

# Intersections between clinical dental hygiene education and perceived practice barriers

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## ABSTRACT

**Background:** A growing body of research demonstrates the degree to which dental hygienists cite barriers to the provision of clinical therapy. Many of these barriers appear to be associated with challenges experienced in entry-to-practice clinical education. This review explores the intersection between clinical dental hygiene education and perceived barriers to the provision of effective clinical therapy.

**Methods:** Fifty full-text journal articles and eight graduate theses retrieved from PubMed, Education Source, SAGE Journals, EMBASE, and the Cochrane Library databases were reviewed and thematically analysed.

**Results/Discussion:** Emergent themes revealed inconsistencies in dental hygienists' provision of clinical responsibilities; students' perceptions of calibration discrepancies in clinical dental hygiene education; clinical stressors influencing students' development of clinical skills; challenges in andragogic preparation; difficulty in recruiting qualified clinical educators; and challenges in students' transition to professional practice. Findings indicate time limitations, confidence, a desire for additional education, and a perceived lack of dentist support were leading barriers to dental hygienists' provision of clinical therapy. Dental hygiene students reported receiving inconsistent feedback from clinical educators and expressed a desire for greater clinical supervision and calibration. Clinical educators reported a desire for greater calibration efforts, faculty support, and andragogic preparation. **Conclusion:** A review of the literature demonstrates an association between the barriers cited to the implementation of clinical dental hygiene services in professional practice and challenges experienced within clinical dental hygiene curricula.

## RÉSUMÉ

**Contexte :** Un nombre croissant d'études démontre à quel point les hygiénistes dentaires témoignent d'obstacles en matière de l'exécution de leurs responsabilités cliniques. Plusieurs de ces obstacles semblent être associés aux défis occasionnés par la formation menant à l'entrée en pratique clinique. La présente étude explore le croisement entre la formation en hygiène dentaire clinique et les obstacles perçus en matière de prestation efficace de la thérapie clinique. **Méthodologie :** Les textes intégraux de cinquante articles de journaux et de huit thèses universitaires repérés des bases de données de PubMed, Education Source, SAGE Journals, EMBASE et de la Cochrane Library ont été étudiés et analysés par thèmes. **Résultats ou discussions :** Les thèmes émergents ont révélé des incohérences dans l'exécution de responsabilités cliniques des hygiénistes dentaires, la perception des étudiants à l'égard des divergences en matière de calibration de la formation en hygiène dentaire clinique, les facteurs de stress cliniques qui ont une influence sur le perfectionnement des compétences cliniques des étudiants, la préparation andragogique inadéquate et la difficulté à recruter des enseignants-cliniciens qualifiés, et les obstacles à la transition des étudiants vers la pratique professionnelle. Les conclusions montrent que les contraintes de temps, l'absence de confiance, le désir d'une formation supplémentaire et la perception d'un manque d'appui de la part du dentiste étaient les obstacles principaux à la prestation de la thérapie clinique par les hygiénistes dentaires. Les étudiants en hygiène dentaire ont signalé avoir reçu des commentaires contradictoires de la part des enseignants-cliniciens et ont exprimé vouloir une supervision clinique plus étendue, ainsi qu'une meilleure calibration. Les enseignants-cliniciens ont signalé souhaiter des efforts accrus en matière de calibration, un meilleur soutien par l'administration scolaire, et une préparation andragogique dans le cadre de discussions sur les défis dans le domaine de l'éducation. **Conclusion :** Un examen de la documentation révèle une association entre les obstacles cités en matière de la mise en œuvre des services cliniques d'hygiène dentaire dans une pratique professionnelle et des défis qui ont été relevés au sein du programme clinique d'hygiène dentaire.

**Key words:** clinical competence; dental hygiene; education, dental; education, professional; faculty, dental; oral hygiene

**CDHA Research Agenda category:** capacity building of the profession

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## WHY THIS ARTICLE IS IMPORTANT TO DENTAL HYGIENISTS

- Many dental hygienists perceive barriers to the provision of clinical services arising from shortcomings in their clinical dental hygiene education.
- This review explores the impact of challenges faced in dental hygiene education programs on the professional practice of new graduates.
- Suggestions to help educators and administrators address these challenges are offered.

