Dental-Related Emergency Department Visits and Community Dental Care Resources for Emergency Room Patients

Anna Trikhacheva, M.D.[1], Michael Page, M.D.[2], Holly Gault, M.D.[3], Rose Ochieng, M.D.[4], Bradley E. Barth, M.D.[5], Chad M. Cannon, M.D.[5], Olga Shakhnovich, B.S.[6], Kimberly K. Engelman, Ph.D.[6]

[1]University at Buffalo, Department of Obstetrics and Gynecology, Buffalo, NY
[2]University of Kansas-Wichita, Via Christi Family Medicine, Wichita, KS
[3]Research Medical Center, Research Family Medicine, Kansas City, MO
[4]Harbor-University of California Medical Center, Los Angeles, Department of Family Medicine, Los Angeles, CA
[5]University of Kansas Medical Center, Department of Emergency Medicine, Kansas City, KS
[6]University of Kansas Medical Center, Department of Preventive Medicine & Public Health, Kansas City, KS

Abstract

Background. The number and cost of dental-related visits to Emergency Departments (ED) is a significant issue nationwide. A better understanding of the treatment provided to ED patients presenting with dental complaints and community dental resources is needed.

Methods. A three-tiered approach included: 1) a 12-month retrospective chart review for dental-related ICD-9 visit codes at an urban academic ED in Kansas City; 2) surveys of 30 providers at the same ED regarding the dental patient process and treatment; and 3) telephone surveys of 16 Kansas City area safety net clinics regarding service access.

Results. Out of 49,276 ED visits, 676 were related to dental conditions (70 were repeat dental ED visits). Most patients were female (54%), white (45%), age 20-39 (65%), and self-pay (56%). The most prevalent codes utilized were dental disorder not otherwise specified (NOS; 57%), periapical abscess (22%), and dental caries NOS (15%). Nearly all providers (97%) felt comfortable seeing patients with dental complaints. Chart review indicated that patients received a dental screen/exam during 80% of the encounters, with medication provided to 90% of the patients. Over two-thirds of the providers (N = 23/30) regularly prescribed antibiotics and pain medications for their ED dental patients. ED providers performed dental procedures in 63% of the patient cases. The most common procedures included dental blocks (N = 16 providers) and incision and drainage (N = 4 providers). Only two of the 16 safety net clinics provided comprehensive dental care, almost all (94%) clinics required patients to call to schedule an appointment, and there was a two to six month waiting period for 31% of the clinics.

Conclusion. The limited scope of dental treatment in the ED, coupled with poor availability of safety-net dental resources, may result in dental exacerbations and suboptimal patient clinical outcomes. The enhancement of safety-net dental service accessibility is crucial to reducing dental ED visits and improving dental health, particularly among low-income, self-pay populations.

KS J Med 2015; 8(2):61-72.

Introduction

The number of dental related visits to Emergency Departments (EDs) has been an increasing problem nationwide. Between 1997 and 2000, an estimated 2.95 million dental related visits were made to EDs across the country.[1] There also has been a disproportionate increase in ED use for dental-related conditions between 2001 and 2008: approximately a 41% increase for dental related ED visits compared to a 13% for all other causes and conditions.[2] Furthermore, many patients return multiple times for the same dental complaints.[3] Repeat visits to EDs may be due, in part, to the limited dental training provided in medical school.[4]

In recent years, there has been an increased interest in preparing physicians to provide comprehensive dental care, though the results of these efforts remain to be seen.[4] Such movements come from the understanding that poor oral health outcomes are linked to multiple general health problems, including systemic illness such as cardiovascular disease.[5] Efforts to integrate medicine and dentistry include reports published by the Institute of Medicine, the Department of Health and Human Services, and the American Association of Medical Colleges that identify the role of physicians in addressing dental problems and outline medical school curriculum objectives.[4]

