

Addressing Disparities in Children's Oral Health: A Dental-Medical Partnership to Train Family Practice Residents

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Abstract: Providing oral health care to rural populations in the United States is a major challenge. Lack of community water fluoridation, dental workforce shortages, and geographical barriers all aggravate oral health and access problems in the largely rural Northwest. Children from low-income and minority families and children with special needs are at particular risk. Family-centered disease prevention strategies are needed to reduce oral health disparities in children. Oral health promotion can take place in a primary care practitioner's office, but medical providers often lack relevant training. In this project, dental, medical, and educational faculty at a large academic health center partnered to provide evidence-based, culturally competent pediatric oral health training to family medicine residents in five community-based training programs. The curriculum targets children birth to five years and covers dental development, the caries process, dental emergencies, and oral health in children with special needs. Outcome measures include changes in knowledge, attitudes, and self-efficacy; preliminary results are presented. The program also partnered with local dentists to ensure a referral network for children with identified disease at the family medicine training sites. Pediatric dentistry residents assisted in didactic and hands-on training of family medicine residents. Future topics for oral health training of family physicians are suggested.

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Providing dental and oral health care to rural populations in the United States remains a thorny challenge. In states like Washington, declining numbers of dental providers compound the challenge of meeting the needs of an increasingly diverse population of residents, including immigrants looking for employment in agricultural areas. The large number of children and families in these communities and the shortage of dental providers mandate innovative approaches to preventing oral disease.

In September 2001, the Health Resources and Services Administration (Bureau of Health Professions) funded a cooperative agreement to address oral health disparities in children birth to five through education of family medicine residents and faculty

at the University of Washington (UW) Affiliated Family Practice Residency Network within the School of Medicine. The Interdisciplinary Children's Oral Health Promotion (ICOHP) project is a collaborative effort of the Departments of Pediatric Dentistry, Family Medicine, Medical Education, Biomedical Informatics, and Pediatrics. The project also partnered with local Access to Baby and Child Dentistry (ABCD) programs and the Yakima Valley Farmworkers' Clinic. This paper describes the rationale for training family practitioners to promote oral health in Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI), the ICOHP project's approach to training and partnering with community dentists, and preliminary educational outcomes.

Background

Disparities in children's oral health and access to care are a significant public health problem.^{1,2} Children experiencing oral health disparities are from poor and/or minority families³⁻⁵ or have special health care needs.^{6,7} The impact of untreated dental disease on children is substantial, and disadvantaged children are disproportionately affected.^{4,8-12} Despite the decline in caries rates achieved in recent decades with the use of fluorides, disease rates remain high in these populations.¹³

Since dental decay can start as soon as teeth erupt, to be effective, preventive oral health strategies need to target children early when transmission of oral bacteria from mother to infant commences and eating habits are established.¹⁴ Since infants and children are seen by their primary care (medical) providers frequently during the first two years of life, there is an opportunity for these practitioners to promote oral health and refer children for dental care.* However, primary care providers receive limited training in prevention of oral disease,^{15,16} while general dentists may not be trained to care for infants and young children.¹⁷ Pediatric dentists care for young children, but their small numbers (3,500 nationwide) make such services unavailable to most children. Although high-risk children usually have dental insurance through Medicaid or similar programs, the percentage of dentists participating in Medicaid is low, and only one in five children covered by Medicaid actually receives preventive dental care.¹⁸

Dental and public health associations such as the American Academy of Pediatric Dentistry, American Dental Association, and American Public Health Association have recommended a first dental visit at age one, and the American Academy of Pediatrics recently recommended oral health risk assessment by age six months.¹⁹ However, these early screening objectives cannot be achieved with the current ca-

capacity and training of the dental and medical workforces. Educational interventions that target training gaps will help medical providers promote children's oral health at an early age.

