

Extending Oral Health Care Services to Underserved Children through a School-Based Collaboration: Part 2 – The Student Experience

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Introduction

Dental education faces many challenges in managing multiple responsibilities for oral health through education, research and service.¹ In a policy statement on health care reform, the American Dental Education Association (ADEA) advocates for “a diverse and culturally competent workforce to meet the general and oral health needs of our demographically changing nation.”² It further describes the need to educate dental and allied dental health professionals who are competent to care for the changing needs of society. ADEA calls for a commitment to the “exploration and implementation of new models of oral health care that provide care within an integrated health care system,” and acknowledges that new models will involve expanded roles for allied dental professionals, as well as other health professionals.³ The American Dental Hygienists’ Association (ADHA) has also issued a call for action to foster positive changes in oral health care delivery.⁴ The purpose of this study was to examine the dental hygiene student experience providing services to unserved and underserved children in a school-based collaboration between a dental school, a school district and an Extended Care Permit I (ECP-I) dental hygienist in Kansas.

The ECP-I in Kansas currently allows direct access to dental hygienists, with the designation to initiate treatment in community-based sites based upon their assessment of a patient’s needs, as long

Abstract

Purpose: The purpose of this study was to examine the experiences of dental hygiene students providing services to unserved and underserved children in a school-based collaboration between a dental school, school district and Extended Care Permit I (ECP-I) dental hygienist in Kansas.

Methods: Following comprehensive preventive oral health care services to children in 4 schools supervised by an ECP-I dental hygienist, 26 senior dental hygiene students enrolled in the dental hygiene program at the University of Missouri-Kansas City submitted rotation data records and self-reflection journals describing the experience. Using the constant comparative method, 3 faculty researchers unitized the data by identifying key themes.

Results: Data from student reflections was aggregated into 5 categories: skill development (46%), awareness (19%), type of experience (15%), description of environment/setting (13%) and role model (7%).

Conclusion: Participation in well-designed service learning programs is rewarding for students providing the services and works toward developing the skills needed to competently care for the changing needs of society. New models of oral health care and expanded roles for dental hygienists are providing greater access to preventive oral health care in Kansas.

Key words: access to care, school-based oral health, dental hygienist education, service learning, dental care for children

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as the dental hygienist is sponsored by a dentist licensed in the state (a full description of the ECP-I and ECP-II legislation can be found on the Kansas Dental Board website).⁵ ECP-I dental hygienists can provide screenings, education, preventive dental hygiene services, apply fluoride varnish and apply topical anesthesia without the presence of a dentist on-site and without specific authorization of a dentist.

Review of the Literature

The Macy Study calls for a shift from traditional dental school teaching clinics that feature student delivered care with a focus on education, to patient-centered delivery systems where treatment is based on the best interests of the patient and provided mainly by faculty while students participate on a progressive basis as their skills and knowledge develop.^{1,6} The study also recommends that all dental schools adopt “a significant educational component in off-site clinics” where faculty actively participate in treating patients as well as supervise students to deliver patient-centered care.⁷

When patient-centered care is balanced with specific educational objectives and intentional learning goals of the student, both the patient and student are beneficiaries of what is known as service learning. The major goals of service learning are to address societal needs, improve education and promote civic engagement. Well-designed service learning curricula includes advanced preparation by learning of theory and skill development specifically related to the functions anticipated in the service experience, selected readings related to the subject area, active participation and meaningful reflection on the part of the student. Reflection is considered the critical element in connecting the service activity with student learning about the larger context in which the service occurs, complete with all of the social, moral, ethical and environmental implications, making service-learning a vehicle to facilitate change.⁸⁻¹⁰

Gadbury-Amyot et al used a multi-factorial approach to assess course outcomes and student experiences in an ethics course for dental and dental hygiene students.¹¹ Student reflections from the case-based and team-based teaching method (with a community-based service learning component) indicated that students became personally aware of health disparities and began a necessary dialog to consider ethical issues and potential solutions to the problems they observed.

