

## Rhode Island Children's Hospital Emergency Department Visits for Oral Health Conditions, 2006 – 2010

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**HOSPITAL EMERGENCY DEPARTMENTS (EDs) PROVIDE CRITICAL** and highly-demanded services to communities, including treatment for emergency oral/dental problems. EDs also serve as dental safety net points of access for a significant number of low income and uninsured Rhode Island children and adults who have limited access to oral health care due to lack of dental insurance, immigration status, or a number of other reasons. However, reliance on the ED for less severe, or non-emergent oral/dental conditions results in significant health care spending and increased pressure on the already crowded and overburdened EDs throughout the State.

Despite the fact that most children's dental problems are preventable with age-appropriate and effective disease management through regular dental visits, significant numbers of children experience dental decay. According to the National Health and Nutrition Examination Survey, more than a quarter of US young children age two to five years, more than half of the children age six to eight years, and 60% of adolescents 12 to 19 years had dental caries in the period of 1999–2004.<sup>1</sup> Similarly, the 2010-11 Rhode Island Third Grade Oral Health Survey found about half of Rhode Island third graders have experienced dental decay.<sup>2</sup>

Evidence suggests that regular preventive dental care visits beginning in early childhood can reduce the need for restorative and emergent care, particularly for children at high risk of developing dental caries.<sup>3</sup> However, regular preventive dental care is not equally accessible for all children. Parents may bring their children to the ED for non-urgent or traumatic dental/oral health concerns. For children and families without a dental home and/or an affordable source of dental care, EDs are the last resort to obtain dental care.<sup>4</sup> However, most non-traumatic and non-urgent dental care needs are more adequately addressed and treated in primary outpatient dental offices or clinics.<sup>5,6</sup>

The objectives of this report are to (a) document the extent of Rhode Island children's hospital ED visits for oral/dental conditions that are mostly preventable and treatable in primary care settings; (b) assess ED visits by children's age, insurance status, and primary diagnosis; and (c) discuss how to assure optimal and regular dental care for all Rhode Island children and decrease unnecessary hospital ED visits.

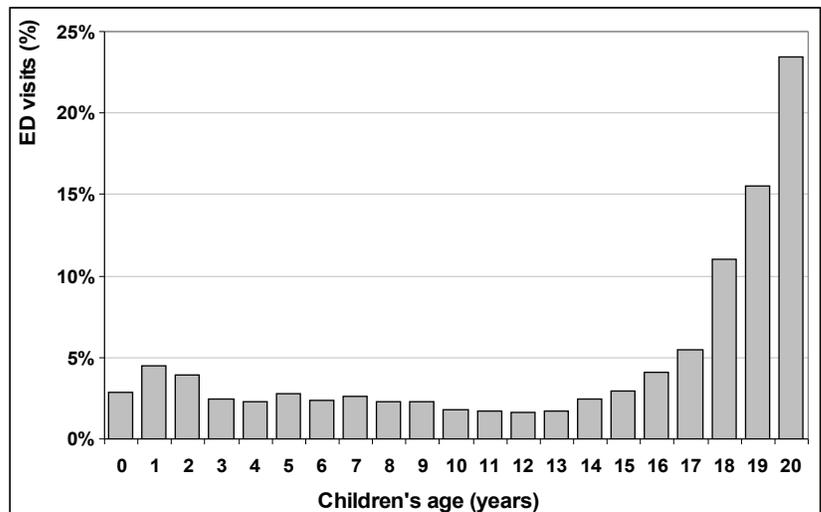
### METHODS

The data used for this analysis were obtained from the Rhode Island Hospital Discharge Database (HDD). Since 1989, Rhode Island hospitals are required to submit financial and statistical data using the statewide uniform reporting system to the Rhode Island Department of Health pursuant to their licensure authority.<sup>7</sup> Data on hospital inpatient and ED encounters are submitted by all 14 Rhode Island non-federal acute-care and specialty hospitals. HDD provides information on patient demographic characteristics, insurance, hospital admission and discharge related details including admitting diagnoses and clinical procedures rendered.

Data extracted and summarized for this report were all ED visits between January 1, 2006 and December 31, 2010 for children (20 years old and younger) with primary admitting diagnoses related to oral/dental conditions (i.e., ICD-9-CM codes of 520.0–529.9) that did not result in hospital admission. Children under 21 years of age were included to align with the age eligibility covered by Rhode Island Medicaid, which provides dental benefits for eligible children through the Early Periodic Screening, Diagnosis, and Treatment (EPSDT).

Using SAS® v9.3, descriptive statistics of the ED visits were generated by children's age, insurance type (or expected source of payment identified in hospital's initial admission records), and primary diagnosis.

