

The Study of Temporomandibular Disorders and Orofacial Pain from the Perspective of the Predoctoral Dental Curriculum

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This paper addresses questions 2 to 6 posed in the charge to the conference to discuss the study of temporomandibular disorders (TMD) and orofacial pain from the perspective of the predoctoral dental curriculum. This paper lends itself to an additional query: how much diagnostic and therapeutic skill relative to TMD and orofacial pain should a new graduate possess and demonstrate to be deemed competent in accordance with the definition of competence of the American Dental Association's Commission on Dental Accreditation? Although much of the content of this and the accompanying articles from the conference pertain to the TMD and orofacial pain curricula of dental schools in North America, most of what is presented here is universal to the teaching of the subject matter; therefore, it could be applied to educational institutions in other parts of the world. Indeed, an international survey relative to the teaching of TMD and orofacial pain would be of interest and value to dental schools worldwide.

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The purpose of this paper is to discuss the study of temporomandibular disorders (TMD) and orofacial pain from the perspective of the predoctoral dental curriculum. It is important to first underscore the overall significance of this conference. The evolution of clinical dentistry is such that the present-day dental practitioner is involved in more than just the recognition and management of diseases confined to the oral cavity. He or she is also involved with an increasingly significant role in the diagnosis and management of orofacial pain, which includes TMD and other disorders of the orofacial region. The study of this clinical area should be part and parcel of the predoctoral dental curricular program. To accomplish this, it is absolutely necessary to have a greater integration of the basic and clinical sciences as recommended by the Institute of Medicine report in 1995.¹ The article by Dr Barry Sessle in this issue of the journal specifically addresses this concept.²

One of the significant outcomes of the First Educational Conference to Develop the Curriculum in Temporomandibular

Disorders and Orofacial Pain in 1990 was the development of suggested curriculum guidelines for the study of TMD and orofacial pain,³ which were subsequently adopted by the American Association of Dental Schools in 1992 as formal guidelines.⁴ These guidelines served as a tremendous resource from which dental education institutions have been able to draw foundational information for the development of curricular programs for the study of TMD and orofacial pain. However, without a “competency” statement within the clinical sciences portion of the accreditation standards of the American Dental Association’s Commission of Dental Accreditation (CDA), there has been no external impetus to compel American dental schools to include the study of TMD and orofacial pain within the framework of their respective curricula.

Historically speaking, attempts by dental educators interested in promoting the inclusion of any degree of study of TMD and orofacial pain at the predoctoral level have been subject to the resources and philosophical support of administrators and curriculum committees at their respective institutions. Needless to say, the traditional parochial and turf-conscious nature of most clinical and basic science disciplines within these institutions has made it difficult at times to implement innovative renovations of the institutions’ curricula.

The advent of the significantly revised CDA’s accreditation standards⁵ has literally overhauled the traditional format of student assessment of dental education in the United States. Analogous accreditation standards in many other countries have had the same effect. However, the absence of TMD and orofacial pain in CDA Standard 2-25 (clinical science education), other than under the umbrella term of “pain control,” makes it difficult for dental educators in the United States to promote the inclusion of TMD and orofacial pain in the predoctoral curriculum. Thus, as just 1 example of how this conference can impact dental education, reaching a consensus relative to the development of a clinical competency statement for TMD and orofacial pain that could be recommended to the CDA for incorporation into the clinical sciences’ Accreditation Standard 2-25 could be significant. Dental education needs to raise the bar at the predoctoral level regarding the study of TMD and orofacial pain and the provision of care for TMD and orofacial pain, so that more of these clinical problems can be managed at the primary care level in private practice.

Questions Addressed in the “Charge to Conference”

Relative to the questions identified in the introductory paper at the conference,⁶ which outlined the charge to the speakers, questions 2 and 3 are sufficiently related to be addressed simultaneously.

