

Educating Pediatricians and Family Physicians in Children's Oral Health

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Publication of *Oral Health in America: A Report of the Surgeon General* (SGROH) alerted the public and health professionals to the importance of oral health and the vulnerability of poor and underserved children to dental disease. In response, the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), and the Society of Teachers of Family Medicine (STFM) have initiated training programs for residents and practicing physicians, allowing them to conduct oral health screenings, apply preventive strategies, and facilitate appropriate referrals to dentists. Training programs are increasingly available on the Web, but their quality and effectiveness are rarely assessed. To ensure greater inclusion of oral health in graduate medical education, voluntary curricular guidelines have been developed, and education in oral health is mandated in family medicine resi-

dency programs. Several initiatives engaging practicing physicians in oral health activities have demonstrated improved access and reduced dental disease in children, but evaluation of all programs is essential to determine cost effectiveness and outcomes.

The actions of AAP, AAFP, STFM, and other large-scale initiatives have helped break down the traditional separation between medicine and dentistry. Collaboration between physicians and dentists should be encouraged at all levels of education to ensure improvement of the oral health of America's children.

KEY WORDS: physician oral health education

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In 2000, *Oral Health in America: A Report of the Surgeon General* (SGROH)¹ alerted public and health professionals to the importance of oral health and to disparities in oral health and access to care for vulnerable populations. Subsequently, the *National Call to Action to Promote Oral Health*² called for revamping health professional education to address these issues. In response, the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), and the Society of Teachers of Family Medicine (STFM) have supported training programs designed to increase physicians' engagement in oral health, particularly for underserved children. This paper will review advances in the oral health training of pediatricians and family physicians and make recommendations for future efforts.

THE ROLE OF PRIMARY MEDICAL CLINICIANS IN PROMOTING ORAL HEALTH

Pediatricians, family physicians, and other primary care clinicians are well positioned to improve the oral health of children. They see infants and young children frequently in

the early years of life when prevention is critical and lifelong habits are being established. Family medicine is America's largest primary medical care specialty, with 105 000 family physicians providing care for over one third of America's children,³ particularly in rural and underserved areas. General pediatricians, numbering 45 000, care for a broad cross-section of children. By acquiring the skills to conduct oral exams, apply preventive strategies, counsel caregivers, and appropriately refer patients to dentists, primary care clinicians can help eliminate oral health disparities.

ADDRESSING PHYSICIAN'S KNOWLEDGE AND ATTITUDES TOWARD ORAL HEALTH

At the time of the release of the SGROH, the oral health knowledge of pediatricians and family physicians was limited. Pediatricians and family physicians felt that their training in oral health during residency and continuing medical education programs were insufficient and they desired more education.⁴⁻⁷

As a result of these acknowledged gaps, there was a rise in oral health training grants, curricula development, and continuing medical education activities to expand the oral health capabilities of physicians. Efforts began on a large scale in 2001 with the award of 8 Health Resources and Services Administration (HRSA) physician education grants to 8 medical centers across the country. Both pediatricians and family physicians were trained using educational materials developed at the local sites.^{7,8} In 2003, the Maternal and Child Health Bureau funded development of an online pediatric oral health training resource for non-dental providers.⁹ Foundation-funded initiatives included

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a Connecticut project focusing on family medicine and pediatric residency programs,¹⁰ a project in New Hampshire,¹¹ and a Connecticut curriculum for nondental professionals, among others.¹² In 2004, responding to a need for better coordination and collaboration among regional initiatives, family medicine educators with experience gained from projects in Connecticut, Kentucky, Texas, and Washington formed the STFM Group on Oral Health, with the twin goals of advocacy for oral health education during residency training and national dissemination of educational materials.

EDUCATING RESIDENTS

Medical education can be divided into 3 distinct phases undergraduate (medical school), graduate (residency and fellowship), and continuing medical education (for practicing physicians). Training in oral health would be easiest if foundational knowledge and positive attitudes were imparted in medical school. However, fewer efforts have targeted medical students due to the tightly packed nature of the medical school curriculum, the undifferentiated career plans of students, and underlying attitudes about separating medical and dental education.^{13,14} In 2008, the American Association of Medical Colleges recommended that medical schools increase oral health education.¹⁵

Establishing effective practice patterns in the area of oral health is probably best achieved during residency training. In residency, trainees begin an intense education in their specialty. Residents have a vested interest in learning about oral health at this time when it is presented as an integral part of the care they provide. Moreover, many clinicians believe that physicians practice the way that they were taught in residency. Accordingly, the AAP, AAFP, and STFM have embarked on major efforts to integrate oral health education into residency education.

