

## Achieving Equity in Oral Health: A Data-driven Approach for Informing Policy Changes

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### Abstract

Due to the lack of access to affordable oral healthcare in outpatient settings, emergency departments (EDs) see unnecessary overuse in providing palliative care for mouth pain. Hospitals across the country are exhausting limited human and fiscal resources on patients seeking relief for non-traumatic oral conditions that could be better managed in nonhospital settings. Community dental clinics offer one strategy for easing the burden on EDs, while simultaneously reducing costs to the system, facilitating definitive care, and minimizing time away from work and home for patients. The expansion of government funding, including comprehensive adult Medicaid dental benefits, to facilitate preventive and restorative coverage for populations in need in outpatient settings would increase access to appropriate care and likely further reduce the tendency for patients to seek dental care in EDs. Targeting of specific high-risk groups (such as low-resourced or minority persons) also would help to remove barriers to care, lessen disparities in access and treatment, and improve equity in oral health in the U.S.

**Keywords:** Dental care; Healthcare; Oral health

### Introduction

"In spite of the safe and effective means of maintaining oral health that have benefited the majority of Americans over the past half century, many among us still experience needless pain and suffering, complications that devastate overall health and well-being, and financial and social costs that diminish the quality of life and burden American society. What amounts to "a silent epidemic" of oral diseases is affecting our most vulnerable citizens-poor children, the elderly, and many members of racial and ethnic groups" [1].

The preceding quotation highlights the progress achieved in sustaining oral health for many Americans [1]. Yet, the alarming oral health disparities for selected groups are further challenged by inadequate availability, accessibility, and acceptability of oral healthcare [2]. Oral health and oral healthcare disparities also exist, in part, because oral health is not perceived to be part of systemic or general health [3].

For many reasons, individuals, groups, communities, and healthcare providers and systems often overlook oral health. Factors that have contributed to this phenomenon include limited exposure to oral diseases and oral prevention and treatment modalities in medical and nursing school curricula; virtually no continuing medical education for healthcare providers in identifying, treating, or referring oral diseases; and a lack of understanding the association between oral and systemic diseases and/or conditions. Moreover, oral conditions are seldom life-threatening. The high costs of oral healthcare, the lack of public and private dental insurance for adults, and limited public insurance for

children also lead to a low priority for oral health. All of these factors combined with a lack of oral health literacy contribute to the resulting poor oral health.

Due to the lack of access to affordable oral healthcare in outpatient settings, emergency departments (EDs) see unnecessary misuse and overuse in providing palliative care. Hospitals across the country are exhausting limited human and fiscal resources on patients seeking relief for non-traumatic oral emergencies that could be better managed in nonhospital settings. Health conditions involving the teeth and their supporting structures are the primary diagnoses for 2 million hospital visits per year (1.5%) [4]. Unfortunately, many hospitals lack the capacity to treat oral health conditions. Often, the only available treatments for an oral health problem in the ED are antibiotics and/or painkillers for palliative care, which do little to resolve the underlying problem [5].

According to the Ambulatory and Hospital Care Statistics Branch of the Centers for Disease Control and Prevention (CDC), there were 129.8 million ED visits for any reason to U.S. hospitals in 2010 [4]. Forty-nine percent reported Medicaid, State Children's Health Insurance Program (SCHIP), or Medicare as the primary source of payment; 36.9% reported private insurance; and 16% reported no insurance coverage [4]. The lack of insurance is contributing to overall use of EDs, including for oral healthcare. However, much can be done to improve the quality and appropriateness of oral healthcare as well to reduce the costs, particularly for those who have limited financial access to the care they so badly require.

Oral health is essential for eating, speaking, smiling, and socialization, both at school for children and at work for adults.

