

Dental Therapists and Dental Hygienists Educated for the New Zealand Environment

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Abstract: New Zealand has a long history of dental care provided by school dental nurses, now known as dental therapists. The nature of their training courses, although delivered in different centers, had remained relatively constant until 1999 when educational responsibility was transferred to the universities. Dental hygienists were not trained in New Zealand until 1994, with the exception of the New Zealand Army hygienists. Since 2001, the education of both dental therapists and dental hygienists has been the responsibility of the universities. Significant and progressive changes in educational delivery have occurred since then, which have culminated in three-year degree qualifications for dual-trained oral health professionals. Factors influencing this change included increased professionalism associated with the new legislative requirements for registration, workforce shortages, and enhanced educational and clinical practice requirements. The Bachelor of Oral Health degree at the University of Otago has an added emphasis on social sciences and incorporates aspects of learning relating to New Zealand's cultural heritage. We explore in this article the rationale for the introduction of a Bachelor of Oral Health in New Zealand and how it is designed to equip graduates as professionals in oral health.

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New Zealand has educated dental nurses since the 1920s, with significant changes to the delivery model and ensuing qualifications only occurring in the last decade. Oral hygienists, to be trained at the dental school to treat children between the ages of six and fourteen years, were proposed in 1913 by Dr. Norman K. Cox, the president of the New Zealand Dental Association.¹ This radical proposal to address the oral health needs of New Zealand was not realized until the training of dental nurses began in 1921 at the Wellington School for Dental Nurses, under the Department of Health (Figure 1).¹ The originator of the service was Colonel Sir Thomas A. Hunter.^{1,2} In 1923, small clinics were opened on primary school grounds, and the School Dental Service (SDS) became officially operational. Adolescent services, supported by dentists, were introduced in 1947 as the basis of the Social Security Dental Benefits (SSDB) system and until recently have been separate from the SDS.¹ Training programs for dental nurses, up until 1991, were delivered by the Department of Health, and although there were geographically distinct delivery centers, the curriculum was standardized with an emphasis on experiential learning. In

1991, training was transferred to the Department of Education, beginning a process by which enhanced education would support an emerging understanding of professional practice (Figure 1).

In 1999, the Faculty of Dentistry at the University of Otago, New Zealand's only educational institute for dentists, became the sole educator of dental therapists. The university offered a two-year Diploma in Dental Therapy (Figure 1). With this new university-based discipline, it was recognized that there would be a transitional period with an enhanced focus on research-led education.³ A three-year bachelor's degree was introduced in 2002 at the University of Otago, and the Auckland University of Technology independently instigated a degree course in the same year.

Establishment of New Zealand-based education for dental hygienists had a very different history to that of dental nurses/therapists. Introduction of education programs for hygienists was largely delayed by the Council of the New Zealand Dental Association, which had concerns that dental hygiene practice was not appropriate for the New Zealand environment.⁴ The New Zealand Army began training dental hygien-

	Dental Therapy Education in NZ	Dental Hygiene Education in NZ	Legislation Changes
1920s	1921: Wellington School for Dental Nurses (Department of Health) Certificate: 2 years Last course ended 1990. ^{1,2}		
1950s	1952: Auckland School for Dental Nurses (Department of Health) Certificate: 2 years Last course ended 1981. ^{1,3,4}		
	1956: Christchurch School for Dental Nurses (Department of Health) Certificate: 2 years Last course ended 1981. ^{1,3,5}		
1970s		1974: Royal NZ Dental Corps Burnham Military Camp: 1 year ^{6,7}	
1980s			1988: Dental Act: hygienists work as unregistered Section 11 workers; therapists work for the School Dental Service under Section 7. ⁸
1990s	1991: Wellington Polytechnic training transferred to the Department of Education. Certificate in Dental Therapy: 2 years Last course ended 1995. ^{9,10}	1990: Wellington School for Dental Nurses Two-week course to train therapists in hygiene procedures; discontinued soon after establishment. ⁶	
	1995: Wellington Polytechnic Diploma in Dental Therapy: 2 years Last course ended 1999. ^{9,10}	1994: Otago Polytechnic Certificate in Dental Hygiene: 15 months Converted to a two-year Diploma in Dental Hygiene in 1998; discontinued in 2000. ^{6,12,13}	
	1999: University of Otago Diploma in Dental Therapy: 2 years Last course ended 2007.		
2000s	2002: University of Otago Bachelor of Health Sciences (endorsed in Dental Therapy): 3 years Last course ended 2007.	2001: University of Otago Diploma in Dental Hygiene: 2 years Last course ended 2007. ¹⁴	
	2002: Auckland University of Technology Bachelor of Health Science (Oral Health): 3 years (dental therapy registration only) Last course ended 2007. ¹⁵	2002: University of Otago Bachelor of Health Sciences (endorsed in Dental Hygiene): 3 years Last course ended 2007.	2003: Health Practitioners' Competence Assurance Act: dental hygienists and dental therapists required to register with DCNZ. ¹⁶
	2006: Auckland University of Technology Bachelor of Health Science (Oral Health): 3 years (dual-degree) ¹⁵		
	2007: University of Otago Bachelor of Oral Health: 3 years (dual-degree)		

