and electrocardiogram showed no new abnormalities. Computed tomography (CT) imaging revealed only minimal aortic atheroma, and given the distribution of the lesions, an embolic process was not favoured as a diagnosis. Immunological tests for autoimmune causes of small vessel vasculitides were all non-contributory, including anti-neutrophil cytoplasmic antibody (ANCA), complement and cryoglobulin analysis. Infectious serologies including HIV, hepatitis B/C and typhus fever studies were also negative. As a result, a skin biopsy was performed on which mycology stains, tuberculosis (stains and DNA polymerase chain reaction) and histology were performed. Histology showed characteristic viral inclusions within keratinocytes and, as such, viral swabs of the lesions were collected, which confirmed VZV DNA and confirmed the final diagnosis of HZ reactivation presenting as unilateral cutaneous small vessel vasculitis.

Figure 1: Photograph of the patient's right lower limb demonstrating multiple ulcers consistent with small vessel vasculitis. Several smaller lesions that were consistent with palpable purpura are seen on the lower medial aspect. *Photo with consent from patient.*

Figure 2: Punch biopsy of skin demonstrating neutrophil fragmentation and fibrinoid necrosis of the blood vessel walls consistent with leukocytoclastic vasculitis. The encircled section demonstrates keratinocytes below a small vesicle with viral inclusions, in keeping with herpetic infection. Image used with permission from *Pathlab Tauranga*.



Summary

On the basis of histology results and viral swabs, a diagnosis of HZ reactivation presenting as cutaneous small vessel vasculitis was established. Intravenous acyclovir was initiated at 10mg/kg every 8 hours, and the lesions regressed over 2 weeks. The patient improved to discharge home. Before the patient's discharge it was considered whether to stop the patient's immunosuppression. Given the patient had failed therapy with all other available biologic and synthetic disease modifying anti-rheumatic drugs, it was decided in conjunction with the patient and her rheumatologist that it was necessary to continue her therapy with methotrexate and upadacitinib. Subsequently, a decision was made to advise the patient to seek vaccination for HZ reactivation with the adjuvanted subunit vaccine *Shingrix* to reduce future risk of HZ reactivation.

Discussion

Unilateral small vessel vasculitis as a presentation of HZ reactivation is rare, with only four cases reported in the literature, this being the first case in New Zealand and the second case internationally in a patient treated with upadacitinib.[2–5]

A key feature of this case was the absence of a classical vesicular phase, as seen in typical HZ reactivation. This feature was shared with the other cases described internationally.

Pertinent to this patient's risk of HZ reactivation is the use of immunosuppression. The risk of HZ reactivation with upadacitinib is dose dependent and is higher than both methotrexate alone or in combination with a tumour necrosis factor (TNF) inhibitor.[6] Concomitant steroid use further increases the risk. Additionally, patients with RA have a twofold risk of HZ reactivation compared to the general population.[6]

Upadacitinib is a targeted synthetic disease-modifying anti-rheumatic drug (tsDMARD) that preferentially inhibits Janus Kinase 1 (*JAK1*), which is involved in downstream signalling and inflammation resulting from cytokines of the γc family, including IFN-γ. The adaptive immune response to intracellular pathogens such as viruses is primarily driven by T_H1 cells. T_H1 cells are reliant on *JAK1* signalling, as opposed to T_H2 cells and T_H17 cells, which are not. Hence, the inhibition of *JAK1* signalling leads to an increased risk of intracellular viral replication, potentially above that of other infectious aetiologies. Additionally, CD8 cells, B cell differentiation and antibody production are dependent on *JAK1* signalling.[7]

Although the most common presentations of HZ reactivation are familiar to physicians, atypical presentations are possible and present a diagnostic challenge, as in this case. HZ reactivation has been associated with vasculopathy, particularly in immunocompromised patients. This can present with a myriad of central nervous system findings including encephalitis, meningoencephalitis, vasculitis, myelitis and Guillain–Barré syndrome.[1] Although the virus typically infects dorsal ganglion cells, it has been shown to infect vascular endothelial cells as part of a vasculopathy, which we propose was demonstrated to be the instance in this case. This vasculopathy with HZ reactivation also is linked to a higher risk of stroke.[8]

Treatment with acyclovir was effective in this case, highlighting the importance of antiviral therapy in preventing complications of HZ reactivation. However, preventing recurrence of HZ reactivation remains an issue. The European Alliance of Associations for Rheumatology (EULAR) recommends vaccination with a live attenuated vaccine to be considered in patients with autoimmune inflammatory rheumatic diseases; however, it must be administered 4 weeks prior to the initiation of tsDMARD or immunosuppressive therapy.[9] For patients without a confirmed history of primary varicella infection, serological testing is essential to prevent primary varicella infection.

More recently, a novel inactivated subunit vaccine *Shingrix* has been available in New Zealand. Composed of VZV glycoprotein E and an adjuvant, this vaccine has evidence for the prevention of HZ reactivation and has been shown to be superior to the live attenuated vaccine.[9,10] It has been shown to be immunogenic in immunocompromised patients, including those established on immune suppressing medications, and is recommended for use in patients aged 18 and over with autoimmune inflammatory rheumatic conditions by the American College of Rheumatology.[10–13] Furthermore, the US Advisory Committee on Immunization Practices recommends the vaccine as safe and effective in immunocompromised patients.[13]

The continued use of tsDMARDs after HZ reactivation must be an individualised decision, given the further risk of HZ reactivation. Our patient had previously had ineffective RA control with all other available treatments for RA in New Zealand, and as such upadacitinib was continued

and the patient was advised vaccination with the *Shingrix* vaccine. We considered the further option of continuous valacyclovir prophylaxis in our patient if further events were to occur.

