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## COVER STORY

# Hospital-based emergency department visits involving dental conditions

## Profile and predictors of poor outcomes and resource utilization

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**D**ental conditions such as dental caries, pulp lesions and gingival or periodontal conditions are treated routinely in dental office settings. When neglected, these minor localized infections can progress to form cellulitis or systemic infection and even could result in mortality.<sup>1-4</sup> Most of these dental conditions could be avoided altogether or minimized by periodic receipt of preventive oral health care, maintenance of good oral hygiene and adoption of optimal dietary habits.<sup>5-8</sup> Limitations in or lack of financial resources, geographical barriers to accessing dental clinics, and limitations in or lack of oral health care literacy could preclude people from seeking periodic dental care and lead to worsening oral health status.<sup>9-12</sup> Results of existing research have shown that about 4.3 percent of all hospital emergency department (ED) visits annually were of dental origin.<sup>13</sup> Research results suggest that 90 percent of dental-care-related ED visits do not result in performance of dental procedures, and most patients are treated with prescription medication.<sup>13</sup> Additionally, evidence shows that care provided in hospital settings is less effective in managing oral health complaints and therefore could represent a highly inefficient use of limited hospital resources.<sup>14,15</sup> People without health insurance and

### ABSTRACT

**Background.** Untreated dental conditions may progress to lesions that are severe enough to necessitate emergency visits to hospitals. The authors conducted a study to investigate nationally representative trends in U.S. hospital-based emergency department (ED) visits involving dental conditions and to examine patient-related characteristics associated with ED charges.

**Methods.** The authors used the Nationwide Emergency Department Sample of the Healthcare Cost and Utilization Project, sponsored by the Agency for Healthcare Research and Quality, for the years 2008 through 2010. They selected all ED visits involving patients with a diagnosis of either dental caries, pulp or periapical lesions, gingival or periodontal conditions, or mouth cellulitis or abscess. Outcomes examined included post-ED disposition status and hospital ED charges.

**Results.** During the study period, 4,049,361 ED visits involved diagnosis of a dental condition, which is about 1 percent of all ED visits occurring in the entire United States. Uninsured patients made about 40.5 percent of all dental condition-related ED visits. One hundred one patients in the study died in EDs. The mean hospital ED charge per visit was approximately \$760 (adjusted to 2010 dollars), and the total ED charges across the entire United States during the three-year study period was \$2.7 billion.

**Conclusions.** Patients without insurance are a cohort at high risk of seeking dental care in hospital-based ED settings. A substantial amount of hospital resources are used to treat dental conditions in ED settings. Patients with mouth cellulitis, periodontal conditions and numerous comorbidities are likely to incur higher ED charges.

**Practical Implications.** Dental conditions can be treated more effectively in a dental office setting than in hospital-based settings.

**Key Words.** Dental emergencies; access to care; hospital costs.

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those with government-funded insurance tend to use hospital EDs to seek primary dental care.<sup>16,17</sup>

With this in mind, we undertook a study to identify nationally representative trends in hospital-based ED visits by patients who have dental conditions. We estimated the use of resources in treating dental conditions on an emergency basis within hospital settings. We hypothesized that resource utilization in hospital-based ED settings is based on a multitude of patient-related factors, including older age, severity of dental conditions and presence of comorbid conditions. In this study, we examined the effect of these factors on hospital ED charges. A secondary aim was to examine the profiles of patients who are likely to experience an extreme adverse event such as death in the ED setting.

## METHODS

**Description of database.** We used the Nationwide Emergency Department Sample (NEDS) for the years 2008 through 2010.<sup>18</sup> The NEDS, sponsored by the Agency for Healthcare Research and Quality (AHRQ) through its Healthcare Cost and Utilization Project,<sup>18</sup> is the largest all-payer hospital-based ED database that is publicly available. The NEDS provides information regarding several types of variables: patient level (age, sex, insurance status, diagnosed conditions, disposition status and comorbid conditions), hospital level (location, geographical region and teaching status), outcomes related (charges and length of stay) and community level (patients' household income levels according to ZIP code).<sup>18</sup>

**Institutional review board.** The corresponding author obtained the NEDS databases after completing the data-user agreement. As per the data-user agreement with AHRQ, we do not present individual item counts of 10 or fewer in this report so as to preserve patient confidentiality. We submitted the proposal for the study to the institutional review board (IRB) of the College of Dentistry at The University of Iowa, Iowa City. The review board designated the study to be exempt from IRB review.