Keselyak et al employed multiple data sources to evaluate student perceptions in a course that focused on teaching dental hygiene students how to provide care to patients with special health care needs.¹² Student reflections revealed that service learning had increased awareness, higher order thinking and professionalism. Students expressed concern for the organizational challenges and showed a concern for the struggles faced by special needs patients. The authors concluded that these skills and disposition would prepare future oral health practitioners to provide services to patients having special health care needs.

Dornan et al worked with a group of international education researchers to conduct a systematic review of the literature on how experience in the clinical and community setting contributes to early medical education.¹³ They reported that early experience fostered self-awareness and empathic attitudes towards people experiencing illness. It also boosted student confidence, provided motivation, student satisfaction and helped students develop their professional identities. Students were able to develop their interpersonal skills as they learned about professional roles and responsibilities, health care systems and population needs. In some countries, medical students in the early years of their program provided preventive health care for underserved populations. These early experiences were also associated with increased recruitment to rural and underserved communities.

Educational initiatives that help students develop the skills to deliver quality care to diverse populations are needed to address disparities in health care.¹⁴ The Achieving Diversity in Dentistry and Medicine (ADDM) project has worked to improve and expand the education of health professionals in the hopes of encouraging and preparing students for careers working with the underserved.¹⁵ ADDM has prepared curricular guidelines for medical and dental schools with recommendations in 3 main content areas:

1. Basic concepts related to cultural competence
2. Foundational knowledge through self exploration to understand personal biases and health care issues in terms of diversity
3. Practical skill development that utilizes the student’s new knowledge

Included among the long list of foundational concepts are topics such as access to care, language and communication, access to dental and/or health care and access to oral hygiene and health care products.

To date, the majority of graduating dentists are choosing careers within the private practice model. Data from a national survey of senior dental students in 2008 showed that 89.5% of seniors’ long-term plans included going into some type of private practice setting, compared to 1.7% who plan to work in a community clinic practice.¹⁶ Encouraging data from 2009 showed an increase in senior dental students’ immediate plans upon graduation to work in a government setting, from 5.9% in 2008 to 11.3% in 2009.¹⁷ These are interesting statistics in light of the increased number of expected extramural clinic rotations from 11.9% in 2004 to 18.8% in 2007.¹⁶ In addition, when asked whether they agreed with the statement that access to oral health care is a major problem in the United States, and that providing care to all segments of society is a professional obliga-

tion, approximately 70% of senior dental students agreed or strongly agreed in 2008,¹⁵ compared to 75% in 2009.¹⁷ The data suggest that changes in the dental school curriculum may be influencing the perception of graduating dental students. There is no data for dental hygiene students with regard to these issues. Recognizing the current limitations set by licensing boards on practice settings and models, access to care from dental hygiene providers would be restricted in many states and dependent on the availability of dentists in non-traditional settings.¹⁸ Improving the oral health status of all Americans will likely require less restrictive state practice acts, especially for dental hygienists. Educational institutions are being called to anticipate these changes by preparing students to provide expanded care in unconventional settings.¹⁹

Community activities have been a component of the curriculum in dental and dental hygiene education for many years. As faculty gain a better understanding of what makes service learning a meaningful educational experience in conjunction with a desire to explore and implement new models for providing care to vulnerable populations, faculty are embracing opportunities to engage in service learning. Recognizing that prevention is fundamental to general and oral health,²⁰ and understanding that children who receive preventive dental care early in life will encounter a 40% reduction in overall dental costs when compared to children who do not receive care,²¹ a program called "Miles of Smiles" was designed to address the needs of vulnerable children in a local community. In a collaboration between the University of Missouri–Kansas City (UMKC) School of Dentistry, the Olathe School District and an ECP–I dental hygienist, school-based comprehensive preventive oral health care services were provided to disadvantaged children in 4 Title I schools, using a hybrid replica of the Community Collaborative Practice²² oral health model, portable dental equipment and tele-dentistry. In the Miles of Smiles clinics, dental hygiene students are supervised by a dental hygienist faculty member with an ECP–I.⁵ Students and faculty collectively provide comprehensive preventive oral health care to unserved and underserved children. These services include radiographs, prophylaxis, sealants, fluoride varnish application, oral health education and nutritional counseling. A descriptive study by Simmer–Beck et al describes the project and outcomes in full detail.²³

The purpose of this study was to examine the experiences and attitudes of students in the Miles of Smiles program through their guided, written reflections and seek their perspective on learning related to specific dental hygiene competencies.

