Group E
Reactor Report
Enhancing global periodontal and oral health by standardizing education systems

Vincent J. Iacono

Stony Brook University, Stony Brook, NY

Introduction

In the Initiator Paper for Workshop E on periodontal education, Professor L. J. Jin clearly stated that common pitfalls and drawbacks in periodontal practice are the result of the fact that in many emerging populations, periodontal components of dental curricula remain highly inadequate and not updated due to limitations in qualified teaching staff and educational resources (Jin 2015). I can add a more significant reason that addresses the lack of a standardized periodontal education, reflecting the epitome of pedagogy. The model I refer to is that used in the United States and Canada, with prescriptive educational standards at the predoctoral and postdoctoral levels. Educational programs are evaluated on a regular basis to ensure compliance with the standards and documentation of outcome measures. Educational standards are established, maintained, and applied by the American Dental Association (ADA) and the Commission on Dental Accreditation (CODA). Every dental curriculum and postdoctoral education program in the United States must adhere to the requirements of CODA. For dental education, each program must include a competency statement and institutional learning objectives for periodontology. Instruction in this area is offered throughout the curriculum and provides the needed foundation skills, knowledge and values. The goal of the predoctoral curriculum at Stony Brook University is to provide students with the knowledge, skills and values to attain competency in the ability to manage patients with moderate and severe periodontitis, and to perform nonsurgical periodontal therapy for gingivitis and slight periodontitis. The predoctoral curriculum of Stony Brook University's Department of Periodontology includes both didactic (approximately 100 hours) and clinical (approximately 120 hours) components to ensure that this goal is achieved (Department of Periodontology, Stony Brook University Syllabus, 2014). The courses are sequenced to allow students to utilize the knowledge and skills attained from the basic science courses and to relate this information to patient care. Students are introduced to the field of periodontics in the first year through lectures and problem- and case-based learning and they progress through an intense curriculum through the fourth year. The fourth year component of clinical periodontics is conducted in a general practice setting in which the student provides comprehensive care, including diagnosis and nonsurgical periodontal therapy under the supervision of general dentistry faculty. This experience enables the student to understand the primary care role of general dentists in treating and managing periodontal patients, including referral to a specialist when indicated. Specific guidelines for referral to a periodontal postdoctoral student are distributed to faculty instructors and calibrated on an annual basis. The periodontology faculty provide coverage for consultations and three competency examinations (periodontal scaling and root planing, periodontal diagnosis/treatment planning of implants, and periodontal evaluation of treatment provided), and periodontal surgical procedures. In addition, students are required to observe and encouraged to participate in periodontal and implant surgical procedures performed by periodontal postdoctoral students. Student progress and clinical competency in periodontal therapy are evaluated in a series of formative assessments and competency examinations, as listed in *Table 1*.

Presented at the First IAP Conclave, Bangkok, Thailand, 11-13 April, 2014

Correspondence to: VJ Iacono, Department of Periodontology School of Dental Medicine, Stony Brook University, Stony Brook, NY, USA 11794-8703. E-mail: vincent.iacono@stonybrookmedicine.edu

Table 1. Summary of Stony Brook University predoctoral curriculum and the determination of competency for the practice of periodontics in general dentistry.

Year 1	Year 2	Year 3	Year 4
Formative Assessments			
Basic science courses	Daily clinical assessments	Daily clinical assessments	Daily clinical assessments
Dental didactic courses	Dental didactic courses	Dental didactic courses	
	Outcomes of care: Clinic II courses	Outcomes of care: Clinic III courses	
Competency Examinations			
	Pediatric diagnosis/treatment planning HDC 621	Comprehensive patient treatment plan (HDI 705)	Periodontal scaling/root planing (HDP 821, 822)
	Periodontal diagnosis/ treatment planning (HDG 621/Year II Periodontics Clinic)	Periodontal diagnosis treatment plan type 2 (HDP 721)	Periodontal diagnosis/ treatment planning implants (HDP 821, 822)
		Periodontal diagnosis/ treatment plan type 3/4 (HDP 721)	Periodontal evaluation of treatment (HDP 821, 822)