**Case selections and outcomes.** We selected all hospital-based ED visits involving patients with a diagnosis of dental caries, pulpal or periapical lesions, gingival conditions, periodontal conditions, and mouth cellulitis or abscess on the basis of International Classification of Diseases, Ninth Revision, Clinical Modification<sup>19</sup> (ICD-9-CM) codes. The ICD-9-CM codes used were dental caries (ICD-9-CM codes 521.00, 521.01, 521.02, 521.03, 521.04, 521.05, 521.06, 521.07, 521.08 and 521.09), pulpal or periapical lesions (ICD-9-CM codes 522.0, 522.1, 522.2, 522.3, 522.4, 522.5, 522.6, 522.7, 522.8 and 522.9), gingival or periodontal conditions (ICD-9-CM codes 523.00, 523.01, 523.10, 523.11, 523.20, 523.21, 523.22, 523.23, 523.24, 523.25, 523.3, 523.30, 523.31, 523.32, 523.33, 523.40, 523.41, 523.42, 523.5, 523.6, 523.8 and 523.9),

and mouth cellulitis or abscess (ICD-9-CM code 528.3). The NEDS databases have 15 diagnosis fields for each ED visit. Dental conditions were queried in all 15 diagnosis fields and selected for analysis. The NEDS database does not provide information regarding the reason for an ED visit. Therefore, we were unable to use only the primary diagnosis to identify patients with dental conditions, and so we used all 15 available diagnosis fields to identify dental conditions. We examined demographic variables—including age, sex, insurance status and annual household income levels—for the patients who made the ED visits. "Insurance status" refers specifically to medical insurance and reflects the primary payer listed for each ED visit. Patients had medical insurance coverage through Medicare, Medicaid, private insurance plans or other insurance plans. The NEDS database does not provide information about availability about dental insurance coverage.

The primary outcome variable of interest was hospital ED charges. We adjusted all hospital ED charges for inflation to dollar values for 2010.<sup>20</sup> We conducted a subset analysis of all patients who died in the ED and examined characteristics in this cohort. We computed comorbid burden by using the Charlson comorbidity severity index.<sup>21</sup> This index is a weighted index that takes into account the number and the seriousness of comorbid conditions in hospitalized patients.<sup>21</sup> The chronic conditions included in the index are myocardial infarction, congestive heart failure, peripheral vascular disease, cerebrovascular disease, dementia, chronic pulmonary disease, connective tissue disease, ulcer, liver disease, diabetes, hemiplegia, renal disease, tumors, metastatic solid tumors and AIDS. A score of 0 is assigned to patients with none of these comorbid conditions and a numerical weighted score is assigned to those with one or more of these conditions.<sup>21</sup> The Charlson comorbidity severity index is a validated measure that has been used widely to estimate comorbid burden by means of large secondary hospital discharge data sets.<sup>21-24</sup>

**Statistical approach.** We used descriptive statistics to summarize the characteristics of ED visits and computed total ED charges. The unit of analysis was each individual ED visit. We computed all estimates to be nationally representative by using the discharge weight variable assigned for each visit. We used a multivariate linear regression model to examine the effect of patient-related characteristics (age, sex, insurance status and Charlson comorbidity severity index scores) on hospital ED charges. We computed estimates for each level of patient characteristic. We computed error terms by us-

**ABBREVIATION KEY.** AHRQ: Agency for Healthcare Research and Quality. ED: Emergency department. ICD-9-CM: International Classification of Diseases, Ninth Revision, Clinical Modification. IRB: Institutional review board. NEDS: Nationwide Emergency Department Sample.

ing the Taylor linearization methods and computed 95 percent confidence intervals (CIs) for each estimate. We adjusted effects of clustering of outcomes within hospitals in the regression model. All statistical tests were two-sided. We deemed a *P* value of  $< .05$  to be statistically significant. We conducted all statistical analyses by using statistical software (SAS Version 9.3, SAS Institute, Cary, N.C.).