Table I: Demographics of study participants

Demographic Characteristics	N (%)*
Gender	
Female	25 (96)
Male	1 (4)
Age	
20–22	1 (4)
23–25	19 (74)
26–28	3 (12)
>28	3 (12)
Racial/Ethnicity Background**	
Asian	1 (4)
Black or African American	1 (4)
Hispanic or Latino	2 (8)
White	21(81)

*Due to rounding and differences in rounding to questions, the totals may not total to 100%

**Categories according to US Census.gov

Methods and Materials

To prepare for clinical community rotations, students were required to increase their knowledge about the organization and persons they would be serving. Students were instructed to develop a document that described the mission statement of their assigned organization, a description of the populations served by the organization and a review of the current research on issues impacting the population, as well as describe how dental hygiene students would help the organization fulfill their mission during the rotation. Each student was assigned to provide care in the Miles of Smiles clinic for 2 days within a single week during the fall semester, and 1 additional day during the spring semester for a total of 3 days. The rationale for scheduling 2 days within a single week at the clinic was to facilitate the implementation of learning from one session to the next as recommended by community partners in other settings who reported enhanced student efficiency on the second day, thereby giving both the student and the community partner opportunities for more productive services and learning.

Data sources included rotation tracking data provided by students and self-reflection journals for each rotation site. All 26 dental hygiene students enrolled in Dental Hygiene Clinic III and IV participated in the Miles of Smiles rotation. Table I provides the demographic information describing the students participating in these courses. UMKC's Social Sciences Institutional Review Board rendered this study exempt from review. Anonymity of students was assured by removing the names and de-identifying information from the student data reports and reflective journals before review.

Rotation data reports were completed by students at the end of each semester, confirmed through records review by the Director of Quality Assurance at the School of Dentistry and reported in aggregate form. This data includes the number of patients treated, their ethnicity, special health care needs of the population and services rendered, and identifies the specific dental hygiene program competencies students worked toward during the experience at the rotation site.

Reflective journals were completed by students the week immediately following the completion of the first rotation through the Miles of Smiles clinic. Students were guided to reflect upon the organization's mission statement and report how this affected decisions about provided services. They were also asked to discuss how classroom knowledge was applied, what was learned, how this learning benefited the population being served, how they managed challenges, recommendations for the future, impact of the rotation on progress towards the dental hygiene program competencies and how the rotation impacted their attitudes towards the diversity of the community being served. They were also asked to identify problems they observed in accessing care among persons with special health care needs, and to recommend ways to address these problems.

To encourage honesty and accuracy in writing the reflective journals, students were informed that journals would be graded as "complete" or "incomplete" for meeting the course requirement. Using the constant comparative method as outlined by Lincoln and Guba,²⁴ 3 faculty researchers unitized the data from each journal reflection by identifying key themes. As the themes emerged, the unitized data was constantly reviewed and compared to specific themes. The research team discussed each unit and theme to reach a consensus as the themes aggregated into specific categories. Numerical frequency of themes were tracked and totaled within a category and subsequently calculated as a percentage of the total number defined overall.

To further validate the data analysis, a group debriefing session was held with all students at the end of the semester as a means of member checking the data. Students verbally discussed their experiences, allowing faculty to confirm the thematic analysis that emerged from the written reflections. This process also helped students to further reflect on their collective experiences, and served as a review of course content, making connections between didactic learning and actual experiences during service learning. Further member checking was also conducted by having the ECP-I dental hygienist/faculty member review the analysis for accuracy.

Results

Students worked with children of Hispanic, Caucasian and African American ethnicity. They encountered children with a variety of special health care needs, including attention deficit disorder, bulimia, autism, epilepsy and attention deficit hyperactivity disorder. Communication with children from different cultures provided opportunities for students to experience working with language barriers. Diversity in socioeconomic status revealed challenges faced by families needing health care. In the process, dental hygiene students reported an opportunity to develop their skills in a majority of dental hygiene competencies.