2. *Since evidence-based care is the desirable standard in the care of TMD and orofacial pain patients, how, under what conditions, and from whom should predoctoral and postdoctoral students learn how to evaluate the information upon which the purported evidence is based?*

3. *How, under what conditions, and from whom should students learn that, unless there is objectively derived clinical evidence to the contrary, treatment choices for TMD and orofacial pain should be those that are the least invasive, the least irreversible, the least costly, and have the best (albeit anecdotal) likelihood of success?*

Regarding these 2 questions, the answer of how these are accomplished in the predoctoral curriculum for the study of TMD and orofacial pain should be the same as applied to the study of other basic and clinical science areas. In essence, the curriculum should contain various pedagogical methodologies for training the predoctoral dental student to develop their skills in critical thinking and outcomes assessment. Examples include the use of appropriate evidence-based references and resources with case-based presentations, as well as with patient simulation exercises such as an objective structured clinical examination (OSCE). In addition, these examples could be reinforced by clinical “hands-on” and/or “rotation” experiences and observations during which evidence-based care, as well as appropriate treatment choices for TMD and orofacial pain, are demonstrated and discussed between students and faculty.

Predocutorial students can learn these critical thinking and outcomes assessment skills necessary for evidence-based care from both the basic science faculty and the clinical faculty. However, at each institution there should be a “point person” who can interact with other faculty who are experts in their respective basic science and clinical disciplines.

As previously noted, there needs to be greater integration of the basic and clinical sciences, and the areas of TMD and orofacial pain lend themselves to this challenge. The development of such skills needs to be integrated into the overall cur-

riculum. Dental education institutions need to recognize pain in the orofacial region, beyond what is caused by just the structures of the oral cavity, and be aware that pain is indeed a health problem that can and needs to be addressed by the dental practitioner.

4. *How, under what conditions, and from whom should predoctoral and postdoctoral students learn the principles and process of diagnostic and therapeutic clinical decision-making?*

Again, the same principles and processes of diagnostic and therapeutic clinical decision-making that are fundamental to other aspects of dental care can also be applied to the areas of TMD and orofacial pain. There is a foundational knowledge of the basic sciences, as outlined in Dr Sessle's article in this publication,² that is essential to couple with clinical diagnostic skills to accomplish the necessary decision-making process for treatment of TMD and orofacial pain. As mentioned above, practical application through the use of OSCEs, clinical rotations and observations, problem-based learning formats, and provision of clinical care can provide ample and diverse experiences for the predoctoral student.

Depending upon the infrastructure of the faculty staffing of the particular institution, the faculty most appropriate for providing instruction in the principles and processes of diagnostic and therapeutic clinical decision-making would primarily be those in the dental disciplines of oral diagnosis and oral medicine, as noted in the articles by Drs Truelove⁷ and Fricton,⁸ along with consultation from the basic science faculty as well as faculty with expertise in TMD and orofacial pain. In addition to dental faculty, there would be a tremendous benefit for the predoctoral students to have exposure to non-dental health practitioners, eg, physical therapists. It is extremely important for the dental student to have a heightened awareness and appreciation of the contribution of the physical structures related to the stomatognathic system as well as to the diagnostic and therapeutic skills and expertise of allied health professionals.

5A. *Since supervised "hands-on" experience is essential to the training of clinicians, how, under what conditions, and from whom do predoctoral students obtain such experience in caring for patients with TMD and orofacial pain?*

The CDA defines the term "competent" as "the levels of knowledge, skills, and values required by

the new graduates to begin independent, unsupervised dental practice."⁵ To be very specific relative to "hands-on" experience, the CDA clinical sciences' Standard 2-25 states: "At a minimum, graduates must be competent in providing oral health care within the scope of general dentistry, as defined by the school, for the . . . patient" The CDA term "competent" and the clinical sciences' Standard 2-25 would seem to apply to most if not all dental schools worldwide; this warrants discussion regarding the extent of "hands-on" training that each "new graduate" should experience in the predoctoral curriculum relative to TMD and orofacial pain. In other words, as a collective group of dental educators interested in promoting the study of TMD and orofacial pain in the predoctoral curriculum, we must identify the very minimum diagnostic and therapeutic skills in which a new graduate should be trained and competent to clinically perform, unsupervised, on the first day of private practice.

The American Dental Association has advocated that, at the very least, ". . . in addition to obtaining a comprehensive medical and dental history and performing a thorough dental examination of every patient, a brief screening history and examination pertinent to the temporomandibular disorders should be done to enable the practitioner to determine the need for a more detailed evaluation."⁹ As such, for the screening history and examination of TMD and orofacial pain to be meaningful and practical, diagnostic criteria need to be utilized that will identify when a patient could be managed by the student (or for that matter the "new graduate") and when the patient should be referred to an intramural multidisciplinary TMD and orofacial pain clinic, to an intramural faculty practice, or extramurally to an appropriate private-practice setting.

