Critical Issues in Dental Education

Reexamining Educational Philosophy: The Issue of Professional Responsibility, “Cleveland First”


Abstract: This paper proposes a shift of emphasis in the dental curriculum from measures to protect and improve the oral health of individuals to measures to protect and improve the oral health of the community or society. This shift represents a fundamental change in educational philosophy of the dental school. To illustrate this shift in emphasis, this paper describes a demonstration project to test the feasibility of this approach involving all seventy first-year students in the Case Western Reserve University School of Dentistry in a four-week experience placing dental sealants in erupting molars of second and sixth graders in fifty schools of the Cleveland City School System. In future years, the program is expected to reach all second and sixth graders in the Cleveland School System. The experience is a required integral component of the curriculum, involving every student in the class, and is designed to make a demonstrable difference in oral health in the City of Cleveland. The experience is reinforced with course material on professional responsibility. The school is developing additional intensive experiences for second-, third-, and fourth-year classes involving smoking prevention for adolescents, oral health maintenance for nursing home residents, and dental care delivery in the inner city. The initial year of the program has had effects on students’ responses to other elements of the first-year curriculum that go beyond the experience of placing sealants in children’s teeth. The focused efforts of dental students every year are expected to have a measurable effect on the disparities in oral health found in the City of Cleveland as well as a measurable effect on dental students' and dentists' attitudes concerning professional responsibility.

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he recent report of the U.S. Surgeon General on “Oral Health in America” suggests that there are two Americas in terms of oral health. One includes those individuals who receive care from the dentist and have excellent oral health, and the other includes those who are not able to gain care and have varying amounts of dental disease and destruction. Many oral health professionals have been waiting for decades to have the opportunity to address the issues of the underserved in terms of oral health care.1 Unfortunately, public programs and private insurance have not developed adequately to address the problems of oral health among those who do not now receive routine dental care.

Dental schools have embraced the mission of the profession “to protect and improve the oral health of individuals and the society” as a basic philosophy to underpin the education of dentists and dental specialists. We have added courses in community dentistry,2 provided some experiences in community service,3,4 and argued that our clinical teaching facilities provide important oral health services to the community. Since many dental schools are located in urban areas, why are oral health disparities in those cities still so great? If we are indeed teaching all future dentists professional responsibility that goes beyond the care of individuals seeking help, why is the profession not more active in addressing the problem of the two Americas in terms of oral health?

Based on its view that professional attitudes are formed as a dental student, the Department of Community Dentistry at Case Western Reserve University School of Dentistry undertook to explore if substantially more effective emphasis could be placed on dentistry’s professional mission to protect and improve the oral health of society. In order to do this,
it was necessary to convince the faculty of the dental school that within the regular curriculum every dental student should have clinical experiences that provide opportunities to influence community oral health in ways that “make a difference” and that “difference” should be able to be demonstrated to the student and community alike. At the same time, the program needed to present a model of community responsibility by the dental school since professional socialization of the dental student is primarily by clinical practitioners who are focused on the oral health of individuals. Placing greater emphasis on professional responsibility to the community requires a reexamination of the educational philosophy of the dental school that currently centers around the need to ensure that competent practitioners of dentistry for individuals are developed in a four-year period. The addition of competence with relevant experience to affect the oral health of a community (or society) as a professional model represents a distinct shift in educational philosophy.

The confluence of several factors makes possible the reexamination of the educational philosophy of the dental school at this time. First, the burgeoning of scientific knowledge in the last twenty years has allowed a rethinking of the dentist’s approach to disease and has provided new tools to address oral health problems of groups and communities. Activities are now more focused on specific populations at risk for dental disease rather than on the population as a whole. Second, the development of new computer-based teaching technology (preclinical simulation) has raised the possibility of less time needed to master eye-hand coordination. Finally, there is the recognition that a shift in attitude has taken place in America that recognizes the presence of a new sense of community resulting in a growing trend towards social responsibility and community focus. The critique of the Reagan administration that “greed is not enough” seems to be part of this new attitude. Since the recent attacks on the United States and the problems being experienced with corporate America, there appears to be a resurgence of community responsibility and good will pervading all elements of our society.