In conclusion, this case demonstrates a rare presentation of HZ reactivation, which serves as a reminder of the possible presentations of HZ reactivation, and a differential for a unilateral vasculitis in patients on tsDMARDs, as well as the importance of advocacy for vaccination in such patients.

COMPETING INTERESTS
Nil.

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Hospital Policy.

NZMJ, 1925

Dr. Valintine (Director-General of Hospitals), in a brief address to members of the British Medical Association (New Zealand Branch), at the Annual Conference, 1925, said it was with some diffidence and apprehension that he ventured to speak on the subject of the staffing of our hospitals, but he thought the time was opportune for gathering the opinion of members on the subject. His suggestion was that the honorary staff system should be abolished, and he would recommend the hospital boards throughout the Dominion to introduce a system of stipendiary staffs, composed of medical men who for a limited time would undertake the duties of surgeons and so forth to our hospitals. He felt constrained to speak on this subject now because, in the course of a discussion on the proposed visit of Dr. MacEachern, it had been suggested that our hospital staffing system was not uniform, as in some of the hospitals the honorary staff system obtained, while in others the medical staff were paid. That was in his opinion the only part of the system which showed a want of uniformity. The Department had deliberately up to the present allowed this divergence because it was considered that the time was not opportune to recommend a definite uniform system of staffing throughout New Zealand. Briefly he proposed that in place of the honorary staffs of our large hospitals there should be selected for service for a period of say two years, surgeons and physicians to carry on the work of the hospitals. They would be elected from amongst the medical men practising in the town. Each surgeon would have an assistant who at the end of two years would take on the senior work and so on. Those who had been acting as senior surgeons would be eligible for re-election. A system such as that he thought would meet the needs of the hospital boards. Although it would be too much to expect that all members of the Association would at once welcome so revolutionary a proposal, he felt that on reflection they would consider its reasonableness. He considered the honorary staff system, excellent as it had been in the past, an anachronism, especially in a country like this. He did not see why medical men who devoted their services to the public hospitals should not be paid for their services. The law governing our hospitals admits to those institutions persons who are in a position to pay ordinary fees, and such being the case medical practitioners should not be expected to attend such people without payment. In conjunction with this system he would strongly urge the establishment of private wards so that people who could afford to pay full fees could go into those wards. Those private wards would be served by any of the medical practitioners in the town, and payment for their services would be a matter between themselves and their patients. But for the ordinary hospital cases—people who could not pay full fees— he would recommend the appointment of stipendiary surgeons, physicians and specialists from the branches of the profession in the town. He would further suggest that the Medical Superintendent should undertake administration work only, and that he should arrange as regards the admission of patients and advise as to the appointment of stipendiary staff. He would be sorry, however, to have stipendiary staffs entirely throughout the hospitals to the entire exclusion of outside medical men, because outside medical men should not be denied the opportunities of the experience that could be gained hospitals and hospitals only. He would like to hear what members thought of the proposal, if not now, at an early date.

In reply to the questions: Dr. Valintine said the surgeons and physicians to the hospitals would be part-time officers. They could go to the hospital, perform operations, and attend to their work, and be paid for it, but they should have nothing to do with the management of their institution. The stipendiary staffs would be elected by the Boards. It would be for the Medical Superintendent to decide as to which patients should go into the private wards and which into the ordinary wards. He could not say whether the Government would have representation on the boards. He had listened with pleasure to Dr. Macdonald Wilson's paper on the subject of hospital administration, and he would welcome control of the hospitals by a board such as the Board of Health which would have some say with regard to the limitation of hospital districts. In 1908 he had managed to induce the Hospitals Conference to agree to the Dominion being divided into 20 hospital districts, but when

the Bill emerged from Parliament there were 37 districts and since then another dozen had been added. This meant a great waste of money. In Taranaki for example there was the New Plymouth hospital, then Stratford, and then another 17 miles or so further on there was the Hawera district where, although there was a population of only 20,000, they were going to spend £90,000 in the erection of a new hospital, and the Department could not stop them. This multiplication of hospital districts was a bar to anything in the nature of effective economy in administration. If the Dominion were divided into 20 districts they could have much better equipped hospitals. There might be more maternity hospitals and some of the general hospitals required enlarging, but no more general hospitals were required. With regard to the appointment of stipendiary staffs there would have to be a sliding scale. He would suggest that a specialist in surgery should be paid at a higher rate than a general practitioner, and the same with regard to a physician. So far as the small hospitals were concerned, they would have to be on an altogether different footing. A suggestion that at Dunedin Hospital the whole of the medical and surgical work should be undertaken by the university was worthy of consideration. There might be a hospital attached to the medical school for training purposes. The administration only of the hospital would then be left to the boards. With regard to the wards for people who could afford to pay full fees, the Government could hardly be expected to contribute £ for £ subsidy on the capital expenditure on such wards. The money might be raised by private means or by debentures. But on questions of finance he was not an expert and he would prefer that such question should be referred to a financial expert. With regard to the private hospitals now in existence he assumed that they would gradually suffer a process of extinction. Many of the nurses would no doubt be absorbed into the private wards of the enlarged public hospitals. He agreed that those who could not be given employment might be considered entitled to some compensation. There was no intention to have nurses specially appointed for attendance on the paying patients as the ordinary nursing staff would be called upon to do duty in both classes of wards. Private hospitals would not compulsorily be closed, but might gradually disappear to a great extent if they did not satisfy the public demand.