On a national level, oral health requirements were added to family medicine residency programs by the Accreditation Council for Graduate Medical Education (ACGME) to increase oral health training.[6] Dental-related ED visits are associated with millions of dollars in cost.[7,8] In 11 hospitals in Kansas City, Missouri, the costs associated with dental-related visits to the ED added up to $6.9 million during a six-year period (2001-2006).[8] From 2001-2006, 19,316 Kansas City residents visited one of the 11 EDs for dental-related complaints; this accounted for 1.7% of all the hospitals ED visits.[8] The Kansas City, Missouri population in 2006 was 435,825 people.[8] Of the study population, 76.8% of the ED dental-related visits were by self-pay and Medicaid patients.[8]

Many patients do not go to dental offices for treatment. Barriers to dental care include high cost, lack of desired appointment availability, lack of accessibility to discounted services for patients with no insurance, fear of dentists, lack of trust in dentists, language barriers, and lack of transportation.[9,10] As a result, the ED becomes the primary place where many patients receive dental care. EDs are used most commonly for dental problems by young adults, who have no dental insurance, come from low-income families, and do not have a regular dentist.[11-13] Many patients understand that they are unlikely to get definitive dental treatment in EDs or physician offices, however, they expect that physicians can treat the problem, at least temporarily.[13,14]

Dental-related ED visits are an increasing nationwide problem that is understudied. The goals of this study were to identify the number and types of dental-related ED visits at a Kansas City urban academic tertiary care ED during 2012, identify the process of treatment and referral of patients for dental-related problems at this ED, and identify the dental safety-net community resource availability in the greater Kansas City area.

Methods

This study involved three tiers of data collection: a retrospective chart review, an ED provider survey, and a safety-net clinic telephone survey. A retrospective chart review at the University of Kansas Medical Center Emergency Department, an urban

academic tertiary care ED, examined all the medical records during the 2012 calendar year. The patients were selected for inclusion based on ICD-9 codes: disorders of tooth development and eruption (520.0-520.9), diseases of hard tissues of teeth (521.0-521.9), diseases of pulp and periapical tissues (522.0-522.9), gingival and periodontal diseases (523.0-523.9), dentofacial anomalies including malocclusion (524.0-524.9), and other diseases and conditions of the teeth and supporting structures (525.0-525.9). Diagnoses and their associated ICD-9 codes were recorded by the ED providers. Disorders of tooth development and eruption, diseases of hard tissues of teeth, diseases of pulp and periapical tissues, gingival and periodontal diseases, and other diseases and conditions of the teeth and supporting structures were of particular interest as these codes are fairly comprehensive for dental complaints. Hospital electronic medical records and a data extractor were used to isolate the patient population. After the data were extracted, the resultant dataset was analyzed based on patient demographics, patient insurance status, and most common dental complaints.

Two different surveys were conducted to gather additional information. The first survey was administered to all emergency department providers at the University of Kansas Medical Center Emergency Department: 38 physicians and five nurse practitioners. The University of Kansas Medical Center is a Level I Trauma Center that treats approximately 120 patients daily and 54,000 patients annually.[15]A written survey was distributed to the providers and collected by medical students. The survey included six self-reported questions that examined the number of dental patients seen per month, treatments they provided, and resources given to patients for follow-up. The questions were in multiple-choice format with the option to write in additional information. The survey provided to ED providers was designed to identify the process of treatment and referral of patients at the University of Kansas Medical Center Emergency Department for dental-related problems.

A telephone survey was administered to safety-net clinics in the greater Kansas City area to gather additional data regarding the availability of dental resources in the area for patients. Medical students utilized a standard call script and dental community resource survey developed for this project. Inclusion criteria for safety-net clinics included proximity within 30 miles of the University of Kansas Medical Center ED. Twenty clinics were contacted to participate in the survey. The community resource assessment included six questions regarding the process of dental patient referral, length of wait time, dental services provided, and fees charged. Descriptive summary statistics were used to analyze all data collected. The University of Kansas Medical Center IRB approved the project.

Results

Emergency Department patient chart review. During 2012, the University of Kansas Hospital ED incurred 49,276 patient visits. Of these, 676 visits were associated with dental-related complaints, representing 1.4% of all ED visits. The 676 patient visits were comprised of 575 patients. Of the visits, 171 (25.3% of total visits) were return visits with 70 patients returning to the ED multiple times for dental related complaints.