## INTRODUCTION

Compared to other health professions, many entry-to-practice dental hygiene programs are shorter in duration and have less practice time in clinical placements.<sup>1-4</sup> The number of dental hygiene programs facing these time-related challenges is increasing.<sup>5,6</sup> Despite the growing number of dental hygiene programs and dental hygienists globally, high rates of dental and periodontal disease continue to exist.<sup>7-9</sup> According to the World Health Organization, dental caries affects 60% to 90% of school children as well as the vast majority of adults. From those cases that have been documented, most children show signs of gingivitis,<sup>9</sup> and 1 in every 2 adults has mild, moderate or severe periodontitis.<sup>10</sup>

Dental hygienists report an underprovision of clinical services, including tobacco cessation counselling, nutritional counselling, and the recording of vital signs, citing barriers such as time constraints, low confidence, adverse client reactions, and a desire for additional education and development of skills in these subject areas.<sup>11-23</sup> Dental hygienists partially attribute these challenges to their entry-level education. Students report that their clinical educators require greater calibration and note that they experience difficulties in developing clinical competence because procedures or abilities are practised irregularly within their curriculum.<sup>24-29</sup> In addition, students desire increased individual educator feedback, and they perceive a lack of uniformity within clinical evaluations.<sup>24-29</sup> These challenges serve as significant sources of stress during their clinical education,<sup>24-29</sup> and may be exacerbated by the extent to which clinical educators are qualified. Several studies report that some clinical dental hygiene educators enter academia with less formal instruction in educational methodologies compared to clinical educators in other health disciplines.<sup>24,25,30</sup>

The transition from clinical education to professional clinical practice may also be complicated by an absence of a clinical practicum in many dental hygiene programs during which students can engage in clinical activities outside of their educational institution.<sup>4,6,31</sup> These practicums provide students with interprofessional experiences and may increase their exposure to populations otherwise not seen within their institution.<sup>4,6,31</sup> Practicum experiences have also been noted to increase students' self-confidence in practising autonomously.<sup>31</sup> In North America, medical doctors are evaluated through a postgraduation residency, and registered nurses participate in a clinical practicum prior to graduation. This narrative review explores the challenges experienced in clinical dental hygiene education and the impact these challenges may have on the provision of clinical therapy following graduation. Suggestions aimed at addressing these challenges are also presented.

## METHODS

The electronic databases PubMed, Education Source, SAGE Journals, EMBASE, and the Cochrane Library were searched using the following keywords: dental hygiene, clinical calibration, perceived barriers, student perspectives, educator perspectives, clinical therapy, scaling and root planning, and clinical education. The abstracts of relevant studies were read in order to determine their suitability for inclusion in this review, and reference lists of selected studies were scanned for additional resources. Fifty full-text journal articles and eight graduate theses were selected and read in full. A summary of emergent themes relating to perceived barriers in the provision of effective clinical therapy and to challenges faced during clinical dental hygiene education has been compiled. Paucities in the literature have also been reported. Reviewed articles included qualitative, quantitative, and mixed methodologies and were published between 1997 and 2016. Excluded from this review were non-peer reviewed articles and studies not written in English.

## DISCUSSION

Five themes emerged from this literature review: 1) barriers to the provision of clinical care; 2) calibration issues in clinical dental hygiene curricula; 3) stressors affecting clinical development in educational environments; 4) challenges in recruiting qualified clinical faculty; and 5) difficulties experienced by students when transitioning to clinical practice.

### Barriers to the provision of clinical dental hygiene care

Only 36% to 58% of clinical dental hygienists, regardless of years of experience or level of education, report that they are confident in offering tobacco cessation counselling.<sup>11,15,16</sup> Additionally, 61% to 71% of clinical dental hygienists report irregular or infrequent provision of tobacco cessation counselling.<sup>11,14,17,19</sup> Other data indicate that approximately 60% of dental hygienists infrequently perform extraoral examinations during clinical care,<sup>32,33</sup> while approximately 40% regularly complete extraoral exams on clients.<sup>32,33</sup> Barriers to providing this care include time constraints, a desire for additional education, a lack of confidence in carrying out these responsibilities, inadequate client education materials, client resistance, and a perception of inadequate dentist support.<sup>11-14,17-19,32</sup> Studts et al. report that barriers to the implementation of tobacco cessation counselling may be linked to a lack of reinforcement of tobacco cessation education within the dental hygiene curriculum,<sup>11</sup> and Tremblay et al. note that dental hygienists in Quebec believe they should intervene with smokers, but feel they do not have the skills to intervene effectively.<sup>17</sup> Those dental hygienists who do provide regular tobacco cessation counselling further

