

Curriculum Change at Schulich Dentistry

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In recent years, there has been an increased interest in dental curriculum reform. Educators recognize the value of active, independent learning, the use of technology in education and the influence of culture and technology on the way young adults learn. Educating the next and future generations of dentists in modern, technologically advanced methods of dental practice will remain the foundation of any successful dental education. Nowadays, however, the increased awareness of the association between oral and systemic health means that health care education requires as much emphasis on topics such as interpersonal communication, interprofessionalism, ethics, critical thinking, problem-solving and evidence-based practice as it does on teaching students how to make the right diagnosis, initiate the right therapy and provide technical procedures proficiently and safely.

In 2005, the American Dental Education Association (ADEA) Centre for Educational Policy and Research published *Recommendations from the ADEA Forum on the Predoctoral Dental Curriculum*.¹ In this paper the authors recommended that competencies form the basis for curriculum development. Both the ADEA and the Association of Canadian Faculties of Dentistry (ACFD) subsequently published documents defining the competencies required for the recently graduated general dentist.^{2,3} The ACFD document includes competencies related to the understanding of the relationship between oral and systemic health, critical appraisal of scientific literature, and evidence-based practice and communication.

This shift toward competency-based dental education provided the impetus for curriculum innovation (**Box 1**). In early 2008, ADEA released the results of the 3-year Macy Study, *New Models of Dental Education*, in the form of a series of papers published in the *Journal of Dental Education*.⁴ The ideas and recommendations presented in these papers are far-reaching and thought-provoking. The authors challenge dental educators to embrace a real paradigm shift from the traditional dental education model.

Box 1 Factors considered important in curriculum innovation

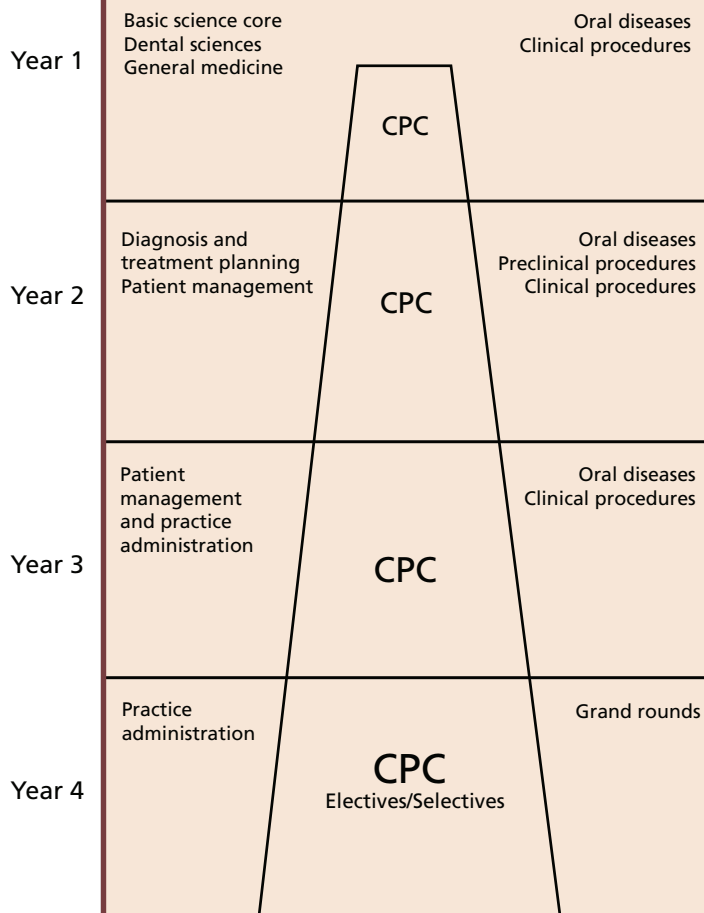
- Develop core knowledge curricula based on interdisciplinary thematic units rather than discipline-specific courses.
- Integrate core knowledge throughout the curriculum with linkages to clinical competencies.
- Identify foundation knowledge that should be prerequisite to admission to dental school.
- Take advantage of technology and student characteristics to develop and adopt non-traditional lecture-based teaching methods.
- Move portions of curriculum to pre-requisites.
- Early clinical involvement of students.
- Decompression of the dental curriculum.
- Distance learning for portions of the curriculum.
- Reconsideration of the 4-year format.
- Consortia for sharing implementation of portions of the curriculum.
- Accommodation to variation in learning speed and style.
- Active and self-directed learning.
- Methods to assure relevance to future practice.
- Methods to recruit and train students for careers in academic dentistry.
- Methods to increase interprofessional aspects of curricula.
- Community-based clinical educational experiences.
- Production and analysis of data on outcomes of curriculum innovation.
- Positive contributions to access to care for the underserved.
- Evidence-based practice.
- Appreciation of the importance of biological, population and fundamental research for the improvement of oral health care.
- Enabling the student to remain competent after graduation (fostering continuous learning and critical thinking).
- Relationship to post-graduate education.