The value of incorporating infant oral health education into residency training is well documented. One study noted improved oral health knowledge and behaviors of pediatric residents.¹⁰ A second study similarly noted improved knowledge of oral health, confidence in providing oral health services, and delivery of those services by pediatric residents in their ambulatory care practices.¹⁶ Physicians can be trained to identify caries and make appropriate referrals, using a pediatric dentist's exam on the same patients—as the “gold standard.”¹⁷

Voluntary Core Curricular Guidelines

One way to increase the likelihood that topics like oral health are systematically addressed in graduate medical education is by including them in national core curricular guidelines. However, compliance with guidelines is voluntary, and oral health content competes with many other subjects. This issue is particularly acute in family medicine, where the breadth of issues addressed is the widest of any medical specialty. At present, recommended curricular guidelines are published and regularly updated by the AAFP Commission on Education in 38 documents that are widely used.¹⁸ Oral health has been included in several of

them but never as a separate guideline. At present, all guidelines are under revision, and efforts are being made to include oral health more prominently. A separate free-standing guideline on oral health education was developed by STFM, originally for use in medical school clerkships, but has also been used in residency programs.¹³ In 2004, the Ambulatory Pediatrics Association (now the Academic Pediatric Association) updated its Educational Guidelines for Residency Training in General Pediatrics and expanded the dental section of the guidelines.¹⁹

Mandatory Residency Accreditation Requirements

The most effective way to ensure a topic is addressed during graduate medical education is for it to be mandated in the residency program accreditation requirements of the relevant residency review committee of the Accreditation Council of Graduate Medical Education. Although such requirements are broad in nature and subject to variation in interpretation and implementation, this important step was taken for family medicine on July 1, 2006. The mandate is a direct reflection of the growing realization of the importance of oral health to overall health following publication of the SGROH and came about through collaboration between members of the Family Medicine Residency Review Committee and the STFM Group on Oral Health. The final version of the requirements specifies “an adequately structured, hands on experience in ... oral health.”²⁰ Oral health education has not as yet been included among program requirements for graduate medical education in pediatrics.²¹

Residency Curricular Materials

Achieving consensus on the content and amount of time devoted to required topics in residency and continuing medical education programs is an evolving process. Four of the original HRSA project grants and several other foundation-funded efforts involving family medicine residency programs are currently documented in the traditional medical literature.^{7,8,10,11} Although these educational interventions varied in their scope, intensity, and rigor of assessment, all generally increased physician knowledge and improved practice patterns around oral health. In addition, all of the programs took steps to modify the flow sheets that drive the content of well-child visits to include oral health reminders.

Utilizing curricula developed through the HRSA grants at the Universities of Kentucky, Texas, and Washington, and the Connecticut foundation-funded projects, the STFM Group on Oral Health created a comprehensive national curriculum.²² This curriculum was released in October 2005 as *Smiles for Life: A National Oral Health Curriculum*, and an expanded second edition was released in July 2008. It covers the breadth of oral health in 7 PowerPoint modules, including the relationship of oral to systemic health, child oral health, adult oral health, oral emergencies, oral health in pregnancy, fluoride varnish application, and the oral examination. Pocket cards, PDA applications, posters, videos and patient education materials are also available. The

curriculum was initially released on CD to family medicine residency programs and allopathic and osteopathic medical schools, and subsequently via free internet download at <http://www.smilesforlife2.org>. Smiles for Life has been endorsed by the AAFP, and free continuing medical education credit is available.

As of August 2009, Smiles for Life materials have been downloaded more than 80 000 times and continue to be sought at a rate of over 1500 downloads per month. Smiles for Life materials are currently in use in most of the 460 family medicine residency programs in the United States,²³ at least 26 medical schools, and form the basis for statewide physician education programs in 9 states.