report a loss of confidence when clients are unwilling to quit.<sup>13,34</sup> Additionally, a majority of dental hygiene students and clinicians report that they do not provide nutritional counselling due to time constraints, lower confidence in their abilities, and a desire for increased dentist buy-in.<sup>20-22</sup> Research indicates that health history, vital signs, and special needs assessments are not completed in clinical practice as often as in academic settings, and that dental hygienists view time constraints, practice-centred factors (including time limitations in the practice schedule), inadequate financial reimbursement, and a desire for increased education as barriers to their provision of these services.<sup>13,23</sup> Dental hygienists are generally aware of the benefits of providing such services; however, perceived barriers consistently impede their efforts. Inadequate time is cited repeatedly in the literature as a significant barrier,<sup>11-15,17,18,32</sup> and research has recommended a re-examination of dental hygiene curricula to emphasize the importance of integrating these skills.<sup>12,13,15,16,19,32</sup>

With regard to the initiation of referrals, Williams et al. examined clinical dental hygiene students' knowledge of when a referral to a periodontist may be indicated.<sup>35</sup> They found that students were able to consistently identify client risk factors indicating the need for a periodontist referral.<sup>35</sup> However, when tested in clinical practice on their initiation of a referral for clients with these risk factors, students' scores were comparatively low. Students consistently hesitated to refer clients, which Williams et al. concluded was a result of students' difficulty in connecting theory to practice. They indicated that students may have a false sense of confidence when reflecting on their own clinical abilities.<sup>35</sup> Although this study was conducted on graduating dental hygiene students, the authors suggest that knowledge and skills developed in dental hygiene programs may correlate well with future practices as clinicians.<sup>35</sup>

#### Calibration issues in clinical dental hygiene curricula

Clinical teaching environments are critically important for students in medical and dental professions. Clinical educators are central to the effective delivery of clinical curricula. Paulis examined a group of 258 clinical dental hygiene students from 48 dental hygiene programs in the US, and found that dental hygiene students perceive their clinical educators to be underprepared for clinical education.<sup>24</sup> Although many clinical educators are expert practitioners in their field, not all have relevant formal education in adult teaching methodologies.<sup>25</sup> In addition, the degree to which clinical educators are oriented and calibrated to the institution's policies and procedures and to the expectations placed upon learners prior to teaching in a clinical environment varies.<sup>24</sup> Students note that greater calibration among faculty, particularly regarding evaluation and grading procedures, is needed.<sup>24,26,36</sup> They

also desire a greater degree of supervision and individual coaching during clinical education.<sup>24,26,36</sup> Dental hygiene students believe that clinical educators could also benefit from additional years of clinical experience prior to teaching<sup>24</sup> and cite inflexibility and a strenuous high-stakes learning environment as challenges in their clinical education.<sup>26</sup> Students further report a desire for instructors to obtain more formal education in andragogic methodologies, communication techniques, and assessment and evaluation theories prior to teaching in a clinical setting.<sup>24,25</sup>

Many clinical educators and program directors also desire increased opportunities for calibration and preparation. There appears to be a discrepancy between the clinical preparation that new educators expect to receive from existing faculty and the level of mentorship that they actually receive. New clinical educators report feeling underprepared compared to existing faculty members for their roles in clinical education.<sup>24,34-41</sup> At a northwestern American college, faculty in the dental hygiene program assessed clinical students using varied methods, designs, and scoring tools. Faculty neither calibrated their evaluation techniques nor communicated their approaches with one another. A review of student assessments in this setting indicated a divergence from best practice standards for the evaluation of clinical students.<sup>42</sup> Dental school faculty in Michigan were assessed for differences in diagnosis and management of periodontal disease; clinical educators' diagnoses of periodontal conditions varied greatly.<sup>43</sup> The greatest variation occurred among dental hygiene faculty members; the least variation occurred among first- and second-year periodontal graduate students. This discrepancy highlighted that a lack of calibration in the diagnosis of periodontal disease may also result in calibration challenges between dental professions post-graduation.<sup>43</sup>