Source: *Recommendations from the ADEA Forum on the Predoctoral Dental Curriculum*¹

Box 2 Guiding principles of curriculum renewal in dentistry, Schulich School of Medicine & Dentistry

1. Ensuring the new curriculum meets or exceeds the requirements of accreditation and published competencies of the Association of Canadian Faculties of Dentistry.
2. Integration of basic and clinical sciences.
3. Thematic, multidisciplinary approach to didactic and clinical teaching.
4. Earlier and progressive introduction of students into patient clinics.
5. Provide time in the senior year for electives and rotations both on and off site.

UWO Dental Curriculum Framework



CPC = Comprehensive patient care

Figure 1: Curriculum framework for Schulich Dentistry

Revitalizing the Dental Curriculum at Schulich Dentistry

Against this backdrop of curriculum innovation by dental educators in North America, Schulich Dentistry at the University of Western Ontario has been working on an intensive review and revitalization of the dental curriculum. Administration, faculty and students signified their commitment to this process by adopting a strategic plan that was completed in 2005. Through a series of committee, subcommittee and faculty-wide meetings and retreats, the curriculum review was completed and the content and structure of a renewed curriculum were approved. Dentistry Council also endorsed 5 guiding principles for curriculum renewal (**Box 2**). While some aspects of dental education will continue to be taught using the traditional dental disciplines, much of the curriculum will be restructured into thematic, interdisciplinary units, organized into a modular design. The goal is to create an environment that permits students to combine learned concepts and simulated clinical practice into actual patient care in a progressive manner as soon as possible.

In the renewed curriculum, certain broadly applicable core foundation sciences such as biochemistry will be taught within the traditional instructional framework, that is, taught early and within a basic-science course module. However, integration of the foundation sciences with clinical sciences will become the rule rather than the exception. For example, students will learn about the microbiology of dental caries within the context of the disease, rather than as a topic within a microbiology course. Structured and unstructured, case-based and problem-based instruction will form the foundation for learning integrated clinical diagnosis and treatment planning beginning in the first year of the curriculum and increasing in complexity, time and emphasis over the 4-year program. The core curriculum will be delivered within the first 3 years of the program. Elective experiences will be possible for students both on and off site in their fourth year. Procedure-based student assessment will continue to be an important component of the overall student evaluation, but equal importance will be placed on comprehensive patient management. Critical thinking and problem-solving will be emphasized both didactically and clinically. Independent and active learning will be promoted, and faculty will be encouraged to

incorporate methods to support these modes of learning into their teaching along with the use of traditional full-class lectures and small-group seminars. For example, active learning of communication skills and application of ethical principles has recently been introduced into the existing curriculum through the use of standardized patients.

A Team Approach to Learning and Patient Management

Schulich Dentistry is committed to providing comprehensive, patient-centred care in its clinics. This premise forms the central core of Schulich Dentistry's curriculum framework (Fig. 1). Achieving this will necessitate changes in our approach to the current discipline-based, preclinical/clinical model. Students' clinical experience will change from an independent approach to a team approach. Each team will consist of junior (first- and second-year) and senior (third- and fourth-year) students. Senior students are responsible for both patient management and team leadership. Although there will be infrequent sharing or transfer of patients between the senior team members, there will be active and frequent sharing of patients between senior and junior members of the team. For example, junior team members, working with their senior students, will be expected to obtain radiographs and diagnostic study models even if they are not yet ready to extract a tooth or prepare a crown. Diagnosis and treatment planning will involve both senior and junior students, with junior students completing charts and patient records while observing procedures, techniques and decision-making by the senior students. Patients will experience a team approach to their care starting at the first appointment and will become acquainted with their treatment team from the outset. Treatment teams will be organized into practice groups led by a faculty mentor and a staff member. The mentor will oversee both student progress and experience as well as patient management.

Implementation and transition from the existing program to the new curriculum will not be easy. However, our students, faculty and staff agree that we can improve the undergraduate dental student experience and that the time for change is now. Our plan is to introduce the first year of our renewed curriculum in September 2009. ✦

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References

1. American Dental Education Association Centre for Educational Policy and Research. *Recommendations from the ADEA Forum on the Predoctoral Dental Curriculum*. March 11, 2005. Available: www.adea.org/adeacci/Documents/PreDocRecommendation.pdf (accessed 2009 May 15).
2. American Dental Education Association. *Competences for the new general dentist*. April 2, 2008. Available: www.adea.org/about_adea/governance/Pages/CompetencesfortheNewGeneralDentist.aspx (accessed 2009 May 15).
3. Association of Canadian Faculties of Dentistry. *Competencies for a beginning dental practitioner in Canada*. 2005. Available: www.acfd.ca/en/publications/ACFD-Competencies.htm (accessed 2009 May 15).
4. Macy Study Team, Formicola AJ, Bailit HL, Beazoglou TJ, Tedesco LA. Introduction to the Macy study report. *J Dent Educ* 2008; 72(2 Suppl):5-9.