Of the 575 de-duplicated patient records, females were slightly more represented at 54% (see Table 1). Approximately, 45% of the patients were Caucasian, 39% were African American, and 15% represented other races/ethnicities. The mean age was 34-35 years with the most common age

range being 20-39 (65% of the patients). With respect to insurance status, 56% of patients were Private/Self Pay, 26% had Kansas or Missouri Medicaid, 8% had Kansas or Missouri Medicare, and 10% had another form of insurance.

Medicare does not cover routine dental care or dental procedures, including bi-yearly dental check-ups, cleanings, or caries filling. However, Medicare does cover ED visits.[16] In both Missouri and Kansas, dental services are a benefit which is covered by Medicaid but with important coverage limitations, especially for adults. Kansas adults seeking dental services with Medicaid are limited to emergency treatment for relief of pain and infection.[17] Missouri adults seeking dental services with Medicaid are limited to coverage only for facial trauma or the treatment of health-impacting disease or medical condition unless they are pregnant or blind.[17] Of the patients who returned to the ED for dental complaints, six patients met criteria for both Private/Self Pay and Medicaid. These patients received Medicaid after their earlier visit to the ED. Additionally, one patient met criteria for both the Private/Self Pay and other.

Table 1. Characteristics of 575 patients presenting at the emergency department with dental-related conditions in 2012.

Characteristics	***Number (%)***
Sex	
Male	265 (46.1%)
Female	310 (53.9%)
Race/Ethnicity	
White	260 (45.2%)
Black or African American	226 (39.3%)
Other	86 (15.0%)
Declined	3 (0.5%)
Age Range in Years*	
0 to 9	11 (1.9%)
10 to 19	24 (4.2%)
20 to 29	199 (34.5%)
30 to 39	173 (30.0%)
40 to 49	89 (15.4%)
50 to 59	58 (10.1%)
60 +	23 (4.0%)
Insurance Status	
Private/Self Pay	326 (56.0%)
Medicaid	150 (25.8%)
Medicare	49 (8.4%)
Other	57 (9.8%)
Number of Dental-Related Visits to ED Per Patient	
1	505 (87.8%)
2	51 (8.9%)
3	11 (1.9%)
4	6 (1.0%)

5+	2 (0.4%)

* One patient met criteria for both the 10-19 and 20-29 group. One patient met criteria for both the 20-29 and 30-39 group.
**Six patients met criteria for both Private/Self Pay and Medicaid. One patient met criteria for both Private/Self Pay and Other.

Among the 70 patients (12.5%) presenting to the ED on multiple occasions during the study period, the majority (85%; N = 53) presented twice. Of these 53 dually-presenting patients, 45 had Medicaid or Private/Self Pay insurance (see Table 2). Of the patients who presented three times to the ED, 11 of 13 patients (84%) had Medicaid or Private/Self Pay. Of patients that presented four times to the ED for dental-related complaints, six of seven patients (85%) had Medicaid or were Private/Self Pay. Four patients presented five or more times for dental-related complaints and all had Medicaid or were Private/Self Pay. Of all repeat ED patients, 85% represented the Medicaid and Private/Self Pay insurance statuses.

Table 2. Insurance status of patients that presented two or more times for dental-related conditions in 2012.

Number of Repeat Visits	***Medicaid***	***Medicare***	***Private/Self Pay***	***Other***
2[a]	27	5	28	3
3[b]	4	1	7	1
4[c]	1	1	5	
5 or more[d]	2		2	
Percentage	31.2%	9.1%	54.6%	5.2%

a. 2 patients met criteria for both Medicaid and Private/Self Pay.
b. 1 patient met criteria for both Medicaid and Private/Self Pay and 1 patient met criteria for both Private/Self Pay and Other.
c. 1 patient met criteria for both Medicaid and Private/Self Pay.
d. 2 patients met criteria for both Medicaid and Private/Self Pay.

