

Early Preventive Dental Visits

The American Academy of Pediatric Dentistry¹, American Dental Association², American Public Health Association³ and the American Academy of Pediatrics⁴ currently recommend that all children have their first dental visit during the first year of life, yet some still challenge the clinical, theoretical and scientific rationale for an early dental visit. Many can agree that providing early care to infants and their families offers an opportunity to educate and inform parents about their children's oral health. In dental anticipatory guidance, caregivers are given counseling in infant oral hygiene, home and office-based fluoride therapies, dietary counseling, caries risk assessment and information relative to oral habits and dental injury prevention.¹

Waiting has Many Consequences

Unbelievably, dental caries in children is the most prevalent disease of childhood, occurring 5 to 8 times more frequently than asthma.⁵ National surveys report that 41 percent of children aged 2 to 11 years had dental caries in their primary teeth and 42 percent of those aged 6 to 19 years had caries in their permanent teeth.⁶

Dental disease in children can lead to serious general health problems and significant pain, interference with eating, overuse of emergency rooms, and lost school time.⁷ Jackson and colleagues⁸ report that school age "children with poor oral health status were nearly 3 times more likely (odds ratio=3.89; 95 percent confidence interval=1.96, 7.75) than were their counterparts to miss school as a result of dental pain. Absences caused by pain were associated with poorer school performance ($P<.05$), but absences for routine care were not." Dental disease can also have systemic effects and can even result in death.⁷ There are several established links that have been found between oral infections and diabetes, heart disease, stroke, and pre-term low birth weight babies. In addition to the connection between oral and systemic health, oral health strongly influences quality of life and general well-being.

To date, programs to alleviate the dental disease burden in children have focused on a treatment and/or restorative approach. The credentialing of a "midlevel" provider is one concept that has been suggested by some as a proposal to address this crisis. Much debate has occurred as to the value of a new type of "midlevel" or "expanded function" nonden-tist provider. Some research indicates that dental therapists can provide an acceptable level of restorative dental services.⁹ It's interesting to note that many countries, including Aus-

tralia, New Zealand, Canada and the United Kingdom, have employed an alternative dental provider model and none report improved dental health of young children. In addition, some have proposed training more dentists to add capacity which might be devoted to children. Again, this solution may be inadequate as few general dentists see children at an early age.¹⁰ This is a testament to the difficult nature of providing treatment and adequate access for young children. Due to the preventable nature of the condition, an early dental visit remains the best strategy for in reducing dental disease.





Rationale for Early Preventive Visits in Medicine

In medicine there are numerous examples of the cost effectiveness of early prevention. Folic acid supplementation beginning before conception and continued for the first 10-12 weeks can result in dramatically fewer neural tube defects among infants and the cost reductions are immense.¹¹ Prenatal care also is accepted as an effective tool to reduce health care costs and improve both maternal and infant health. Mothers who do not receive prenatal care are almost three times as likely to have a low-birth-weight infant as mothers who did.¹² A few studies have shown that for every dollar spent on prenatal care, the health care system saves between \$2.57 and \$3.38 on the medical cost of care to low-birth-weight babies.^{13, 14} Like well-child medical vis-

its, one of the cornerstones of the infant dental visit is to prepare parents and caregivers for future age-specific needs and dental milestones. With early and timely intervention, it may be possible to reduce or eliminate future dental caries which in turn should reduce dentally-related costs.

Rationale for the Cost-Effectiveness of Early Dental Intervention

Early dental visits should be expected to reduce the child's future dental risk leading to improved oral health and reduced oral health costs. Because untreated dental disease increases in severity and necessitates more extensive and costly treatment secondary to postponing care, timely intervention has great potential to reduce overall costs associated with dental treatment in preschool children. White and colleagues examined the use of the operating room and compared visits for two conditions: otitis media and dental caries in otherwise healthy children under age 5.¹⁵ The number of otitis media visits per 1,000 children decreased slightly during a five-year period. In comparison, the rate of dental visits increased by 43 percent (Figure 1).