Figure 1. History of the Bachelor of Oral Health degree in New Zealand (NZ)

ists in 1974 in order to provide oral health care for its personnel.^{5,6} However, training of civilian hygienists did not begin in earnest in New Zealand until 1994, even though the 1988 Dental Act legalized their inclusion in the dental team. New Zealand thus ranks twenty-first in a survey of twenty-three nations for the instigation of training courses for hygienists.⁷ In 2001, the Diploma in Dental Hygiene was transferred from Otago Polytechnic to the University of Otago with an understanding that a degree program was imminent.⁸ A three-year bachelor's degree was instigated in 2002 at the university's Faculty of Dentistry (Figure 1).

In 2006–07, another significant educational shift occurred, which saw the University of Otago and the Auckland University of Technology offering a three-year dual-degree in oral health for those entering into dental therapy or dental hygiene education. The resulting qualification enables the new oral health graduate to register with the Dental Council of New Zealand as a dental therapist and/or a dental hygienist. Graduates from the Bachelor of Oral Health programs will seek employment in both private and public practice and will, if they choose to be dual-registered, be able to undertake activities as prescribed under both scopes of practice.

A workforce of dental therapists will continue to be essential for maintenance of the services provided within the School Dental Service. New Zealand

continues to benefit from very high participation rates in the SDS, with around 95 percent of primary-aged children enrolled in the service and a recognition of the importance of improving participation rates for preschoolers, which were at 56 percent in 1997.^{9–11} Adolescents aged from thirteen to eighteen years are provided with routine free dental care by private dentists (under the SSDB system), with participation rates in 2005 of 54 percent.¹² It is anticipated that this publicly funded adolescent service may benefit from the availability of dual-registered professionals, and research is under way to assess if this will indeed be the case. To maintain and improve participation in these services, it is essential that education programs continue to be committed to producing competent professionals in dental therapy and dental hygiene, with a strong emphasis on oral health and health promotion.

An Evolving Education

There is a growing appreciation of the need to examine more carefully the training and education programs of professionals complementary to dentistry.^{13,14} Recent overviews of the education of dental therapists and dental hygienists reveal wide variation in the duration and nature of educational experiences

Sources for Figure 1:

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available throughout the world.^{7,15-17} Further, while the term “dental hygienist” is common across many countries, the legislative environment under which dental hygienists practice varies. This means there are considerable differences in their training requirements and actual working practice. An assessment of the hygiene scope of practice was conducted in 2001 by Johnson¹⁵ who reviewed nineteen countries. Eight aspects of therapeutic practice were reported on, and in only one country did hygienists perform all eight procedures; in most countries, only four or five of the procedures discussed were within the hygienists’ scope of practice.¹⁵ The report also indicated that many countries have recently experienced change or expect change in relation to the dental hygienists’ scope of practice. It could be expected that, with a trend towards an increasing scope of practice, the dental hygienists’ educational requirements should also be evolving.

In New Zealand, universities had assumed responsibility for the training of dental therapists by 1999 and dental hygienists by 2001. Factors influencing the movement of education and training from polytechnics to the university environment related to predicted workforce shortages by the Dental Council of New Zealand¹⁸ and failure to attract students to polytechnic training.¹⁹ There was also recognition that, to adequately equip a modern workforce, an increase in time for education and training was necessary—hence, the move from two-year diplomas to three-year degree programs.¹⁹ An important theme across a number of countries, including New Zealand, has been the need for oral health delivery to be team-based.^{10,20-23} To facilitate this team approach, there has been recognition of the beneficial effects of educating professionals complementary to dentistry in dental schools. Thus, instigating education programs in Faculties of Dentistry was seen to have merit. Finally, the need for university-based degree programs was associated with a requirement to equip graduates with the skills to meet the professional standards associated with the registration of all health professionals, which at that time was on the horizon.^{19,24} Concurrently, Waitemata Health, as the largest employer of dental therapists in New Zealand, was experiencing workforce shortages. In 2000, it released a discussion paper in conjunction with the Auckland University of Technology, which would see the introduction of a Bachelor of Health Science (Oral Health) at that university in 2002.²⁵