The significance of graduation from a CODA accredited curriculum relates to the graduating dentist's ability to obtain a license to practice dentistry in the United States and enhanced ability to matriculate in a specialty program. A dental specialty is defined as an area of dentistry that has been formally recognized by the ADA as meeting the requirements for recognition of dental specialties as presented by the ADA Council on Dental Education and Licensure (CDEL) (American Dental Association, 2001). Periodontics is one of nine recognized specialties and is defined as that specialty of dentistry which encompasses the prevention, diagnosis and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes, and the maintenance of the health, function and esthetics of these structures and tissues (Accreditation Standards for Advanced Specialty Education Programs in Periodontics, 2013). There are six standards for which all United States postdoctoral periodontal programs must demonstrate compliance. The six standards include:

1. Institutional commitment/program effectiveness,
2. Program director and teaching staff
3. Facilities and resources
4. Curriculum and program duration
5. Advanced education students/residents
6. Research

There are more than 50 CODA accredited advanced specialty education programs in periodontics (American Academy of Periodontology [AAP], 2007). It is important to note that every accredited program must be administered by a director who is certified by the American Board of Periodontology (ABP). The ABP was formed by the AAP to elevate the standards and advance the science and art of periodontology by encouraging its study and progressing its practice (American Board of Periodontology, 2008). Each program must submit annual reports to CODA and all programs are reviewed through self-study documents and CODA site visits every seven years to ensure continued compliance with the education standards.

CODA accredited programs must be a minimum of 30 months in length and have developed clearly stated goals and objectives appropriate to advanced specialty education, addressing education, patient care, research and service. The goals and objectives of Stony Brook University's advanced specialty education program in periodontics are to produce clinically competent and highly educated periodontists who will be proficient in the prevention, diagnosis, treatment and/or management of the various periodontal diseases and interrelated systemic diseases and conditions seen in specialty practice. They will also have in-depth instruction and extensive clinical training in periodontal plastic surgery, oral reconstructive surgery, and dental implants. In addition, program graduates are trained to critically review the periodontal literature, so that they will be able to scientifically evaluate new models of therapy during their careers. Specifically, the program's primary goals and objectives are as follows (Advanced Specialty Education Program in Periodontics, Stony Brook University, 2013):

Goal 1: Educate dentists to become periodontists who are proficient in the diagnosis, treatment planning and therapies that define the specialty of periodontics.

Objective 1. To provide the postdoctoral students with an in-depth knowledge of relevant basic and biomedical sciences as they relate to the etiology, treatment and management of the periodontal diseases and interrelated systemic diseases and conditions, and dental implants.

Objective 2. To develop periodontists who are proficient with the diagnoses, treatment planning, and therapies of periodontal diseases and dental implants, employing the classic and current literature to support appropriate decision-making.

Objective 3. To evaluate postdoctoral students in appropriate methods of patient management and treatment planning through formal and informal opportunities to present, discuss and defend their patient care cases of record with periodontal faculty and their peers.

Objective 4. To provide the postdoctoral students with in-depth instruction and extensive clinical training in periodontal plastic surgery, oral reconstructive surgery and dental implants.

Goal 2: Educate postdoctoral students to be proficient in developing appropriate long-term maintenance therapy for their periodontal and implant patients.

Objective 1. To provide the postdoctoral students with an in-depth knowledge of the theory and practice of periodontics, including dental implants, pertinent to the provision of appropriate maintenance therapy.

Goal 3: Educate postdoctoral students in basic research methods related to periodontal research in order to critically evaluate the periodontal literature.

Objective 1. To provide the postdoctoral students with fundamental knowledge of biostatistics and research design, including the ability to conduct a literature review and critical analysis of new developments in periodontology.

Objective 2. To provide postdoctoral students with opportunities to conduct and publish research and matriculate into Stony Brook University postgraduate degree programs.

Goal 4: Prepare postdoctoral students for the achievement of diplomate status in the American Board of Periodontology.

Objective 1. To provide the postdoctoral students with the abilities, motivation and support to enter the board certifying process and with the knowledge and skills to become Diplomates.