Preparation/Training

A sixty-four-hour didactic/laboratory course during the first semester is provided to make first-year students competent to place dental sealants in a school setting. A second spring freshman course following the “sealant blitz” makes explicit the societal responsibility of the dentist illustrated by the sealant program. Sixty-four hours of didactic and laboratory curriculum time were utilized to instruct incoming first-year students in sealant placement for children. The course entitled “Outreach Preventive Dentistry” included these lecture, laboratory, and clinical components: epidemiology and mechanism of dental disease, prevention practices for children, fluorides, sealant technique, behavior management, infection control, ergonomics, aspiration, retraction, and instrument transfer.

Students were also required to be certified in cardio-pulmonary resuscitation (CPR). Prior to the laboratory portion of the course, the dental equipment manufacture (DNTL works) from Colorado demonstrated the portable dental equipment including assembly of the dental unit, patient chair, and stools. Students were required to set up and break down portable equipment until they felt comfortable handling it. Students were encouraged to pick a partner early in the semester, so that they would have time to develop a good working relationship before going into the schools. In addition to the demonstration assembling dental equipment, students were introduced to the slow speed handpiece by the electric handpiece manufacturer Bien Air. Prior to the laboratory portion, students were instructed in proper handpiece use by the Department of Periodontics and had the opportunity to perform prophylaxis on each other and at least two other patients.

The Demonstration Program

The model for demonstrating the feasibility of a shift in emphasis of the dental curriculum was the development of an ongoing community sealant program that would include all first-year dental students. The sealant program was designed to reach every second- and sixth-grade child in the Cleveland public schools, thus “making a difference” in the oral health of most elementary school children in the city of Cleveland. The model recalls the experience at the University of Washington in the early 1970s when every dental student went into the community to ring doorbells for a fluoridation referendum. The Case Western program is called “Cleveland First” and sends all seventy first-year students into the public schools in a sealant “blitz” for a period of four weeks in the middle of the year. The program requires the collaboration of the departments of Community Dentistry, Pediatric Dentistry, and Periodontics.
The laboratory portion consisted of ten hours. The objective of these sessions was to place sealants on extracted teeth until students were competent prior to patient placement. Students used the same sealant material (light-cured Ultra Dent) that they would use on each other and on the school children. A pass/fail laboratory competency was required before dental students were allowed to place sealants on their classmates. Following a mandatory pass on the laboratory procedure, students were allowed to place sealants. During four sessions, dental students placed sealants on each other. Each sealant procedure was closely supervised by faculty, and it was required that dental students place a minimum of four sealants in a satisfactory manner. The Outreach Preventive Dentistry course started in mid-August 2001 and was completed in mid-November.

The spring course, Professional Development, makes explicit the social responsibility of the dentist through the processing of and reflection on the clinical sealant experience. It is the instructor’s perception that students exhibit greater understanding and find more relevance in the subject areas of professionalism and ethics as a result of their clinical sealant experience.

The Sealant “Blitz”

After the Thanksgiving break, dental students started their first, two-week, school-based clinical component, from December 3 to 14, 2001. The second, two-week, clinical outreach component began shortly after the winter break and lasted from January 28 to February 8, 2002. During the four-week combined clinical experience, students had no other school-related activity, i.e., classes, tests, laboratory requirements.

Dental students were transported to individual Cleveland elementary/middle schools. The class of seventy students was divided into three groups of approximately twenty-two students per group, or eleven sealant teams (one operator-one assistant). Teams were accompanied by a faculty member who was responsible for the supervision and examination of potential patients. Appropriate space in the elementary school for the clinical program had previously been identified by program staff.

Each team set up its own portable dental operatory in a designated school. Schools were selected based on the proportion of children participating in the free-meals program. Schools with 50 percent or greater participation are considered schools eligible for free meals. Within the Cleveland Municipal School District (over 100 elementary/middle schools), all school children participate in the free-meals program. Therefore, in each school all second- and sixth-grade children were targeted, and all of these children had a consent form sent home. Those children with signed consent forms were examined by a faculty member who identified the permanent molar teeth to be sealed. The dental students, working in teams, isolated and sealed those teeth identified by the faculty member. Prior to or after sealant placement, children were given oral hygiene instruction consisting of proper brushing and flossing technique.

During the first week, as expected, the dental student teams were slow and cautious while treating children. Despite their concerns about this first clinical experience, they maintained their eagerness in treating children who were obviously in need of dental care. Three out of four children seen had active dental caries. In addition to a high proportion of active disease, this sealant program was the first dental visit for most second-grade children. The first-year students provided a dental visit that was without pain, was actually fun, and was within a familiar school environment where children felt secure. At the end of the visit, each child received a goody bag filled with a toothbrush, toothpaste, stickers, and instructional pamphlets on sealants and oral hygiene. As an incentive to involve the teachers in getting the permissions returned, the class with the greatest participation (return of consent forms) was given a pizza party.