In 1999, the Faculty of Dentistry at the University of Otago began investigating whether a

dual-degree program for dental therapy and dental hygiene would be right for New Zealand. Initially, this involved gathering information and visits to a dual-degree program offered in Queensland. The University of Queensland offered Australia’s first Bachelor of Oral Health (BOH) degree, introduced in 1998, after a consultation report in 1995 recommended this as an effective way to address workforce shortages. In 2000, consultation was initiated with the New Zealand Dental Therapists’ Association (NZDTA) and the New Zealand Dental Hygienists’ Association (NZDHA) regarding the most appropriate degree program(s) to be offered. A report in 2001 by the Dental Therapy Technical Advisory Group, as commissioned by the Ministry of Health, helped establish the framework for future change. It supported removal of current employment restrictions, which limited dental therapists to working primarily in the SDS. Also significant was the recommendation that legislative changes occur, including the compulsory registration of dental therapists and dental hygienists.¹⁹ Under the Health Practitioners Competence Assurance Act 2003, the new combined Dental Council of New Zealand was established and was charged with the responsibility of protecting the health and safety of the public by ensuring that all oral health professionals are competent and fit to practice their profession. With this act, this responsibility encompassed dental therapists and dental hygienists, who are now required to register with the council. These changes set the stage for the introduction of dual-degree programs in 2006–07. Thus, New Zealand now offers only dual-degree programs that qualify oral health professionals able to register in dental therapy and/or dental hygiene and work in a variety of clinical settings.

The New Zealand government’s call, in its strategic vision (2006), was for an oral health workforce that is less segmented and promotes a team approach in its delivery.¹⁰ Within the SDS, dental therapists have often practiced in isolation and in less than ideal facilities. The SDS is now moving to a delivery model that will utilize more centralized services, thus allowing the infrastructure to be better resourced. These larger community-based delivery units will also enable dental therapists to work in a team-delivery environment with administrative support, dental assistants, and, in some cases, a dentist. These “dental hubs” would mean that dental therapists/hygienists could support the delivery of adolescent services and thus help alleviate the shortage of service providers experienced in some parts

of the country. Community-based rather than school-based services may raise awareness that preschoolers are eligible to attend for oral health care and thus raise participation rates for this group. Additionally, parents/caregivers will be encouraged to present with their child, thus offering an opportunity for targeted oral health education. The dual-degree Bachelor of Oral Health programs must therefore deliver professionals who can competently work as team members and be capable of evidence-based practice in dental therapy, dental hygiene, and oral health promotion in a variety of delivery settings.

Educational Delivery Principles

Learning in the Bachelor of Oral Health program at Otago is designed to reflect an educational focus by which students are exposed to an innovative, research-based³ curriculum with a diversity of experiences and a focus on cultural and social learning in the New Zealand context. Although didactic teaching still features in the program, emphasis is placed on individual learning, information gathering, self-directed learning, inquiry learning, e-portfolios, clinical exposure, and small group learning. Students learn to be research-conscious, lifelong learners who are competent in a wide range of clinical skills and engage with others in a socially informed manner.

The aim of the BOH program is to produce graduates who are clinically competent oral health professionals, with a strong sociological perspective and the expertise required to engage in evidence-based professional development. The BOH was also designed by referencing key stakeholder documents. The Dental Council of New Zealand prescribes the scope of practice required for registration and thus was central to defining the clinical skills to be imparted. The University of Otago's key objectives for teaching and learning (www.otago.ac.nz/about/official_documents.html#t1p) were also actively incorporated into both the philosophy and delivery of the program.

The BOH program has a design and delivery that utilize the principles underpinning an outcome-based delivery program for clinical education,²⁶ with the aim of having outcomes inform the curriculum content, teaching and learning methods, and assessment strategies.²⁷ Students are informed of the expected outcome, which then provides them with a

