Objectives: To describe patients with nontraumatic dental problems treated in our pediatric emergency department (PED) and to determine if barriers to access prompted seeking care in the PED rather than from a dentist or dental clinic.

Design: Questionnaire administered to a convenience sample of patients with nontraumatic dental complaints.

Setting: An urban PED.

Main Outcome Measures: Insurance status, primary medical and dental care, duration of symptoms, diagnosis, and reason for seeking care in the PED.

Results: Two hundred patients were enrolled. Median age was 17 years (range, 1-22 years). Forty-five percent were African American. Forty-nine percent had Medicaid. Fifty percent identified a regular dentist, whereas 71% had a primary care physician. Thirty-four percent of patients 4 years and older had not seen a dentist in more than a year. Children younger than 13 years were more likely than teenagers to identify a regular dentist (odds ratio [OR] = 2.8; 95% confidence interval [CI], 1.3-6.1). Those with a regular medical provider were more likely to have a regular dentist (OR = 7.7; 95% CI, 3.4-18). The most common reasons for not going to a dentist were as follows: dentist closed, 34%; lack of dental insurance or money, 17%; and lack of a dentist, 16%. Patients with symptoms for more than 72 hours were more likely to cite lack of a dentist as their reason for coming to the PED (OR = 7.4; 95% CI, 1.9-33).

Conclusions: Many pediatric patients do not have regular dental care, and this is associated with a lack of primary medical care. Access barriers to acute dental care include lack of insurance or funds, lack of a dentist, and limited hours of dental care sites. Improved insurance reimbursement, active enrollment of adolescents into preventive dental care, and expansion of provider hours may limit PED dental visits and improve the health of patients.


Children and adolescents frequently come to the emergency department for the treatment of dental problems. Many of these visits are related to traumatic injuries, and much of the literature on emergency dental care is focused on traumatic emergencies.1-4 However, a significant number of children and adolescents seek care in the emergency department for dental concerns unrelated to trauma. Wilson et al5 described children with nontraumatic dental emergencies treated in a pediatric emergency department (PED) during the course of a year. Most of the visits (73%) were related to problems caused by caries. Poor dental health has an enormous effect on people’s general well-being. In a recent study, Acs et al6 showed that significant dental caries may slow children’s growth and that after receiving dental treatment, children with early childhood caries experienced a period of rapid weight gain until they caught up with their age-matched peers without dental illness.

Access to preventive and emergency dental care has become an area of increasing concern. Dental insurance coverage in the United States is relatively low. Forty-four percent of people have private dental insurance, 9% have public dental insurance, and another 2% have some other form of coverage. Forty-five percent have no dental insurance.7 A 1998 study estimated that 8.5% of Americans have unmet dental care needs. The figure increases to 16.4% for persons with an income of less than 150% of the poverty
METHODS

The PED at Boston Medical Center cares for approximately 23,000 children and adolescents per year from birth through age 21 years. Our patients come predominantly from minority backgrounds and are either uninsured or receiving Medicaid. A sample of 200 patients coming to the PED with dental complaints unrelated to trauma were enrolled in the study from April 1998 through September 1999. Most patients were enrolled between April 1998 and March 1999 by one of us (D.H.D.). From April 1999 through September 1999, all PED attending physicians actively enrolled study subjects. The times during which patients were enrolled were distributed equally throughout the day and included weekends. Once diagnosed as having nontraumatic dental illness, patients and/or their guardians were asked to answer a brief set of questions regarding their dental and medical care. The purpose of the study was not divulged to the participants. Those patients and families who did not speak English were not enrolled. Patients 15 years and older were administered the questionnaire by the attending pediatricians. For children younger than 15 years, the patient’s guardian was questioned. The survey consisted of 16 questions related to patient demographics, preventive dental care, primary medical care, and the reason for coming to the emergency department. Emergency department diagnoses were made by the treating attending pediatrician, except in cases in which dentists or oral surgeons were consulted in the PED. The total number of patients treated in the PED for nontraumatic dental complaints during the study period was compiled by examining our billing data and extracting those patients with the appropriate codes from the International Classification of Diseases, Ninth Revision. Data regarding our total PED population were extracted from our computerized registration information.

