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Filling the Cavities Between Children and Oral Health

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BACKGROUND

Oral health care is the greatest unmet health need in American children.[1] According to former Surgeon General David Satcher, "Tooth decay remains the single most common chronic disease of childhood—5 times more common than asthma."[2] Greater than half of all children have dental caries by mid-childhood.[1]

The American Association of Pediatric Dentistry (AAPD) recommends the first dental visit at 1 year of age with 2 check-ups per year.[3,4] In a review of the 1999 National Survey of America's Families, while nearly one quarter of children were not seen for their recommended well-child visits, almost half did not receive their recommended dental visits.[3] Furthermore, socioeconomic disparities contribute to oral health problems. The National Survey of America's Families found that one third of children from low-income families received no dental care during the previous year.[5] The survey demonstrated several predictors of poor oral health, including family income and education level of the primary care giver.[3] Children from low income families were 2-5 times more likely to have caries than those in high income groups.[6] Children whose primary care giver had not completed high school were nearly 11% more likely to have had no dental visits.[3]

Compounding the problem, oral health demands exceed the supply of pediatric dentists in the workforce. Of all dentists, less than 3% are pediatric specialists and for every 15 pediatricians there is only 1 pediatric dentist.[2] Not only is there a shortage of pediatric dentists, but also a lack of dentists who take Title-19 (Medicaid) or Title-21 (State Children Health Insurance Program), especially in underserved neighborhoods. Only 10% of dentists nationwide are Medicaid providers.[1] Dentists correlate the limited workforce to inadequate reimbursement rates as well as the financial burdens of missed appointments.[2] Pediatricians and other primary care providers see more than 75% of all children for health maintenance visits, which provides an opportunity to promote greater awareness of oral health.[3] However, many pediatricians lack knowledge to promote oral health due to limited graduate medical education on oral health prevention and poorly developed practice guidelines in performing dental evaluations.[6]

Poor oral health has significant consequences, affecting children's speech, nutrition and growth, social interactions, and self esteem.[1] Oral disease also affects school performance: children with dental problems lose an estimated 52 million school hours annually.[5] Ultimately, untreated oral disease may affect economic productivity and quality of life.[1]

In 2003, 4 pediatric residents from Children's Hospital of Wisconsin and the Medical College of Wisconsin Department of Pediatrics partnered with a community-based organization, The Next Door Foundation, to address unmet oral health needs. The Next Door Foundation (NDF) is a child-centered and family-focused agency in central city Milwaukee that offers early childhood education for children ages birth to 5 years, family literacy programs, and parenting education. In the area where NDF is located, 67.3% of children live below the poverty level, 50.6% of the individuals age 25 and older have neither a high school diploma nor GED and 32% of the adults in the area are unemployed.

In addressing unmet oral health needs at NDF, the residents discovered that out of 207 children needing dental exams as part of their Head Start health screening, only 98 children had been examined. Of the children receiving examinations, 45 needed additional dental treatment. However, none of these children had received the needed interventions.

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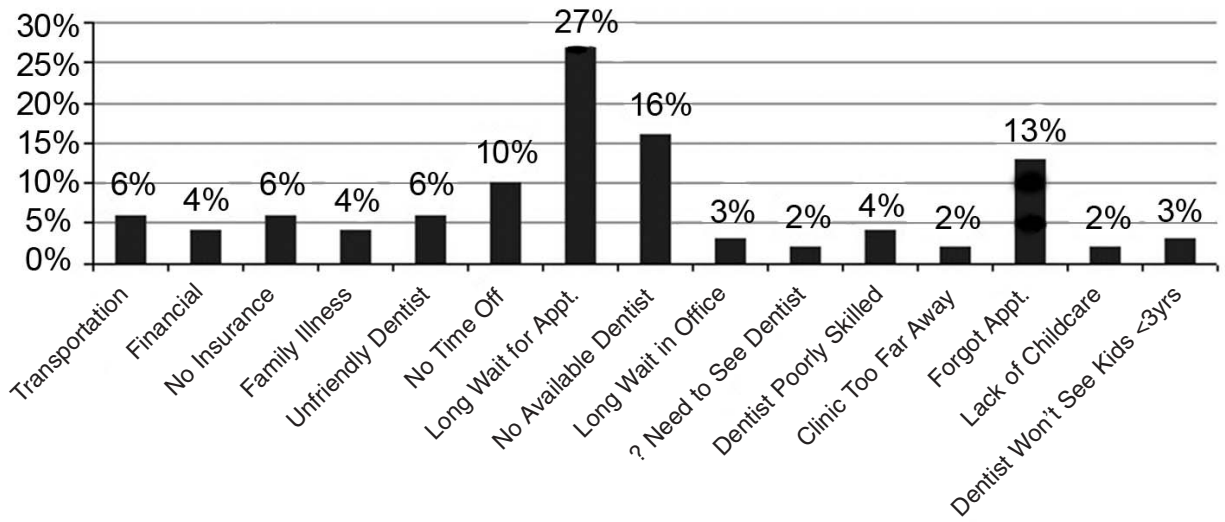

Figure 1. Parent-reported barriers seeing dentist, N=68.