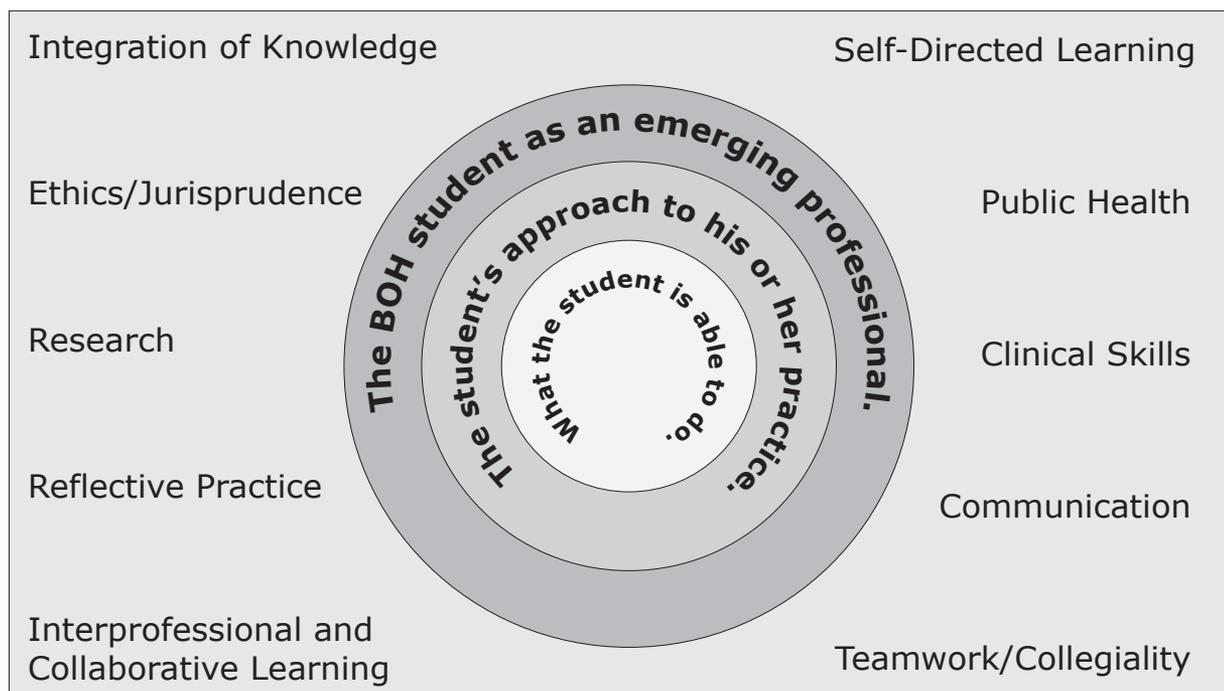
learning framework. Outcomes have been grouped according to Clark et al.'s three-circle model (Figure 2),²⁸ in which the inner circle represents Performance of a Task, the middle circle is Approach to the Task, and the outer circle is Professionalism.^{29,30} The circles make the point that, for every task, there is the right way of doing it, the right approach, and the right person to do it. There are one to five objectives per outcome grouping, with the aim of building on the previous year's learning to produce a competent practitioner. Much of the focus for students in a clinical course will tend to be on performance of a task, i.e., the skills required. The outcome-based learning model was designed to impart these to students, along with key knowledge and understanding associated with how to approach and evaluate the tasks students will undertake as well as what it means to approach a task with professionalism. Vertical and horizontal integration is provided by the unifying themes. All of this will enable the graduate to meet the requirements to register as a dental therapist and/or dental hygienist.

Recognition of Indigenous People and Program Construction/Delivery

The program was very deliberately constructed with a strong foundation in sociology (Figure 3). This sociological perspective aims to teach BOH students to critically analyze the way society is organized and how people participate within different social groupings. The sociology courses also aim to inform students' clinical practice, particularly the way they approach health promotion and prevention within a multicultural environment in which many different socioeconomic factors impact on how people behave.

New Zealand had a population of just under four million people in the 2006 census. Although predominantly populated with those of European descent (67.6 percent), data from that census showed there is a large and growing Māori population of 14.6 percent and a significant number of people who identify as Asian (9.2 percent), Pacific peoples (6.9 percent), and Middle Eastern/Latin American/African (0.9 percent). The Tangata Whenua (indigenous people) of New Zealand have a special place within what is an increasingly multicultural nation.

The BOH was designed with this diversity in mind. Specific outcomes are expected with regard to an understanding of how the Treaty of Waitangi,



Source: Adapted, with permission of Macmillan Publishers Ltd., from Clark JD, Robertson LJ, Harden RM. The specification of learning outcomes in dentistry. *Br Dent J* 2004;196(5):289–94.

Figure 2. Outcomes and unifying themes of the Bachelor of Oral Health program at the University of Otago

as New Zealand’s founding document, impacts upon health promotion in the country. Cultural diversity is recognized, and students are equipped to deliver oral health promotion and prevention to communities with different cultural needs.