## RESULTS

During the study period (from 2008 through 2010), a total of 382,800,668 ED visits occurred throughout the United States. Of these, 4,049,361 (about 1 percent of all ED visits occurring in the entire United States) involved patients with a diagnosis of a dental condition. Table 1 is a summary of prevalence estimates of different dental conditions (including dental caries, pulpal or periapical lesions, gingival conditions, periodontal conditions and mouth cellulitis or abscess). Dental caries was the condition most frequently identified (57 percent of all dental ED visits) and mouth cellulitis or abscess was the least frequently identified condition (2.7 percent of all dental ED visits). The proportion of dental ED visits to overall ED visits across the entire United States was consistent during the study period.

Table 2 provides a summary of the characteristics of the dental-care-related ED visits across the study period. The mean age of patients who made dental-care-related ED visits was 33 years. Women made about 51 percent of all dental-care-related ED visits. Close to 94 percent of the dental-care-related ED visits resulted in routine discharge from the ED, about 4.3 percent resulted in the patient's admission to the same hospital, 0.3 percent resulted in the patient's transfer to another short-term acute care hospital, 0.2 percent resulted in the patient's transfer to a long-term-care facility (such as a skilled nursing home), less than 0.1 percent resulted in the patient's admission to a home health care facility and about 0.3 percent resulted in discharge against medical advice. A total of 101 patients died in the ED.

With regard to insurance status, about 8 percent of the visits were covered by Medicare, 30 percent by Medicaid, 19 percent by private insurance plans and 3 percent by other insurance plans; 40.5 percent of all dental-care-related ED visits were made by people who did not have insurance. About 92 percent of dental-care-related ED visits did not involve a comorbid condition (according to the Charlson comorbidity severity index).

TABLE 1

<b>Hospital-based emergency department (ED) visits involving dental conditions, according to study year.</b>			
<b>HOSPITAL-BASED ED VISITS</b>	<b>YEAR</b>		
	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>All ED Visits Across the Entire United States, No.</b>	124,945,264	128,885,040	128,970,364
<b>ED Visits Involving Dental Conditions, No.</b>			
Dental caries	768,628	741,498	809,560
Pulp and periapical lesions	567,787	578,509	595,833
Gingival conditions	120,042	121,870	123,036
Periodontal conditions	67,049	63,161	57,725
Mouth cellulitis or abscess	36,791	36,718	37,518
Any of the above dental conditions* (percentage of all ED visits)	1,331,627 (1.07)	1,324,868 (1.03)	1,392,866 (1.08)

\* Any single ED visit may have involved one or more dental conditions. The sum of individual dental conditions will be more than the global total of dental-care-related ED visits for the year.

Close to 71 percent of all dental-care-related ED visits were made by people residing in low-income geographical areas (annual household income levels categorized according to ZIP code<sup>18</sup>). The mean hospital ED charge per visit was \$760 (adjusted to 2010 dollars), and the total ED charges across the United States during the three-year study period were \$2.7 billion.

Table 3 (page 335) provides a summary of characteristics of the cohort of patients ( $n = 101$ ) who died in hospital EDs. The mean age of this cohort was 46.6 years. Men composed 57 percent of this cohort. Among patients who died, 55 percent had a diagnosis of dental caries, 42.6 percent had pulp or periapical lesions, 17.4 percent had gingival or periodontal conditions and 23.3 percent had mouth cellulitis or abscess (a single patient may have had one or more dental conditions). Nearly 85 percent of these patients did not have any other comorbid conditions. The primary payers were Medicare (29 percent) and private insurance plans (30.5 percent). Close to 26.6 percent of the patients were uninsured. Nearly three-quarters of the patients resided in geographical areas with annual household income levels in the lower two quartiles (Table 2 defines the quartiles).

Table 4 (page 335) presents results of the multivariable linear regression analysis of the effect of different patient characteristics on hospital ED charges. Those with mouth cellulitis or abscess had approximately \$518 more in ED charges than did those who did not have this condition ( $P < .001$ ). Patients with periodontal conditions had \$135.80 more in ED charges than did those who did not have this condition ( $P < .001$ ). Those covered by Medicare (\$79.67 more;  $P < .001$ ) and private insurance plans (\$81.66 more;  $P < .001$ ) had ED charges significantly higher than those of uninsured patients. ED charges increased as the Charlson comorbidity severity index score increased ( $P < .001$ ). Each one-year increase in age was associated with a \$6.69 increase in ED charges ( $P < .001$ ).