The widespread adoption of the Smiles for Life curriculum can be attributed to several factors, including the willingness of residency directors to implement oral health education for their residents if prepared curricula are available,²⁴ its easy Web-based availability at no cost, the inclusion of oral health into residency accreditation requirements, and the heightened awareness of the importance of oral health that has pervaded medicine since the SGROH.

A Web-based curriculum aimed at pediatric residency programs, Protecting All Child's Teeth: A Pediatric Oral Health Training, was released in June 2009 and is available at: <http://www.aap.org/oralhealth/pact/index.cfm>. Topics covered in 13 modules include oral health screening and risk assessment, caries process, fluoride and prevention, oral health of adolescents and children with special health care needs, oral injuries, oral pathology, and oral-systemic issues. Free continuing medical education credit is available.

EDUCATING PRACTICING PHYSICIANS

Modifying the established practice patterns of physicians can be challenging, but it is possible. Interactive techniques such as academic detailing and reminders or the use of multiple interventions have been shown to be more effective at changing physician behavior than the more commonly employed continuing medical education lectures or the distribution of print materials.^{25,26}

The most thoroughly examined practicing physician training program is the North Carolina-based Into the Mouths of Babies project.²⁷ The training consists of a standard 1-1/2 hour continuing medical education session that provides training on oral screening, parent education, fluoride varnish application, information on Medicaid billing, and both an oral health toolkit, and a fluoride varnish starter kit. Hundreds of pediatric and family medicine offices and public health clinics have participated, and providers have seen thousands of children. Evaluations of the program have noted an increase in access to preventive dental services for children, increased use of dental restorative services, and a reduction in the need for restorative treatment for the anterior teeth that increased with age.^{27,28} More than 3000 medical providers and their staff have been trained, and in 2008, 59 733 children under age 3.5 years received preventive dental services (M. Casey, personal communication, August 2009).

A second extensive oral health training program is the First Smiles project in California.²⁹ This program focuses on training both dental and medical professionals in the oral care of very young children. The medical professionals included pediatricians, family physicians, obstetricians/gynecologists, nurse practitioners, and residents. The project has reached over 2900 physicians, 490 residents, and 349 nurse practitioners or physician assistants. Medical professionals exhibited oral health knowledge gain after the training, though that knowledge level decreased over time. The medical providers also reported that the training increased their skills in recognizing disease, knowing when to refer, assessing risk, and providing oral health education and anticipatory guidance, and that they were able to maintain those skills over time. Evidence showed that medical providers were more likely to routinely refer children aged 5 years or younger to dental care.

Another well-documented innovative program in Washington State was led by the Washington Dental Services Foundation in collaboration with Group Health Cooperative, a large integrated delivery system.³⁰ Through a combination of training more than 24% of the state's pediatricians and family physicians, expanding access to dental care, and systemic policy change including reimbursement to physicians for oral health services, delivery of oral preventive services to children was substantially increased. Critical to changing the standard of care was creation of an efficient clinical, administrative, and business model.

In 2003, the AAP released a policy calling for pediatricians to perform an oral health risk assessment on all children by age 1.³¹ To train pediatricians to implement this policy, the Academy developed an oral health toolkit and preceptorship program.³² The toolkit consists of a PowerPoint presentation on caries risk assessment, a pretest and posttest, sample patient oral health brochures, and other resources. An updated, Web-based version of the training with free continuing medical education credit is available at (<http://www.aap.org/commpeps/dochso/oralhealth/cme/>). The preceptorship program brings a pediatrician, pediatric dentist, or both to an underserved community to provide oral health training. Continuing this process, in 2008 the AAP began training 66 Chapter Oral Health Advocates with funding from the ADA Foundation and the Maternal and Child Health Bureau (HRSA). These pediatricians function as oral health experts, offering training, establishing collaborative relationships with the dental community, and providing oral health technical assistance.

National Presentations

Oral health presentations in a variety of pediatric and family medicine venues have increased substantially since publication of the SGROH. Oral health sessions have been offered at the AAP annual National Conference and Exhibition since 2004. In 2008, oral health was the theme of the National Conference and Exhibition, Pediatrics for the 21st

Century half-day preconference. In 2009, there are more than 20 scheduled national presentations on oral health at family medicine meetings, including 5 at the AAFP Annual Scientific Symposium.