OBJECTIVES

- To explore barriers to adequate dental care of children at the Next Door Foundation
- To increase parental and teacher awareness of proper oral hygiene through education
- To advocate for improved access to oral health prevention and treatment.

METHODS

To address objective 1, explore barriers to oral health, we conducted focus group interviews with parents, identifying their knowledge of oral health practices and their difficulties in accessing dental care. After obtaining approval from the Children's Hospital of Wisconsin/Medical College of Wisconsin's Institutional Review Board, we administered an anonymous, self-administered survey to a convenience sample of 100 parents at NDF. The survey identified the age of the child, time since the child was last seen by a dentist, and frequency of dental visits. Parents were asked how often they thought a child should be seen by a dentist and about their home oral health practices, including whether the child goes to bed with a bottle, quantity of juice and soda the child drinks per day, and the frequency of brushing at home. We identified whether or not the family had dental insurance and if the parent understood what services were covered by their health insurance. The parents were asked to circle problems they felt prevented their children from seeing the dentist amongst a list of potential barriers (Figure 1). The waiting period for an appointment to obtain routine dental visits as well as an emergency visit was also assessed. In addition, we identified children who had required care in the emergency department for dental problems. Finally, parents were asked to provide ways in which dental care provided to their children could be improved. Subsequently, we conducted a phone survey of dentists within the ZIP code where NDF is located to identify Medicaid acceptance and the availability of the dentist to care for children under the age of 3 years.

To address objective 2, increase awareness through oral health education, we held an oral health workshop with parent educators, individuals who go into homes to assist with parenting skills. During this session we advised them on proper oral hygiene practices and instructed them on identifying signs that warrant immediate dental evaluation. Incentive tools such as oral health tips, activity pages, sticker charts, and certificates were provided to parent educators and teachers at NDF.[7] We then reviewed the Head Start medical examination form for oral health assessment designation and dental referrals as indicated.

To address objective 3, advocate for children's oral health, residents and the NDF joined a coalition known as the Children's Health Alliance of Wisconsin (CHAW) to obtain guidance in the development of their project at the Next Door Foundation. Established in 1994, CHAW is dedicated to collaboration, education, and advocacy. In fact, CHAW has been a leader in the oral health access movement in Wisconsin since 1997 and continues to facilitate the ongoing efforts of needs assessment, coalition building, program development, and policy development to increase access to oral health care and improve the oral health of Wisconsin's children and families. They have partnered with the Wisconsin Division of Public Health in the Healthy Smiles for Wisconsin project funded by the Centers for

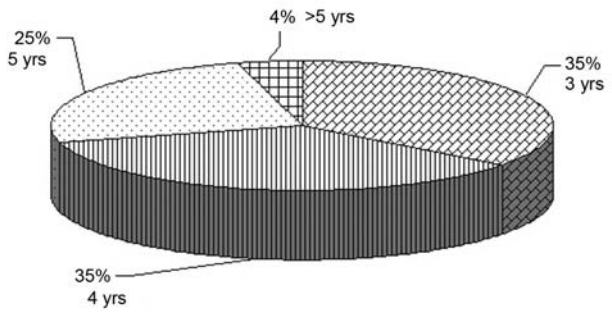

Figure 2. Age distribution of children, N=68.

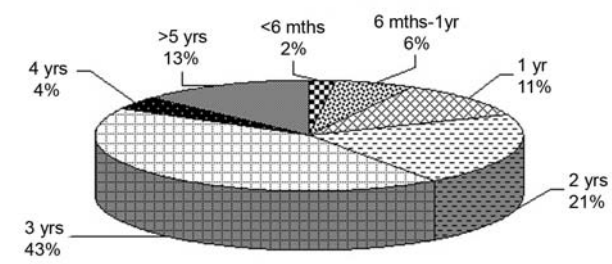

Figure 3. Age when first seen by dentist, N=68.

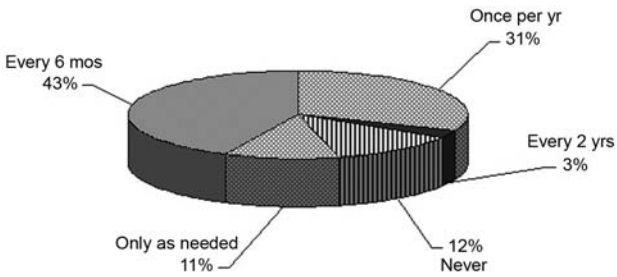

Figure 4. How frequently does your child see the dentist, N=68.