The most common dental-related complaints in the ED characterized by ICD-9 codes associated with patient encounters are presented in Table 3. The ICD-9 codes are largely used for medical billing purposes. From the ICD-9 codes, it is unknown if only the symptoms were addressed or if the actual problem was addressed. Most commonly, dental disorder NOS represented 57% of all the dental-related ED visits. Periapical abscess and dental caries NOS represented 37% of all dental-related ED visits. Other dental-related conditions comprised 6% of all patient diagnoses.

Table 3. Most common ICD-9 codes for dental-related conditions presenting at the emergency department in 2012.

ICD-9 Code	*Description*	*Number (%)*
525.90	Dental Disorders NOS*	386 (57.1%)
522.50	Periapical Abscess	146 (21.6%)
521.00	Dental Caries NOS*	100 (14.8%)
522.40	Acute Apical Periodontitis	9 (1.3%)
523.10	Chronic Gingivitis-Plaque Induced	8 (1.2%)
520.60	Tooth Eruption Syndrome	7 (1.0%)
Others	Others	20 (3.0%)

*NOS = Not Otherwise Specified.

Emergency Department provider survey. Due to time restraints and provider availability, 68% of attending and resident physicians (N = 26) and 80% of nurse practitioners (N = 4) completed the provider survey (30 of 43 providers; see Table 4). The most common complaints reported by providers were tooth pain (87%) and abscess (13%). The providers reported that most patients would receive a dental screen/exam to assess pain, swelling or bleeding (80%), have a procedure performed (63%), or receive medications (antibiotics and pain relief; 90%). Dental blocks to ease pain during examination and to facilitate incision/drainage procedures, along with incision and drainage, comprised the scope of procedures performed. Two-thirds of the providers (N = 23/30) reported prescribing both antibiotics and pain medication; four providers did not specify the prescriptions given. Every provider gave information about local, free dental clinics. Nearly all of the providers (96%) stated feeling either comfortable or very comfortable with providing symptom relief for patients with dental complaints.

Table 4. Provider survey results from 4 Nurse Practitioners and 26 ED physicians.

Topics	*Number (%)*
Monthly Number of Patients with Dental Related Conditions Seen	
0 to 10	20 (66.7%)
11 to 20	7 (23.3%)
21 to 30	2 (6.7%)
31 to 40	1 (3.3%)
41 +	0 (0%)
Most Common Complaint	
Tooth Pain	26 (86.7%)
Caries	2 (6.7%)
Dental abscess	4 (13.3%)
Periodontal disease/ gingivitis	0 (%)
Other	0 (0%)
Extent of Exam	
History	17 (56.7%)
Dental History	11 (36.7%)

Dental screen/ exam	24 (80.0%)
Imagining	1 (3.3%)
Labs	2 (6.7%)
Procedures*	19 (63.3%)
Medications**	27 (90.0%)
Follow-Up Information Provided to Patients	
Make an Appointment for Patient	5 (16.7%)
Handout with Free Dental Clinics	29 (96.7%)
Handout with Other Community Clinics	14 (46.7%)
Encourage to see dentist	3 (10.0%)
Comfort Level	
Very Comfortable	16 (53.3%)
Comfortable	13 (43.3%)
Uncomfortable	1 (3.3%)
Very Uncomfortable	0 (0%)

**Written in procedures included 16 providers performed dental blocks, 4 performed I&D's, 2 did not specify.*

***Written in medications included 23 providers prescribed an antibiotic and pain medications, 4 did not specify.*

Safety net clinic survey. Table 5 describes the results from the safety net clinic telephone survey. There were 20 local clinics within 30 miles of the ED that were contacted to participate in the survey. Of the 20 clinics, 16 (80%) clinics participated. Of the 16 clinics surveyed, 15 (93.8%) required a patient personally call to schedule an appointment. Four (25%) clinics had an emergency walk-in system available to provide emergency care. The wait time for an appointment varied from days to weeks at six (37.5%) of the clinics. There was a two to six month waiting period for five (31.3%) of the clinics. Four (25%) clinics provided same day emergency appointments, however, only a few same-day emergency patients can be seen in one day.