In 2008, the AAP hosted the National Summit on Children's Oral Health. The Summit brought together 125 national experts from leading medical, dental, and other organizations and federal agencies to discuss national progress in meeting the recommendations of the 2000 SGROH and to identify strategies to overcome barriers in accelerating children's access to oral health care services in the United States.

Use of Print Media

Journal articles can disseminate scientific information and help raise awareness of the importance of oral health. Since 2004, a number of articles on such topics as oral emergencies, child oral health, oral infections, common oral lesions, geriatric oral health, and oral health in pregnancy have appeared in *American Family Physician*, the AAFP review journal with a circulation of over 200 000.³³⁻³⁹ The journal is read by most family physicians and many other primary care clinicians. In addition, print-based continuing medical education products such as the AAFP Home Study Program⁴⁰ and Core Content Review of Family Medicine⁴¹ have included issues focusing on oral health. Other professional journals in pediatrics, nursing, and physician assistant practice have similarly included many oral health articles since 2000. The AAP Pedialink resource (<http://www.pedialink.org>) has focused on children's oral health, and an oral health audio presentation through the AAP PREP Audio series (<http://www.prepaudio.org>) was released in 2008. Projects under development in both pediatrics and family medicine include integrating oral health into quality improvement programs required for maintenance of board certification.

Academic Detailing

Academic detailing is an educational approach that involves bringing practical, clinically based information to physicians and their staff in their office practices, usually over lunchtime. Factors that encourage use of academic detailing include an evidence-based approach and high-quality handout materials. Factors that discourage use include office time limitations, difficulties in scheduling, and the use of nonphysician trainers.⁴² Physicians appear to respond best to knowledgeable trainers from their own specialty. This technique has been utilized by many of the most successful physician education initiatives.

Systematized Protocols

With the widespread adoption of paper-based templates for preventive care and more recently the rapid growth of electronic health records, the care that physicians provide is increasingly driven by care prompts. When oral health topics are introduced into those systems, such as in well-child care, high rates of topic incorporation into care delivery can occur.¹⁰ This is one of the most effective

ways of changing practice patterns and should be an area of future effort.

Achieving widespread national adoption through collaborations with electronic health record vendors may be initially challenging, as there are over 100 vendors and few common documentation standards. However, past experience with new products suggests that the market will consolidate over the next decade. Efforts focused on the vendors with the most significant market penetration may pay dividends. In addition, development of a nationally endorsed standard for documentation of history, examination, and preventive counseling through professional organizations such as AAP and AAFP, especially if it were provided to the electronic health records vendors in an easily incorporated format, could significantly speed widespread incorporation.

CONCLUSIONS AND RECOMMENDATIONS

1. **Mandated physician education.** Pediatricians and family physicians are well positioned to provide oral preventive care and screening. Oral health should be a required component of graduate and continuing medical education for pediatricians as it is for family physicians and should be included in board certification and recertification activities. Such requirements need to be instituted and supported by the relevant residency review committees, boards, and professional organizations.⁴³
2. **Quality teaching.** Existing and new curricula, programs, and oral health projects should be evaluated for their effectiveness in changing knowledge, attitudes, and behaviors. More attention needs to be paid to the science of education, identifying best practices and innovative approaches and encouraging their use, particularly in the continuing medical education of practicing physicians. Project leaders should be encouraged to publish their findings in the medical literature so that others can benefit from their experience.
3. **Quality of educational content.** The content of oral health educational programs should be consistent in content and high quality, reflecting the latest science, safe and effective clinical techniques, and appropriate anticipatory guidance.
4. **Outcome evaluation.** Although substantial energy is being invested in educating physicians at the local and regional level, little is known about approaches and outcomes outside local spheres of influence. Programs must be evaluated to assess their effects on the oral and overall health of the children they serve. Researchers, program developers, and funders should incorporate an evaluation component into each of these efforts.
5. **Medical-dental collaboration.** Closer relationships between physicians and dentists need to be fostered at each level of the educational continuum to promote the development of high-quality, evidence-based educational content as well as to assure favorable referral environments.

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