Meeting WWAMI Needs

The strategy of utilizing primary care medical providers to promote oral health is particularly necessary in rural regions where there are few dentists and even fewer pediatric dental specialists. The largely rural WWAMI region served by the UW Health Sciences Center has approximately 28 percent of the landmass of the United States. Barriers to access include areas of isolated and rough terrain, mountainous regions, and islands that pose weather and travel challenges. Many communities lack water fluoridation. The region's population includes groups at increased risk for oral health problems, including a sizeable Hispanic population, many migrant farmworkers, a large American Indian/Alaska Native population, and multiethnic urban immigrant communities. The U.S. Inspector General has reported low levels of dental access for children in WWAMI under Medicaid's Early and Periodic Screening, Diagnostic, and Treatment benefit (EPSDT),** and figures are even lower for the youngest children. Montana had among the lowest reported EPSDT pediatric dental utilization rates nationally (only 9 percent of children in Montana received a preventive dental visit). In 2002, Idaho's Medicaid/CHIP dental utilization rate was only 19 percent for children up to twenty-one years and 10 percent for children under age five.²⁰

Pediatric oral health data from WWAMI states reflect disparities comparable to or worse than national averages. A recent Washington State survey of 554 young children aged twelve to thirty-five months reported 14 percent with caries and 13 percent with untreated decay.²¹ The prevalence of decay

* Almost 90 percent of poor children have a usual source of medical care and 74 percent receive their immunizations, but only 22 percent of children under age six receive dental care. Vital and health statistics, CDC, July 1997. Medical expenditure panel survey. Research findings #7: use of health care services, 1996. Rockville, MD: Agency for Healthcare Research and Quality, May 2001. At: [www.meps.ahrq.gov/papers/7_99-0018/7.htm](http://www.meps.ahrq.gov/papers/7/7_99-0018/7.htm). Accessed: July 22, 2003.

** Early and Periodic Screening, Diagnostic, and Treatment benefit (EPSDT), the Social Security Act, Section 1905 (r). Although state programs may not carry out all the required components, by federal statute the EPSDT benefit includes oral health screening and referrals to dentists; all follow-up care; health education and anticipatory guidance for parents and older children; and assistance for families in scheduling and getting to appointments. The percentages of children accessing preventive oral health care in WWAMI are as follows: Washington 29.3 percent; Alaska 28 percent; Idaho 21 percent; Montana 9 percent; and Wyoming 43.4 percent. U.S. Inspector General. Children's dental services under Medicaid: access and utilization. San Francisco: U.S. Department of Health and Human Services, 1996. OEI 09-93-00240.

increased with age: 10 percent of the one-year-olds and 19 percent of the two-year-olds had a history of decay, compared with 8 percent of two-year-olds nationally from the NHANES III (1988-94 National Health and Nutrition Examination Survey).^{21,22} Disease rates and levels of untreated decay in Washington State have actually increased since a 1994 survey. There are disparities by race/ethnicity and household income. In Idaho, a 2001 oral health survey of elementary school children demonstrated disease rates and levels of untreated decay higher than the national average. Idaho data also highlight oral health disparities: almost 46 percent of elementary school children surveyed had caries experience compared with 72 percent of Hispanic children.^{13,23} Although statewide oral health surveys have not been conducted in Alaska, Wyoming, or Montana, high disease rates are reported in some areas. For example, in a random sample of sixty-five children twelve to thirty-six months old in Southwestern Alaska, 59 percent had experienced decay.²⁴

The WWAMI region has a disproportionately high number of dental health professional shortage areas (HPSAs). Collectively, WWAMI states hold 142 (WA=32; AK=32; MT=34; ID= 43; WY=1) or 11.9 percent of the 1,198 dental HPSA sites, but only 3.3 percent of the population (see <http://bphc.hrsa.gov/databases/newhpsa/newhpsa.cfm#toplist>). A Washington State Department of Health report states that dentists are retiring more quickly than they are being replaced and few are choosing to practice in rural areas.²⁵ There are counties in WWAMI where there is not a single practicing dentist. In Washington State, higher rates of dental disease and untreated decay correlate with counties that have the least access to dental care.²⁶ High disease rates and dental workforce discrepancies create an added impetus to deliver preventive services in primary care settings in the region.

Targeting Family Medicine Residents

The ICOHP project targets family medicine residents for a number of important reasons. A primary reason is the family physician's critical role in the healthcare safety net. In Washington State, approximately 82 percent of family physicians accept Medicaid reimbursement.²⁷ The Medicaid EPSDT mechanism for well-child care includes oral and den-

tal screening, anticipatory guidance (health counseling) for families, and further referrals as needed. In Washington and Idaho, Medicaid provides additional reimbursement for fluoride varnishes (about \$13).