The qualitative data obtained from a review of the reflective journals submitted as a course requirement revealed that some students responded to each of the specific issues requested in the guided reflection protocol while others did not. However, all students provided meaningful data. Analysis of all data sources yielded a list of 19 individual themes which were aggregated into the 5 categories. Table II outlines the categories that emerged from the data analysis and provides examples of the themes for each. Table III shows the numerical frequencies of themes that were tracked and totaled within a category and subsequently calculated as a percentage of the total number defined overall. The 5 categories with their corresponding percentages of the total responses were skill development (46%), awareness (19%), type of experience (15%), description of environment/setting (13%) and role model (7%).

The largest number of student responses was consolidated into the skill development category. The following direct quotes from student journals capture the 6 representative themes identified in this particular category (experience beyond the dental school, working in diverse populations, advanced preparation, charting mixed dentition, communication with children and difficulties adapting to the new environment), and provide a rich description from the student perspective.

"I applied classroom knowledge each time I completed an adult prophylaxis, placed sealants and provided OHI. In the class Principles of Public Health, we learned about portable dental equipment and outreach programs. This was my opportunity to have hands on experience with these things." (Skill Development: Advanced preparation and experience beyond the dental school)

"I am so glad I got to go on this rotation because I realize how bad I was at charting mixed dentition.... Now...I am MUCH better at charting. Today...charting

went quickly since I had the experience this week at MOS.” (Skill Development: Working with diverse populations and charting mixed dentitions)

“... I need to improve on using kid friendly language so that they can better understand what procedure I am about to perform... I will start making a list of words to use with different ages.” And, “One of the little girls... was just scared to death and... started crying. It was so sad! ...now that I think back, the school nurse and I went to get this little girl from her class and the school nurse basically just grabbed her out of line and took her to our treatment room without explaining much. While she was in the room and sitting in the chair for radiographs, tears just started running down her face. We tried to explain that we were just going to look and count her teeth, but she would not let us in her mouth!” (Skill Development: Communication with children)

“Some of the difficulties I faced were getting used to using the new environment at the school. The software and dental surrounding was very different from the dental school... The first day went a little slower than planned but... the second day was a lot easier.” (Skill Development: Difficulties adapting to the new environment)

As students reflected on changes in attitude towards the diversity of the community, awareness emerged as another category. Exposure to this experience increased student awareness of the tremendous need for oral health care, the challenges people have with access to care and the diversity of the populations within their own communities. The following comments are representative samples from the group.

“I have the ability and the desire to help those in a community that are less fortunate. I thought that hygiene school was there for us to graduate and go into private practice and work there throughout the duration of our careers. ...I have learned that the value of my baccalaureate degree is far more valuable than I could have ever imagined. The MOS program has given me more than extra experiences on sealants and child prophys. It has made me want to play a public role in prevention.” (Awareness: Role as oral health care provider)

“We are taught the statistics about children who are minorities, poor, and have problems with access to care; but to actually see the statistics right before my eyes was shocking. I am so glad we are given the chance to... help these individuals with our skills and knowledge.

Table II: Emergent categories and representative themes from student reflection journals

Emergent Category	Representative Themes
Skill Development	<ul style="list-style-type: none"> Experiences beyond the dental school Working in diverse populations Advanced preparation Charting mixed dentition Communication with children Difficulties adapting to new environment
Awareness	<ul style="list-style-type: none"> Role as oral health care provider Access to care Settings – public versus private
Type of Experience	<ul style="list-style-type: none"> Relaxed atmosphere Service-learning Variety
Description of Environment/Setting	<ul style="list-style-type: none"> Portable equipment Working with partners (collaborative partnership) Unique environments
Role model	<ul style="list-style-type: none"> Problem solving skills Organization skills Effective teacher Compassion

Table III: Students’ reflection category analysis, by number and percentage of total responses

Category	N (%)
Skill Development	82 (46%)
Awareness	35 (19%)
Type of Experience	27 (15%)
Description of Environment/Setting	24 (13%)
Role model	12 (7%)
Total number of tracked theme occurrences	180

“I was truly surprised by the amount of untreated decay... (and the) great need for oral health care and education in (my) suburban community.” (Awareness: Access to care)

Not only were students pleased to be helping the children in need, the rotation experience and reflection time provided opportunities for students to consider options and alternatives to the private practice

model for dental care delivery. The following comments reveal their thoughts.

