Editorial

“Teeth Are Always in Style”: But Increasingly, Not for All

“Teeth are always in style,” Dr. Seuss says. If healthy, I would add. And increasingly, not for all.

Oral health is a critical component of general health. Declines in oral health are associated with chronic systemic conditions such as cancer (Michaud et al. 2008; Shakeri et al. 2013), preterm births (Hwang et al. 2012), obesity (Torres et al. 2013), and stroke (Sim et al. 2008), as well as with functional impairments in speech and eating that affect quality of life and with adverse social outcomes such as unemployment. The extreme manifestation of persistently poor oral health is edentulism or complete loss of teeth, a condition that was very prevalent in centuries past. Having no teeth among other things reduces the person’s ability to eat healthy, affects social perception of the individual, interferes with the patient’s ability to gain employment, and more (Akpata et al. 2011; Offenbacher et al. 2012; Hall, Chapman, and Kurth 2013). Oral disease may also endanger one’s life. Today oral and pharyngeal cancer affects more non-Hispanic white women than cervical cancer in the United States (Zavras et al. 2013).

The article by Vujcic and Nasseh published in this issue of *Health Services Research* provides important new information about national utilization trends and possible predictors of dental utilization for two distinct groups, children aged 2–18, and adults aged 19–64 (Vujcic and Nasseh 2014). For children, utilization is steadily going up. For adults, utilization exhibits the opposite trend, a steady decline that started well before the economic crisis of 2008. Using a novel analytic approach, the Blinder-Oaxaca decomposition method, the authors were able to identify important variables that led to a decline of dental utilization among adults over the last decade. Eroding dental benefits seem to be the most important predictor, along with race and income. The findings do agree with the published literature; other than experiencing

an adverse symptom such as pain, the most important predictor of using dental services globally seems to be the ability to cover the cost for these services, either by having insurance or by having a disposable income that allows for out-of-pocket payments. As such, the poor and uninsured are suffering the most (Pavi et al. 2010).

Increased utilization among American children in the last decade is mostly attributed to the ever increasing dental insurance coverage by Medicaid and SCHIP and policy decisions at the national and state levels. This increase in utilization during the last decade follows a previous decade that was characterized by significant reductions in the prevalence of dental caries in the permanent teeth of children, and stable prevalence rates in the primary teeth (Beltrán-Aguilar et al. 2005). Using a different metric that was derived from the National Survey of Children's Health, Mandal et al. (2013) recently confirmed epidemiologic trends of improved pediatric oral health; the authors showed a statistically significant improvement in the percentage of children's oral health status reported as excellent or very good (from 67.7 percent in 2003 to 71.9 percent in 2011/12). According to the authors, improvements were evident across all household income levels.

Reduced dental caries prevalence, increases in preventive services, and overall increases in dental utilization are accompanied by another recent trend, the increasing utilization of pediatric dentists as children's preferred providers. Due to the unique behavioral challenges associated with young age and the invasiveness of dental interventions, children are seen increasingly by pediatric dentists. In fact, pediatric dentists are considered primary care providers for the pediatric population. However, the explanatory effect of this changing pattern of pediatric dental service delivery, both in terms of the type of provider and the type of services that children receive, is not assessed in this study. As a result of this shift from the general dentist to the pediatric dentist, today children are seen earlier and disease is managed as soon as it is diagnosed. This change has brought about two concomitant benefits, increased rates of early ambulatory management for the seriously ill child as well as early access to prevention. The American Academy of Pediatrics and the American Academy of Pediatric Dentistry both recommend that the first dental visit takes place at the age of 1 year (American Academy of Pediatric Dentistry 2010). Evidence shows that the age 1 visit leads to early anticipatory guidance, reduced disease experience, and reduced health care costs. However, despite these positive trends, there is still variation among states in the actual oral health status of children and receipt of preventive dental services (Mandal et al. 2013).

Dental caries and periodontal disease, the two most prevalent diseases of the mouth, are chronic conditions that will progress if left untreated. Progress of untreated disease is inevitable and often results in infections, loss of teeth, hospitalizations, and infrequently, death. Because of gradual and increasing tissue destruction, treating dental disease that has been left untreated for long periods of time usually results in higher costs as compared to costs of treating the early stages of disease. Yet dental care has been historically considered an elective “luxury good” and has been excluded from public insurance programs such as Medicare. The analysis by Vujcic and Nasseh presents data for adults ages 19–64. Adults who retire experience reductions in income, lose their employer-sponsored dental benefits, and do not qualify for dental coverage under Medicare. If seniors older than 65 were to be included in the analysis, it is possible that the results would have shown a much steeper overall decline in dental utilization of adults.

The authors correctly pointed out that the safety net is shrinking for adults. Not only has Medicaid funding for adults been significantly reduced, but many safety net programs have restricted access only to the demographic group represented by children. As a result, many adults with no disposable income for dental services end up in hospital emergency rooms to receive symptomatic care, mostly extractions. Interestingly, the authors documented that dental utilization in adults declined from 41.2 percent to 37.0 percent in 2010, a figure that is 2.6 percent points lower than the dental utilization for adults in austerity-stricken Greece (Pavi et al. 2010).

