Early Clinical Experience for First-Year Dental Students


Abstract: Over the past three years we have exposed our first-year dental students at Case Western Reserve University School of Dental Medicine to an early clinical experience. Following a seventy-two-hour didactic and laboratory course, first-year students spend over 100 hours treating school children in twenty-eight elementary and middle schools in the Cleveland Municipal School District. Not only do dental students learn a clinical procedure, but more importantly they experience the need for health care, in particular, dental care among those less fortunate than themselves. The experience strengthens their desire to help the underserved, their understanding of the problems many face in obtaining oral health care, and their commitment to addressing these issues. Themes from student reflection papers are summarized.

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The Surgeon General’s Report on Oral Health in America emphasized the existence of “two Americas” in terms of oral health, largely due to access to care issues. There is also increasing emphasis in health care on preventive care rather than restorative care. Neither of these elements was particularly emphasized in the traditional dental school curriculum during the first year. This article presents a description of a program designed to address these issues through provision of an early clinical experience.

Dental students enter dental school eager to help people and treat patients; however, patient care is usually delayed until the third year. Clinical preceptors often note that, by the third year, the eagerness to treat patients is replaced by trepidation. In a survey of all seventy first-year dental students at Case School of Dental Medicine in August 2002, 73 percent indicated that helping people was their main reason for choosing dentistry as a career. In the same survey, 60 percent of first-year dental students stated that the main reason for attending Case School of Dental Medicine was the early clinical experience. The year before, the school had established a district-wide sealant program that included dental students in all four classes.

In 1999 a pilot grant from the Saint Luke’s Foundation of Cleveland was used to determine the feasibility of transforming an existing in-house sealant program, where children are transported to the dental school to receive sealants, into a school-based sealant program, where dental students go to elementary or middle schools to provide sealants. The in-house sealant program had been in existence for several years but was inefficient and only provided sealants to children in schools in close proximity to the university. While sealants are proven to be an important preventive measure, children had to be removed from the classroom for two to three hours to receive care. Children also seemed nervous waiting their turn in the clinic, probably due to the unfamiliar surroundings.

The school-based pilot (school year 2000-01) was very successful, and the Saint Luke’s Foundation challenged us to write a proposal to service the entire Cleveland Municipal School District, the largest school system in Ohio. A preliminary proposal was developed with recognition that the expanded sealant program would require involvement of dental students in all four classes and with confidence that first-year dental students could succeed with an early clinical experience if educated appropriately. The proposal was designed as much for the faculty as the foundation since it would result in major curriculum changes and require sufficient time set aside for the first-year students to complete a four-week clinical school-based experience completely protected from all other dental school requirements.
Prior to submitting the proposal to the foundation, a faculty retreat was conducted to discuss the proposal and the curricular changes that would have to be implemented to include first-year students in an early clinical experience. After a healthy debate, it was determined that the proposal should be sent to the foundation only after the development of a substantial course to prepare students for the new experience and the finalization of the logistics of sending all seventy first-year students into the Cleveland schools for a four-week block of time. The decision to proceed with the curriculum change was based on the faculty’s commitment to offer an early clinical experience that would heighten student awareness of access to care issues, stress prevention of disease, and reinforce the students’ desire to be of service to others. Curriculum time was created through elimination of redundancies within and between courses, compression of some material, and shifting of some material into the new course.

As an outcome of the retreat, “Outreach Preventive Dentistry,” was developed as a seventy-two-hour course in the fall semester that freshman students were required to pass prior to participation in the four-week school-based clinical experience. During this course, students received forty hours of lecture, twelve hours of laboratory where they learned sealant placement technique, and twenty hours of practice placing sealants on fellow classmates. The lecture series was developed to address learning objectives related to epidemiology and mechanisms of dental disease, prevention practices for children, carries detection, prevention of disease, fluoride utilization and fluoridation, mouth guards, pit and fissure sealants, behavior management with children, cultural sensitivity, ergonomics, chair positioning, four-handed dentistry, sterilization, infection control, aspiration and retraction, instrument transfer, and isolation. Students were also certified in cardiopulmonary resuscitation and learned how to set up and break down the portable operatories (each operatory consists of a patient chair, dental stools, portable light, and a dental unit capable of high/low-speed suction, air/water syringe, and slow-speed handpiece). While the portable equipment purchased from DNTLworks was durable and reliable requiring minimal attention, today’s replacement cost would total over $9,000 per operatory. Other major costs centered on transportation of equipment and dental students of $350 a day for all seventy first-year students and approximately $15 in supplies per child treated.