Untreated caries and periodontal (gum) disease also can lead to tooth loss and/or be associated with systemic diseases such as diabetes [6]. Poor oral health in low-resourced communities and communities of color is a tremendous challenge for children and adults. African-American and Hispanic children have significantly more untreated tooth decay and restricted-activity days than do non-Hispanic white children. In the U.S., 1 in 3 preschool children with family incomes < \$10,000, regardless of racial or ethnic background, have  $\geq 1$  decayed tooth that has not been treated [6]. In contrast, only 1 in 10 preschool children with family incomes  $\geq$  \$35,000 have untreated caries. This disparity rate also holds for teenagers and adults. In addition, low-resourced adults suffer more severe tooth loss than their wealthier counterparts. Adults in families earning <\$15,000 per year are more than twice as likely as those in families earning  $\geq$  \$35,000 to lose  $\geq 6$  teeth from decay or gum disease [6].

Although a national challenge exists in assuring oral health equity, this article focuses on the city of Atlanta and the state of Georgia to highlight the challenges and what is being done to resolve them. Atlanta is an urban area with pockets of severe health and income disparities. The issues faced by Atlanta are prototypical to many parts of the country. A 2014 Georgia Department of Public Health report outlines the following dental health disparities [7]:

- Tooth decay is 50% more prevalent among children with low socioeconomic status (SES) than among children with high SES.
- Twice as many non-Hispanic black and Hispanic high school students visit an ED or urgent care center for dental problems (10.3% each) compared with non-Hispanic white students (4.9%).
- Adults earning  $\geq$  \$50,000 per year are significantly more likely to visit a dentist than are adults earning <\$15,000 a year (85% vs. 39%, respectively).

Often-cited barriers to improving oral health disparities in Georgia include lack of dental services available in federally qualified health centers (FQHCs), unwillingness of dentists to participate in Medicaid, low Medicaid reimbursement rates, unresolved oral health literacy concerns, a lack of transportation to and from dental offices, innovative solutions, and community health needs assessments to better identify effectiveness of health systems and partners. In Georgia, adult Medicaid covers dental extractions alone, and Medicare does not have a dental benefit at all. For children, both Medicaid and SCHIP are mandated to include dental benefits. The Patient Protection and Affordable Care Act of 2010 (ACA) also includes pediatric dental services, which in Georgia can be purchased separately from health insurance plans. However, the ACA does not include adult dental benefits in its essential health benefits requirements [8]. According to the National Association of Dental Plans/Delta Dental Plans Association (NADP/DDPA), about 40% of Americans did not have dental insurance in 2013 [9], which represents more than twice the proportion of Americans lacking medical insurance [10]. Expanding dental coverage is still not perceived as a public priority, however.

Beyond the public health consequences of poor oral health, families and communities are affected in the financial, educational, and workforce sectors. These effects can prevent families from improving their low-resourced status. For example, toothaches are a primary reason for school absences, second only to asthma [11]. Parents miss work when their children can't attend school due to toothaches, which limits the parent's ability to earn income on those days. The missed productivity of workers also affects the companies and businesses that employ them.

Reliance on EDs for dental care, the most expensive form of such care, has more than doubled since 2000, more than 75% of which could have been addressed in dental offices [1]. Fulton County, Georgia alone had 35,292 preventable visits to EDs in a 2008 report, of which 9,000 were for non-traumatic dental conditions [12,13]. In Georgia as a whole, >\$23 million was spent in 2007 to address general dental complaints handled in EDs. Most of the increase has been attributed to younger adults, especially those aged 21–34 years with little to no dental coverage [2,3]. However, EDs are seldom equipped with general dental practitioners; thus, patients receive inadequate treatment. This is congruent with other studies in which ED providers prescribed painkillers or antibiotics to treat dental symptoms [6,8].

