

Emergency and Urgent Dental Visits Among Medicaid Enrollees from 2013 to 2017

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Abstract

Background: Efforts to combat the spread of COVID-19 have led to guidance to restrict dental practice to treating emergency and urgent dental visits and reduce or eliminate elective dental procedures. Better understanding of the frequency of dental emergencies and the procedures performed during those emergency visits can help providers, insurers, and policymakers understand workforce and care provision needs.

Methods: Procedures performed at an emergency dental encounter and in the encounter following that encounter are assessed. Emergency dental encounters are those with a CDT code of D0140, D0160, or D0170. Data was analyzed from the IBM Watson Medicaid Marketscan data from 2013 to 2017, a nationally representative dental and medical claims database from 13 deidentified states.

Result: Consistently over time, about 10% of all dental encounters are due to a dental emergency. 28% of emergency dental encounters had no other procedure performed during those encounters. When other procedures were performed during the encounter, the majority were diagnostic in nature, primarily radiographs. Among patients who returned to the dentists following an emergency visit, 43% returned for more definitive dental treatment, most within 30 days. Among patients who returned to the dentists following an emergency visit, 43% returned for more definitive dental treatment, with the majority returning within 30 days for that treatment.

Conclusions: The majority of dental emergency encounters do not result in definitive treatment, rather patients often return to the dentist at a later date for that treatment. Where possible, dental providers could utilize teledental services to triage patients to appropriate care.

Background

Dental professionals are at considerably high risk of exposure to pathogenic microorganisms that infect the oral cavity and respiratory tract due to the nature of the dental care setting and procedures, which involve a face-to-face proximity between patient and provider, handling of high-speed handpieces, and exposure to saliva, blood, and other body fluids. (1–4). Efforts to stem the spread of SARS-CoV-2 and the respiratory disease coronavirus disease 2019 (COVID-19) led many states to restrict dental care to the treatment of dental emergencies. While some states are easing these restrictions, the Centers for Disease Control and Prevention (CDC) and American Dental Association (ADA) response to COVID-19 includes initial guidance which encourages limiting dental care to urgent or emergent treatment(5, 6). ADA interim guidance on returning to provide non-emergent care urges that treatment should be decided on patient or community risk of COVID-19, clinical risks associated with aerosol generating procedures, and the availability of personal protective equipment(7). The restriction of dental services and the high risk of infection for dental professionals presents a unique challenge for the provision of emergency dental care. Providers need to understand the critical elements of administering emergency dental care, the factors which may influence patients to seek out care, and plan appropriately for triaging and treating emergency cases.

Restrictions on practicing dentistry are being implemented at various levels by state and local governing agencies. By April 9, 2020, all 50 states were operating with restrictions with a majority classifying dental practices as essential services but limiting the scope of services to emergency procedures. After varying periods of restriction and closures, states have updated their mandates and as of May 1, 2020 the mandates in place included: 16 states open for elective procedures, 10 states classified dental as essential business, 20 states were restricted to emergency only, and 7 states had no mandate for dental services.(8) Over this period, the ADA Health Policy Institute conducted several ADA membership polls, a March 23, 2020 report indicated that 18.9% of offices were fully closed, and an additional 76% of responding clinics had closed but were seeing emergency patients(9). Follow up polling found that by April 20, 2020, 17.2% of participating offices were closed, and 79.4% were open for emergencies only(10). Federally Qualified Health Centers (FQHCs) are mandated by the Public Health Service Act to have provisions for the continuity of primary health services, including oral health, in the event of a patient emergency and that those provisions should adhere to the Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers Final Rule (11, 12). Health Resources and Services Administration (HRSA) directed FQHCs that offer oral health services to follow the CDC and state guidance on providing dental care during the COVID-19 crisis.

The reduction in dental services provided, even for a short period of time, may have significant impact on the oral health of Americans. Recent analysis has shown that ninety-two percent of families in poverty or low incomes have unmet dental needs.(13) These families rely on public insurance programs and access to low-cost or free dental services to address their needs. Limitations on scope of service and dental office closures across the country will have a disproportionate impact on individuals experiencing poverty, the uninsured, and individuals who participate in Medicare/Medicaid programs, given the great burden of dental disease in these populations(14).