Disease Control and Prevention (CDC) grant awarded to the Wisconsin Department of Public Instruction (DPI) and Wisconsin Department of Health and Family Services (DHFS) from 1999 to 2003. Specifically, Healthy Smiles addressed surveillance, data collection, dental sealant programs, oral health education, and coalition building as a statewide effort to improve the oral health of Wisconsin children through school and community partnerships.

Finally, we initiated a letter writing campaign to community dentists to address the current need for improved access and advocated for their acceptance of Medicaid patients. Residents met with the Wisconsin Chapter of the American Academy of Pediatrics (AAP) to request that they facilitate the leadership role in dental screening and fluoride varnishes in primary care practice as well as promote the implementation of Continuous Medical Education (CME) on dental care. We strongly advocated having the Wisconsin Chapter of AAP lead in supporting the incorporation of dental care training into graduate medical education for pediatric residency programs. In addition, we encouraged the Wisconsin Chapter of AAP to advocate with the AAPD for greater dental access for all children.

RESULTS

Objective 1

Parents who participated in the focus group viewed barriers to obtaining dental care to include long waiting times for appointments, over-booking and long waiting periods during their appointments, difficulty in arranging transportation, taking time away from work, lack of dental insurance and lack of understanding of the importance of dental screening and preventive measures.

The completion rate of the anonymous, self-administered survey by parents at NDF was 68%. The age distribution was as follows: 35% were 3 years, 35% were 4 years and approximately 30% were 5 years or older (Figure 2). Forty-three percent (43%) of parents reported that their child's first dental visit was at 3 years of age and not at the recommended 1 year of age (Figure 3). Although 43% of patients saw the dentist every 6 months, 11% saw the dentist only as needed and 12% had never seen the dentist (Figure 4). A majority of the children (52%) had seen a dentist within the last 6 months and 18% had seen the dentist within the last year.

In evaluating oral health practices, almost all (98%) parents reported that their child does not go to bed with a bottle. All of the parents stated that their child brushes his/her teeth at home. Seventy-one percent of children brushed twice a day and 25% of children brushed once a day. The survey revealed that 9% of the children drank more than 20 ounces of juice or soda per day, 22% drank 10-20 ounces, 42% drank 5-10 ounces and 27% drank less than 5 ounces of juice per day.

Of those surveyed, 94% had dental insurance coverage. However, only 71% of parents were aware of what benefits were included with this coverage. In the survey population, parents viewed the largest barriers to seeing a dentist as the long waiting time for an appointment, lack of an available dentist, forgotten appointments, and difficulty in taking time from work to attend the appointments (Figure 1).

When asked how dental care provided to their chil-

Table 1. Phone Survey Availability of Dental Services (N=7)

Clinic Site	Medicaid Accepted	Emergency Visit	Waiting Time for Routine Dental	Will See Children Under 3 Years Old
1	Yes	24 hours.	2-3 weeks	No
2	Yes	Same or next day	2-3 months	No
3	Yes	Assessed on daily basis	2 months	No (will see >2 yrs)
4	Yes	Screened by dentist	10 months	Yes
5	Yes	Within 2 days	6 months	Emergencies Only
6	No		4-6 weeks	No
7	No	1-2 days	1 week	Yes

dren could be improved, parents reported more flexible and convenient scheduling with a shorter waiting time for an appointment, a friendlier dentist who is thorough and explains dental procedures to children in a manner they can understand, and more affordable care with more lenient payment plans.

After completing the survey of parents, we conducted a phone survey of local dentists to identify Medicaid acceptance rates of dentists in the greater metropolitan area. Out of the 7 practices that were willing to respond to our phone survey, 5 accepted Medicaid insurance and had a waiting period for routine dental services ranging from 1 week to 10 months. Only 1 of the 2 dental practices that saw children under the age of 3 years accepted patients with Medicaid (Table 1).

Objective 2

We discovered that the NDF Head Start medical providers' documentation form did not include assessment of oral health on its routine physical examination form. Thus, the form was revised to include documentation of the child's oral health status and space for indication of a dental referral.

Objective 3

We partnered NDF with CHAW, who in turn applied our survey data to support oral health legislation. As a result of the mutual interest in children's oral health, both organizations continue to work together in providing oral health education to parents and fluoride varnish to the children of the NDF.

The pediatric residency program at the Medical College of Wisconsin has partnered with the pediatric dentistry residency program to implement an educational training program for pediatric residents in oral health risk assessment and fluoride varnish application.