In addition, the students learned how to interpret and fill out the consent/medical history/treatment form. Students were introduced to the most common medical conditions of children, and frequently prescribed childhood medications were reviewed in depth. During the twelve-hour laboratory session, students learned how to place sealants on extracted teeth. After passing the final exam on the academic portion and successfully displaying competency on sealant placement in the laboratory component, the students paired up and placed sealants on each other under faculty supervision in the clinic. A total of twenty hours was allocated in the curriculum in which the entire class rotated through to practice sealant placement, with each student spending two to three hours as the operator and two to three hours as the assistant. Again, students were required to demonstrate competence in placing sealants on each other before being able to treat school children in the Cleveland municipal schools. While the academic portion of the program was graded, all other components were pass/fail.

After the Thanksgiving break, the school-based sealant clinical component commenced. The class of seventy first-year students was divided approximately into thirds, paired up as they were during the sealant placement sessions at the dental school. Each group of students, along with their equipment and supplies, was transported to separate elementary/middle schools before the beginning of the school day. Each pair of dental students was responsible for setting up their portable operatory and being ready to start working with children at the start of each school day. Since all the school children participated in the free meals program at school, all children in the targeted grades were eligible to receive the free screening exams and sealants. Due to the fact that first and second permanent molars are the most prone permanent teeth for dental caries, we targeted school children in second and sixth grades. Prior to the sealant teams arriving at the schools, consent forms were sent home for parental signature, and the children received oral health education and nutrition counseling from our health educators who have master’s level training in education and were hired with additional grant funds from the Robert Wood Johnson Foundation and the Cleveland Foundation. Due to the fact that half the children had never visited a dental office, the health educators explained the sealant procedure, emphasizing that there is no pain associated in placing sealants. All second- and sixth-grade
children with a signed consent form were examined by dental students and checked by supervising faculty prior to and after sealant placement. Each group of dental students was supervised routinely by two to three faculty members. It was required that the student operator review the medical history, determine the child’s oral hygiene status, indicate any pathology, and chart restored and carious teeth. The faculty were instructed to promote the dental students’ inquiring nature by asking questions to stimulate dental students’ thinking about the children’s health status and to identify any pathology missed by the dental student. After treatment was completed, the sealants placed were charted, and needed referrals were also indicated in the child’s chart. The dental school’s Sealant Program has a social worker whose job it is to find dental homes for those children in need of follow-up care.

We have completed our third year of providing dental care district-wide throughout the Cleveland Municipal School District. During 2001-02 we visited fifty schools; over the 2002-03 school year we visited seventy-five schools; and most recently during the 2003-04 school year we placed over 12,000 sealants on nearly 4,500 children in eighty-three schools. Of those eighty-three schools, the first-year dental students were responsible for twenty-eight schools in which they placed nearly 4,300 sealants on nearly 1,700 children. Based on a variety of factors including feedback from the school system, reports from faculty supervisors and our students’ reflections on this experience described below, we believe that the program has been very successful, and first-year dental students have benefited dramatically from this clinical experience.

While successful, there are a number of lessons learned that may be beneficial to those interested in establishing a similar program. The importance of building relationships with school officials cannot be overemphasized, especially if the parent institution is a research center. Since Case Western Reserve University is a major research university with a history of limited community outreach, building trust between school officials and Case was a critical factor, particularly so that school officials can know there is no hidden agenda to the outreach and that the program will remain even after the grant. Other limitations centered on the old construction of the school buildings: there were often space limitations when setting up the portable equipment, lack of electrical outlets, and electrical outages due to the drain on individual circuits.