"This is a very exciting process to be a part of. This project is definitely reaching out to those in the community that ... need our help. I think it is great that the parents do not have to take off work or take their student out of school for long to get their oral health assessed and their teeth cleaned. ...I found it interesting that we have school nurses but not hygienists. Many changes are being made with dental hygiene options since the extended care permit has come about. Hopefully we can continue to reach out to the communities just as this program has!" (Awareness: Setting – public versus private)

A selection of representative comments from the remaining categories (type of experience, description of the environment and role model) provide a context for describing the unique features of the Miles of Smiles rotation. Students found the experience to be enjoyable and embraced the more relaxed atmosphere when compared to their dental school-based clinic. They viewed the rotation as a good learning experience, while at the same time were pleased that they could provide much needed education and preventive services to children in the community. The samples provided below are representative of the type of experience category.

"I really enjoyed this rotation... one on one attention is a great learning experience. The atmosphere in the (MOS) clinic is very laid back and is really a nice break from the (dental school) clinic." (Type of experience: Relaxed atmosphere and variety)

"I learned a lot about children. ...how some children have to take care of themselves at a very young age... that ...parents can't afford to seek treatment for their children...(and) that ... advice I ...give these kids will help them in the long run... I really look forward to doing this again." (Type of experience: Service learning)

Data from all 26 students were re-examined for references to negative comments about the rotation. Three of the journals contained no remarks about a positive or negative experience, while the remaining 23 expressly described the experience in favorable terms.

Students were excited to use the portable equipment but found they needed to be flexible when providing care in an alternative practice setting. The following comments from the category describing the environment/setting indicate that students perceived the program as well organized, were able to get quick support as problems arose, functioned

well working in pairs and felt well prepared for the program.

"I really like ... working with the (impressive, new) portable equipment. I was very impressed with all of the new equipment. (The experience) expanded my skills of working with various x-ray equipment.

"A few peers ... had problems with the unit breaking down, the radiographs not working, or running out of patients... We only had some complication finding where ... students ... were located. ...We even beat the record by completing nine children in one day." (Description of the environment: Portable equipment)

"While one of us was the clinician, the other was an assistant. We established a working routine early on and were the first students to complete eight patients in one day." (Description of the environment: Working in pairs)

"We were tucked away in a storage area/faculty cutting room. Our make shift dental office was partitioned off in a corner... (and) was very cramped. At the second school we were in a gymnasium storage area/gym teacher's office." (Description of the environment: Unique environment)

Highlighting the unique features of this rotation, the following comment describes an encounter with a speech teacher demonstrating interaction and collaboration with other health professionals addressing the needs of children at the site.

"The speech teacher asked if ... her six children (could) tour our area to teach them about hygiene. After these kids were complete the same teacher came back and asked us if a particular child was on our list. She stated that the child had double rows of teeth and that it was something that ran in the family. The teacher was mostly concerned because they are interfering with his speech and she did not think he was cleaning them very well. She said that the parents did not have any resources to fix the problem, and wanted us to do what we could for him. When the child came in we asked him if he thought his teeth were different or bothered him. He said that they did not bother him but he did think that he was quite different. After taking an occlusal film and observing the dentition clinically, the patient did not have double rows of teeth. He presented with his maxillary lateral incisors positioned directly lingual to his centrals, and no other malpositioning. The teacher was right about it affecting his speech and he was not keeping them clean." (Description of the environment: Unique environment and collaborative partnerships)

Under the supervision of an ECP-I/faculty member, students had an opportunity to provide preventive care to children in a public school setting. The faculty member modeled the following skills: management of equipment set up and malfunctions, organization and problem solving, compassion during patient care with a vulnerable population and effective and professional communication with various stakeholders, such as patients, students, nurses, technicians, school teachers, staff, administrators, parents and referral dentists. Being an effective teacher was among the roles appreciated by students. The following comments show the respect students have for the role modeling by faculty.