Grady Memorial Hospital, which serves the largest population of low- to middle-income patients in the Atlanta metropolitan area, receives ~ 4000–5500 non-traumatic dental emergencies per year in their ED [14]. Most of these cases represent patients who lack dental insurance and a dental home. Emory University's Urban Health Initiative is addressing the influx of nonemergency dental cases through a system for referring such patients to the HEALING Community Center (HCC) Oral Health Unit located within their "safety net" FQHC. Unfortunately, the costs for a non-traumatic dental visit to a dental office compared with an ED visit have not been established. In this article, the average consumer costs of non-traumatic dental visits when patients are referred from the ED to the HCC Oral Health Unit are evaluated and compared with the cost of a visit to Grady Memorial Hospital's ED [15].

## Methods

This analysis serves as a case study addressing the event of referring patients from the ED to the HCC's Oral Health Unit. The HCC's Oral Health Unit and Grady's ED were contacted to provide information on the processes involved for dental visits. The following questions were asked for patients visiting with mouth or tooth pain as a major complaint: What labor resources are used to address dental complaints? And what treatments were involved? The goal of this analysis was to compare the consumer costs associated with an emergency visit to an ED compared with the costs of a visit to the HCC's Oral Health Unit [1].

The average costs of dental visits in the ED were based on Grady Memorial Hospital's ED average charges for non-traumatic dental visits. For visits at the HCC Oral Health Unit, costs to the consumer were based on the patient being able to pay 100% of the usual and customary fees. Of note, federally qualified healthcare centers such as the HCC do operate on a sliding fee schedule based on income and family size. The minimum payment requested for any dental treatment without a third-party payor source at HCC is \$60.

## Results

The total direct per-visit costs to the patient of treating non-traumatic dental cases referred to the HCC Oral Health Unit ranged between \$206 and \$255. These costs were based on HCC's Oral Health Unit's fee schedule. Services included in this estimate are a limited exam, a panoramic radiograph, a periapical radiograph and extraction of the offending tooth. Services provided at most EDs typically consist of prescriptions for antibiotics and/or pain medications; definitive care as described by the services offered at HCC's Oral Health Unit are seldom available in EDs across the U.S. The fees charged at the HCC Oral Health Unit are considerably less than the average estimated cost

per non-traumatic dental ED visit at the Grady Memorial Hospital ED (\$782.00). Most of the difference reflected higher costs in the ED for triage costs involving multiple individuals assessing the presenting complaint, the examination and facility costs.

## Discussion

The results of this study provide an economic perspective on the implications of providing oral health care in diverse settings. When a non-traumatic dental patient visits the HCC, a clerk, a dental assistant, and a dentist are involved in the process. The front desk clerk spends 10-15 minutes creating the patient's chart and verifying the insurance information. The dental assistant spends 5-10 minutes taking and processing radiographs, checking vital signs, and preparing the operatory for the procedure. The dentist then spends 5-10 minutes to conduct necessary exam, interpret radiographs, explain treatment options to the patient, and complete a referral if needed. Thus, definitive care by the dentist and dental assistant can be provided within 15-30 minutes, depending on which services are provided. In contrast, the total amount of time spent on a non-traumatic dental patient seen in the ED ranges at best from 35 minutes to ~ 1 hour once the patient is in the treatment area. If this difference in time required is reflected in the resulting costs of care—the estimated costs associated with an ED visit would be more than 3 times higher than the costs in our community dental clinic.

Lack of access to appropriate oral healthcare is an important public health issue. A lack of insurance, a common barrier to treatment [16], can lead patients to seek care in inappropriate settings such as EDs, where symptom relief is often the only treatment available [5,17]. Seeking care for dental issues in EDs is rarely the best option for patients, and it can take away from the vital resources needed for trauma and other patients requiring care in EDs.<sup>18</sup> Thus determining the driving factors for seeking dental care in the ED is of the utmost importance.