The accreditation standards for dental hygiene programs in the US and Canada require that clinical educators obtain a background in educational theory and methodology prior to commencing clinical education.<sup>44,45</sup> For example, the Commission on Dental Accreditation of Canada (CDAC) states: "Dental hygienists appointed as clinicians, assigned preclinical and clinical supervisory responsibilities, must have training in educational theory and methodology and a minimum of three years of dental hygiene clinical experience."<sup>44, p.22</sup> In Canada, dental hygiene programs must also undertake a calibration process for faculty members to ensure consistency in their evaluation of students. The specific calibration process is largely up to the individual institution, as long as policies and procedures to encourage inter-educator consistency are in place.<sup>44</sup> The literature indicates that students and faculty members desire greater calibration and preparation efforts for clinical educators in order to facilitate the proficient transfer of clinical skills to students.<sup>24,26,30,37,39,41</sup> This literature strongly suggests that

calibration efforts must be ongoing, in order to support consistent practices.

Similar challenges exist in other health care disciplines and across the globe. Clinical nursing instructors in Australia report that student nurses are often taught by clinical educators who have little to no prior formal teaching experience.<sup>40</sup> These instructors cite many barriers to their provision of optimal clinical education.<sup>40</sup> DaRosa et al. maintain that “while medical school faculty have a critical responsibility to prepare future physicians, medical school curricula have not kept pace with societal needs and are graduating students who may be lacking the knowledge and skills required to practice effectively in the 21st century.”<sup>41, p453</sup> Medical school clinical instructors are primarily employed for their knowledge and clinical abilities in their areas of specialty rather than their teaching expertise.<sup>41,46</sup> In fact, the literature indicates that instructors from different medical disciplines are frequently unaware of each other’s learning objectives, leading to inconsistent educational outcomes.<sup>41,46,50</sup>

Medical faculty frequently report a desire for increased formal training in education, time constraints, and a lack of opportunities for participation in faculty development activities as barriers to effective calibration.<sup>48,51,52</sup> Dudek et al. found that medical instructors may pass their students in a clinical setting even if these instructors feel their students should fail.<sup>53</sup> Participants in this study identified a lack of day-to-day documentation of student performance, a lack of knowledge of what specifically to document, anticipation of an appeal process, and a lack of remediation options as major reasons for passing students who may have been performing poorly.<sup>53</sup> DaRosa et al. reported that medical faculty members may intend to graduate well-prepared physicians,<sup>41</sup> but there are multiple factors—curricular, cultural, environmental, and financial—impeding their efforts.<sup>41,48,50</sup> Time limitations, physical space issues, and limited educational budgets are common problems in clinical education.<sup>41,46,52</sup> Dental hygiene and other health care faculties confront similar challenges regarding calibrating clinical faculty. Additional instruction in educational methodologies for faculty, the development of ongoing formal calibration opportunities within health programs, and the use of standardized assessment tools for evaluating students and faculty will likely be effective strategies for reducing inconsistencies experienced in clinical education.<sup>24,30,37,38,40,43</sup>

### Stressors affecting clinical development in educational environments

Research indicates that student anxiety has a detrimental effect on academic achievement and learning.<sup>26-29</sup> Dental and dental hygiene students perceive stressors in clinical environments as potential barriers to a positive learning experience. This perception of clinical educational experiences as stressful may hinder or delay the

acquisition of clinical dental hygiene competencies.<sup>26-29,54</sup> The most significant stressors noted by clinical health care students are extensive clinical requirements, insufficient instructor availability, taxing interpersonal relationships, organizational and clinical curricular challenges, differing opinions between faculty, and a non-uniformity in clinical instructor guidance.<sup>26-29,54</sup> Inapproachability of faculty has also been documented as a source of clinical stress for students.<sup>26,27</sup> In American associate degree dental hygiene programs, academic difficulties and challenges in acquiring clinical skills are the predominant reasons for program non-completion.<sup>55</sup> A systematic review of clinical stressors in dental programs found the intense workload, faculty-related factors, and personal factors to be major influencers of student performance and of a decline in psychoemotional well-being. Among the factors identified were extensive school regulations, a stressful atmosphere involving many high-stakes clinical assessments, smoking habits, substance abuse, and a lack of time for socialization and relaxation.<sup>29,54</sup> Identifying these sources of stress in dental hygiene education is a critical first step towards enhancing the student experience. Improving educational experiences and reducing student anxiety through lower-stakes assessments and protected independent study time within a curriculum can facilitate students’ retention and application of knowledge and abilities within their education and their professional practice.<sup>26-29</sup>