To determine if any other dental school offered a similar clinical experience for first-year dental students, we mailed a pre-tested survey to all U.S. dental schools. The project took place during the summer of 2002, and the survey inquired as to the number of hours first-year students perform clinical care for patients, the type of care provided, and the number of academic and/or laboratory hours in the curriculum to teach the clinical procedure. Of the thirty-nine respondents, twenty-six (67 percent) stated that students do not perform any clinical care for patients during their first year. Of the thirteen schools with a clinical component, eleven schools reported on average setting aside 5.5 hours for first-year students to perform clinical care for patients, primarily prophylaxis on one to four patients. Only two schools reported substantial hours dedicated to patient care during the first year. One dental school reported that they scheduled forty-eight hours for each first-year dental student for the fabrication and delivery of a full denture to a single patient. In contrast, the Case Western Reserve University School of Dental Medicine has scheduled over 100 hours of clinical time for first-year students to perform preventive treatment in the form of sealants for Cleveland school children, with an additional seventy-two hours of didactic/laboratory curriculum time to prepare first-year students for their first clinical experience.6

Reflection

At the conclusion of their first clinical exposure in the Cleveland schools, we asked the first-year dental students (Class of 2007) to write a reflection paper based on their clinical experience. We used the critical incident format previously described by Strauss et al.7 Students were asked to choose an incident that stood out in their minds and to reflect on the incident using a set of guiding questions. Papers were reviewed by both authors. Throughout the reflections, five themes emerged: 1) desire to give back, 2) enhanced relevance, 3) professional behaviors, 4) enhanced self-awareness, and 5) multiple perspectives.

Desire to Give Back. The students’ experience in the schools increased their awareness of the prevalence and severity of oral disease and of access to care issues in underserved populations. “It made me realize the neglect and lack of health care there is for the poor in our society,” one said. Over half of the second graders and many of the sixth graders they
treated were seeing a dental professional for the first time in their lives, and 78 percent of the children presented with untreated caries. The dental students wondered whether they were doing enough for the children they were seeing, and many expressed the desire to be able to do more. The experience reaffirmed for them the dental profession’s responsibility to provide service to the underserved. “Too often the responsibility is given to ‘someone else’ or not addressed at all,” one student wrote. “As a dental professional I need to do as much as I can, within reason, to promote the health and well-being of those around me, especially those who are unable to do it themselves (i.e., poor school children).” Several stated explicitly that they hoped to participate in providing care for the underserved in the communities in which they will practice and that their desire to help people was a motivating factor in their decision to enter the dental profession. “I hope that as I establish myself in the community, I will be able to afford to take some of the less fortunate into my office and offer them the dental work they so desperately need,” concluded one.

Enhanced Relevance. The early clinical experience gave dental students a heightened sense of the value and relevance of their didactic courses. For example, the experience of treating children who were taking medications for conditions such as asthma helped the students understand the importance of courses in pharmacology and pathology. Students wrote that they were more motivated to “pay attention” to the curriculum in those areas. Students knew that not only would they be tested on the material, but they would also be responsible for knowing it shortly thereafter in a real clinical situation. This immediate need and opportunity to apply what they were learning seemed to enhance their motivation to learn. One wrote, “I understand the significance of all of the didactic classes I am currently taking.”

Professional Behavior. This theme centered on students’ understanding of what represents professional behavior. Students were keen observers of the professional behaviors of themselves, their peers, and their faculty role models in the clinical setting. They expressed awareness of the fact that, when in the schools, they represent both the dental school and the profession, particularly because they may be the first dental professional many of the children have encountered. They expressed the desire to behave in as professional a manner as possible in their interactions with the children, parents, and school staff and to do the highest quality work possible. On occasion, they described incidents in which they did not know how to manage a situation, but were able to learn by observing the approach of the faculty. They learned the importance of maintaining their professional demeanor in stressful situations and that this can sometimes be a challenge. They were cognizant of the impact a single dental care provider or dental experience can have on an individual’s oral health and comfort in seeking dental care in the future.

Enhanced Self-Awareness. In the reflection papers, the students demonstrated the ability to self-assess and to target areas in which they wished to develop their skills. Students demonstrated that they had gained self-knowledge, in terms of their self-management abilities (for example, “I’m not a very patient person” and “In the past two months my self-confidence in clinical situations has risen considerably”); their dentist-patient and peer interaction skills (communication skills, building rapport, educating patients, teamwork); and their career plans (for example, “This week made me realize that I love working with kids and doing dentistry”). Many students found the days spent interacting with patients and providing treatment to be tremendously energizing and exciting, and this encouraged them and confirmed for them the appropriateness of their career choice.

Multiple Perspectives. The students frequently talked about trying to see situations from other people’s perspectives, whether it was their patients, patients’ parents, student partners they were paired with, or faculty or school staff. In most cases, the students had come from more stable, affluent backgrounds than those of the children they were treating. The students reflected on the impact of their own backgrounds on their beliefs and attitudes regarding health. They became more aware of the variety of factors, such as socioeconomic status or cultural background, that can affect oral health behaviors and access to care. They struggled to understand, from a variety of perspectives, the factors that contribute to oral disease prevalence.

