ADA CE Program ARTICLE 1

COVER STORY

Visits to US emergency departments by 20- to 29-year-olds with toothache during 2001-2010

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ABSTRACT

Background. Visits to emergency departments (EDs) for dental symptoms are on the rise, yet reliance on EDs for dental care is far from ideal. ED toothache visits represent opportunities to improve access to professional dental care.

Methods. This research focuses on 20- to 29-year-olds, who account for more ED toothache visits than do other age groups. The authors analyzed publicly available ED visit data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) from 2001 through 2010. They assessed trends in ED toothache visit rates compared with back pain and all cause ED visits during the past decade. The authors used NHAMCS data for years 2009 and 2010 to characterize the more recent magnitude, relative frequency, and independent risk factors for ED toothache visits. Statistical analyses accounted for the complex sampling design.

Results. The average annual increase in ED visit rates among 20- to 29-year-olds during 2001-2010 was 6.1% for toothache, 0.3% for back pain, and 0.8% for all causes of ED visits. In 2009 and 2010, 20- to 29-year-olds made an estimated 1.27 million ED visits for toothaches and accounted for 42% of all ED toothache visits. Toothache was the fifth most common reason for any ED visit and third most common for uninsured ED visits by 20- to 29-year-olds. Independent risk factors for ED toothache visits were being uninsured or Medicaid-insured.

Conclusions. Younger adults increasingly rely on EDs for toothaches—likely because of barriers to accessing professional dental care. Expanding dental coverage and access to affordable dental care could increase options for timely dental care and decrease ED use for dental symptoms.

Practical Implications. Though additional research is needed to better understand why younger adults disproportionately use the ED for toothaches, findings from this study suggest the importance of maintaining access to a dental home from childhood through adolescence and subsequently into early adulthood.

Key Words. Access to care; emergency services; emergency treatment; toothache.

JADA 2015:146(5):295-302

http://dx.doi.org/10.1016/j.adaj.2015.01.013

The emergency department (ED) is a well-known safety net for those who face barriers to other sources of health care. Reliance on the ED as a dental care safety net, however, is problematic for many reasons. EDs usually are not staffed or equipped to deliver dental care. Most treatment rendered in EDs for toothache is only temporizing,[1-3] which means that the symptom is likely to recur in the absence of subsequent professional dental care.[4] Moreover, because ED visits for dental symptoms are disproportionately made by the uninsured,[1-3,5-7] the cost of such care is more likely to be shifted to insured patients and absorbed by individual EDs and hospitals,[4] rather than more widely distributed among dental and public health care systems.

ED toothache visits are usually classified as nonurgent, potentially contributing to ED inefficiency. Yet, advocates point out that the uninsured seek ED care for nonurgent problems not because they want to, but because they have no other option.[8] If pain from toothache interferes with ability to sleep, eat, or work, and dental care is not affordable or accessible, then patients will seek care wherever they can get it, including in the ED.

This article has an accompanying online continuing education activity available at: http://jada.ada.org/ce/home.

There are few upfront financial barriers to ED care. Unlike dental offices, hospitals must legally provide emergency care to anyone who needs it, regardless of ability to pay.[9] In addition, tax exempt hospitals (and their EDs) are obligated by the Internal Revenue Service to provide charity care, often in the form of discounted care for low-income patients[10,11]; such financial assistance may not be as readily available in private dental practices.

Supplemental material is available online.

In 2012, we reported that ED dental visits had increased between 2001 and 2008, particularly among adults.[6] Other investigators have documented similar findings.[12-15] As a next step in our research agenda, we then asked whether certain age groups were disproportionately represented among ED visits for dental symptoms—specifically toothache—and found that 20- to 29-year-olds ("younger adults") had substantially more ED visits for toothaches than other age groups. Understanding national trends in ED toothache visits and the magnitude and characteristics of more recent ED toothache visits, particularly in this high-utilizer age group, is important because these visits reflect opportunities to improve access to and utilization of professional dental care through patient education, health policy, and expansion of dental public health infrastructure.

METHODS

Research goals. We relied on the National Hospital Ambulatory Medical Care Survey (NHAMCS),[16] a nationally representative sample of United States ED visits, to address 3 research goals as they pertain to 20- to 29-year-olds:

- Compare average annual change in ED visit rates for toothache relative to back pain and all cause ED visits during years 2001 through 2010. We chose back pain as a comparator because, like toothache, it is subjective and often perceived as a nonurgent reason for seeking ED care.[17] We were interested in whether a rise in ED toothache visits was the result of secular increases in ED use overall or for nonurgent reasons. If so, we would expect similar changes in toothache ED visit rates as in all cause ED and back pain visit rates during this period.
- Rank the frequency of ED toothache visits relative to other common reasons for seeking ED care in 2009-2010.
- Characterize patient-, hospital-, and visit-level variables associated with ED toothache visits in 2009-2010. Based on review of the literature regarding racial, income, insurance, and geographic-based disparities in dental care access and oral health,[18-24] we hypothesized a priori that an ED toothache visit would be more likely on adjusted multivariable analysis: in nonwhites than whites, when Medicaid or uninsured was listed as payer compared with private insurance, in EDs in non-MSA (rural and micropolitan statistical areas—relative to MSA (metropolitan statistical area),[25] and during business hours compared with after business hours.

Data. NHAMCS is a national probability sample of hospital ED visits conducted annually by the US National Center for Health Statistics (NCHS).[16] The multistaged sample design includes geographic primary sampling units, hospitals within primary sampling units, and patient visits within emergency service areas. Sampled EDs are located in general and short-stay hospitals—exclusive of federal, military, and Veterans Affairs hospitals—in the 50 US states and District of Columbia. Within an ED, visits are systematically selected during a randomly assigned 4-week reporting period. Hospital or US Census Bureau staff complete a patient record form for each sampled visit by reviewing the medical record. Sampled data are extrapolated to population estimates using assigned patient visit weights, which account for probability of visit selection, nonresponse, and ratio of sampled hospitals to all hospitals in the United States.[16]

For the first research goal, we used 2001-2010 NHAMCS data and the corresponding year of US Census Bureau population estimate[26] to calculate the rate of ED visits in the US population for each of the 10 years. We characterized recent ED toothache visits—the focus of the second and third research goals—using the 2 most recently released years (2009 and 2010) of NHAMCS data, which we combined to improve reliability of our estimates—a strategy recommended by the NCHS.[27] To ensure validity of our results, all reported estimates were based on at least 30 unweighted records and relative standard errors less than 30%.

The University of Washington Human Subjects Division considers that research using certain publicly available data sets, including NHAMCS, does not involve "human subjects" as defined by federal regulations. Thus, no institutional review board approval was required (http://www.washington.edu/research/hsd/docs/1125).

ED visits. From NHAMCS, we selected ED visits made by 20- to 29-year-olds during 2001 through 2010. These were compared with ED toothache visits in other age groups in descriptive analysis.

Measures. ***Outcomes.*** The outcomes for this study were derived from the variable "reason for the visit," which was coded according to a NCHS classification system.[28] The primary outcome variable was an ED visit for toothache (reason-for-visit code = 1500.1) as the primary presenting symptom.[28] We were interested in the primary presenting symptom rather than discharge

ABBREVIATION KEY. **ACA:** Affordable Care Act. **ED:** Emergency department. **MEPS:** Medical Expenditure Panel Survey. **MSA:** Metropolitan statistical area. **NCHS:** National Center for Health Statistics. **NHAMCS:** National Hospital Ambulatory Medical Care Survey. **Non-MSA:** Rural and micropolitan statistical area.