Undergraduate Education in Special Needs Dentistry in Malaysian and Australian Dental Schools

Mas S. Ahmad, B.D.S.; Ishak A. Razak, Ph.D.; Gelsomina L. Borromeo, Ph.D.

Abstract: Meeting the oral health care needs of the growing population of people with special health care needs (SHCN) starts with dental students’ acquisition of sound knowledge and development of clinical competence at the predoctoral level. The aim of this study was to review the level of undergraduate education in Special Needs Dentistry (SND) in Malaysian and Australian dental schools. The deans of all six Malaysian public dental schools and eight of nine Australian dental schools participated in a postal survey on current undergraduate didactic and clinical training in SND at their institutions. The results showed the number of dental schools in Malaysia with teaching in SND as a specific discipline was relatively low compared to that of Australia. However, a high percentage of Malaysian and Australian dental schools reported incorporating teaching of SND into pediatric dentistry (83.3 percent vs. 75 percent), oral medicine/oral pathology (66.7 percent vs. 75 percent), and oral surgery (66.7 percent vs. 25 percent). Most respondents said their school delivered SND clinical training in dental school clinics, hospital-based settings, and residential aged care facilities. Respondents in both countries viewed lack of faculty expertise as the greatest barrier to providing SND education. The study provides valuable information that can direct SND curriculum development in the two countries.

Dr. Ahmad is a Ph.D. student in Special Needs Dentistry, Melbourne Dental School, University of Melbourne and Lecturer, Faculty of Dentistry, Universiti Teknologi MARA Malaysia; Dr. Razak is Professor of Community Dentistry and Vice Chancellor, Vinayaka Missions International University College, Malaysia; and Dr. Borromeo is Associate Professor and Course Convener for Special Needs Dentistry, Melbourne Dental School, University of Melbourne. Direct correspondence and requests for reprints to Dr. Mina Borromeo, Melbourne Dental School, University of Melbourne, 720 Swanston Street, Carlton, VIC 3053, Australia; borromeo@unimelb.edu.au.

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Medical care in Malaysia has markedly improved such that a gradual incline in life expectancy amongst its citizens has been observed over the last fifty years. People are living longer, and the number of individuals with special needs is increasing. Recent reports suggest that over 283,000 persons in Malaysia (1 percent of the population) are registered as having some form of disability. Worldwide, this number has been estimated at over a billion persons, which equals about 10 percent of the world’s population. This rate is expected to increase as a result of aging populations and an increase in chronic health conditions. Taking these figures into account, it is reasonable to deduce that the number of patients with special health care needs presenting to dentists will be on the rise in coming years.

Special Needs Dentistry (SND) has been defined by the Royal Australasian College of Dental Surgeons as “the branch of dentistry that is concerned with the oral health care of people with an intellectual disability or medical, physical, and/or psychiatric conditions that require special methods or techniques to prevent or treat oral health problems or where such conditions necessitate special dental treatment plans.” It is the newest dental specialty worldwide, although the term Special Care Dentistry (SCD) is used in some parts of the world including the United States and United Kingdom. Both terms (SND and SCD) embrace similar scopes of dental practice dedicated to care for patients with special health care needs (SHCN).

At present, there are only three qualified special needs dentists in Malaysia, working under the Ministry of Health, compared to fifteen specialized dentists in Australia, working in academia (teaching and research) as well as in the public and private dental sectors. These small numbers of specialists are inadequate for addressing the oral health needs of four million patients with SHCN in the two countries. Given the high ratio of patients with SHCN to qualified SND specialists available, the majority of
dental care for these patients will have to be provided by general dental practitioners. It is therefore imperative to prepare general dental practitioners to be competent clinicians in treating this group of patients.