Data were entered into Microsoft Access (Microsoft Corp, Redmond, Wash) and analyzed with the Statistical Product and Service Solutions package for Windows 9.0.1 (SPSS Inc, Chicago, Ill). Categorical data were compared using chi-square analysis. This study was approved by the hospital’s institutional review board.

has been raised by studies indicating that minority groups and those of low socioeconomic status are less likely to obtain preventive dental care.8,12,13 Dental treatment may represent a significant cost to low-income families.14 Dentists often deny care to patients with Medicaid because of concerns over low reimbursement rates, delays in payment, prior authorization procedures, and contradictory benefits packages that may pay to extract a tooth but not to repair it.14,15 In 1993, only 20% of children covered by Medicaid received preventive dental treatment.16

The purpose of this study was to describe the patients treated in our PED for dental complaints other than trauma and to determine if access barriers to dental care prompted them to come to the PED rather than seek care from a dentist or dental clinic. We also hypothesized that those patients with longer duration of symptoms (>72 hours) would have a particularly high rate of access barriers to dental care. Further, we believed that younger children would have more regular dental care than adolescents.

RESULTS

During the study period, 408 patients were assigned nontraumatic dental diagnoses by the pediatric billing service; 200 of them were approached and enrolled in the study. No patient refused to take part in the study. The median age of our patients was 17 years. Sixty percent of patients were male, 45% were African American, and 17% were Latino (Table 1). Sixty-one percent (118 of 192 patients) reported having health insurance, with Medicaid the insurer for 49%. Comparison of the study patients to the group of all patients billed for nontraumatic dental diagnoses and to the general PED population is noted in Table 1.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Study Patients</th>
<th>All Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 200)</td>
<td>With Nontraumatic Dental Problems</td>
<td>(n = 408)</td>
</tr>
<tr>
<td>Median age, y</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Age, y (25%-75%)</td>
<td>14-20</td>
<td>7-20</td>
</tr>
<tr>
<td>Sex, M/F</td>
<td>60:40</td>
<td>54:46</td>
</tr>
<tr>
<td>Ethnicity, %</td>
<td>n = 193</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>45</td>
<td>. . .</td>
</tr>
<tr>
<td>Hispanic</td>
<td>17</td>
<td>. . .</td>
</tr>
<tr>
<td>White</td>
<td>16</td>
<td>. . .</td>
</tr>
<tr>
<td>Cape Verdean</td>
<td>8</td>
<td>. . .</td>
</tr>
<tr>
<td>Other</td>
<td>15</td>
<td>. . .</td>
</tr>
<tr>
<td>Insurance status, %</td>
<td>n = 192</td>
<td></td>
</tr>
<tr>
<td>Medicaid</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>Free Care†</td>
<td>25</td>
<td>34</td>
</tr>
<tr>
<td>None</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Private</td>
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<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

*PED indicates pediatric emergency department; ellipses, not available. Percentages are rounded to the nearest digit; therefore totals may not add to 100%.
†Free Care is a state program to provide hospital-based care to uninsured patients who meet predetermined financial need.
Although 63% of our patients (112 of 178) reported having health insurance that covered dental care, this included 9% (17) who had Free Care and were thus uninsured. Of the patients who identified themselves as having Medicaid, 16% (15 of 94) reported that they had no dental insurance despite Medicaid offering such coverage.

Our patients were more likely to have a regular primary care physician or medical clinic than to have a regular dentist (71% vs 50%; odds ratio [OR] = 2.5; 95% confidence interval [CI], 1.6-3.9). Patients with an identified primary care medical provider were far more likely than others to identify a regular dental provider (OR = 7.7; 95% CI, 3.4-18). Children younger than 13 years were more likely to have a regular dental provider than adolescents and young adults (OR = 2.8; 95% CI, 1.3-6.0). Thirty-four percent of patients 4 years or older had not had a dental visit within the previous year. Of those patients who had visited a dentist during the past year, 34% of those older than 4 years had not done so within a month of their PED visit.

The most common complaint was oral pain (92%). Seventy percent of patients were diagnosed as having either caries or abscess secondary to caries (Table 2). In 56% of cases, the pain had persisted for 72 hours or less. Twenty-six percent of patients had previously visited a dentist for the same problem that prompted their visit to the PED.

The most common reasons that patients reported seeking care in the PED as opposed to going to the dentist included “dental office closed,” 34%; “no insurance/expense,” 17%; and “no dentist,” 16% (Table 3). Seventeen percent (22 of 84) of patients with pain for 3 or more days said that they came to the PED because the dentist was closed, in comparison with 40% (44 of 109) of patients with pain of shorter duration (OR = 0.52; 95% CI, 0.27-1.02).

We undertook this study because we were concerned about the number of patients seeking care in the PED for dental problems. The dental care that patients receive in the PED is limited to medications and, when necessary, incision and drainage of abscesses. As their diagnoses indicate, many of these patients could have received more appropriate care in a dentist’s office.