In addition, family medicine's focus on maternal and infant care promotes targeting the origin of pediatric oral health problems, including transmission of cariogenic bacteria from mother to infant as well as parental attitudes, knowledge, cultural practices, and behaviors associated with oral disease. The family medicine setting provides opportunities to intervene with pregnant women whose oral disease may place them at increased risk for premature labor and low birthweight babies. Finally, this setting affords the opportunity to understand pragmatic, financial, and attitudinal barriers to the provision of oral health care when it competes with the multitude of other family health issues.

The ICOHP project partners with the UW Affiliated Family Practice Residency Network.²⁸ The network is part of the Department of Family Medicine, which has ranked first in family medicine and rural medicine in the nation for eight consecutive years.²⁹ The UW network consists of fifteen residency training sites in rural and urban areas across the WWAMI region, with more than 300 residents in training at any given time (see Figure 1). All residency sites serve predominantly underserved populations.

The network training system supports the primary care medical safety net in WWAMI. Approximately 71 percent of the 870 family medicine residents graduating between 1973 and 1999 practice in WWAMI (see Figure 2), 37 percent in communities with populations of less than 25,000.³⁰ About one-third of the graduates work at least 50 percent of the time in federally designated health care sites such as health professional shortage areas, community health clinics, medically underserved areas, and rural health clinics.

Of interest, 77 percent (132 out of 172 respondents) of family medicine residents graduating between 2000 and 2002 report that oral health is part of their current practice. Of these 132 graduates who provide oral health care, 56 percent report they were adequately or well prepared in oral health, and 44 percent said they were underprepared. Respondents who reported they were adequately or well prepared in oral health were more likely to be engaged in providing oral health care in their practice (Kim et al., unpublished data).

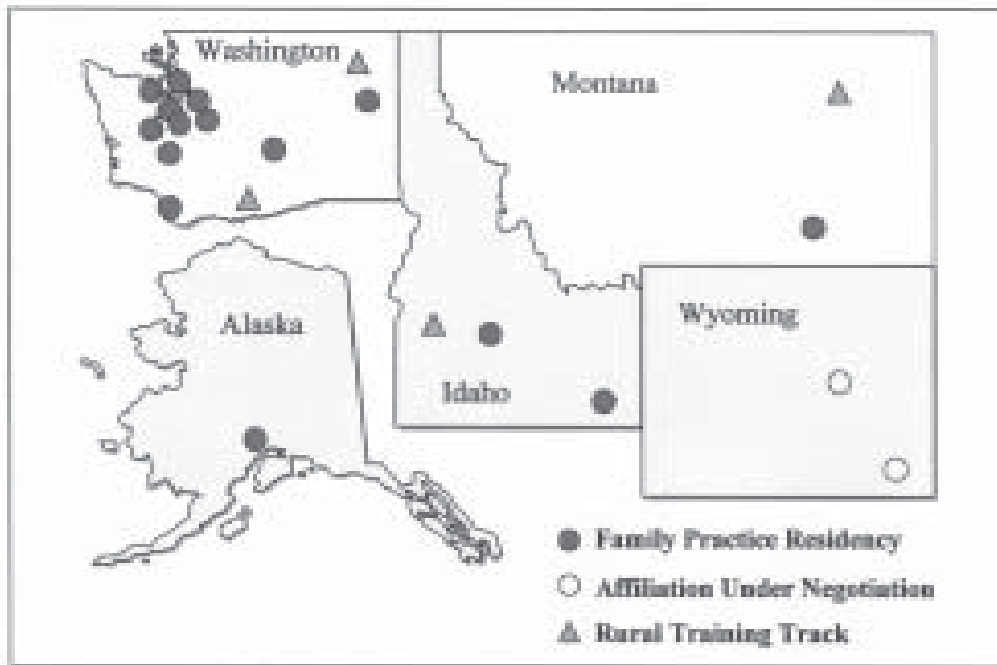
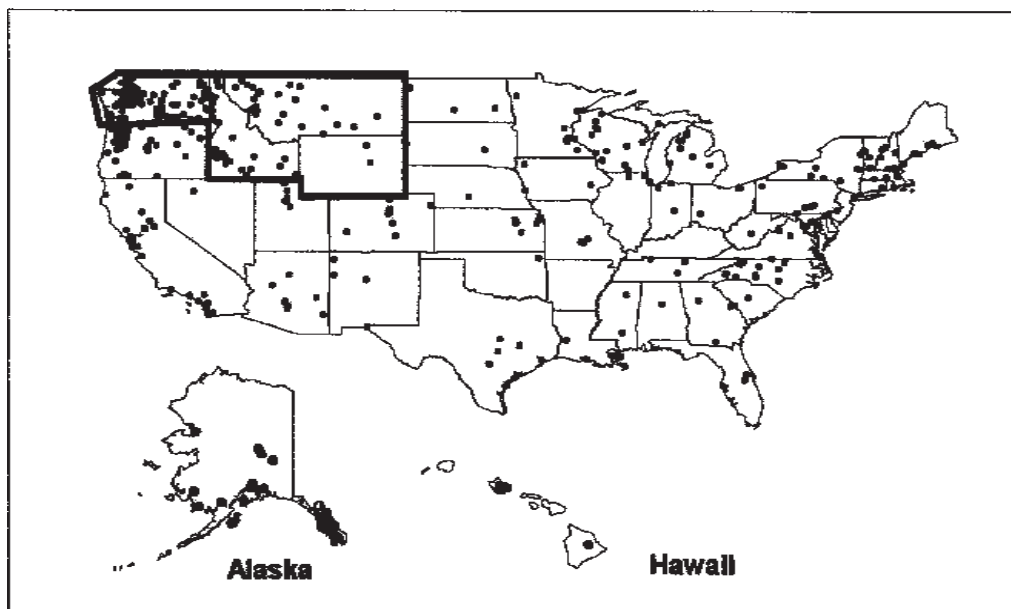