Realizing the role of general practitioners in addressing the oral health care needs of these patients, dental schools play an important role in preparing their graduates to be competent clinicians equipped with scientific knowledge, clinical skills, and positive attitudes towards providing care for patients with SHCN. Six public institutions in Malaysia and nine in Australia offer undergraduate programs in dentistry. Dental education in Malaysia consists of a five-year undergraduate program, to which students gain entry after completion of one or two years of foundation study. The degrees given in Malaysian public dental schools are the Bachelor of Dental Surgery (n=3), Bachelor of Dental Science (n=1), and Doctor of Dental Surgery (n=2). In Australia, a five-year undergraduate program is offered in seven dental schools, and degrees are given in the Bachelor of Dental Science (n=4), Bachelor of Dental Surgery (n=2), and Bachelor of Oral Health in Dental Science (n=1). One Australian dental school offers a five-year Bachelor of Health Sciences/Master of Dentistry joint program, and another offers a four-year Bachelor of Dentistry program. There is a recent trend towards four-year predoctoral programs in Australia, with two dental schools introducing Doctor of Dental Medicine programs and one school a Doctor of Dental Surgery program.

According to the Australian Dental Council/Dental Council of New Zealand (ADC/DCNZ) Accreditation Standards for the undergraduate dental curriculum (Standard 8), students upon completion of dental training must be competent, knowledgeable, and professionally minded clinicians across all facets of dentistry. As such, gaining an understanding of the level of undergraduate education in SND is imperative. Furthermore, the role of SND as part of undergraduate dental teaching in Malaysia, a country recognizing the need for specialty training in this discipline, is unknown. Our study aimed to determine the level of SND teaching being incorporated into undergraduate curricula in Malaysia and how it compares with that in Australia. Perceptions of deans and heads of schools in both countries regarding SND in their schools were also compared. The outcome of this study will aid in further developing and improving education about SND, as well as providing valuable baseline information on SND education in dental schools in Australia and Malaysia.

**Materials and Methods**

Ethical approval for the study was granted by the University of Melbourne Human Research Ethics Committee and the Medical Ethics Committee, Dental Faculty, University of Malaya. The deans of the six Malaysian public dental schools and the heads of nine Australian dental schools were contacted in 2012 via letter asking them to complete and return a validated postal questionnaire, which we based on previous surveys.

The questionnaire sought to determine the extent of SND being taught at the undergraduate level, as well as the respondents’ perceptions of SND education provided at their respective institutions. The questionnaire was divided into three sections: didactic teaching in SND, clinical teaching in SND, and undergraduate education in SND. A page entitled “Explanation of Terminology,” attached to the front of the questionnaire, elaborated on the definition of SND as well as different types of disability and groups of patients included in this area of specialty. A follow-up reminder was sent after four weeks to those who did not initially respond.

The questionnaire underwent validation by two senior dental researchers at the University of Malaya to ascertain its suitability to conditions in both countries. Statistical comparisons were not performed due to the small number of schools in each country.

**Results**

All six Malaysian public dental schools and eight of the nine Australian dental schools responded to the survey. Of the respondents, 83.3 percent of Malaysian dental school deans and 87.5 percent of Australian heads of dental schools agreed that SND should be taught at the undergraduate level.

The responses showed that only 10 percent of Malaysian dental schools offered a specific module in SND compared to 75 percent of Australian dental schools. The amount of SND teaching offered across the Australian dental schools ranged from two to thirty-four hours and was delivered in all years except the first. Clinical training in SND was provided in 67 percent of Malaysian dental schools compared to all the Australian dental schools. Most dental schools in Malaysia and Australia that reported providing clinical training in SND at the undergraduate level said they deliver this teaching in dental school clinics,
A high percentage of deans and heads of schools in both Malaysia and Australia considered having a lack of faculty expertise as the main barrier to providing teaching and training in SND for their undergraduate students. In comparison with Australian dental schools, a high percentage of Malaysian respondents rated having a lack of disabled-friendly facilities as one of the barriers in providing SND education. The current curriculum was also a greater concern for those in Australia. Other barriers mentioned included a lack of clinical sites and a lack of patients. A small number of Malaysian dental schools rated having a lack of educational resources as an important concern (Figure 4).

