

Critical Issues in Dental Hygiene

Research Issues Related to Education

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Dental hygiene educational programs play a critical role in socializing dental hygienists to the research process. All dental hygienists must be taught in a manner that reinforces the importance of research so that an appreciation and basic understanding of the process becomes an inherent part of the value system of each individual. While the majority of dental hygienists do not aspire to the level of conducting research, all dental hygienists must possess basic skills gleaned from learning research that are applied in all aspects of our professional activities. This basic skill set includes problem-solving, critical-thinking and decision-making skills that are necessary to make good decisions during the process of care. Our educators assume a large responsibility for this socialization, yet are faced with multiple obstacles and limited resources that challenge their attempts to adequately prepare students in their research skill development. These issues are further explored below under Faculty, Student, and Curriculum Issues.

Faculty Issues

Faculty who are teaching in university-based programs have primarily been responsible for the dental hygiene research conducted to date, although there are exceptions to this rule. This is not surprising, as the quality most valued by universities is “intellectual achievement” and most specifically, research, which “represents the ultimate expression of a scholar’s powers.”¹ Faculty who teach in

universities are required to conduct research as an aspect of scholarship that brings merit to the university and benefit to the society it serves, beyond the merit that is brought to the individual faculty member and to the profession of dental hygiene. The discovery of new knowledge is consistent with the mission of universities. Research is considered a key measure of scholarship that is used to determine rank and eligibility for promotion and tenure.

Dental hygiene is facing a shortage of faculty members: a shortage that is expected to grow.² In 2006, the Center for Health Workforce Studies at the School of Public Health, University of Albany, conducted a survey of dental hygiene program directors on behalf of the American Dental Hygienists’ Association (ADHA). Two thirds of the program directors described recruitment of faculty as either very difficult (22%) or somewhat difficult (44%); 32% of the program directors identified recruitment of qualified faculty as a primary concern “in the near future.”³

Closure of baccalaureate level programs has had, and will continue to have, a significant impact on both the number and the development of our future faculty and scholars, upon whom the growth of our body of knowledge is dependent. Research as a career path for dental hygienists requires a minimum of a master’s degree, and our existing dental hygiene graduate programs will soon face a shortage of eligible candidates for enrollment. It is a legitimate concern that those individuals who do pursue a master’s degree in dental hygiene will be en-

couraged to seek teaching positions to fill the vacancies in community college settings, where research is not typically a required element for employment. If this prediction holds true, it is feared that our dental hygienists with higher levels of education may not pursue research as part of their own faculty profile or professional development.

Further, the alarming trend in program closures in universities, and specifically in dental schools, eliminates employment opportunities for dental hygienists who desire to both teach and conduct research in this type of setting. Dental hygienists who are currently employed in these settings often face difficulties in meeting promotion and tenure criteria, as most possess only a master’s degree and have limited grant funding and publications. Yet, these faculty are held to the same standards as their colleagues in other departments, most of whom possess doctoral degrees. Fortunately, there are a growing number of dental hygienists who possess doctoral degrees. Issues pertaining to grantsmanship, the quality and merit of our research, and the reputation of our journal publications have a profound impact upon dental hygiene faculty who are attempting to move upward in rank and stature within the university. These challenges may indirectly impact the decision to close existing university-based baccalaureate programs because our faculty often cannot meet the rigors of the scholarship demands imposed by the university.

The basic mission of dental hygiene programs in university settings, and thus their value, is defined

by education, research, and service to the community. However, the primary mission of dental hygiene programs has been the education of practitioners. While technical training encompasses a large portion of the dental hygiene curriculum, the practice of dental hygiene is grounded in scientific knowledge, which constantly changes and evolves over time. Good technical skills and the possession of basic knowledge are simply no longer enough to teach dental hygiene students, given the growing body of scientific knowledge and the required skills needed for evaluating the literature. Faculty themselves must be educated in the scientific method, and must be competent in searching and evaluating the literature to be able to adopt an evidence-based approach to teaching. A recent study found that the biggest barrier to implementing an evidence-based approach to care in dental hygiene programs was lack of skills among faculty.⁴

