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Letter to the Editor

Health Services Research

Treatment of dental disease in children can be costly and have devastating effects on children and their families. Solid clinical, theoretical, and scientific evidence supports that early preventive dental visits can be effective at improving health outcomes for children at high risk of dental disease.

However, the article Sen et al. in "Preventive Dental Care and Long-Term Dental Outcomes among ALL Kids Enrollees," published online by Health Services Research on February 29, 2016, suggests there is little evidence to answer, "Do preventive dental visits also reduce dentally related costs?" "It's questionable," is the conclusion reached by the authors (Sen et al. 2016).

The Pediatric Oral Health Research and Policy Center of the American Academy of Pediatric Dentistry believes the authors failed to complete a comprehensive and balanced literature review on this point. A recent study by Nowak et al. found that the cost of dental treatments in high caries-risk children with early preventive dental visits were definitely less compared to children with later interventions. On average, children whose age at the first dental visit was four years or older had a total dental cost over eight years of \$360 more than children whose age at the first dental visit was younger than four years. Further, children whose age at the first dental visit was four years or older had an average of four more dental treatments than children whose first dental visit was before their fourth birthday (Nowak et al. 2016).

Savage and colleagues found children who had their first preventive dental visit by age one were more likely to have subsequent preventive visits, but were not more likely to have subsequent restorative or emergency visits. The average dentally-related costs for children with the first dental visit at age one was \$300 less than those who waited until age three (Savage et al. 2004). Beil reported that children with a first visit by 18 months had fewer treatment procedures and incurred less cost than those who first had a preventive visit at 25 to 36 months (Beil 2010). Additionally, Doykos found that, for every year the first examination was delayed, subsequent fees increased incrementally by approximately \$35, which is \$250 in 2016 U.S. dollars (Doykos 3rd 1996).

We applaud the authors' efforts in examining such a vital topic, but we also note a few methodological limitations. The major limitation in the methods section is exclusion of medical claims for dental treatment rendered in a hospital setting. The investigation included emergency room visits for dental reasons, but failed to include hospitalizations or treatment in an operating room setting. True expenditures are not complete without the inclusion of dentally related costs incurred in the hospital emergency rooms and operating

rooms. These would be captured on medical claims, not dental ones. Both the Savage et al and the Beil et al studies cited by the investigators include medical claims in addition to the dental ones. Omitting such medical claims with high expenditures can bias the results. Reports on Medicaid children treated for early childhood caries in the hospital or ambulatory care setting indicate that less than 5 percent of those receiving dental care consume 25 to 45 percent of the dental resources (Kanellis, Damiano, and Momany 2000).

Next, the study included in the analyses only those children who are continuously enrolled in ALL Kids for at least 4 years. Excluding children who are not continuously enrolled may omit those children whose families face challenges staying enrolled in programs. The investigators used propensity score methods “in a general attempt to reduce selection bias by ‘matching’ enrollees who receive a treatment to a suitable control group by using observed characteristics.” Could they have used this method to also reduce the selection bias introduced by limiting the sample to those continuously enrolled?

Another consideration not acknowledged in the study is that children covered under Medicaid are those with higher dental caries rates than the general population. The authors may not have considered that a first visit for a Medicaid child is often associated with significant dental caries, rather than a clean slate of oral health.

Finally, the authors fail to note that one cannot put a price tag on the freedom from pain, confident smiles, and better overall health for children that come from preventive dentistry. It is not necessarily a public policy prerequisite that such services may yield longer-term financial savings, even though the evidence (that the authors overlook) suggests they do. The impact of preventive dental care on quality of life is quite clear. Dental disease in children can lead to significant pain, interference with eating and speaking, less attendance in school, poorer school performance, as well as serious – even life-threatening – general health problems (Casamassimo et al. 2009). Oral health professionals are ethically bound to protect the well-being of our most at-risk children through the provision of early preventive dental visits, and we encourage our nation’s leaders to support us in these efforts.

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