**Discussion**

Studies have reported poorer oral health of individuals with SHCN as compared to the general population when matching for gender and age in regards to having higher DMFT (decayed-missing-filled teeth) scores, poorer periodontal health status, and an increased presence of oral mucosal diseases such as ulcers and candidiasis. Many factors could contribute to these patients’ compromised oral health, including financial burden and direct...
or indirect effects of medical conditions and their treatment sequelae, as well as social, behavioral, and educational factors. A high burden of oral disease among people with disabilities has also been associated with poor dental attendance for 31 percent of Australians with physical and intellectual disabilities reported to have not seen a dentist for more than two years. In comparison, 50 percent of people with

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**Figure 2.** Subjects that incorporate special needs dentistry components as part of didactic material in dental schools in Malaysia (n=6) and Australia (n=8)

Paed=Paediatric Dentistry, OM/OP=Oral Medicine/Oral Pathology, OS=Oral Surgery, HD=Human Disease, CD=Community Dentistry, Prosth=Prosthodontics, GDP=General Dental Practice

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**Figure 3.** Forms of assistance available in Malaysian (n=6) and Australian (n=8) dental schools to aid in clinical teaching of special needs dentistry
visual impairment in Malaysia had not seen a dentist for at least twelve months.\textsuperscript{25}

Limited availability and accessibility of trained personnel to provide treatment and ongoing maintenance of oral health for this group of individuals has also been reported as one of the main factors for unmet oral health needs.\textsuperscript{26} In Victoria, Australia, it has been reported that only half of the dentists provided care to residents in aged care facilities, with an average spending time of one hour per month;\textsuperscript{27} this level compares to that in a previous study of dentists in South Australia.\textsuperscript{28} In other research, patients and caregivers of persons with SHCN perceived that dentists were not competent at delivering high quality services or were reluctant to perform satisfactory levels of dental care due to inadequate training and lack of empathy towards those with SHCN.\textsuperscript{29,30} Amongst other issues raised were weakness among dentists in the knowledge of individuals with SHCN, lack of communication skills, and ineffectiveness in dealing with complex oral health care or dental treatment needs.\textsuperscript{30}

In relation to undergraduate dental training, dentists have reported perceiving their education as inadequate in preparing them to provide care for people with SHCN.\textsuperscript{31-33} Lack of training and experience in SND was one of the most frequently reported concerns expressed by dentists for not undertaking treatment in this patient cohort.\textsuperscript{14,27,34} While dental students indicated that they received poor training in SND, most of them expressed interest in treating patients with disabilities.\textsuperscript{12} A study in the United States found concerns expressed by dental students and graduates about the need for increased didactic teaching and clinical preparation in the care of individuals with SHCN at the predoctoral level.\textsuperscript{14}

Recognizing the role of undergraduate education in preparing dentists to manage this group of patients, several studies have researched the amount of teaching about SND in various regions of the world, reporting from less than five to 100 hours of didactic teaching and clinical training.\textsuperscript{11-13,35} Our study sought to identify the level of undergraduate teaching in SND in Malaysian dental schools and how it compares with Australia, as the pioneer in SND education across Australasia.

Our research found that all responding dental schools in Australia provided clinical training in SND to their undergraduate students in various clinical facilities. This is similar to a study in the United States,\textsuperscript{11} where dental schools were found to include SND teaching as a Commission on Dental Accreditation (CODA)-required element in their predoctoral curricula.\textsuperscript{36} Most of the Australian dental schools offered a specific module in SND, as well as incorporated elements of SND in other subjects in the undergraduate curriculum. In contrast, only 10
percent of Malaysian dental schools reported having a specific module in SND although 67 percent provided clinical training in SND. This is in line with countries such as Canada, where SND is being taught in conjunction with other subjects in the undergraduate curriculum. Neither Malaysia nor Canada requires SND education for dental students prior to graduation. Inadequate training in SND in Malaysian dental schools may be associated with such barriers as a lack of faculty expertise, as well as limited availability of facilities and clinical sites friendly to patients with disabilities. Since Malaysia is a developing country, dental education there may face financial constraints in providing adequate human resources and infrastructure. As a shortage of faculty expertise in providing SND education has also been a main concern in Australia and many dental schools worldwide, it is imperative for schools to focus on workforce development by recruiting professionals with an interest in this field of dentistry and providing them with financial assistance for academic and career development. While this development of faculty is in progress, multisectoral collaboration between dental schools and external organizations should be enhanced to allow sharing of expertise and resources for the purpose of SND teaching and research. For example, the dental profession could liaise with private companies for financial support to fund research or organize events related to oral health promotion for people with SHCN. Schools should collaborate to share expertise, so that education and research in this field can be expanded. Cooperation with external bodies or institutions supporting people with SHCN may also offer access to this patient cohort so that dental students can gain clinical experience in SND. Successful programs based on this idea include the Special Olympics “Special Smiles” in the United States and the University of Toronto-Mount Sinai Hospital’s “Oral Health Total Health” in Canada.