Our patients consisted largely of minority adolescents with unfilled dental caries and their complications. Dental caries account for most nontraumatic dental diagnoses in the PED. More than 60% of our patients reported some form of dental insurance, usually Medicaid. However, only half of patients identified a regular dental provider, and 34% of those older than 4 years had not visited the dentist within the previous year.

Our patients cited multiple reasons for seeking care in the PED as opposed to a dental office: dental office closed, lack of sufficient funds or insurance, and lack of a dentist were the most common. Manski et al examined dental and medical visits to an emergency department and found that in contrast to medical visits, dental visits increased markedly on weekends and on evenings after 5 PM, suggesting that dentist availability may play a role in patients coming to the emergency department.

Our population was largely poor, as indicated by the high rate of Medicaid coverage and Free Care. Poverty is a key indicator of inferior oral health among children. Poor children experience twice as many caries as their more affluent peers. Lack of dental insurance was the second most commonly cited reason among our patients for not going to a dentist. Most of our patients with dental insurance had coverage under Medicaid and the Early and Periodic Screening, Diagnosis and Treatment program. Even when poor patients do receive dental care, it is often a different level of care. This is suggested by our finding that those patients with more than
72 hours of symptoms were both more likely not to have a dentist and to have previously visited the dentist for the problem that prompted their visit to the PED. They may well have received temporary measures but not definitive care, and their connection to the dentist may have been tenuous enough that they sought care elsewhere.

There was a significant amount of confusion among our patients regarding their dental insurance. Many patients who were covered by Medicaid and in theory had dental insurance said that they were without dental coverage. Patients and families may have been uninformed about the full extent of their coverage, or perhaps they were simply acknowledging the shortcomings of Medicaid. Similarly, many patients without insurance who receive Free Care reported that they had dental insurance. Again, this could be due to patient or parent confusion, or it could indicate the realistic possibility that these patients receive care in the hospital emergency department and clinics without receiving a bill for service.

Medicaid expenditures for dental care are extremely low. Although on average, Medicaid contributes only 2.3% of its child health expenditures to dental care,21 nationally, dental care accounts for approximately 30% of total health expenditures.22 In a survey of 15 states, Tinanoff23 noted recurrent difficulties with Medicaid dental coverage: high disease prevalence, low provider participation, and poor funding. According to a 1996 study done by the US Inspector General, more than 80% of dentists submitted any bills to the state Medicaid program and lacked dental care according to health insurance status because of the homogeneity of our patients regarding this factor.

Access to dental care may be improved in several ways. Lack of dental care disproportionately affects poor people and those in minority groups. Opportunities should be expanded to target preventive procedures to poor inner-city and rural children through school-based programs. Medicaid does not offer sufficient coverage for dental care; the reimbursement is too low to attract enough dentists. Also, dentists have been reluctant to accept Medicaid patients because they may not fit the dentists’ expectations.24 Through improved reimbursement and targeted incentives for dentists to practice in underserved areas, access to care may be improved. It appears from our survey that simply expanding dental office hours or providing an on-call service to answer questions could lessen dental visits to the emergency department. However, the effect of such a change may be less than anticipated because a significant proportion of those who came to the PED because the dental office was closed did not have a regular dentist.

Physicians, and in particular pediatricians, need to view dental care as their concern. Just as they discuss childhood safety with families, they should inform parents and patients about appropriate dental care and the need for visits to the dentist. Our patients with an identified source of primary medical care were far more likely to have a dentist and to receive regular care.

Our study has several limitations. Because we enrolled a convenience sample of patients, it is possible that our enrollment would have differed depending on the time of day or how busy the PED was at a given moment. We do not believe that the nonparticipating patients varied significantly from study patients in any systematic way. Also, our discharge diagnoses were largely made by the pediatric staff because most of our patients were not seen in the PED by a dentist or oral surgeon. Although we may have missed subtle findings, most of our patients presented with advanced tooth and gum disease evident to the medical staff. Numerous studies have shown that dental caries and their sequelae account for most nontraumatic dental visits to the emergency department. Our survey was not self-administered, so some patients and families may have been reluctant to be completely forthcoming in their answers. If this were true, it would be expected to minimize the number of patients admitting to coming to the PED because of the expense of dental fees, the lack of dental insurance, or rejection by dental offices. Despite this possible effect, notable percentages of our patients acknowledged these difficulties. Finally, we were unable to examine differences in access to dental care according to health insurance status because of the homogeneity of our patients regarding this factor.

Accepted for publication December 1, 2000.

We are indebted to Dr H. Carroll Eastman for her insightful reading and help in preparing the manuscript.


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REFERENCES