The COVID-19 crisis and the resulting dental service restrictions present providers, payers, and patients with an unprecedented challenge, and determining the full impact on overall oral health and long-term changes in demand for services will be difficult to predict. We know that limited access and reductions in covered services by public health programs often lead to increases in emergency department (ED) services. A study of the emergency department visits at the University of Illinois Hospital found the reduction in dental benefits was followed by increases in ED visits (48%), surgical intervention (100%), and hospital admission days (128%) (15). Proximity to appropriate and affordable care is also a

determining factor in ED visits for dental conditions. Individuals who live in medically underserved areas (MUAs), or who travel greater distances to primary care, are more likely to visit the ED(16, 17). Most dental care in the ED is palliative and consists of infection management through antibiotics and pain management through analgesics. Most EDs are not equipped to provide definitive care for dental conditions such as dental pulpal or periapical lesions, cellulitis or abscess, injuries, and pain. ED interventions are directed toward treating symptoms of the underlying condition without resolving the primary issue which often leads to revisits and may lead to the over prescribing of opioids and antibiotics.(18–24) As hospitals are focusing ED resources and care teams on the management of infectious and critically ill patients, it is vital that dental emergencies are kept in dental settings where appropriate and definitive treatment can be established.

As health care workers and dental providers are responding to the COVID-19 crisis and determining the best pathways to ensure that patients have access to essential care, it is important for the health care system to have a general understanding of what constitutes a dental emergency. The ADA produced guidance to help providers make the appropriate care determination stating that dental emergencies "are potentially life threatening and require immediate treatment to stop ongoing tissue bleeding [or to] alleviate severe pain or infection."(25) The CDC issued similar guidance, recommending that services should be limited to emergencies, which aligned with the Centers for Medicare & Medicaid Services (CMS) guidance limiting all non-essential planned surgeries, including dental.(26) The recommendations from the ADA, CDC, and CMS did not explicitly define what constitutes a dental emergency, allowing providers to have discretion in determining the appropriate treatment on a case by case basis. Additional guidance has been developed by individual state governing bodies and professional organizations.

Significant efforts have been made in providing and examining infection control and clinical management of dental emergencies. However, there is a gap in research around dental emergencies in dental settings prior to the COVID-19 outbreak. The research available has largely focused on pediatric dental emergencies including those originating from trauma.(27, 28) A study out of South Carolina found that just 9% of the after-hours pediatric dental emergencies analyzed needed referral to ED for treatment while the rest could be addressed in the dental setting. Additionally, the study found that there was significant variation in the treatment decisions partly due to unique provider characteristics (pediatric vs general) or practice settings.(27) Better understanding of the frequency of dental emergencies and the procedures performed during those emergency visits can help providers, insurers, and policymakers understand workforce and care provision needs. To that end, a retrospective study of data of Medicaid claims from 2013 through 2017 is used to gain insight into what occurs in and after emergency dental encounters.

¹ NE issued no state level restrictions, relying on county governance to do so.

Methods:

This retrospective study used Medicaid claims data to study the prevalence and composition of Emergency Dental visits.

Data Source:

This study used deidentified medical, dental, and pharmaceutical claims data from January 1, 2013 through December 31, 2017 from the IBM Watson MarketScan Multi-State Medicaid Database core data set(29). This database is a nationally representative dental and medical claims database from 13 deidentified states.

Sample Selection:

Emergency dental encounters are those with a CDT code of D0140, D0160, or D0170. For single year analysis, 2016 is the measurement year. Procedures performed at an emergency dental encounter in 2016 are assessed. Follow-up encounters occurring between 1 and 365 days after the initial emergency dental encounter are also assessed. Follow-up encounters may occur at any time in 2016 or 2017.

We included all patients aged 0 to 64 with at least 1 dental claim in the year 2016 in the study. Patients aged 0 to 20 are defined as Children. Patients aged 21 to 64 are defined as adults. These categories are based on eligibility for child vs adult Medicaid.

Methodology

We defined prescriptions as being associated with an emergency dental visit if they were prescribed on the same day as an emergency dental visit, regardless of whether patients had other visits or not that day.

When comparing emergency dental visits to follow-up visits, only the first emergency dental visit is considered in the emergency dental cohort. The follow-up visit may be another emergency dental visit, a treatment visit or a routine office visit. A treatment visit in this case is defined by procedure codes D2XXX – D7999, while a routine office visit is considered to be any non-emergency, non-treatment visit to a dentist.

We examined the relationship between emergency dental encounters and visits to the emergency room (ER) for dental conditions. Dental conditions are defined using the ASTDD classification of ICD-10 diagnostic codes.