Dental hygiene educators must be challenged to incorporate Evidence-Based Decision Making (EBDM) methodology in their own curricula.⁵ Faculty development programs can help teachers learn the evidence-based decision-making process and skills to help students become adept in critical thinking. As more faculty integrate EBDM methodology into their courses, it is more likely that students will develop the skills necessary to become self-directed lifelong learners who “have learned how to learn. They know how to learn because they know how knowledge is organized, how to find information, and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand.”⁶

It has been stated that experience is the greatest teacher; however, experience alone does not guarantee the quality of the teacher. Faculty development programs are essential

to continually improve the quality of our educators. Typically, faculty development programs are offered within each institution; however, there are dental hygiene programs that either do not create or do not have access to these training opportunities. A recent addition to faculty development is the American Dental Education Association/Academy for Academic Leadership (ADEA/AAL) Institute for Allied Health Educators (IAHE). The IAHE is a professional development program designed to prepare faculty in allied dental education and other allied health professions for successful academic careers.⁷ ADEA and ADHA can also play important roles in facilitating faculty development by sponsoring training workshops on a variety of topics, including the use of technology, information resources, library skills, and teaching methodologies based on the evidence-based process.

Dental hygiene faculty need opportunities to share effective strategies for teaching and *mentoring research*. The level of experience and the degree of confidence in teaching this material varies greatly among educators, and will affect the level of preparation of our future researchers and educators. It would be interesting to know how many dental hygiene educators who teach research courses have actually conducted research. It also is important to assess how we are preparing our educators to socialize students to research and the scientific process, because dental hygiene students who are not taught to value research as the norm for practice will not have this foundation to evolve into teachers who value research and serve as role models.

Student Issues

Clearly, we have outgrown our current model of associate degree education as the entry-level degree for the profession; however, there

appears to be little motivation to change this situation. The issues related to this problem are beyond the scope of this paper. It may be harder to encourage students to pursue a baccalaureate degree in dental hygiene, given the opportunities for employment stability and financial success with an associate’s degree. Articulation agreements must be created to encourage dental hygiene students to complete their baccalaureate degrees and to facilitate their entrance into graduate school.

It seems logical to utilize our graduate dental hygiene programs as a resource to assist in efforts to accomplish the objectives set forth by the ADHA National Dental Hygiene Research Agenda (NDHRA).⁸ It will be critical for graduate dental hygiene faculty to help graduate students identify topics and frame research questions for investigation that support ongoing research needed by the profession.

Graduate faculty may need to redefine how graduate students are utilized within their own departments and universities, so that maximum gain can be achieved on both the part of the department and the student. Typically, the research that graduate students conduct is descriptive in nature, which limits its utility. Many graduate program faculty realize that the purpose of the research study is merely to introduce the student to the research process, and to give the student firsthand experience in “walking” through the steps of the process. However, this trend has resulted in numerous studies that bring little to our knowledge base, and a collection of studies that amounts to little more than pilot data. Rarely are these studies ever published, replicated or expanded to a larger scale. Graduate faculty could accomplish a great deal more by using graduate students to study small aspects of an existing project, the outcome of which would be a greater depth of understanding of a given topic versus a superficial expansion of new knowledge.

Working alongside a graduate student is more of a traditional model of research mentoring found in the biomedical sciences and teaches the student to value collaboration. Sadly, in dental hygiene, we tend to mentor graduate students by convenience versus by our levels of shared interest and expertise in a given area of study. Often, it is the graduate school that dictates who can mentor a graduate student thesis project and the number of departmental representatives that must sit on the graduate student's thesis committee. These rules hold true, even if there is no one in the department with expertise in the student's topic of interest. How does a student find a mentor to direct and guide a research study if no one in the department holds a similar interest? Conversely, for those students who have difficulty in identifying a topic, it seems more practical to encourage graduate students to participate in an ongoing project.

Graduate dental hygiene programs also could be used as "centers" for investigation, similar to those established in dental schools, with concentrated research efforts focused on a particular field of study. Using the NDHRA as a guide, these schools could serve as regional sites for multicenter research studies to conduct large-scale investigations that add to our body of knowledge. Graduate students from across the country could work on the same project, investigating regional differences in a given problem. This would encourage graduate students to work in a collaborative model and teach them to network and communicate with their future research colleagues. Graduate students also are the logical choice for developing and testing the reliability and validity of new/existing measures and for validating existing bodies of work. These are all examples of projects that could be funded through the ADHA Institute for Oral Health. Whether research is the chosen career path or not,

we must ensure that our graduate students possess the skills needed for employment in universities and other health care settings where decision making based on scientific evidence is an inherent part of their responsibilities.