Rates of Dental and Otitis Media

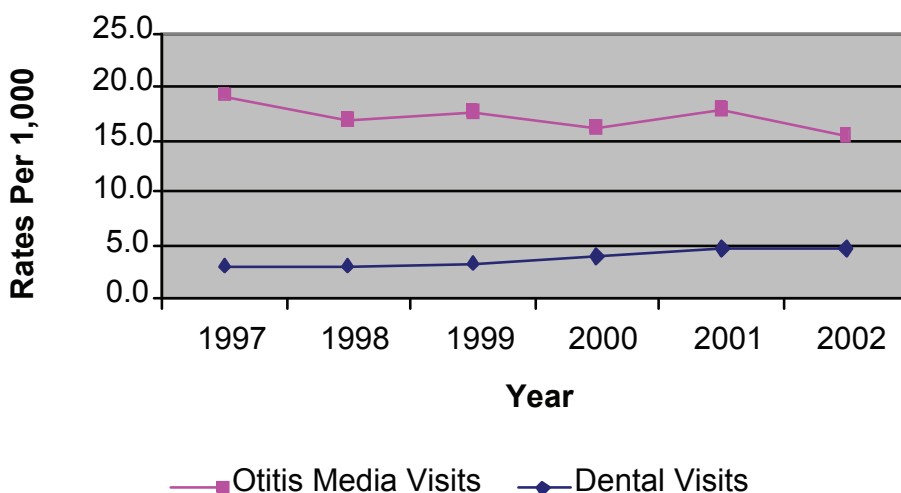


Figure 1: Trends in Operating Room Visits for Dental Treatment versus Treatment for Otitis Media During 1997-2002

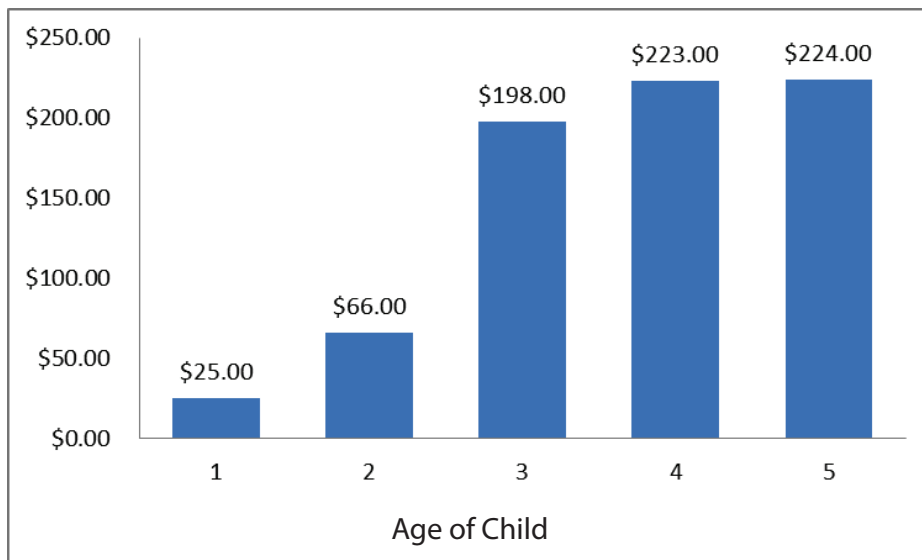


Figure 2: Average dental costs for children aged 1-5 from 1992-1997

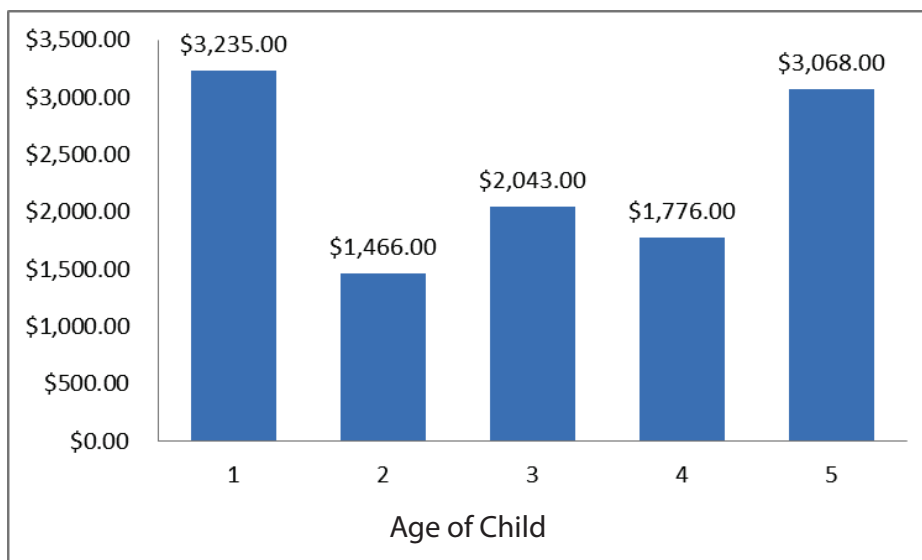


Figure 3: Average related cost for dental treatment in the hospital/operating room setting for children aged 1-5

Reports that examined Iowa Medicaid children less than age 6 treated for early childhood caries in the hospital or ambulatory care setting indicate that less than five percent of those receiving dental care consumed 25 to 45 percent of the dental resources.¹⁶ Another similar study from Washington State concluded that 19 percent of their pediatric dental emergencies were related to early childhood caries and of those over half were children 3.5 years or younger.¹⁷ These studies emphasize that early prevention can translate into significant cost-savings for dental care, especially for those families at or below the poverty level where caries rates are dramatically higher in children 3 years and younger.