It was an exciting first clinical experience for the dental students. Although relatively slow during that first week, the students’ speed and confidence increased exponentially as they went into the second, third, and fourth weeks. While productivity was never an objective, students eagerly took on additional patients. The only requirement was to do the highest quality sealant without traumatizing any child and have fun doing it. Dental students and children alike felt a close bond in a relatively short period of time. All children with signed consent forms were seen. Students were eager to relate their newfound clinical experience to their academic and laboratory classes. The faculty who participated in this program found it exciting and rewarding to see students progress, especially from week one to week four of the clinical component. Student excitement for dentistry, compassion for the children, and a desire to learn were characteristics of the program that made teaching worthwhile.
Resources Needed

The faculty consisted of full-time members of the departments of Community and Pediatric Dentistry, faculty dedicated to the Sealant Program, and adjunct faculty primarily from the Forest City Dental Society, a component of the National Dental Association in Cleveland. This collaboration of predominantly African-American dentists turned out to be an added benefit especially in the predominantly African-American elementary/middle schools. These dentists were important role models for all of the minority students in the school by demonstrating to the children that they can and should aspire to become a dentist or other professional. All dentists who supervised students qualified for appointment to the faculty. They attended a sealant orientation presented by the Department of Community Dentistry. A social worker and a health educator were also part of the sealant staff. The social worker’s responsibilities were to arrange and follow up referrals for children identified as needing care. The health educator arranged health education assemblies and communicated with teachers.

Forty-two portable dental units and support for staff and materials were provided by the St. Luke’s Foundation of Cleveland. The units were maintained and transported by an individual hired specifically for this purpose. The ability to move this equipment every two or three days made possible the provision of sealants in the schools, thus using an environment familiar to the children and conserving time in their educational program. Facilities for storage were provided by the university. Materials and assistance with transportation were provided by commercial organizations.

Substantial cooperation was provided by the Cleveland Municipal School District. Principals, with the support of the superintendent, provided space for the program, arranged assemblies for oral health education, and instructed classroom teachers to gather the permission forms and to modify their teaching plans to accommodate the program.

Results

Sealants were placed on the teeth of 2,500 children in fifty schools. It is expected that next year the program will be operative in all 100 schools and reach 15,000 students. Our 2002 experience already demonstrates greater participation since the staff has had a year’s experience with the logistics. As the community gains trust and knowledge of the program, we expect that the proportion of students returning permission slips will continue to increase. The program’s current capacity will be augmented by a required rotation for all second-, third-, and fourth-year students as well as the freshman “blitz.”

We found that first-year dental students can master a sealant application procedure and deliver sealants to children in public schools using portable equipment. Furthermore, students perceive considerable benefit from this early clinical exposure as noted by their responses to a survey completed after the four-week, school-based clinical experience. All (100 percent) of the first-year dental students felt that the sealant experience was valuable and appropriate as a first clinical exposure. All (100 percent) felt adequately prepared to place sealants on children in a school-based setting. The students also commented that this early clinical experience, in which they all participated, has provided them with common ground in dentistry that will continue to have a positive effect on their attitudes towards coursework and laboratory exercises now and in the future.

Seed money and continuing funding for the sealant program are being provided by a local foundation (St. Luke’s of Cleveland). Expansion of the sealant program into a full-scale public health program involving education and referral is being supported by the St. Luke’s and Robert Wood Johnson foundations. The placement of sealants during 2001-02 was also supported by the State of Ohio Department of Health as a one-time funder.

Faculty Reactions

When the program was initially presented, the faculty were dubious that sealant placement on a grand scale could be carried out by first-year students. The existing sealant program of the School of Dentistry was a small pilot program conducted by junior and senior students. After substantial discussion, it was agreed that first-year students, if adequately prepared, should be able to learn the clinical skills and theoretical knowledge necessary to participate in a sealant program. The education committee was charged with the responsibility of ensuring that a rigorous preparation would be provided. While the program required a new look at the first- and second-year schedules, most problems were resolved through the use of a modular scheduling scheme. The program had the full support of the dean and his administration.
It was recognized that the program might have effects that went beyond the placing of sealants in children’s teeth. Most incoming dental students have had little experience with dental caries during their lifetime and therefore do not have a common base of personal dental experience. It was hoped that the early exposure to dental disease would be useful to the students in making some of their basic science coursework more relevant. A memo was prepared for basic science instructors outlining the sealant experience as a common experience for all students. The memo provided relevancy examples based on the students’ experiences in the sealant program. The issue of the role of dentistry in the health of the society was also discussed, and the faculty agreed that the dental school should be involved in such activities. Anecdotal reports from faculty suggest that motivation in basic science courses in the first year was improved and that there were many questions from the students related to the sealant experience. Faculty reported that students seemed better prepared for their first periodontics clinical experience, which occurred later in the first year.