Curriculum Issues

Given the disparities in experience, expertise, and comfort level among dental hygiene faculty, it would be of great benefit to the profession to utilize standard curriculum guidelines for teaching research methods and evidence-based decision making for use in all dental hygiene programs. There are several documents that can be used for this purpose. The American Dental Association (ADA) Commission on Dental Accreditation dental hygiene accreditation standards include research competencies that focus on being a good consumer of the scientific literature.⁹ ADEA has developed research competencies that support decision making for evidence-based practice.¹⁰ Several online and print resources are now available, including multipart articles that serve as a primer on evidence-based decision making that can be used by faculty and students alike.^{5,11-19} Faculty are encouraged to utilize these documents for guidance in developing their research curriculum. There is an ongoing need for workshops at professional meetings to encourage educators to review the research competencies, and for sharing available resources and strategies for integrating these competencies into curricula.

Today, dental hygiene students are computer-literate and use computers as an integral part of their lives. Most, if not all, students own their own computers. Their existing computer skills may challenge faculty who do not share their same level of experience, expertise, and abilities. The need for computer training, use of technology, and use

of scientific search engines and databases will continue for both faculty and students.

More schools are integrating computer use on the clinic floor, which enables students to quickly access information for use during patient care. Also, access to computers in the clinic creates greater opportunities to conduct clinical research by creating large databases of clinical measurements gathered during patient assessment and evaluation. Academic institutions should provide students, whenever possible, access to the latest technology that they will later encounter in practice.

Faculty should work closely with the librarians on campus to ensure that resources are current and available to support evidence-based practice. Access to MEDLINE (and PubMed), the EBM databases to access the Cochrane Database of Systematic Reviews, and CINAHL should be available for students and faculty. Librarians are excellent resources to support faculty development programs as well.

Support for Skill Development

Although an increasing number of dental hygienists are earning their master's and doctoral degrees, a critical core of researchers is still needed. Research skills take time and practice to be developed. For those who have not had formal training in research, there are a few avenues that can be pursued to gain the requisite skills. The University of Washington conducts a summer institute, Clinical Dental Research Methods, to offer training in research methods to oral health professionals who desire additional skill development beyond the basic information that was presented during their clinical education.²⁰ Companies such as The Grantsmanship Center offer training courses across the country.²¹ Previously, the Na-

tional Center for Dental Hygiene Research (NCDHR), through HR-SA-BHP funding, provided a 5-day intensive program during which teams of dental hygiene faculty and clinicians headed by a research mentor came together and developed pilot studies specifically related to the NDHRA. This proved to be a successful model in that 80% of the teams were successful in getting ADHA Institute or intramural funding; 3 theoretical models for dental hygiene practice were developed or refined; and 6 journal articles were published, adding to our body of knowledge. Given the success of this model, the NCDHR continues to seek collaborative relationships to obtain funding and to assist teams in moving their research forward. Individuals may also opt to take formal courses at a university. This presumes that the individual will take the initiative to pursue these options and that there is program or institutional support.

ADHA posts information about training and research opportunities on the ADHA Research Resource web page.²² ADHA also offers a Research Mentoring Forum each year at the ADHA Center for Life-

long Learning (CLL) for novice researchers and for those who are new to the research process. We recommend that a 'hands-on' grant-writing workshop be held on a regular basis in conjunction with the ADHA CLL and that skill development sessions be offered at all future dental hygiene research conferences.

Dental hygiene researchers need the opportunity to come together to share ideas and to discuss strategies for advancing the profession through research. Those who have been successful in grant writing and developing a funded research area should be an integral part of the conference planning and workshop sessions. The upcoming North American Dental Hygiene Research Conference (June 15-17, 2009) is one such opportunity where the dental hygiene research community will come together with representatives from government and industry to exchange shared research interests and explore opportunities for advancing dental hygiene research.²³ In addition, recipients of funding through the ADHA Institute for Oral Health should be required to present their research at ADHA CLL, and abstracts and papers need

to be published in the *Journal of Dental Hygiene* so that others have access to the information through MEDLINE and CINAHL.

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