Results:

Out of all dental encounters in 2016, 10% were emergency dental encounters. When assessed by age group, emergency encounters accounted for 6% of total encounters for children and 20% for adult encounters. (Fig. 1). These numbers were nearly identical from 2013 to 2017 (Fig. 1), demonstrating stability in these estimates over time. 28% of emergency dental encounters had no other procedure performed during those encounters, other than the emergency visit code, while another 36% had only one additional dental procedure performed during the visit (Fig. 2). Most additional procedures performed during an emergency dental visit were related to radiographs or intraoral images, compromising 61% of all procedures on children and 68% of all services performed on adults. The next most common procedure category was oral surgeries, predominantly extractions, comprising 12% of all services performed on children and 17% of all services performed on adults (See Table 1, See supplemental S1 for the most common CDT codes).

Table 1
Procedure Code Groupings

Grouping	Children		Adults	
	Emergency Visit	Visit After Emergency Visit	Emergency Visit	Visit After Emergency Visit
Imaging	61%	23%	68%	28%
Oral Surgery	12%	9%	17%	23%
Anesthesia	7%	8%	2%	4%
Minor Restorations	7%	9%	6%	13%
Preventive	5%	28%	1%	8%
Major Restorations	4%	6%	2%	4%
Adjunctive General	2%	3%	2%	2%
Diagnostic	1%	15%	1%	13%
Periodontics	0.3%	0.1%	1%	2%
Prosthodontics/ Orthodontics	0.1%	0.6%	1%	3%

36% of adult dental emergency visits had a prescription associated with them and 19% of visits by adults were associated with an opioid prescription. Among children, 15% of visits had an associated prescription and 4% had an associated opioid prescription. The most common prescription category prescribed for all emergency dental visits was Opioids at 28% of all prescriptions. The next most common prescription category was Penicillin with 27% followed by NSAIDS with 13% (Fig. 3).

Of all patients with an emergency dental visit in 2016, 78% returned to the dentists within 365 days of their first emergency dental visit. Among those patients that return, we see significantly fewer imaging procedures as a percent of total and more preventive and treatment (Table 1, Supplemental Tables S2). Among children, imaging as a percent of total, dropped from 60–23% between their first emergency dental visit and their next follow-up. For adults, imaging dropped from 68–28%. Preventive services, in children, went up from 5.4–28.2%. Restorations (both Minor and Major), as a percent of total, went up from 10.9–14.5% in children and from 7.8–17.4% in adults.

Categorizing return visits, 19% were for another emergency dental visit, 43% were for dental treatment, such as a restorative or surgical procedure, and 39% were for routine dental care, such as preventive care (Table 2). Patients are most likely to return for a follow-up within 15 days of an emergency dental visit if the follow-up visit is a treatment visit, as 44% of treatment visits occurred in this time frame. Meanwhile, 32% of return visits that were also emergency visits occurred within 15 days. Only 16% of return routine visits occurred within 15 days, and nearly half occurred 90 or more days after the dental emergency.

Table 2
Days to Return Visit within 365 Days after Emergency Visit, by Visit Type

	Another Emergency Visit	Treatment Visit	Routine Visit
% that Return	19%	43%	39%
Days Between Emergency and Return Visit			
1–15	32%	44%	16%
16–30	15%	20%	11%
31–60	15%	17%	14%
61–90	9%	7%	11%
91–180	15%	8%	27%
181–365	14%	4%	20%
Total	100%	100%	100%

Emergency dental visits can lead to emergency room (ER) visits for dental conditions, as patients are more likely to visit the ER for a dental condition within 15 days of a dental visit if the dental visit was classified as an emergency dental visit. 1.7% of adult emergency dental visits resulted in an ER visit for a dental condition within 15 days (0.6% in children), compared to 0.6% for non-Emergency adult dental visits (0.1% in children). The emergency dental to ER pathway can lead to a vicious cycle of visits, likely due to unresolved issues, as 3.4% of emergency dental visits among adults (1% among children) occur within 15 days of an ER visit for a dental condition. Additionally, half of patients who have both an emergency dental visit and an ER visit for a dental condition have 2 or more emergency dental visits within 365 days, while slightly more than half have 2 or more ER visits for dental conditions within 365 days.

Discussion

In the current environment, in which the vast majority of dentists across the country are seeing patients on a limited-service or emergency-only basis, a better understanding of the frequency of dental emergencies and the procedures performed during those emergency visits can help providers, insurers, and policymakers understand workforce and care provision needs. Among those enrolled in Medicaid, there is a great deal of stability over time in the rate of emergency dental visits, with about 10% of dental encounters being on an emergency basis.