Effectiveness of Early Dental Visits

Several studies have examined the effectiveness of early dental visits. The seminal study was conducted by Savage and colleagues¹⁸ who examined the effects of early preventive dental visits on subsequent utilization and costs of dental services among preschool-aged children. Children who had their first preventive dental visit by age 1 were more likely to have subsequent preventive visits but were not more likely to have subsequent restorative or emergency visits. Additionally, the age at the first preventive dental visit had a significant positive effect on dentally-related expenditures, with the average dentally-related costs being less for children who received earlier preventive care. The average dentally-related costs for children with the first dental visit at age 1 was \$300 less than those that waited until age 3. Two subsequent studies of Medicaid children in Wisconsin¹⁹ and Michigan²⁰ failed to find a relationship between an early dentist visit and total dental costs. Unlike the study conducted by Savage and colleagues¹⁸, both of these investigations did not include hospital, emergency room and other medical related costs associated with treatment of dental disease in young children. A disproportionate share of costs for dental treatment of children under age 5 is for emergency room or hospital visits that are realized in medical costs (Figures 2 and 3).

A study from Alabama²¹ examined the effectiveness of preventive dental visits in reducing nonpreventive dental visits and expenditures. They concluded that “preventive dental visits can reduce subsequent nonpreventive visits and expenditures for children continuously enrolled in CHIP. However, they may not reduce overall program costs”. These results are not surprising given that the investigation examined children in two cohorts (children aged <8 years and those aged ≥8 years). The inclusion of older children with those in the preschool age population (children ages <6) may skew findings as a higher proportion of younger children need to be seen in ambulatory or hospital settings for care.



AMERICA'S PEDIATRIC DENTISTS
THE BIG AUTHORITY on little teeth

The American Academy of Pediatric Dentistry (AAPD) is the recognized authority on children's oral health. As advocates for children's oral health, the AAPD promotes evidence-based policies and clinical guidelines; educates and informs policymakers, parents and guardians, and other health care professionals; fosters research; and provides continuing professional education for pediatric dentists and general dentists who treat children. Founded in 1947, the AAPD is a not-for-profit professional membership association representing the specialty of pediatric dentistry. Its 9,300 members provide primary care and comprehensive dental specialty treatments for infants, children, adolescents and individuals with special health care needs. For further information, please visit the AAPD website at <http://www.aapd.org> or the AAPD's consumer website at <http://www.mychildrensteeth.org>.

The Pediatric Oral Health Research and Policy Center (POHRPC) exists to inform and advance research and policy development that will promote optimal children's oral health and care. To fulfill this mission, the POHRPC conducts and reports oral health policy research that advances children's oral health issues and supports AAPD public policy and public relations initiatives at the national, state, local, and international levels with legislatures, government agencies, professional associations, and other non-governmental organizations.

For more information about the AAPD Pediatric Oral Health Research and Policy Center, please access our website at <http://www.aapd.org/policycenter/>.

Another study conducted in North Carolina compared outcomes for Medicaid children who have a preventive visit before the age of 18 months with those who have a visit at age 18–42 months.²² This investigation defined preventive visits as primary, secondary and tertiary. Primary prevention is defined as true prevention, preventing disease from the start. Secondary prevention refers to detecting disease early and arresting progression. Tertiary prevention is focused on reducing morbidity and complications of a condition. For purposes of their analysis, a primary preventive visit was defined as an early dental visit for preventive services that had no treatment on the day of visit or for 3 months. A secondary preventive visit was defined as an early dental visit for preventive services that was followed by no more than two restorative treatment procedures. A tertiary preventive visit was defined as an early dental visit for preventive services that was followed by more than two treatment procedures. They found that children who had a primary or secondary preventive visit by age 18 months had no difference in subsequent dental outcomes compared with children in older age categories, but those children who had a tertiary preventive visit by age 18 months had lower rates of subsequent treatment and lower treatment expenditures compared with children in older age categories. Children who benefited most from an early preventive visit were presenting with dental needs already by age 18 months. Evidence

increasingly suggests that to be successful in preventing dental disease, we must begin preventive interventions in infancy. If appropriate measures are applied sufficiently early, it may be possible to raise a cavity-free child. The medical community has promoted the concept of a medical home to improve families' care utilization. Establishment of the Dental Home early in the child's life can introduce children and their families to prevention and early intervention prior to the development of dental problems.^{23,24}

Summary

Treatment of dental disease in young children can be costly and have devastating effects young children and their families. There is good clinical, theoretical, and scientific evidence that early dental visits can be effective at improving health outcomes and reducing dentally related costs. The study conducted by Savage and colleagues followed children for 5 years, and one can only hypothesize about what the cost-savings would be if this cohort were followed for 10 or 20 more years. If the trend of using more preventive services and less restorative or emergency services holds or increases, the cost-impact would be dramatic with savings in the millions of dollars. For all of these reasons, the American Academy of Pediatric Dentistry (AAPD), American Dental Association (ADA) and the American Academy of Pediatrics all recommend a dental visit for children by age one.



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