### Challenges in recruiting qualified dental hygiene educators

Despite the demand for qualified clinical educators, dental hygienists and dental hygiene educators indicate that clinical dental hygiene education may not be a desirable career.<sup>56</sup> In 2013, dental hygiene program directors identified several concerns in the American Dental Hygienists’ Association Dental Hygiene Program Director Survey. These include recruitment of new faculty, finding qualified professionals with an interest in teaching, competition for qualified faculty, and budgetary concerns.<sup>56</sup> McGuinness also notes that dental hygiene education has faced difficulty in recruiting and retaining competent qualified clinical educators.<sup>30</sup> Even the most competent and experienced clinicians may not have experience in the effective education of students.<sup>30,56</sup>

Candidates for clinical dental hygiene educator positions perceive the income to be less lucrative compared to private clinical practice and believe that specific factors influence faculty shortages in dental hygiene programs. Among these factors are minimal mentoring of new faculty, a lack of modeling to prospective dental hygiene educators, low diversity among faculty, and low levels of institutional support.<sup>56</sup>

In 2015, CDAC added to its requirements for dental hygiene programs that all dental hygiene educators should possess a baccalaureate degree.<sup>44</sup> According to the 2015 Canadian Dental Hygienists Association Job Market

and Employment Survey, only 19% of dental hygienists practising in Canada have a bachelor's degree, and only 6% have a degree specifically in dental hygiene.<sup>57</sup> Program directors continue to struggle to recruit qualified faculty with the minimum required credentials as the pool from which to select candidates remains relatively small.

Part-time private practice dentists and dental hygienists are being increasingly utilized to deliver undergraduate clinical education.<sup>58</sup> There is a need for effective recruitment processes and ongoing faculty development to support those who are both clinicians and educators.<sup>58</sup> A group of experienced dental practitioners who shifted from positions as full-time clinicians to part-time clinical educators identified common themes including complexity in dental education and differences in clinical environments as challenges in their transition.<sup>58</sup> These part-time educators noted that juggling time and multiple students in an unfamiliar, busy, and stressful environment can be difficult. They reported that the clinical educational environment can sometimes provoke feelings of isolation among new clinical educators and indicated that the dynamic of 3 parties—instructor, student, client (as opposed to 2 in clinical practice)—was stressful.<sup>58</sup> These part-time educators reported that the need to be sensitive to the diverse learning styles of each student was often challenging and noted that the complexity of practising a new skill set (the process of clinical education) was perhaps the most significant challenge of all. Clinicians who wish to teach require ongoing institutional support in the development of their role as an educator, through faculty mentorship and opportunities to hone their teaching abilities.<sup>58</sup>

#### Difficulties experienced during the transition to professional practice

Dental hygiene diploma programs generally do not integrate a residency or clinical practicum component in curricula for graduating students as is commonly seen with other health care entry-to-practice programs. Such an opportunity may facilitate the transition from academia to professional clinical practice for diploma graduates.<sup>4</sup> This practicum model may be structured differently in dental hygiene baccalaureate programs which prepare graduates for roles in alternative practice settings. Providing practicum or extended learning experiences for graduating students in settings such as community or public health, education, research, administration, and industry may better prepare degree graduates for these diverse roles.