Figure 1. Geographical distribution of University of Washington Family Practice Residency Network Program



From a survey of 870 family physicians who graduated from the network between 1973 and 1999 (Kim, Phillips, Stevens, 2003). The bordered areas (Washington, Idaho, Montana, and Wyoming) and Alaska are the WWAMI states.

Figure 2. Practice location of graduates of the University of Washington Family Practice Residency Network

Training Strategy

Barriers to and Opportunities for Integrating Oral Health into Primary Care

The primary goal of the ICOHP project was to develop, implement, and disseminate culturally appropriate, evidence-based pediatric oral health curricula for family medicine residents and faculty targeting children age birth to five years and to evaluate the impact of this training on knowledge, attitudes, and behavior. We made three assumptions at the outset of the project:

1. physician buy-in (valuing oral health and their role in promoting it) would be the most important factor for integrating new curricular content,
2. development of a referral network with local dentists would be essential to keeping medical practitioners engaged in oral health, and
3. attention to practical details (billing, charting, ordering supplies, etc.) would be necessary to sustain oral health activities.

The ICOHP project commenced with focus groups and interviews with select family medicine faculty, residents, and staff who might be involved in the training and implementation. At the same time we identified “best practices” by contacting and reviewing similar projects around the country involved

Table 1. Barriers to primary care practitioner (PCP) involvement in children’s oral health

1. Many PCPs are unaware of the importance of oral health to overall health.
 2. PCPs are concerned about delivering more uncompensated care.
 3. PCPs and staff are busy, and oral health is not a high priority, even in well-child care.
 4. PCPs and staff identify a lack of knowledge and self-efficacy in oral health.
 5. PCPs are concerned about the evidence base for interventions such as fluoride varnishes and oral health anticipatory guidance.
 6. PCPs and staff are confused about their role in oral health.
 7. Some PCPs perceive that oral health is falling to them because the dentists are not doing their job; some are concerned about the ability to make dental referrals.
 8. There are logistical details related to billing, supplies, and recordkeeping.
 9. Not all dental providers are in favor of PCPs’ involvement in oral health.
 10. Dental professional associations recommend children receive dental care from dentists at or before age one year.
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in training medical providers in oral health. Through these qualitative activities, we identified potential barriers to and opportunities for implementing oral health curricula in the medical setting (summarized in Tables 1 and 2).

Curriculum Content

Based on the results of these discussions we developed five one-hour modules (listed in Table 3). Educational materials were geared towards addressing identified barriers and reinforcing positive themes. For example, Module 1 aims at increasing physicians’ motivation and desire to prioritize oral health care by stressing the impact of oral disease on children’s overall health and well-being, the extent of oral health disparities, the evidence base for oral health care, and the opportunity for physicians/nurses to help children and prevent disease. Examples of how physicians can promote oral health through community-based public health practice and cultural issues that interact with oral health are also presented. To overcome uncertainty about the role physicians can play in oral health, we emphasized integration of oral health information into those areas on which primary care practitioners already focus; these include nutrition/feeding practices, fluoride needs, anticipatory guidance, injury prevention, and management of simple dental emergencies.