"The portable dental equipment not working properly ... Professor (blinded) knew who to call and he was able to come right over and resolve the problem ... (He also) explain(ed) how to fix it if it were to happen again... I am very impressed with how calm Professor (blinded) stayed and how she was able to be worry free. I learn(ed) ... what could go amiss in an off-site program and how to best deal with them." (Role model: Problem solving skills)

"It is inspirational to know that an individual is able and willing to put that much effort into a program of its magnitude. I feel like I would be able to start a program some day after being exposed to this process." (Role model: Organizational skills)

"Professor (blinded) gave me some great tips while doing sealants ... Thank you Professor (blinded), you are an awesome teacher, mother, and professor." (Role model: Effective teacher)

"Professor (blinded) makes you feel right at home ... Watching Professor (blinded) was great and helped me to know what to say to our patient and also how to say it." (Role model: Compassion)

Discussion

Faculty and administrators at UMKC are committed to incorporating service-learning throughout the curriculum. The program of focus in this study is one of several within the Division of Dental Hygiene and demonstrates the extent to which faculty embrace the concept of extended opportunities for students to engage in meaningful activities that benefit both the student and the community. The model used in this program relies on the cooperation of community partners in the school district with the university, and is possible through the utilization of broadened legislation with the ECP-I. The ECP-I allowed the students in the program to work under the supervision of a dental hygienist to provide needed care to vulnerable children that would

not otherwise have access to preventive oral health services. This collaborative model could not have become a reality without the financial support from the REACH Healthcare Foundation, who contributed by purchasing equipment and supplies and hiring an ECP-I dental hygienist to serve as the additional faculty member.

Service learning experiences often involve community partners functioning in the role of faculty, which can provide a rich, real-world experience for students. The value of having a faculty member serving as a role model for the ECP-I experience was that it provided consistency between expectations in the school-based dental hygiene clinic and expectations in the Miles of Smiles clinic for both the faculty and the students. Formicola has cited that faculty are often reluctant to accept off-site student accomplishments as worthy of credit towards graduation, as they perceive this care to be inferior.⁶ However, working with a trusted member of the faculty who assumes the role of clinician-faculty has done much to support satisfaction (acceptance) in granting credit for procedures completed at the off-site Miles of Smiles clinic.

Skill development emerged with the highest percentage of comments, indicating that this rotation does support continued learning, and addresses (supports) most of the competencies expected of graduating dental hygiene students. Having a faculty member on-site providing one-on-one supervision and mentoring has contributed to the success of the skill development aspect. The Miles of Smiles project incorporated many of the recommendations and suggestions of the Macy Study: primary focus on patient-centered care, faculty and students working collaboratively to meet the needs of the patient and significant educational component using off-site clinics that help develop a variety of skills and attributes necessary to address the oral health care needs of a diverse population.¹

According to Formicola, students treat and average of 6 to 7 patients a day at off-site clinics.⁷ This was fairly consistent with the data that emerged in this study. Students reported treating anywhere from 3 to 9 patients per day at the Miles of Smiles clinic, which demonstrates an increase in productivity from the dental school-based clinic. The data also suggests experience with children is limited in the dental school clinics, and students are grateful for the opportunities this rotation provides.

The most impressive statements in the awareness theme are those that express surprise in learning that so many children have unmet dental needs within their own communities. This awareness

helped students become familiar with the changing epidemiology of oral health risks among this diverse population in the community, and is a core competency related to the impact of culture in oral health care.¹⁵ Students reported an appreciation for the model that allowed them to provide services to this vulnerable population, to become aware of the importance of providing even the most basic preventive services and to help children learn more about their oral health. This is congruent with studies that suggest well structured service learning activities can instill a sense of ethics and professionalism in students while they internalize an appropriate vision of their role as health care professionals in the context of their community.^{11,12,25} A sense of civic responsibility was evident as students reflected on the role of oral health care providers, shared thoughts about how rewarding it was to help the children and expressed a desire to continue serving their communities upon graduation. Dornan's descriptions of students' self awareness, empathic attitudes, confidence, motivation, satisfaction and development of their professional identities were also seen in the comments by students in this study.¹³

Exposure to diverse populations with language barriers helped students consider strategies to facilitate communication. As students work toward developing their communication skills, they are also learning to rely on the basic principles of cultural competence: self awareness, respect for diversity and sensitivity to communication.²⁶ Student reflections indicated that students could identify the effects of communication (both positive and negative), recognize that the children constituted a vulnerable population and became aware of how important their knowledge and skills were in helping people who do not have this specialized knowledge. Students had a personal opportunity to experience the special obligation society places on health care professionals to help others who are in need of care.