Clinical Delivery and Scopes of Practice

The New Zealand Scopes of Practice for both dental therapy and dental hygiene were key reference documents used to inform the curriculum development for the BOH (available from the Dental Council of New Zealand website³¹). Important attributes were the clinical competencies required and the need for registered professionals to have teaching, research, and management skills. Under the Dental Council’s Scope of Practice, registered dental hygienists have, as their major role, the “provision of oral health edu-

cation and the prevention of oral disease to promote healthy oral behaviours,” and their primary task is the “prevention and non-surgical treatment of periodontal disease.” Dental therapists provide oral health assessment, treatment, management, and prevention services for children and adolescents up to age eighteen. Under an additional scope of practice, provision has been made for dental therapists to provide care for adult patients if they undertake education in this scope. However, there are currently no accredited training programs in New Zealand for this scope of practice. The dual register oral health professional will thus be able to work in both private and public sectors, treating both children and adults.

Conclusion

New Zealand has a long history of providing oral health services through dental therapists and in

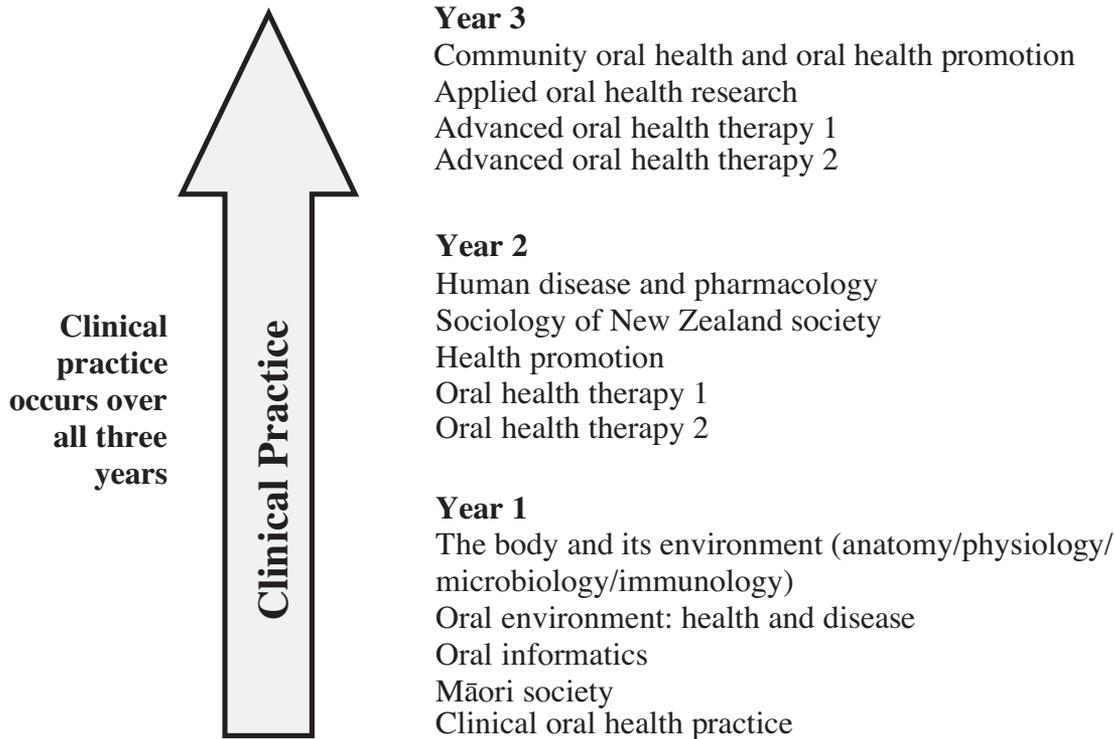


Figure 3. Overview of Bachelor of Oral Health program at the University of Otago

more recent years via dental hygienists. The education and training of these professionals complementary to dentistry have experienced significant change over the last decade. The current dual-degree programs in dental therapy/hygiene will endorse evidence-based practice and result in oral health professionals who can register as dental therapists and/or dental hygienists. Many factors have influenced this changing educational environment, including changing legislation, new registration requirements, predicted workforce shortages, the goal of improving clinical proficiency during training and increasing professionalism, the need to educate for lifelong learning/research-led practice, and an increasing emphasis on socially informed oral health education. BOH graduates will be skilled practitioners who have the knowledge and expertise to undertake health promotion in a multicultural environment. There will be a need for a concerted team approach within the dental profession to effectively utilize these new oral health professionals so as to increase participation rates for preschoolers

and adolescents and increase oral health education to parents/caregivers. The participation of these new BOH-qualified professionals in both private and public oral health delivery is eagerly anticipated.

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