**Professional Responsibility: A Four-Year Program?**

We realize that a single four-week experience is unlikely to affect professional attitudes over a lifetime of practice. The Department of Community Dentistry, therefore, has devised a four-year program to reinforce the experiences in professional responsibility in the first-year curriculum. Pilot projects to refine these experiences are Phase 2 of the professional responsibility program. The general principles underlying this project are that every student will have an extended community-based experience each year, that the experience will be focused so that the students as a class can actually “make a difference” addressing a specific oral health problem, that the experience will involve the community that is served by the dental school (Cleveland First), that the experience will be integrated into the regular curriculum, and that these experiences will function as a model to illustrate the professional responsibility of the dentist to the society.

Pilot projects currently under consideration include: a smoking prevention and cessation program targeting adolescents in high schools and Boys and Girls Clubs to be carried out by second-year students; and a program for the third-year class to provide oral cancer screening, cleansings, prosthetic device repair and maintenance, and oral health instruction for staff in inner-city nursing homes (using the equipment obtained for the sealant program).

The university is currently developing an interdisciplinary health program at a recently acquired inner-city site. Recent data collected by the dental school confirms the migration of dentists from the City of Cleveland to the suburbs. The data suggests that the African-American dentists are now following their colleagues, leaving the city of Cleveland mostly unserved or underserved by dentists. The university interdisciplinary program is expected to have a homesteading function for practitioners. We are hopeful that as dental practices become established again in the inner city (perhaps on a part-time basis by our large number of African-American faculty and Forest City Dental Society members), senior dental students will have, as part of their curriculum, the opportunity to spend extended periods in these practices helping to make them more fiscally viable under Medicaid reimbursement. Once these pilot projects are operational, the curriculum committee will again be petitioned (Phase 3) to include an extended experience in professional responsibility (three to four weeks) for all students in each class every year of their dental school program.

**University Reactions**

The university reaction to the demonstration phase of the professional responsibility program has been extremely positive. The first Provost’s Award for Excellence was given to Dr. Lalumandier at the 2002 commencement in recognition of the importance of the sealant program carried out by the first-year class of the School of Dentistry to both the oral health of the city of Cleveland and the teaching of professional responsibility in the dental school. The program was seen as a model for the university. The Graduate Affairs Committee of the University Senate will consider a proposal this fall to urge all seven of the professional schools of the university to develop programs, as part of their curricula, that engage all professional students in targeted community programs that can make a difference to the health or welfare of the people of the city of Cleveland. Extended community involvement by students provides a heretofore untapped manpower source that obviates the need for substantial funding for programs to reach the community.
Conclusions: The Profession’s Responsibility to Society

Modifying the attitudes of a profession is a long and difficult process. The first step is a reexamination of the educational philosophy that guides the development of new professionals. Several years ago, one of the authors (Wotman) published a paper describing the changing compact between the health professions and society. This paper postulated that the society expects more of the professions in terms of societal responsibility. Shortly after the publication of that paper, a distinguished dental educator approached the author and related that she was using the paper in her teaching of senior dental students. She commented that her students were extremely skeptical and unconvinced about the role of the profession in social responsibility and asked how the author was using the paper in teaching. The author was at a loss for a response. This anecdote illustrates our lack of effectiveness in conveying the responsibility of the profession to “protect and improve the oral health of individuals and the society.”

The model of incorporating meaningful periods of time into the curriculum to enable students to make a difference in the health and or welfare of the community is a response to this question and a possible model for other dental schools. We plan to longitudinally evaluate our program in professional responsibility to see if, over time, the attitudes of students and practitioners will be modified, as well as evaluating changes in the health status of the population served. In any event, it seems clear to us that we need to revisit the educational philosophy of the dental school and include both instruction and experiences that model the profession’s responsibility to the society.

REFERENCES

11. Provost’s Award Citation, Commencement Program, Case Western Reserve University, 2002.