The reduction in dental utilization of the adult population coincides with the eroding purchasing power of the household income in the last 10 years. Census Bureau data of the last decade shows that inflation-adjusted household income nationally declined 6 percent from 2000 to 2012 (Noss 2013). The lower socioeconomic segments of the population have experienced more significant declines than the upper segments. Households in the bottom quintile of income showed a dramatic 16 percent drop, from \$13,663 in 1999 to \$11,490 in 2012. One quintile up, households in the fourth quintile of income experienced a 12 percent reduction, whereas households in the middle quintile experienced a 9 percent reduction since 2000 (Short 2013). With real household income persistently going down in the last decade, households tend to reduce spending for non-essential items. It currently remains unknown if households consider dentistry nonessential expense. Questions also remain about how families distribute limited disposable health care dollars between members. Anecdotal evidence suggests that parents often knowingly neglect their own care in

order to pay for their children's dental services; more research is needed on the subject.

One limitation of the very interesting work of Vujcic and Nasseh, fully acknowledged by the authors, is the fact that MEPS does not document the oral health status of the participants. Therefore, it is unclear if the observed drop in utilization in this sample of adults is due to reduced disease rates, a plausible explanatory variable in any utilization equation. As discussed in more detail below, epidemiologic evidence suggests a downward trend in the prevalence of dental caries in permanent teeth for both children and adults.

In advanced stages, dental disease is manifested with serious symptoms and cannot be missed. Pain, swelling, fever, and tooth mobility are some of the obvious and often alarming symptoms that "lead" patients to realize the dental need and to seek care to alleviate the symptoms. In early stages, however, dental disease is often asymptomatic, and it may remain "hidden" from the patient. To overcome this limitation, our dental system has evolved to institute regular periodic dental visits. During the periodic visit, visual tactile examination and the utilization of imaging methods are all designed to identify the need for care early. A second aim of the periodic dental visit is to check for the presence of risk factors (such as presence of active biofilm) and to advise and guide patients in risk reduction. Together with increased availability and use of fluoridated oral hygiene products and community water fluoridation, the triptych *early diagnosis—early intervention—early secondary prevention* has led to significant oral health gains in the last half century in the United States. According to the National Health and Nutrition Examination Survey, from 1988–1994 to 1999–2002, caries in permanent teeth of dentate adults were reduced as much as 6 percent (Beltrán-Aguilar et al. 2005).

As suggested above, there are two distinct strata of patients with disease. The first group includes those who are aware of their disease status (positive need) but consciously have decided not to utilize services (negative demand). The second group is composed of those who are not aware of their disease status (false-negative need and negative demand), including those who avoid the periodic dental visit. Given what was mentioned previously about the natural progression of disease and its associated symptoms, we suggest that further study is needed to determine the degree of heterogeneity between the two groups with regard to future timing, velocity, and extent of utilization.

Relevant to the discussion of what affects demand and utilization of dental services is inertia, a person's tendency to not take action. Inertia is a well-

described problem in medicine, especially for the medical care of the diabetic patient (Apsey et al. 2013). In the case of diabetes, there have been numerous programs aimed to control and minimize inertia. Diabetes is a chronic condition that leads to significant complications if left untreated (Whitford, Al-Anjawi, and Al-Baharna 2013). Similarly, oral and pharyngeal cancers, dental caries, and periodontal disease are conditions that lead to significant complications if left untreated.

Yet society does not seem to consider adult oral health as essential. For example, only pediatric dental care is considered an essential health benefit under the Affordable Care Act. Another example can be found in the recent U.S. Preventive Services Task Force head and neck cancer screening review. Despite the alarming and undisputed statistics of the impact of head and neck cancers, today there is no national effort to optimize a population screening strategy that is both effective and efficient. As a result of such “system-wide inertia” more women will develop advanced head and neck cancers as compared to cervical cancers (Zavras et al. 2013).

Therefore, systematic work is required to create, evaluate, and disseminate public health protocols and technologies leading to reductions of inertia around early dental diagnosis and disease management. Systematic work is also needed to create, evaluate, and disseminate clinical improvements in the delivery of care toward early disease identification. A broad coalition of stakeholders is needed to educate the public on the catastrophic effects of inertia in oral health. Capitalizing on the wellness movement, we envision an increased role of employers in this discussion, along with appropriate work-related wellness programs aimed to stimulate positive oral health behaviors and dental examinations. We also envision innovative, progressive dental insurance programs aimed toward reducing inertia, providing incentives to stimulate prevention, risk assessment, and early disease management. Removing system-wide barriers and aligning financial incentives with clinical evidence-based goals is critical. Finally, we envision a vibrant national research program focusing on the complexity of reduced dental utilization in adults with a priority toward the most lethal diseases such as oral and pharyngeal cancer, and the most prevalent (dental caries and periodontal disease). The challenge is to characterize with completeness, validity, and precision the factors that lead to reduced utilization of dental services and delayed care, along with their confounding and synergies. As such, many questions remain unanswered.

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