TABLE 2

**Characteristics of hospital-based emergency department (ED) visits involving dental conditions.\***

CHARACTERISTIC AND RESPONSE	NUMBER (PERCENTAGE),† ACCORDING TO YEAR		
	2008	2009	2010
<b>Patient's Sex, No. (Percentage)</b>			
Male	645,773 (48.5)	645,766 (48.8)	680,172 (48.8)
Female	685,384 (51.5)	677,308 (51.2)	712,572 (51.2)
<b>Patient's Disposition After ED Visit, No. (Percentage)</b>			
Routine discharge	1,251,390 (94.0)	1,245,544 (94.0)	1,317,372 (94.6)
Transfer to short-term hospital	2,991 (0.2)	5,588 (0.4)	3,719 (0.3)
Transfer to other facilities	3,315 (0.2)	2,171 (0.2)	1,731 (0.1)
Home health care	904 (<0.1)	1,009 (<0.1)	356 (<0.01)
Discharged against medical advice	4,419 (0.3)	4,853 (0.4)	4,557 (0.3)
Admitted as inpatient to same hospital	56,952 (4.3)	57,661 (4.3)	61,016 (4.4)
Died	39 (<0.01)	32 (<0.01)	30 (<0.01)
Discharged or transferred to court or law enforcement	0	0	57 (<0.01)
Unknown disposition	11,616 (0.9)	8,011 (0.6)	4,026 (0.3)
<b>Patient's Insurance Status, No. (Percentage)</b>			
Medicare	101,483 (7.7)	104,043 (7.9)	110,123 (7.9)
Medicaid	372,214 (28.2)	395,204 (30.0)	434,763 (31.4)
Private	269,040 (20.4)	245,576 (18.7)	233,207 (16.8)
Uninsured	534,214 (40.5)	529,368 (40.2)	564,875 (40.8)
Other insurance	43,380 (3.3)	41,582 (3.2)	42,182 (3.0)
<b>Patient's Household Income Level Quartile, According to ZIP Code, No. (Percentage)‡</b>			
Quartile 1	504,405 (38.9)	495,677 (38.3)	560,497 (41.1)
Quartile 2	434,443 (33.5)	426,913 (33.0)	424,833 (31.2)
Quartile 3	240,015 (18.5)	252,630 (19.5)	254,719 (18.7)
Quartile 4	119,117 (9.2)	117,754 (9.1)	123,222 (9.0)
<b>Patient's Charlson Comorbidity Severity Index§ Score, No. (Percentage)</b>			
0	1,233,529 (92.6)	1,219,306 (92.0)	1,272,071 (91.3)
1	80,300 (6.0)	86,458 (6.5)	99,286 (7.1)
2	12,250 (0.9)	12,870 (1.0)	14,831 (1.1)
≥ 3	5,548 (0.4)	6,234 (0.5)	6,677 (0.5)
<b>Patient's Age, in Years</b>			
Mean	33	33	33
<b>Hospital ED Charges, in U.S. Dollars</b>			
Mean charges	\$720	\$754	\$802
Total charges across the entire United States	\$846 million	\$893 million	\$1 billion
* The sum of individual cell counts may not add to the global total number of visits because of missing information for the different variables.			
† Unless otherwise specified.			
‡ Income quartiles (obtained from the Nationwide Emergency Department Sample <sup>18</sup> database) differ according to year. For 2008, the levels were \$1 to \$38,999 (quartile 1), \$39,000 to \$48,999 (quartile 2), \$49,000 to \$63,999 (quartile 3) and \$64,000 or higher (quartile 4). For 2009, the levels were \$1 to \$39,999 (quartile 1), \$40,000 to \$49,999 (quartile 2), \$50,000 to \$65,999 (quartile 3) and \$66,000 or higher (quartile 4). For 2010, the levels were \$1 to \$40,999 (quartile 1), \$41,000 to \$50,999 (quartile 2), \$51,000 to \$66,999 (quartile 3) and \$67,000 or higher (quartile 4).			
§ Charlson and colleagues. <sup>21</sup>			

**DISCUSSION**

The results of our study provide nationally representative estimates of hospital-based ED visits for oral conditions, including dental caries, pulpal or periapical lesions, gingival or periodontal conditions and mouth cellulitis

or abscess from 2008 through 2010. Consistent with the findings of prior studies, we found that patients who were uninsured and those who were covered by Medicaid represented a large proportion of dental-care-related ED visits.<sup>16,17</sup> Additionally, our findings