To ensure that dental students attain adequate exposure and training in SND, it is essential for dental schools to be equipped with the forms of assistance necessary to accommodate treatment needs of people with SHCN. A hoist or chair tilt for patients who use a wheelchair, well-equipped mobile units and portable devices for domiciliary dental care, buildings designed for easy access for physically and visually impaired patients, and medical stabilization for behavior guidance should be readily available. Our study found that the availability of such forms of assistance in both Malaysian and Australian dental schools is comparable to schools in the United States and Canada.

Besides obtaining clinical experience in dental school clinics, students may also participate in activities outside the school, such as in domiciliary dental care, mobile dental service, or clinical rotations at community-based clinics that offer treatment to this group of patients. Our study found that clinical training in SND in both countries was also delivered in external facilities such as hospital-based settings, residential aged care facilities, day care centers for people with disabilities, and community clinics. Being exposed to formal educational experience in a variety of clinical settings as well as acquiring informal education through participation in voluntary activities may improve dental students’ level of comfort, confidence, and attitudes in treating patients with SHCN.

Despite the barriers to undergraduate dental education in SND identified in our survey, a high percentage of the deans and heads of schools in both countries agreed that it should be a component of the undergraduate dental curriculum. We view revising the undergraduate curriculum in this way as another step towards implementation of a competency-based educational model that embraces holistic care in patient management. Attention to holistic care is especially important with patients with SHCN whose oral health may be affected both directly and indirectly by their health conditions and a range of environmental and personal factors that contribute to their overall quality of life. The practice of SND fosters a holistic care approach in which the scientific bases of medical and dental practice are intertwined with the art of human behavior and relationships. Acquisition of theoretical knowledge in the management of patients with medical conditions and disabilities as well as exposure to clinical training has shown improvement in the care dental students provide to such patients. Dentists who underwent training in managing patients with SHCN were more likely to develop interest and empathy in treating this group of patients, expressed a desire for additional training in their care, and treated more of these patients following graduation compared to those not exposed to undergraduate SND training. Keeping all these factors in mind, dental schools should endeavor to provide every opportunity for their students to gain adequate knowledge and clinical experience in various settings, aimed at delivering a high-quality educational experience that will contribute to a high standard of professional development.
As an approach towards standardizing requirements for undergraduate education in SND in dental schools worldwide, the Education Committee of the International Association for Disability and Oral Health (IADH) has developed a guideline for curriculum development in Special Care Dentistry that emphasizes the essential core items. However, implementation, in terms of allocation of hours and modality, requires multidisciplinary input within a dental school, which may also vary between countries depending on local practices of specialties and the availability of teaching resources. As the IADH guideline was produced for global reference, we recommend that educational task forces be formed at the national level to identify requirements and determine implementation strategies for each country.

While our study reports results for dental schools across Australia and Malaysia, we hope that this research will inspire dental educators and administrators in other countries to reflect on their efforts in this context. A second part of our study addressed students’ perceptions of SND education, as well as their level of knowledge, comfort, and attitudes towards provision of care for patients with SHCN and will be discussed in a separate article.

**Conclusion**

This study provides valuable baseline information on the current level of teaching of SND in Malaysian and Australian dental schools that may impact curriculum development in both countries. Overcoming barriers in providing teaching in SND requires a multisectoral approach in addressing issues related to financial constraints as well as the development of human resources and infrastructure. SND education at the undergraduate level in Malaysia and Australia should be further developed to be consistent with the internationally recommended guideline, focusing on the needs of each country. We hope that establishing a strong basis for patient care in SND at the undergraduate level will lay the foundation for dental students to provide a high standard of oral health care delivery that will continue to develop throughout their professional career.

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