**Figure 1. Children's visits to EDs at Rhode Island hospitals for oral/dental conditions by children's age in years, RI Hospital Discharge Data 2006–2010. (Total ED visits = 5,460)**



## RESULTS

From 2006 through 2010, 5,460 children's visits to the EDs at Rhode Island hospitals were primarily attributed to oral/dental conditions (identified with primary admitting diagnoses of ICD-9-CM codes 520.0–529.9). Noticeable trends or differences in the ED encounters by year were not observed over the five-year period.

Figure 1 depicts the oral/dental condition-related ED visits by children's age. Older children were the most frequent ED users; children age 18–20 years, combined, accounted for half of ED encounters (18 years: 11%, 19 years: 16% and 20 years: 23%).

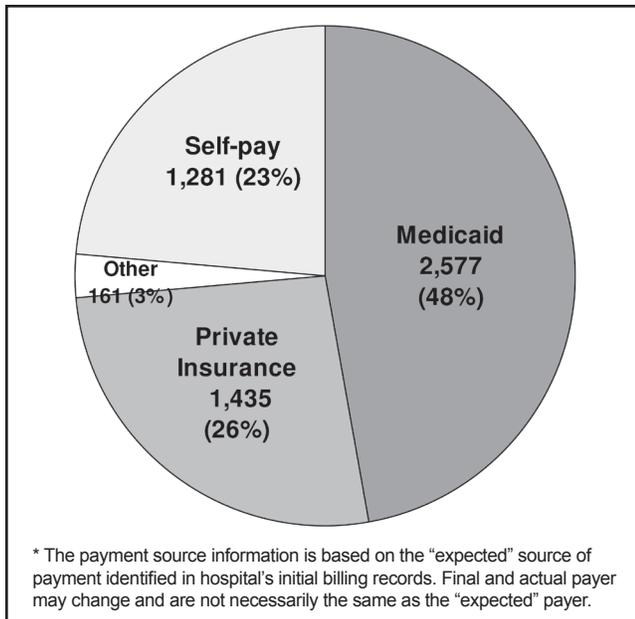
Medicaid (RIte Smiles or Medicaid fee-for-service) was the most common payment method for oral/dental complaints in the EDs, accounting for approximately half of all the ED visits (48%, Figure 2). Visits by children who were privately insured, and under- or un-insured children (whose payment sources

were identified as “self-pay”) accounted for 26% and 23% of ED visits, respectively (Figure 2).

Figure 3 summarizes the ED visits by child's age (categorized as 0–5, 6–12, 13–16, and 17–20 years) for the three major expected payors: Medicaid, private insurance, and self-pay. ED visits by children age 17–20 years occurred most frequently for all types of payors. No difference was observed in children's age distribution between Medicaid and private insurance coverage. Most of the children reported as under- or un-insured were within the oldest age group (17–20 years).

Table 1 shows the distribution of ED primary admitting diagnosis related to oral/dental conditions. A third of these primary diagnoses were dental caries or inflammatory pulp and periapical lesions originated by tooth decay (ICD-9-CM codes 521.00–521.09 and 522.0–522.9: 32%). Less specific conditions recorded as “unspecified disorders of the teeth and supporting structure”, such as toothache of undefined cause (ICD-9-CM codes 525.8 and 525.9), comprised 30% of the primary diagnoses.

**Figure 2. Children's visits to EDs at Rhode Island hospitals for oral/dental conditions by expected payment source\*, RI Hospital Discharge Data 2006–2010. (Total ED visits = 5,460)**