The accreditation commissions for dental hygiene schools in North America indicate that dental hygiene faculties must ensure students' participation in a community placement, wherein they can implement health promotion or health education activities.<sup>44,45</sup> There is no specific requirement for students to participate in a clinical community placement in which they can be assessed on the application of clinical

skills in community settings. Research indicates that health professionals including dentists, physicians, and nurses report similar barriers to dental hygienists in the provision of effective clinical services to special care populations in community settings.<sup>59-70</sup>

For example, graduating dental hygiene students in Newcastle, Australia, participated in a 12-week placement in a residential seniors' care facility. They felt ill-equipped for the seniors' care placement program even though they had attended a preplacement orientation. Students expressed feelings of being overwhelmed by the residential seniors' care environment, and recommendations for a more realistic preplacement orientation program were made to enable students to transition from the classroom to a special care environment more effectively.<sup>71</sup> A study of senior University of North Carolina dental hygiene students indicated that their placement in a 3-week practicum experience during their final semester increased their clinical self-confidence in the dental hygiene process of care.<sup>31</sup> This research concluded that dental hygiene programs could ease the transition into professional practice by requiring students to participate in extended community practicum experiences.<sup>31,71</sup>

#### CRITIQUE OF THE LITERATURE

Quantitative, qualitative, and mixed methods studies were included in this review. Randomized controlled trials were used frequently, allowing the authors control over experimental conditions and minimizing confounding factors.<sup>72</sup> Focus groups and individual interviews were used in qualitative studies, and purposeful sampling was appropriately employed in order to select those participants most able to provide the needed information.<sup>73,74</sup> Focus groups can elicit a candid expression of perceptions as comfort among group members and peers is common, and many focus groups were ideally sized between 6 and 8 participants.<sup>73</sup> Individual interviews were also advantageous as participants were not swayed or biased by other participants' responses.<sup>75</sup> Member checking and respondent validation, verbatim transcription after audiorecordings, and systematic thematic analyses were employed, contributing to data completeness. In many cases, participants in qualitative studies were interviewed until data saturation was achieved, and open-ended, semistructured interview questions allowed for a greater expression of information. Pilot testing and follow-up surveys to non-respondents were administered, ensuring a focused and comprehensive collection of data.<sup>74-76</sup> Ethical approval and participant consent were received across all studies reviewed, and participant anonymity and confidentiality were guaranteed.<sup>77</sup>

#### Limitations

In some quantitative studies, research methodologies including cross-sectional analyses, regression analyses, and

observational designs were utilized. These methodologies allow a greater opportunity for influence from confounding factors than carefully conducted randomized controlled trials, and give authors a decreased degree of control over experimental conditions.<sup>72</sup> Some quantitative designs utilized small sample sizes<sup>72</sup> and infrequently, among both methods, convenience sampling was used. These approaches could limit external generalizability of quantitative research and internal trustworthiness of qualitative results.<sup>76</sup> Data saturation was not unanimously cited in qualitative studies, and potential power struggles or insecurities within focus groups may have influenced participant responses. Participants who answered emailed surveys may have had a greater interest in the subject material than did non-respondents, thus positively biasing the results.<sup>73,75</sup> Many studies employed closed-ended or fixed-response only options for questionnaires, which could restrict the information gathered and limit deeper insight into perceptions.<sup>75</sup>

## CONCLUSION

There is an abundance of literature exploring perceived barriers to the provision of clinical therapy among dental hygienists, perceived challenges in clinical teaching methodologies, and inconsistencies across and within dental hygiene education programs. However, there is a scarcity of literature on perceived barriers to the provision of effective clinical therapy in relation to clinical educational experiences. Research indicates that many dental hygienists perceive challenges in their provision of clinical services, such as smoking cessation counselling, nutritional counselling, vital signs assessment, and performing extraoral examinations. There appears to be an association between these challenges experienced in professional practice and those experienced within entry-level clinical curricula. Students in clinical dental hygiene programs report a desire for increased individualized coaching from educators, increased calibration among educators, and less stressful, time-constrained learning environments.

Suggestions to help address these challenges include ongoing calibration exercises for clinical educators, mentorship programs for new educators, lower-stakes clinical evaluations that assess the ongoing development of competence throughout the duration of the program, and the integration of clinical placements or practicums particularly in community settings to assist in the transition to professional practice.

Additional research examining dental hygiene students' clinical experiences in entry-level programs and their relation to challenges experienced in professional clinical practice is needed, particularly in a Canadian context. Such research may elucidate pathways to address and overcome these barriers and may result in suggestions for improving the implementation and evaluation of clinical curricula.

## CONFLICT OF INTEREST

The authors have declared no conflicts of interest.

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