

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

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## 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.

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## 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.<sup>1</sup> 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.<sup>2</sup> 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."<sup>2</sup> 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.<sup>3</sup>

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.<sup>4</sup> 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.<sup>2</sup>

Otago University had welcomed women students from 1871, and so on paper there was no overt barrier to their admission to the medical course.<sup>5</sup> 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.<sup>2</sup> 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.<sup>6</sup> 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.<sup>6,7</sup> 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.<sup>2</sup> 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.<sup>8</sup> 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.<sup>3</sup> 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.”*<sup>9</sup> 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.<sup>2</sup> 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:<sup>2</sup>

*“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:<sup>10</sup>

*“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 Hiroa (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.<sup>11</sup> 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,<sup>12</sup> 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.<sup>13,14</sup> 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.<sup>15</sup> 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.<sup>16,17</sup> 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.<sup>18</sup> In 2011 an initial pilot interprofessional education (IPE) programme was developed at UOW with medical, dietetic and physiotherapy components.<sup>19</sup> 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.<sup>20</sup> 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.<sup>2</sup> 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.<sup>21</sup> 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*.<sup>22</sup>

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 Hiroa 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.<sup>23,24</sup> 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 teo 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 multi-disciplinary 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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