TABLE 3

<b>Characteristics of patients who died in the emergency department (n = 101).</b>	
<b>CHARACTERISTIC AND RESPONSE</b>	<b>PATIENT DATA*</b>
<b>Dental Condition,<sup>§</sup> No. (Percentage)</b>	
Dental caries	56 (55)
Pulp and periapical lesions	43 (43)
Gingival condition	Suppressed <sup>†</sup>
Periodontal condition	18 (17)
Mouth cellulitis or abscess	24 (23)
<b>Sex</b>	
Male	58 (57)
Female	43 (43)
<b>Insurance Status (Information Available for 97 Patients), No. (Percentage)</b>	
Medicare	28 (29)
Medicaid	Suppressed
Private	29 (31)
Uninsured	26 (27)
Other insurance	Suppressed
<b>Household Income Level Quartiles, Based on ZIP Code, No. (Percentage)<sup>‡</sup></b>	
Quartile 1	35 (35)
Quartile 2	41 (40)
Quartile 3 or Quartile 4	25 (25)
<b>Charlson Comorbidity Severity Index<sup>§</sup> Score, No. (Percentage)</b>	
0	86 (85)
1	Suppressed
2	0
≥ 3	Suppressed
<b>Mean Age, in Years</b>	47
* A single ED visit may have involved more than one dental condition. Hence, the sum of individual item counts for different dental conditions will be more than 101.	
† Suppressed: Discharge information suppressed as per data user agreement with the Healthcare Cost and Utilization Project of the Agency for Healthcare Research and Quality (item count ≤ 10).	
‡ Because of low item counts, Quartile 3 and Quartile 4 were combined; the individual estimates were too low to be presented in separate cells.	
§ Charlson and colleagues. <sup>21</sup>	

also showed that 70 percent of dental-care-related ED visits occurred among those residing in low-household-income geographical areas. It is likely that these cohorts seek hospital-based settings for dental care because of a combination of factors, including progression of a dental lesion to a state severe enough to necessitate emergency or urgent care, lack of dental insurance that precluded them from seeking periodic dental care at dental offices, and geographical barriers to accessing dental clinics. However, all these findings need further empirical support.

TABLE 4

<b>Patient-related characteristics associated with emergency department charges.</b>		
<b>CHARACTERISTIC AND RESPONSE</b>	<b>MEAN (95% CI)* ESTIMATED CHARGE, IN U.S. DOLLARS†</b>	<b>P VALUE</b>
<b>Dental Condition</b>		
Dental caries	-\$162.13 (-\$186.74 to -\$137.53)	<.001
Pulp and periapical lesions	\$52.44 (\$31.19 to \$73.68)	<.001
Gingival condition	-\$77.75 (-\$103.42 to -\$52.09)	<.001
Periodontal condition	\$135.80 (\$96.75 to \$174.86)	<.001
Mouth cellulitis or abscess	\$ 518.42 (\$454.58 to \$582.25)	<.001
<b>Sex</b>		
Female	\$1.57 (-\$10.16 to \$13.31)	0.79
Male	Reference	
<b>Insurance Status</b>		
Medicare	\$79.67 (\$53.93 to \$105.41)	<.001
Medicaid	\$1.75 (-\$14.92 to \$18.43)	.84
Private	\$81.66 (\$51.16 to \$112.16)	<.001
Other insurance	\$188.69 (-\$77.67 to \$455.05)	.16
Uninsured	Reference	
<b>Charlson Comorbidity Severity Index<sup>§</sup> Score, No. (Percentage)</b>		
1	\$352.08 (\$316.78 to \$387.39)	<.001
2	\$763.31 (\$672.49 to \$854.12)	<.001
≥ 3	\$868.22 (\$763.51 to \$972.92)	<.001
0	Reference	
<b>Age</b>		
Each one-year increase in age	\$6.69 (\$6.06 to \$7.32)	<.001
* CI: Confidence interval.		
† As compared with overall mean charge of \$760.		
‡ Charlson and colleagues. <sup>21</sup>		

During the three-year period of our study, 101 patients died in the hospital-based EDs studied. Our results suggest that the high-risk groups within this cohort included those covered by Medicare insurance, those who were uninsured and those who resided in low-income households. It is important to reiterate that dental disease is largely preventable and treated easily. It is particularly disturbing to note the substantial mortality, which highlights the extreme importance of providing funding to prevent dental disease.