Goal 5: Prepare postdoctoral students to integrate other disciplines to result in optimal comprehensive oral health care and to work in cooperation with referring dentists.

Goal 6: Encourage service to the profession including, but not limited to, didactic and clinical education, involvement in organized dentistry and outreach efforts.

CODA accredited programs must also document their effectiveness using a formal and ongoing outcome assessment process to include measures of advanced education student/resident achievement. As an example of compliance with this standard, the postdoctoral periodontal program at Stony Brook University uses the following outcome measures to evaluate the program's effectiveness in meeting its goals and objectives:

1. Student evaluation of faculty and the program occurs at the end of each academic year.

2. Student academic performance is monitored through oral and written examinations, written papers, and class participation.

3. Student clinical performance is monitored continuously through the use of electronic records of completed procedures, quarterly reviews, and completed documented cases.

4. Evaluation of the student's research activity is accomplished by assessing the quality of their oral presentations, and whether the resulting written manuscripts are accepted for publication in a professional journal.

5. Monitoring student performance in the American Academy of Periodontology In-Service Examination.

6. Each student must submit a portfolio that includes 20 case reports and Power Point presentations of their surgical seminars.

7. Students must satisfactorily complete an oral comprehensive examination, which consists of a student clinical case presentation, followed by a simulated American Board of Periodontology certifying examination evaluated by an examination committee of attending faculty.

8. Analysis of anonymous student evaluations of both didactic and clinical faculty and of the program evaluation questionnaire completed by each student upon graduation.

9. Evaluation of anonymous exit questionnaires completed by those patients who have received treatment by students of the advanced education program in periodontics.

10. The program maintains an active alumni association with annual meetings that serve as a venue for discussion and provide opportunity for program enhancement suggestions.

11. In order to receive feedback, we have implemented a survey of program graduates about their professional standing, diplomate status, faculty appointments, presentations at regional and national meetings, and retrospective evaluation of the faculty and program.

12. A formal annual review of the faculty is conducted by the program director that includes an evaluation of the prior year performance and discussion and suggestions for its enhancement in the next academic year.

The well-organized system of predoctoral periodontal education and advanced specialty education in periodontics in the United States is certainly not global. This is true for not only countries with emerging populations but also for highly developed countries. For example, although Japan has institutions that train qualified postgraduate students in the field of periodontics, Japan does not have well-organized advanced periodontal programs and standards for advanced specialty programs in periodontics that compare to those in the United States (Osawa *et al.*, 2014). As indicated in Professor L. J. Lin's initiator paper, the inadequacy of periodontal dental curricula has led to the significantly less than optimal global oral health (Jin, *Journal of the International Academy of Periodontology* 2015; **17/1** Supplement). A major step to correct this issue would be the development of comprehensive standardized curricula for dental and advanced periodontal education programs that could use the CODA model as a resource. Each country would ideally establish its own accrediting agency to establish, maintain and apply relevant education standards. The process may be difficult among emerging populations due to resource and manpower issues. However, once initiated there will be tangible benefits toward evidence-based dentistry, with the elimination of variability of quality and contents among teaching programs that in time will lead to optimal global periodontal health.

References

Accreditation Standards for Advanced Specialty Education Programs in Periodontics. Commission on Dental Accreditation 2013; 1-34.

American Academy of Periodontology. Careers in periodontics. At www.perio.org/education.

American Board of Periodontology. At www.abperio.org.

American Dental Association. Requirements for recognition of dental specialties and national certifying boards for dental specialists. Chicago: American Dental Association, 2001.

Department of Periodontology Stony Brook University Syllabus, 2014.

Jin LJ. Interprofessional education and multidisciplinary teamwork for prevention and effective management of periodontal disease. *Journal of the International Academy of Periodontology* 2015; **17/1** (Supplement):74-79.

Osawa G, Nakaya H, Mealey BL, Kalkwarf K and Cochran DL. Specialty education in periodontics in Japan and the United States: Comparison of programs at Nippon Dental University Hospital and the University of Texas Health Sciences Center at San Antonio. *Journal of Dental Education* 2014; **78:**481-495.