Elucidating the factors that lead dental patients to the ED could influence public health policy to address the underlying problem rather than continuing to only offer temporizing treatment to patients in need. Lack of insurance and not having access to a primary dentist nor primary care providers are among the most important factors that remain to be investigated. Comparing the insurance status of dental patients seeking care in EDs versus dental clinics also might be beneficial. For patients with dental insurance, it may be beneficial to investigate the type of insurance (i.e., discounted fee plans, dental maintenance organizations, or traditional coverage that includes annual maximums).

The ACA represents an important step toward ensuring medical insurance coverage for all, but it has left out a vital component: adult dental insurance coverage. The expansion of government funding to facilitate preventive, restorative and periodontal coverage for populations in need would likely reduce the tendency for patients to seek dental care in EDs.

Another strategy to reduce ED treatment of non-traumatic dental cases would be to target strategic dental care access programs, such as those housed in FQHCs, to provide more equitable models for uninsured persons to improve oral health. It might also prove beneficial to both hospitals and patients if formal referral plans are put in place with dental clinics that are willing and able to take patients [18]. In one example of this strategy, a safety net hospital in Miami referred an average of 50 patients a day to primary care and dental

clinics within the first 18 months of establishing their plan, reducing the ED's volume of patients by 15% [19].

Maintenance of oral health - a critical component to overall health and quality of life—first requires provision of available, accessible, acceptable, affordable and appropriate oral healthcare [20]. Comprehensive dental coverage would benefit both patients in need of oral healthcare and already overburdened EDs, and thus the public in general. Until fundamental changes occur in the delivery of and access to preventive dental care to at-risk populations, it is likely that ED visits for nonemergent dental reasons will continue. Because the suggested changes will not likely occur for some time, programs should direct patients who would otherwise rely on EDs for nonemergent dental issues to improved access to other dental care providers (e.g., community dental clinics and primary care providers). This way, patients can develop dental homes in community settings, and ED resources can be reserved for emergent issues. Until such changes are achieved, however, underserved populations will continue to be disproportionately impacted by oral diseases.

Oral diseases are largely related to selected risk factors and plausible associations between oral and systemic diseases [20-24]. For example, diabetes is a risk factor for periodontal disease occurrence and progression [25]. There are common risk factors between other chronic diseases and oral diseases. These bidirectional associations demand that federal, state, and local healthcare policies and programs, in the public and private sectors, better determine principles that undergird their operations [26,27]. One foundational principle that should drive oral and systemic health policy is health equity, which posits that “ideally, everyone should have a fair opportunity to attain their full health potential, and more pragmatically, that no one should be disadvantaged from achieving this full potential, if it can be avoided” [28].

## Conclusion

Changing “oral health equity to “equity in oral health” allows a reframing of equity as the subject of the initiative, and oral health as the outcome. In this context, equity in oral health should focus on assuring health for those in greatest need, and include oral healthcare as an essential part of primary care. The 2000 U.S. Surgeon General's Report on Oral Health emphasized a broad definition of oral health that includes all aspects of the dental, oral, and craniofacial complex [1]. The report also emphasized the interaction, interconnectedness, and inseparable aspects of oral and systemic health, which represents “the very essence of our humanity. To speak and smile; sigh, kiss, smell, taste, touch, chew, and swallow; cry out in pain; and convey a world of feelings and emotions through facial expressions transcends the false separation which is often omitted in understanding what it is to be truly human” [1].

The Surgeon General's Report [1] also notes the disparities in oral health—minority and lower-SES persons are more likely to suffer from periodontal disease, oral cancer, and dental caries than are their white and higher-SES counterparts. Barriers that can limit the use of preventive interventions and treatments include limited access to and availability of oral healthcare, lack of awareness of the need for care, and cost and fear of dental procedures. Placing a focus on equity in oral health as policies are developed would be inclusive of the broad scope of public health (i.e. physical, social, psychological, and spiritual). Medical and oral healthcare are particularly important because underserved populations are disproportionately burdened by

preventable diseases and disabling conditions, which should not occur in a society where equity is viewed as an enabling factor for all of its constituents.

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