Students became aware of individuals who volunteered their time and offered to provide services at either free or reduced costs to individuals in need. Some of these professionals were recognized at professional meetings for their contributions and dedication to serving patients from vulnerable populations groups. Students attending these sessions had another opportunity to see these individuals valued and acknowledged, thus socializing students into understanding the value of professionals serving the needs of their community.

The ECP-I dental hygienist designation in Kansas provides a glimpse of what can be achieved with less restrictive laws, so that a safety net clinic can help vulnerable populations and students de-

velop a sense of professional obligation.⁵ Integrating more service learning activities throughout the curriculum, selecting students with a demonstrated commitment to community service and ensuring a diverse and culturally competent workforce would allow educators to initiate change in the profession.

Qualitative descriptions of the environmental setting provide a rich portrait of the experience from a student perspective that goes beyond describing the type of equipment and location of the site. Student reflections add an affective component, as well as a greater awareness of the challenges faced by visitors, teachers and students when rooms are geographically hard to find, space is at a premium (closets/faculty offices) and schedules differ from those at the dental school.

Student journals were guided by a series of questions to elicit students' thoughts about specific issues. These were selected based on careful review of the literature and course goals. While generalizability plays a minor role in qualitative research, the intent of this qualitative study is to develop an increased understanding of the student experience. The methods used in this study included strategies for validating the accuracy of the findings.²⁷ The results can be used to help other investigators generate hypotheses for similar student outreach clinical experiences.

In the future, combining first year dental students with senior dental hygiene students when delivering care would help develop a shared understanding of interdisciplinary service learning, the value of dental hygienists in alternative delivery models and a sense of shared satisfaction in meeting the needs of unserved and underserved children in the community through collaborative care. This is supported by Hood as she describes an unpublished study where students in inter-professional programs gained awareness of the need for inter-professional cooperation to improve patient outcomes, realize the value of other professions and increase the understanding of other practitioners/competencies.²⁸

Long-term data is needed to follow the career choices and volunteer experiences of graduates to see if higher numbers of individuals pursue careers in alternative settings. Data from the dental hygiene program in this study show that, since 2003, 1 graduate completed a master's degree in public health, 7 graduates found employment in federally qualified health centers (FQHCs) and 2 considered working in FQHC facilities. Three FQHCs in the state have developed positions for dental hygienists since 2003, when rotations through these centers began.

Negotiations are currently underway for another FQHC position to become available by the end of 2011. Three graduates work with the U.S. Public Health Service, while another graduate is currently pursuing work with this organization.²⁹ As health care reform seeks more efficient ways of serving all Americans, dental hygienists are in a position to become part of the solution, using their education and professional skills in creative ways as laws become less restrictive. It will be imperative to not only develop alternative practice models and educational programs that provide care to vulnerable populations, but to also provide sound outcome measures to demonstrate the impact of these programs and activities.⁴ Making the data part of the public domain may help other stake holders embrace the innovative models, practice acts and activities that address the needs of all Americans and demonstrate that the dental hygiene profession is serious about its professional obligation to society.

Conclusion

The collaboration between a dental school and dental hygiene program, a school district and a dental hygienist with an ECP-I has made it possible for a service learning program to provide preventive oral health care to unserved and underserved children in 4 Title I schools. Dental hygiene students found it helpful in further developing their dental hygiene skills, creating an awareness of the needs

and disparities within their communities, developing an appreciation for new models of care delivery and finding personal satisfaction in caring for those in need of their professional skills. Based on the data in this study, it is also clear that this collaborative program parallels the academic roles and responsibilities recommended by ADEA for improving the oral health status of all Americans.

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