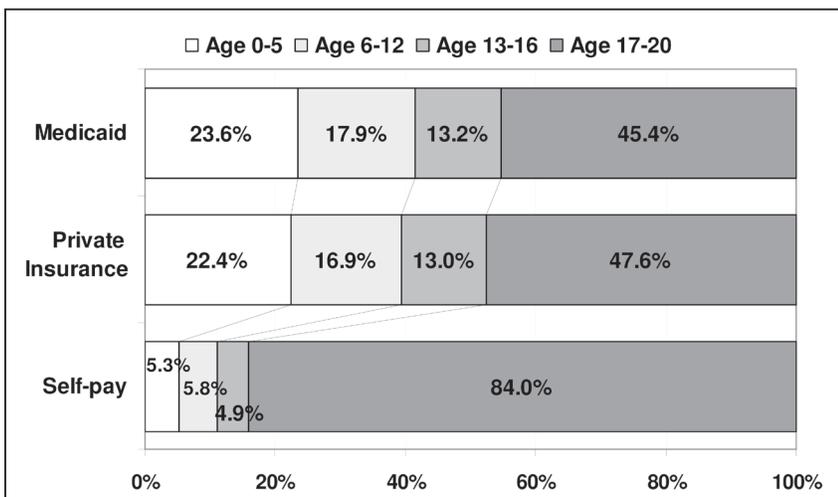
## DISCUSSION

Many children (under age 21 years) sought care at Rhode Island hospital EDs for acute signs and symptoms of oral health problems that are mostly preventable, given access to earlier and optimal dental care. ED use for preventable oral/dental disease is a significant public health problem. EDs typically offer only temporary relief of pain and palliative care that may require return visits or further dental services.<sup>8</sup> Because EDs are not equipped with the resources to offer definitive diagnosis and treatment for oral/dental conditions, patients usually must seek alternate follow-up care elsewhere to receive more appropriate dental services, resulting in delay of needed treatment. Significant numbers of “unspecified” primary diagnosis reported here can be explained by the fact that a majority of cases were diagnosed by ED physicians or nurses who had not been trained to offer appropriate dental counseling or services. Authors could not evaluate specific treatments rendered to resolve oral/dental complaints in EDs, due to incomplete record keeping of clinical procedural codes in the database. An empirical study showed that most of the pediatric patients presenting for ED

dental treatments received only symptom-relieving treatments, such as prescriptions of analgesics or antibiotics.<sup>9</sup>

This analysis of Rhode Island HDD found Medicaid to be the most common payor for children's ED visits for oral/dental conditions within the study period of 2006–2010. The predominance of Medicaid patients seeking care for non-emergent or traumatic dental/oral conditions at Rhode Island EDs suggests that (1) dental problems are more prevalent and severe among children from low-income families, and (2) children with Medicaid are less likely to obtain preventive and restorative dental care than those with private insurance coverage.<sup>10–13</sup> Postponing needed dental care may lead to an ED visit if a patient's disease progresses to a more complex condition.

**Figure 3. Children's visits to EDs at Rhode Island hospitals for oral/dental conditions by age group and expected payment source, RI Hospital Discharge Data 2006–2010.**



**Table 1. Children's visits to EDs at Rhode Island hospitals for oral/dental conditions by primary diagnosis (ICD-9-CM Codes), RI Hospital Discharge Data 2006–2010. (Total ED visits = 5,460)**

Primary Diagnosis	ICD-9-CM code	Number of visits	Percent
Dental caries, pulpitis and periapical lesions	521.0, 522	1,745	32.0%
Unspecified disorders of the dental/supporting structure	525.8, 525.9	1,595	29.2%
Soft tissue and tongue lesions	528, 529	688	12.6%
Disorders of the TMJ/jaw and malocclusion	524, 526	503	9.2%
Gingival and periodontal lesions	523	439	8.0%
Other (including eruption/tooth development anomaly, erosion, abrasion, tooth loss, cracked tooth, restoration fracture, etc.)	520, 521.2-521.8, 525.0-525.7	288	5.3%
Diseases of the salivary gland	527	202	3.7%
<b>Total</b>		<b>5,460</b>	<b>100%</b>

ED utilization was particularly concentrated within the adolescent ages, even among those with Medicaid coverage. Since the implementation of RIte Smiles (Rhode Island's Medicaid dental managed care program) in 2006, significant gains in access and utilization of preventive and treatment dental care among Medicaid-enrolled children age ten years and younger have been reported.<sup>14</sup> However, adolescent children born prior to May 1, 2000 are not covered by the RIte Smiles program. Children over age 12 are currently covered by traditional fee-for-service Medicaid, which has a different reimbursement/fee schedule and benefit structure. More efficient use of Medicaid dental benefits for adolescent children should be considered to better coordinate these older children's oral health needs and promote preventive and regular dental care in primary dental care settings. These efforts would help reduce emergency dental care treatment needs and generate Medicaid cost-savings by reducing the provision of more expensive dental care at hospital EDs.<sup>15</sup>

Most of the children reported as under- or un-insured were adolescents who were most likely lack of access to a regular source of oral health care. Public and private dental insurance that is more affordable and includes an expanded scope of dental benefits would allow more children to access routine dental care.

EDs provide crucial safety net dental access to a significant number of low income and uninsured Rhode Island children who have limited access to oral health care. The reliance of Rhode Island children on EDs for preventable, or non-emergent oral/dental conditions should be addressed by policy makers and oral health advocates to ameliorate significant health care spending and increased pressure on the overburdened hospitals, insurers and patients throughout the state.

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## Disclosure of Financial Interests

The authors and/or their spouses/significant others have no financial interests to disclose.

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