Perhaps the "new graduate" should, at a minimum, be able to diagnose when bruxism or other mandibular parafunctional habits and disorders have crossed the physiologic threshold of tolerance and adaptability to become detrimental to the health of the stomatognathic system and therefore require management that should be provided by that "new graduate." Perhaps the "new graduate" should, at a minimum, be able to diagnose and manage inflammatory disorders of the temporomandibular joint (TMJ) as well as internal derangements of the TMJ. Perhaps the "new graduate" should, at a minimum, have an understanding of orofacial pain mechanisms to provide differential diagnoses for the neurologic and neurovascular disorders manifesting orofacial

pain. Clinical “hands-on” management of TMD and orofacial pain disorders that are beyond the masticatory myalgias, joint inflammations secondary to macrotrauma, or microtrauma of bruxism requires significant supervised “hands-on” experience.

What is realistic for the “new graduate” to know and perform in this field? Are rotations or other forms of observation in a multidisciplinary TMD and orofacial pain clinic and/or an extramural practice ample enough for the “new graduate” to proceed with the provision of clinical management of TMD and orofacial pain? The challenge is to come to a realistic consensus on what comprises ample “hands-on” experiences for TMD and other orofacial pain categories for which the “new graduate” could be considered competent. This may vary from country to country depending on specific accreditation and practice standards. A subsequent challenge will be to then develop consensus on how to evaluate competence of those “hands-on” experiences in each country and to then propose such experiences to the dental education institutions for inclusion in the predoctoral curriculum.

With regard to who should provide the supervision for the “hands-on” experience, each dental institution needs to assess the knowledge and skills of their respective faculty. As will be discussed in Question #6, at the very least an institution should have appropriately trained full-time faculty with expertise and emphasis in teaching, delivery of clinical care, and scholarly activity related to TMD and orofacial pain, and these faculty could be complemented with appropriately trained and/or experienced part-time faculty.

5B. If such clinical experiences are not available, what are the educational goals and alternatives?

This question is very realistic and appropriate, since most dental institutions do not have the luxury of employing appropriately trained and/or experienced full-time faculty who have expertise and emphasis in the teaching, patient care, and scholarly activity in TMD and orofacial pain. Alternative pedagogies are necessary when clinical experiences are not possible or available.

If such clinical experiences and ample faculty are not possible or available, then at the very least there ought to be a goal of establishing a heightened awareness in the “new graduate” to adequately recognize an abnormality of the stomatognathic system relative to TMD and orofacial pain

and to be able to subsequently make the appropriate referral.

Regarding alternatives if clinical experiences in TMD and orofacial pain are not possible or available, the curriculum can contain OSCEs, case presentations by faculty and/or residents, elective mini-courses, and rotations for observations or clinical rounds through faculty practices and even extramural practices. However, relative to the extramural practices, questions may arise as to whether there will be consistency with the necessary evidence-based care and objectively derived clinical evidence previously discussed. Another alternative can be tutorial modules that are CD-ROM and/or computer-based, in which students can proceed through a self-paced curriculum with computerized scoring and tracking.^{10,11}

6. What are the curriculum and faculty staffing implications for dental schools if TMD and orofacial pain were to become a recognized dental specialty and/or were to become a required component of the dental curriculum or of other dental specialty programs?

If TMD and orofacial pain were to become a recognized dental specialty and/or a required component of the predoctoral dental curriculum, there would be a demand for the following:

1. Appropriately trained full-time faculty with expertise and emphasis on teaching, delivery of clinical care, and scholarly activity regarding TMD and orofacial pain
2. A complement of appropriately trained and/or experienced part-time faculty
3. Sufficient resources, as outlined in Dr Fricton’s article⁸ in this issue of the journal and
4. Inclusion of the study of TMD and orofacial pain in the predoctoral curriculum to heighten the awareness and interest of the “new graduate” to pursue full-time postdoctoral training in TMD and orofacial pain

Relative to this same question regarding other dental specialty programs, such components are already required with the prosthodontic specialty, for example: “Are students competent in the prosthodontic treatment of patients with temporomandibular disorders and/or oral facial pain?”¹² Just as with the previously discussed portions of this question, the factors of appropriately trained and/or experienced faculty as well as sufficient resources also apply.