Students also became aware of their own assumptions about oral health and the limitations of assuming that all people share those assumptions. Some things that they considered “taken for granted” were challenged. For example, prior to their clinical experience it had not occurred to them that buying a new toothbrush could be an economic burden for some individuals, but they wrote that now they understood that this may be the case. In addition, their
experiences seemed to offer valuable opportunities to learn from each other. Students noted that, because all the dental chairs were set up in one room (not in cubicles), because they were paired with a partner, and because they had multiple faculty preceptors from both the dental school and the community, they were able to observe how different people dealt with different situations. From these observations, they gained ideas about new ways in which they might respond, and also were able to practice seeing things from other people’s perspectives. “Seeing how other people deal with situations was great because it not only gave me ideas for future experience,” said one student, “but it also allowed me to step back and look at situations from another person’s perspective.”

Discussion

The themes in the reflection papers seem to offer an indication of the extent to which the early clinical experience can contribute to the professional development of the students, not only in terms of learning specific clinical skills (to place sealants), but in terms of the students’ overall, ongoing development as thoughtful, committed, compassionate, self-aware professionals. In particular, we feel that the early clinical experience has the potential to impact students’ attitudes regarding access to care issues. Through the early clinical experience, students 1) are exposed to and realize the extent of the access to care problem, 2) learn about and participate in a program that makes an impact, and 3) see community dentists (role models) participating in solving the problem. “I found myself quite angry about the serious neglect of these children,” wrote one student. “As a dentist someday, I want to do more than own my own practice, drive a fancy car, and belong to the country club. Whether I am practicing back (home) or somewhere else, I am going to set up a sealant program similar to the one at Case.”

By institutionalizing participation in such a program, we have the opportunity to produce a cohort of dentists who understand access problems and have ideas about and commitment to addressing the issues. Another student wrote: “As health-care professionals I strongly believe we are also obligated to help out the less fortunate in our society. I am taking out over $200,000 in loans, so I do want financial freedom someday, but I will find myself a failure if I do not use my skills to help out my community.”

Conclusion

Based on a review of the reflection papers, we continue to modify the curriculum design to 1) more closely link the theory in various topic areas to the real clinical experiences of our students and 2) to provide additional reflection exercises and opportunities, in order to further develop students’ reflection skills and maximize their learning from experience. For example, we offer a course in professional development in the second semester of the first year, concurrent with and following the students’ early clinical experience in the public schools. The curriculum focuses on professionalism and ethics, communication skills, health behaviors and health behavior change, and cultural issues in dental care. The students’ early clinical experience provides valuable “concrete experiences” to which the curriculum in these areas can be linked. Access to care issues are no longer abstract concepts, for example, but can be linked to the students’ lived experiences with real patients. Ethical topics can be discussed not in terms of ethical dilemmas students may face in the future, but in terms of ethical dilemmas they may have already observed or faced during their early clinical experience.

The sealant program has rejuvenated the faculty to think “outside the box” and expand experiential learning modules throughout the curriculum. The next module to be developed, for instance, will include an interdisciplinary team of medical and dental students treating elders in poor nursing home settings. Likewise, the students have been encouraged “to do more”: one first-year dental student encouraged twelve other first-year students to tutor school children in the Cleveland schools they had visited during the sealant program. Another student initiated a clinic in the Dominican Republic that continues to be a popular extern site for students.

Overall, we believe that the early clinical experience for first-year students has proven its importance to the education and development of our students, our faculty, the School of Dental Medicine, and the school children who are served. While we will not have conclusive data for many years to determine the accuracy of the following statement, we hypothesize that this early clinical experience treating poor school children may in fact produce a cohort of dentists who are sensitive to the health needs of the underserved and furthermore are committed to addressing the access to care issue. Through the
implementation of the sealant program at this dental school over the past three years, we learned the following: 1) students exceeded our expectations when given the opportunity; they were more capable at an earlier stage than we believed them to be. This has encouraged us as faculty to look for other opportunities to challenge our students; and 2) community-based education can contribute to students’ learning in areas and ways that are unique. This community-based program provided experiences that our students would not have had in the traditional curriculum.

REFERENCES