Table 2. Opportunities for primary care practitioner (PCP) involvement in children’s oral health

1. Dental science supports preventing disease early when children are seen in PCP offices.
 2. Dental workforce shortages increase need for PCP involvement in preventive oral care.
 3. PCPs and staff are concerned about children in pain and health impact of dental disease.
 4. PCPs and staff want to be able to answer parents’ oral health questions.
 5. PCPs and staff are already involved in providing health education to families.
 6. PCPs and staff are aware of dental access problems for underserved populations.
 7. PCPs and staff are committed to underserved populations.
 8. PCPs and staff place a high priority on prevention.
 9. Residents in training have regular didactic hours and are used to learning new information.
 10. Residents in training may have fewer biases and less role confusion about “their job.”
 11. In some locales, dentists and dental societies have taken the lead in training PCPs.
 12. Primary care professional associations support the importance of children’s oral health for their constituencies and/or make information available on their websites (for example, the American Academy of Pediatrics, Washington State Medical Association, American Academy of Family Practice).
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Table 3. ICOHP project curricula

Module 1: Public Health Overview; Oral Health Promotion and Practice

Module 2: Normal Dental Development/Common Oral Pathology

Module 3: Dental Caries; Fluoride Varnish; Collaborating with Dentists

Module 4: Dental Trauma and Emergencies

Module 5: Oral-Systemic Health Interactions/Children with Special Health Care Needs

All modules were developed by an interdisciplinary dental-medical-educational team, with additional input from nursing, nutrition, and cultural anthropology. Modules are accompanied by learning objectives and pre- and post-evaluation questions. At each training site the curriculum was augmented with hands-on training in application of fluoride varnish. Residents were supplied with written copies of all modules and additional references. The curriculum was modified appropriately based on feedback following the pilot and subsequent trainings.

Residency Training Sites

To date the ICOHP project has provided training to five residency programs located in two states (see Table 4). Four residency sites are community-based and serve rural populations; one is university-based. Although each site functions independently, they are connected by an intranet system and have

regular meetings, faculty development activities, and scheduled didactic time for resident training.

We required that each residency site interested in our training identify a “faculty champion” who was responsible for working with us to address logistical arrangements, ensure resident attendance and completion of evaluation forms, and address pragmatic issues needed to translate the training into clinical practice. The same training was offered to all faculty and residents at each site, although the number of faculty attending the sessions varied widely across sites.

Development of a Referral Network with Dentists

We identified a critical need to locate dental practices and clinics ready to accept referrals from family medicine residents and faculty receiving the oral health training. One of our faculty members (Domoto), who had been involved with ABCD* programs in three of our targeted communities, contacted ABCD dentists prior to our trainings, and in some cases we met with dentists in person. Several of these practitioners were leaders in local dental societies. In all of the targeted sites, local dental practitioners became involved in the actual training of residents or faculty, including hands-on training for fluoride varnish application. Several dentists extended invitations to residents and faculty to provide additional training in their dental offices or clinics, and in at least one site such cross-training has occurred.

Table 4. Training characteristics of five University of Washington Affiliated Family Practice Residency Network programs receiving ICOHP training

Residency Training Site	Sponsor Institution	Number of Residents	Graduates to Date	Location	Emphasis
1	Community	18	76	Yakima, WA	Rural Underserved
2	Community	21	192	Spokane, WA	Rural/Urban Underserved
3	Community	21	53	Olympia, WA	Rural Small Town
4	University	24	178	Seattle, WA	Urban Underserved
5	Community	27	160	Boise, ID	Rural Underserved

*ABCD (Access to Baby and Child Dentistry) programs are collaborations involving local dental societies, Medicaid, local health departments, and the University of Washington. In this program, general dentists receive special training and agree to accept referrals of Medicaid-eligible infants and children. Health departments assist with case management to help children and families access dental care. The Washington Dental Service Foundation has provided additional funding for these projects. Milgrom P, Hujuel P, Grembowski D, Ward JM. Making Medicaid child dental services work: a partnership in Washington state. *J Am Dent Assoc* 1997;128:1440-6.

