



# CDHP Policy Brief

## Cost Effectiveness of Preventive Dental Services

### Preventive Dental Interventions Reduce Disease Burden and Save Money

Preventive dental interventions, including early and routine preventive care, fluoridation, and sealants are cost-effective in reducing disease burden and associated expenditures.<sup>i,ii,iii,iv</sup> While millions of children in the United States benefit from routine preventive dental care, there are still millions of additional children who needlessly suffer from avoidable dental disease. As a result, tooth decay continues to remain the single most common chronic disease of childhood, causing untold misery for children and their families.

Preventive Care: Low-income children who have their first preventive dental visit by age one are not only less likely to have subsequent restorative or emergency room visits, but their average dentally related costs are almost 40% lower (\$263 compared to \$447) over a five year period than children who receive their first preventive visit after age one.<sup>i</sup>

Fluoridation: The Centers for Disease Control and Prevention reports that for every \$1 invested in fluoridation, \$38 in dental treatment costs is saved.<sup>ii</sup> In addition, Medicaid dental programs costs as much as 50% less in fluoridated communities compared to non-fluoridated communities.<sup>iii</sup>

Sealants: Sealants prevent cavities and reduce associated dental treatment costs, especially among high-risk children, where sealants applied to permanent molars have been shown to avert tooth decay over an average of 5-7 years.<sup>iv,v,vi</sup>

### Lack of Dental Care Leads to Costly Emergency Department Visits and Temporary Solutions

Without access to regular preventive dental services, dental care for many children is postponed until symptoms, such as toothache and facial abscess, become so acute that care is sought in hospital emergency departments.<sup>vii</sup> This frequent consequence of failed prevention is not only wasteful and costly to the health care system, but it rarely addresses the problem, as few emergency departments deliver definitive dental services. As a result, patients typically receive only temporary relief of pain through medication and in some acute cases, highly costly, but inefficient surgical care. A three-year aggregate comparison of Medicaid reimbursement for inpatient emergency department treatment (\$6,498) versus preventive treatment (\$660) revealed that on average, the cost to manage symptoms related to dental caries on an inpatient basis is approximately 10 times more than to provide dental care for these same patients in a dental office.<sup>vii</sup>

### The Connection Between Access and Preventive Care

Multiple interrelated social and demographic factors, including income, race, and education can limit children's access to preventive dental care.<sup>viii,ix</sup> Low-income children are only half as likely to access preventive dental services as middle or high-income children, despite their higher occurrence of dental problems. They are also two to three times more likely to suffer from untreated dental disease.<sup>viii, ix</sup> Minority children are less likely to have access to dental services than their white counterparts, as are children whose primary caregivers have limited education.<sup>viii, ix,x</sup>

Dental insurance coverage plays an integral role in accessing preventive care. Children with private or public dental coverage are 30 percentage points more likely than low-income uninsured children to have a preventive dental visit in the previous year.<sup>x</sup> Children with Medicaid coverage are significantly more likely to have a usual source of care.<sup>xi</sup>

For many low-income children, Medicaid's EPSDT program provides public coverage and access to dental care, including routine preventive services, such as sealants and fluoride treatments. Parents of children covered by Medicaid are 3.5 times less likely to report that their child has an unmet dental need than uninsured children.<sup>xii</sup> In addition, cost-estimation modeling of preventive interventions predict cost savings of \$66-\$73 per tooth surface prevented from needing repair among young Medicaid-enrolled children.<sup>xiii</sup> Further estimates reveal a savings of 7.3 percent from regular screening and early intervention.<sup>xiv</sup>

## The Consequence: Untreated Dental Disease Affects General Health

The progressive nature of dental diseases coupled with lack of access to preventive care can significantly diminish the general health and quality of life for affected children. Failure to prevent dental problems has long-term adverse effects that are consequential and costly. In particular, unchecked dental disease compromises children's growth and function (including their ability to attend to learning, to develop positive self-esteem, to eat and to speak), thereby making the cost of preventive dental care low compared to alternatives of suffering, dysfunction, and expensive repair.<sup>viii,xv</sup>