Wisconsin Governor Jim Doyle announced in February 2004 that the state would authorize physician reimbursement under Medicaid and BadgerCare insurance programs for applying fluoride varnishes. Fluoride varnish, a caramel color semi-liquid, is painted on to teeth and slowly released to the tooth surface over time. The decision to use fluoride varnish application should be child specific, guided by a child's risk assessment for oral disease.[8,9] Fluoride varnish for moderate and high risk patients can be applied for children younger than 5 years of age.[9,10] Whenever oral health risk assessments suggest treatments, fluoride varnish should be applied at least 2-3 times a year for effectiveness.[11] Some clinicians recommend application upon tooth eruption in high risk populations for greater anticariogenic effect.[9] However, precaution must be taken in young children to prevent fluoride ingestion. The benefits in preventing dental caries have been demonstrated in clinical trials, with a reduction of caries ranging from 18% to 70%.[12,13]

DISCUSSION

The AAPD recommends establishment of a dental home by age 1 year.[4] However, due to the shortage of pediatric dentists, it may be difficult for some children to attain this goal. Children who are uninsured, or are insured by Medicaid, are at greatest risk for dental disease. This shortage then leads to long waiting times for appointments or requires families to travel long distances to have access to a dentist who will provide care to children with Medicaid. For families living in underserved areas, whose lives are compounded by stress such as a lack of shelter or food, an appointment scheduled far in advance may be lost and thus lead to missed appointments.

The AAPD also recommends assessment of oral health risk by a health professional beginning at the age of 6 months.[4] Due to the impact oral health has on overall health and well-being and because we have greater access to these children, as primary health care providers, we are in a unique position to serve as the first line of defense for children against dental disease. We can perform careful oral exams during routine physicals, assess a patient's risk of developing oral disease, provide education on proper oral hygiene and nu-

trition practices, and evaluate and optimize fluoride exposure.[4] To aid primary care providers in this role, the AAPD has developed a Caries-risk Assessment Tool (CAT).[14] The CAT places children in low, moderate, or high risk categories based on evaluation of clinical conditions such as carious teeth, enamel demineralization, and visible plaque; environmental characteristics including fluoride exposure, diet, caregiver socioeconomic status, and frequency of obtaining dental services; and general health status.[14]

We anticipated the results of our survey would demonstrate that the majority of children visit the dentist infrequently or only as needed and we anticipated poor oral health practices in the home. Fifty percent of children assessed for oral health need at NDF had not received treatment. Accessible preventive oral health care through the dental workforce is quite limited for this population. However, the majority of parents knew that a dentist should see their child every 6 months and 43% of the children met these AAPD guidelines. Oral health practices in the home overall were reported to be quite good, although there is room for improvement and earlier assessment indicated a significant number of children who were assessed in this low-income community for dental care needed oral health interventions. While all children were reported to brush their teeth at home, only two-thirds brush twice a day. Although almost none of the children went to bed with a bottle, only one-fourth of the children drank less than 5 ounces of juice or soda a day, which might contribute to caries prevalence in this population. Experts have recommended that children's consumption of fruit juices should not exceed more than 8 ounces per day and only then to be consumed with meals. Otherwise, excessive consumption of juice puts a child at greater risk for dental caries. Limitations of the study suggest that because this was a self-administered survey, the parents who completed the survey may be more concerned about oral health care for their children as they were self-selected. The parents' overall knowledge of dental health practices may also reflect the health education programs held at NDF.

FUTURE CONSIDERATIONS

Our pediatric residency program will continue to build upon the relationship established with the pediatric dentistry residency program to enhance the knowledge of oral health screening and prevention. We will advocate for continuing medical education within communities to address oral health.

- It would be interesting to evaluate the influence of our letters on the practices of community dentists in accepting Medicaid patients.
- Through the Health Care Safety Net Amendments Act, approved in 2002, states have been provided grants to create programs to expand the workforce of dentists in Health Professional Shortage Areas (HPSA). These funds may be used for scholarships or loan repayment programs to promote dentists serving these communities.[15]
- School-based dental programs may be a method to improve access to care. Children and families would no longer need to travel long distances to access care, nor would parents need to arrange transportation or take time away from work for their child's appointment. A study on school-based health care demonstrated (unrelated to insurance status) that children attending school with a health center were more likely to obtain dental and medical services and less likely to utilize hospital emergency department services.[16] A dental clinic staffed with a dental hygienist at NDF would provide children with preventive care and oral health risk assessments needed while complementing the established on-site pediatric medical clinic.

Finally, this project demonstrated the potential positive impact that pediatric residents can have through involvement in community-based activities. We found that we were able to find complimentary relationships between the needs and assets of community-based organizations and the interests and abilities of pediatric residents. Thus, if there is a health topic that pediatricians feel passionate about, there is likely an organization within the community who shares that same passion.

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