At one site, tensions were noted initially between dental practitioners and medical residents. In particular, dentists' complaints about low Medicaid reimbursements prompted little sympathy from primary care practitioners serving the same population at low levels of payment. Those tensions appeared to diminish as physicians had increased contact with community dentists and as the referral system became operational. The age and criteria for dental referral were agreed upon at each site by dental and medical practitioners. In some cases, referral of all infants at age one was rejected because it would overtax the limited number of participating dental providers, and it was recommended that only children at high risk or with disease be referred; in other settings, dentists were willing to see most young infants. It was notable that this national controversy produced little conflict at the local level. On the other hand, referral of dental emergencies off-hours or when dental offices were closed was never satisfactorily addressed. Few communities have organized systems to share calls for dental emergencies; this remains a critical need. In general, there was tremendous synergy from bringing together dental and medical practitioners to address the common problem of children's oral health.

Finding Innovative Collaborations

In one site a concurrent HRSA grant, which places pediatric dentistry residents at a community-based clinic (Yakima Farmworkers' Clinic), enabled us to situate a pediatric dental resident on site with family medicine residents and faculty one afternoon a week. This joint learning experience was continued over a six-month period during which three pediatric dental residents were able to participate. We also engaged pediatric dental residents in all didactic trainings, which they valued and family medical residents appreciated (see instructors' ratings below). In one community where no ABCD program currently exists, local dentists, practitioners, and public health officials utilized the family medicine training to convene a meeting to discuss development of a community system of care. At one site, dentists from a nearby military base joined discussions and volunteered to assist in training.

Educational Evaluation

The evaluation component of this project was not designed as a research protocol, but rather to as-

sess educational interventions and carry out continuous quality improvement. During the initial pilot we developed tools for assessing knowledge and attitudes and for trainee assessment of module content and instructor effectiveness. To date we have trained eighty-one residents and faculty members at four sites (not including the pilot site). The following summarizes what we have learned to date.

Knowledge

Participant knowledge was assessed using a fifty-two-item, multiple-choice examination with items representing content from each of the five modules of the curriculum. Attendees completed the test prior to the first training episode, at the conclusion of Modules 1 through 3 and again after Modules 4 and 5 (usually given on two different days). Thus far all sites have received Modules 1, 2, and 3, but only two have received Modules 4 and 5. The attendees scored on average 55.6 percent on the pre-test (range: 46.9 percent-58.4 percent) and 73.2 percent on the post-test (range: 72.5 percent-74.8 percent), with a gain score of 17.6 percent that was found to be statistically significant ($p = 0.0001$), even though not all had received the complete curriculum. The highest gain score was attained on test items covering caries process, anticipatory guidance, and risk assessment in Module 3 (mean: 11 percent, range 9.2 percent-15.4 percent, $p = 0.0001$).

We anticipate the average post-test score (73.2 percent) will rise after Modules 4 and 5 are delivered to the remaining sites; however, we also anticipate attenuation of knowledge with time, which could modify that effect. Competing clinical needs could also interfere with effectiveness of training. Although didactic time is set aside for this training, some residents leave to answer pages and must miss sessions or portions of them. Despite these flaws, we observed knowledge gains across time.

Attitudes and Self-Efficacy

To date we have complete pre-test data on attendees' attitudes and self-efficacy in three categories of oral health care; we have not completed post-testing of attitudes and self-efficacy.

Three different Likert scales were used for assessing attitudes and self-efficacy. First, we asked the attendees to rate the importance of covering selected topics in a well-child exam of a child under six years of age (scale: 1=not at all important to 7=very important). Prior to training, the attendees

rated prevention of cavities (mean=5.8) and need for fluoride supplements (mean=5.3) lower than other topic areas including growth and nutrition, child development, and car seats and seat belts (mean=6.5). The largest variability in rating across training sites was observed in the need for fluoride supplements based on the rating of 4.0 from a major metropolitan training site and 6.1 from a rural small-town training site. The presence of community water fluoridation in metropolitan areas and its absence in rural areas may influence residents' perceptions of the importance of assessing the need for fluoride supplements.

Second, the attendees rated the level of confidence in providing care in fifteen areas including seven oral health topics (scale: 1=not at all confident to 5=very confident). The attendees rated their confidence level as 3.5 and below on all oral health topics with the following topics rated below 3.0: demonstrating appropriate tooth brushing (2.9); identification of early tooth decay (2.5); understanding normal dental eruption patterns (2.4); and application of fluoride varnishes (1.4). We note that attendees from a rural underserved training site rated their confidence in identifying the need for fluoride supplements the highest at 4.1.