Our study results highlight the burden associated

with treating dental conditions in hospital settings. Over the three-year period of the study, \$2.7 billion in hospital charges were associated with dental-care-related ED visits. Our study results show that the mean ED charge per visit was \$760. Patients likely to have high ED charges included those with periodontal conditions (\$135.80 more than the charges for those who did not have periodontal conditions), mouth cellulitis (\$518.42 more than the charges for patients who did not have mouth cellulitis) and high comorbid burden. Each one-unit increase in comorbid burden was associated with a substantial increase in ED charges. Nagarkar and colleagues<sup>25</sup> examined ED charges associated with dental emergencies in New York State from 2004 through 2008. They estimated that each dental-care-related ED visit was associated with an average charge of \$526. Whereas Nagarkar and colleagues examined dental caries-related emergencies, our study also included gingival and periodontal conditions and mouth cellulitis or abscess. Hong and colleagues<sup>26</sup> examined secular trends in hospital ED visits related to dental care in Kansas City, Mo., between 2001 and 2006. Their estimates indicated that mean charges for treating dental caries and pulpitis or periapical abscess were approximately \$432 and \$421, respectively.<sup>26</sup> The slightly higher ED charges in our study compared with those in previous research<sup>16</sup> could be explained partly by the facts that we examined data from later years and that we included a wider range of dental conditions, including periodontal conditions and mouth cellulitis or abscess. Furthermore, our study estimates are nationally representative, whereas the previously published studies are state- or city-specific. It should be noted that overall charges associated with treating dental emergencies are likely to be much more when one factors into the economic burden charges for care needed or provided after discharge from the ED, medication costs and other indirect costs. Previous research has demonstrated that more than one-half of the patients who seek treatment for dental complaints at an ED simply received a prescription for medication and no other treatment,<sup>15,16</sup> which could have left the underlying dental problem untreated.

The issue of patients visiting hospital EDs with dental complaints is complex, and solutions are not straightforward. Health care providers, policymakers and hospital administrators should consider establishing oral health experts within hospital settings who can consult with treating clinicians regarding oral health emergencies or can directly manage the emergencies themselves. Alternatively, hospitals could develop formal referral relationships with safety net providers and dentists who treat patients covered by Medicaid. Additionally, because a large number of patients who visited the ED with a dental complaint in our study were uninsured or were insured by Medicaid or Medicare, thought should be given to the expansion of government funding that fa-

cilitates preventive and periodic oral health care for these populations. This action may lead to significant community savings owing to a reduction in dental-care-related hospital ED visits by and better oral health care for the high-risk cohorts identified in our study.

Our study is a retrospective analysis of a large nationally representative hospital-based ED database. The ED visits estimated from this database account for only patients treated in hospital-based settings, not for ED visits made to dental clinics or community clinics. Consequently, the burden of dental-care-related ED visits in our study underestimates the actual burden associated with dental-care-related emergency visits that occur in all types of health care settings. The NEDS database provides information about medical insurance coverage but not about dental insurance coverage. It is likely that a significant proportion of patients visiting hospital-based EDs with dental conditions do not have dental insurance coverage. As with all retrospective analyses of secondary databases, our study cannot establish a definitive cause-and-effect relationship for outcomes presented in our study.<sup>27</sup> Finally, the issue of miscoding and coding biases that are likely to occur in large hospital-based secondary databases should not be discounted,<sup>28</sup> even though the Healthcare Cost and Utilization Project family of databases have been found to be reliable and valid.<sup>29</sup> Readers should interpret our study results and conclusions drawn from them while keeping in perspective the inherent limitations of the database used and design of the study.

## CONCLUSIONS

Oral conditions constitute the reason for about 1 percent of all ED visits occurring in the United States each year. Hospital EDs charge close to \$1 billion annually to treat these conditions. People who are uninsured and those who reside in low-income areas are likely to seek hospital-based settings for oral conditions. Those with mouth cellulitis, periodontal conditions and high comorbid burden are likely to have higher ED charges. ■

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