Despite historic achievements in oral health, such as community water fluoridation and other preventive measures, millions of children are still without basic dental care. Oral health promotion and prevention is critical to reducing disease burden and increasing quality of life. Failure to provide access to preventive dental care almost always results in quick fixes that are short-lived and high-priced, especially among low-income children and their families who are without the resources necessary to access dental services. Recognizing that dental insurance, including Medicaid coverage, is an essential part of accessing care may be the first step to reducing barriers to care and eliminating oral health disparities by ensuring that low-income children gain access to the preventive dental services they need.

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<sup>i</sup> Savage Matthew, Lee Jessica, Kotch Jonathan, and Vann Jr. William. "Early Preventive Dental Visits: Effects on Subsequent Utilization and Costs". Pediatrics 2004; 114 pp.418-423

<sup>ii</sup> Centers for Disease Control and Prevention. Oral Health Resources Fact Sheet. "Cost Savings of Community Water Fluoridation" Accessed 12/31/04 at <http://www.cdc.gov/OralHealth/factsheets/fl-cwf.htm>

<sup>iii</sup> Centers for Disease Control and Prevention. "Water Fluoridation and Costs of Medicaid Treatment for Dental Decay –Louisiana, 1995-1996". MMWR Weekly. September 03, 1999/48(34), pp.753-757.

<sup>iv</sup> Quinonez, Downs, Shugars, et al. "Assessing Cost-Effectiveness of Sealant Placement in Children". Accepted for publication: Journal of Public Health Dentistry.

<sup>v</sup> Werner C, Pereira A, Eklund S. "Cost-effectiveness study of a school-based sealant program. Journal of Dentistry for Children". March-April 2000.

<sup>vi</sup> Weintraub J, Stearns S, Rozier G, Huang C. "Treatment Outcomes and Costs of Dental Sealants Among Children Enrolled in Medicaid". American Journal of Public Health. November 2001. (91) 11, pp. 1877-1881.

<sup>vii</sup> Pettinato Erika, Webb Michael, Seale N. Sue. "A comparison of Medicaid reimbursement for non-definitive pediatric dental treatment in the emergency room versus periodic preventive care". Pediatric Dentistry 2000; 22(6), pp.463-468

<sup>viii</sup> Edelstein, Burton. "Disparities in Oral Health and Access to Care: Findings of National Surveys. Ambulatory Pediatrics". March-April 2002; 2(2) Supplement.

<sup>ix</sup> Kenney Genevieve, Ko Grace, Ormond Barbara. "Gaps in Prevention and Treatment: Dental Care for Low-Income Children". The Urban Institute. Series B. No. B-15. April 2000.

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<sup>xi</sup> Slifkin RT, Silberman P, Freeman V. "Moving from Medicaid to North Carolina Health Choice: Changes in Access to Dental Care for NC Children". North Carolina Medical Journal. 2004 Jan-Feb 65(1), pp. 6-11.

<sup>xii</sup> Newacheck, P.W., Peraly, M. and Hughes, D.C. "The Role of Medicaid in ensuring children's access to care. Journal of the American Medical Association". 280(20), pp.1789-93, 1998.

<sup>xiii</sup> Ramos-Gomez FJ, Shepard DS. "Cost-effectiveness Model for Prevention of Early Childhood Caries". J Calif Dent Association. 1999 Volume 27, pp. 539-44

<sup>xiv</sup> Zavras AI, Edelstein BL, Vamvakidis A. "Health Care Savings from Microbiological Caries Risk Screening of Toddlers: a Cost Estimation Model". Journal of Public Health Dentistry. Summer 2000. 60(3) pp. 182-8.

<sup>xv</sup> US Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General – Executive Summary. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000.