Lastly, the attendees indicated the level of agreement with statements pertaining to six oral health care areas (scale: 1=strongly disagree to 5=strongly agree). These areas included the following items: 1) I have adequate time during each well-child visit to fully provide oral health care screening and services; 2) I am effective in teaching families about oral health promotion; 3) most of my patients understand the oral health guidance that I provide; 4) most of my patients implement the oral health guidance that I provide; 5) I collaborate with dentists on patient care; and 6) my patients who need to see a dentist can obtain a timely appointment. Attendees rated on average 2.5 on these items (range: 2.2-2.8).

Course/Instructor Ratings and Behavioral Changes

All training to date has been provided by three UW faculty and four UW pediatric dentistry residents. The attendees reported the quality of the course and instructors as very good (5.3) on a 6-point scale from very poor to excellent. They also reported that course content was appropriate to their level of knowledge. Seventy percent of the attendees noted

that they would use the didactic materials if made available on the web in the future. Residents generally preferred technical skills development over didactic presentations. Instruction by peers (pediatric dentistry residents) was particularly well received.

We have laid the groundwork for detection of changes in provision of oral health care. We will use changes in physician Medicaid billings for fluoride varnish from these clinics as a proxy measure for sustained physician involvement in provision children's oral health care. The yearly Family Practice Residency Network follow-up surveys will allow us to assess recent graduates' involvement in providing oral health care after residency training. We plan additional follow-up with the faculty champions at training sites to assess the sustainability of the oral health training and practice after this funded program ends. We believe the continuation of at least modest reimbursement for fluoride varnish will be an important factor.

Additional Observations and Comments

Additional themes were raised by post-training interviews with residents and faculty and in the open-ended comment section of questionnaires. Initially, residents and faculty expressed skepticism regarding the role of family physicians in the provision of oral health care. With time, these kinds of comments have become infrequent. Nor have we observed further tensions between dental practitioners and medical residents or faculty during training sessions. There has also been increasing interest in this elective oral health curriculum within the network itself. Initially, a single residency program offered to be the pilot site out of a total of fifteen sites; to date we have had inquiries from eight sites and have begun or completed trainings in five (including the pilot site).

Although this endeavor has focused on pediatric oral health care, family medicine residents expressed interest in similar content for adults. More information was requested on dental emergencies, oral cancer screening, maternal oral health, and adult oral-systemic interactions. Of note, residents also asked questions about dental access for their patients not covered by ICOHP and ABCD projects (which target children under six years).

An area of concern for us is the small numbers of faculty who were present at some training ses-

sions. Due to high economic pressures on these primary care clinics, faculty often continue seeing patients during residents' didactic sessions. Ideally a "critical mass" of faculty beyond the faculty champion should be present to support continued resident involvement in oral health.

There are areas of importance we have not addressed in evaluating our training, including parental acceptance of oral health screening and varnishes in the primary care setting (although we have not heard of negative responses from parents to date) and measurable changes in oral health outcomes in children served by these practices. A major limitation of this educational project is that we have had no control sites.

Summary and Recommendations

In response to disparities in oral health and access to dental care for children in the WWAMI region, a dental-medical-educational team created an extended curriculum in pediatric oral health for family medicine residents in community-based training programs. Gains in knowledge were demonstrated after didactic and hands-on training sessions, and baseline attitudes and self-efficacy in oral health care were measured. Documenting that the training experience translates into increased oral health activity in post-residency clinical practice remains the outcome of interest. This determination awaits longer-term data from Medicaid billings and residency follow-up surveys.

Collaboration with dental practitioners at the community level is important to ensure that children with identified disease can access needed care. Once past the initial buy-in and training, we believe longevity of residency involvement in oral health will depend upon creation of smooth systems for delivering oral care in a busy clinic, a working referral network, and financial reimbursement. Currently the only states reporting active fluoride varnish programs are those that include at least a modicum of reimbursement.

Additional adult oral health topics of interest to family medicine residents have been identified. A critical area for future community problem-solving is the need for adequate arrangements for dental emergencies during off-hours and adequate dental

safety nets for children over six years and the elderly. We believe dental-medical collaborations at the community level can build on successes in the area of young children's oral health to develop solutions to handle other vulnerable populations. In each case, educational institutions have a key role to play in developing training programs and modeling collaborative dental-medical relationships.

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