Dental emergency visits tend to be evaluative in nature or are associated with prescriptions for pain or infection management, rather than providing definitive treatment, as more than 1 in 4 visits had no other procedure associated with them and, when there are other procedures, they tend to be for imaging and other non-definitive treatments. Dental emergency visits, however, are often a pathway to more definitive dental treatment, with 65% of those who return for dental treatment coming back within 30 days.

Emergency dental visits, alone, are not enough for keeping people out of the ER for dental conditions. Rather, a full range of preventive and dental treatments are needed, as emergency dental visits are more often associated with ER visits than non-emergency visits and there can be a vicious cycle of emergency dental and ER visits for dental conditions. However, given the need for a substantial change in infection control practices to reduce aerosolization, it may be some time before dentists can safely use the full range of typical treatments.

Conclusion

Given what is known about the infection pathways of COVID-19 and with a general understanding of emergency dental visits in the dental setting, providers can effectively plan and determine how to provide essential care to patients while protecting themselves, staff, and the individuals who are seen for treatment. The provision of care under the threat of COVID-19 or other air-borne infections, will require the adoption of new techniques for infection control in dental settings. Additional emphasis on the reduction of aerosols may result in increased usage of non-aerosol generating treatments for carious lesions, such as silver diamine fluoride, temporary restorations with glass ionomers, or atraumatic restorative treatments(30–32). Providers should be prepared for evolving guidance and continued adjustments to the way they practice, as evidence-based research is established for COVID-19 and dental treatment.

Teledentistry can assist in keeping providers and patients engaged and communicating effectively throughout the changes in operations and may be an essential tool in the transition to a new era in dentistry, assuming that regulatory and financial barriers to implementation are addressed in an expedient manner.(33) Through teledentistry and in collaboration with patients, providers can engage in more patient outreach, reinforce healthy behaviors, provide education, and explore minimally invasive treatment options without being in physical proximity. Additionally, providers who connect with patients via telehealth can triage and direct care to appropriate settings, maximizing the productive use

of patient time in the operatory while reducing exposure risk. As dental practices operate either under emergency only restrictions or have other limitations as they return to practice, providers also have the opportunity refocus care delivery to reduce the demand for emergency services through pathway redesign, moving from a “drill first” focus to prevention focused built around the most minimally invasive procedures possible.

List Of Abbreviations

ADA American Dental Association

ASTDD Association of State and Territorial Dental Directors

CDC Centers for Disease Control and Prevention

CDT Code on Dental Procedures and Nomenclature

CMS Centers for Medicare & Medicaid Services

COVID-19 Coronavirus disease 2019

ER Emergency room

FQHC Federally Qualified Health Centers

HRSA Health Resources and Services Administration

ICD International Statistical Classification of Diseases and Related Health Problems

MUA Medically underserved areas

Declarations

Ethics Approval

Because this study uses deidentified data with no ability to link to protected health information, this study was ruled exempt from IRB review by Western IRB.

Consent for Publication

Not applicable

Availability of Data and Materials

The data that support the findings of this study are available from International Business Machines (IBM) but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. No administrative permissions are required to use this data, however a licensing fee for use of the data is generally required. Data may be available from the authors upon reasonable request and with permission of IBM.

Competing Interests

The authors declare that they have no competing interests

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Author Contributions

RF was a major contributor in drafting and revising the manuscript and interpreting the data. IO contributed to the analysis and interpretation of the data and substantively revised the analysis. MB contributing to the design of the manuscript. SB substantively revised the manuscript and contributed to the interpretation of the data. ET contributed to the conception of the work, the acquisition, analysis, and interpretation of the data, and substantively revised the manuscript. All authors read and approved the final manuscript.

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Figures

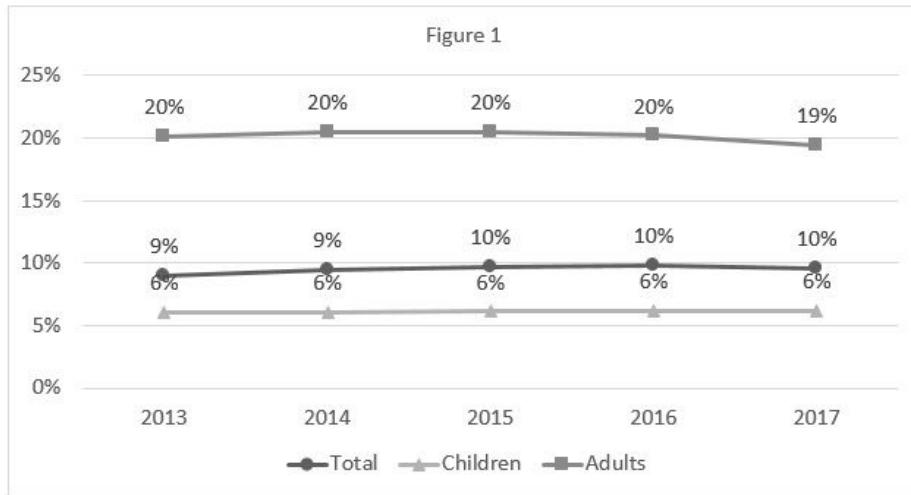


Figure 1

Proportion of all dental encounters among Medicaid enrollees that are emergencies from 2013 to 2017, including in the population overall (circles), among children ages 0-20 (triangles), and adults 21 or older (squares)

Figure 2

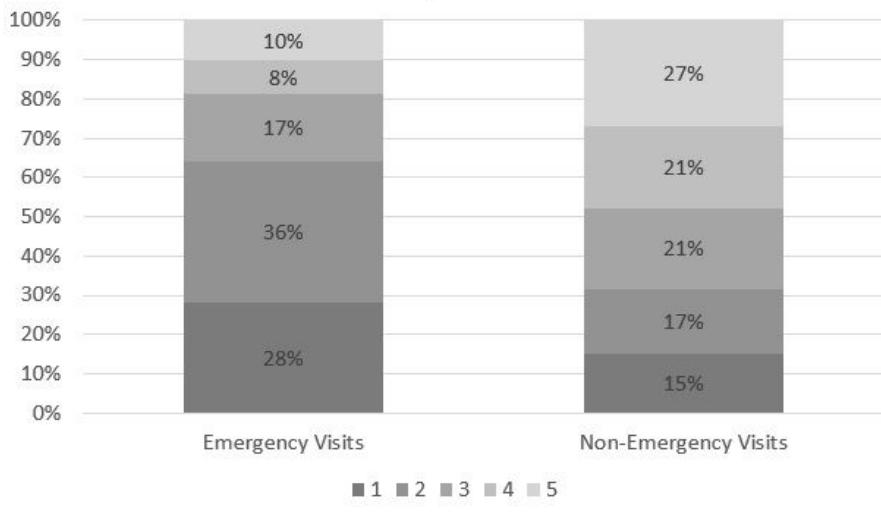


Figure 2

Number of dental procedures performed during a dental visit, comparing emergency visits on the left and non-emergency visits on the right.

Figure 3

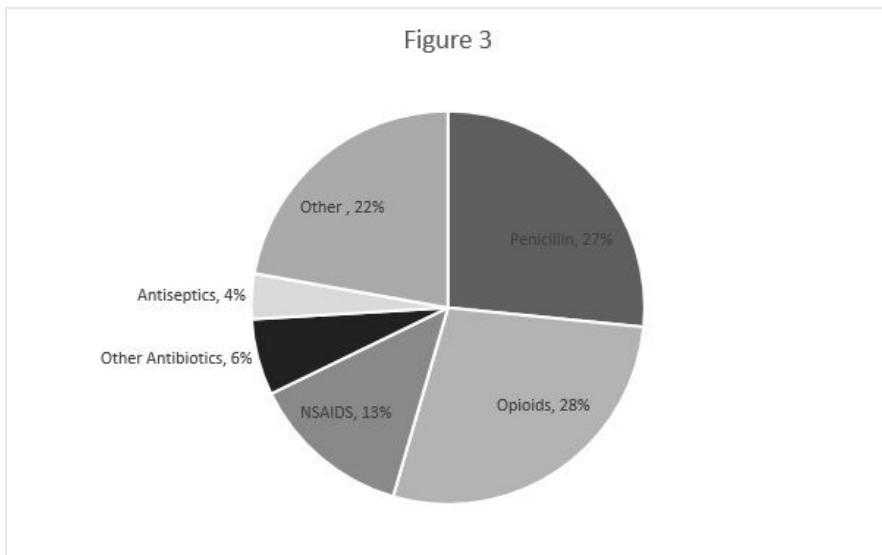


Figure 3

Type of medication prescribed on the same day as an emergency dental visit, defined by therapeutic class of drug .

Supplementary Files

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- [SupplementalTables.docx](#)