A majority of the clinics provided cleaning (68.8%), emergency services (62.5%), extractions (56.3%), and dentures (56.3%). Only two (12.5%) clinics offered comprehensive dental services inclusive of oral surgery. Of the clinics surveyed, 75% accepted new patients with no form of insurance, 68.8% of clinics accepted new patients who have private insurance, ten (62.5%) clinics accepted Kansas Medicaid patients, and nine (56.3%) clinics accepted Missouri Medicaid patients. Medicare was not included in this assessment due to lack of coverage by Medicare for dental care. Two clinics (12.5%) were not accepting new patients at the time of the survey. Fees charged varied among clinics: seven clinics (43.8%) calculated fees using a sliding scale based on income. Spanish interpreters were available at ten clinics (62.5%). Ten clinics (62.5%) had access to an interpretation phone line.

Table 5. Telephone survey results from 16 safety net clinics.

Topics	***Number (%)***
How to Schedule Appointment	

Call	15 (93.8%)
Emergency Walk-in	4 (25%)
Walk-in	3 (18.8%)
Have to be established patient	3 (18.8%)
Through outreach programs	1 (6.3%)
Appointment Wait Time*	
Varies – same day to weeks	6 (37.5%)
Months (2-6)	5 (31.3%)
Same day emergency only; only several patients seen	4 (25%)
Call first of month	2 (12.5%)
48 hours	1 (6.3%)
Services Provided*	
Cleaning	11 (68.8%)
Emergency	10 (62.5 %)
Extractions	9 (56.3%)
Dentures	9 (56.3%)
Fillings	8 (50%)
Crowns	8 (50%)
Sealants	8 (50%)
X-rays	7 (43.8%)
Oral Exam	7 (43.8%)
Fluoride Treatment	5 (31.3%)
Oral Health Education	4 (25%)
Root Canals	3 (18.8%)
Bridges	2(12.5%)
Comprehensive Care	2 (12.5%)
Oral Surgery	2 (12.5%)
Gum Disease	1 (6.3%)
Mouth and Dental Injuries	1 (6.3%)
Deep cleaning	1 (6.3%)
Mouth guard plate	1 (6.3%)
Child Oral Care	1 (6.3%)
Oral Hygiene Instruction	1 (6.3%)
Implant Restoration	1 (6.3%)
Blood pressure screening	1 (6.3%)
Nutritional counseling	1 (6.3%)
Insurance Category of New Patients Accepted	
No Insurance	12 (75%)
Private Insurance – varies by provider	11 (68.8%)
KS Medicaid	10 (62.5%)
MO Medicaid	9 (56.3%)
Not accepting new patients	2 (12.5%)
Fees Charged*	
Sliding scale based on income	7 (43.8%)
Discount varies based on age and insurance status	3 (18.8%)

First visit fee > $100	2 (12.5%)
Donation only	1 (6.3%)
$10	1 (6.3%)
Interpreter Services	
Spanish	10 (62.5%)
Phone line	10 (62.5%)
Cambodian	1 (6.3%)
Hmong	1 (6.3%)
Somali	1 (6.3%)
Hindi	1 (6.3%)
None	1 (6.3%)

**2 clinics did not provide information on these topics.*

Discussion

In a Midwestern, academic, tertiary care emergency department that is not affiliated with a dental school, patient visits for dental conditions comprised one percent of all visits over a one-year period. A sizable proportion of these ED dental-related visits were repeat visits (12%) and over two-thirds were uninsured, self-pay, or Medicaid patients. Patients seeking out emergent dental care from the ED received, in large part, symptom management treatment and subsequent referral to a safety-net community dental care provider. Our survey of safety-net dental clinics revealed a long waiting period for appointment scheduling (two to six months) for one-third of the clinics. Overall, these results highlighted an unmet safety-net dental clinic need that is forcing low-income patients with limited alternatives into emergency departments for dental symptom management (such as severe dental pain or inflammation) and limited resolution of the underlying dental problem.

Previous studies have established that dental related visits to the ED cost the health care system millions of dollars.[1,2] Approximately 44% of Americans lack dental insurance and this has contributed to the increase of ED use for dental complaints.[1] In addition, ED visits for dental care (over 41%) are increasing disproportionately compared to all other medical conditions (13%) that are seen in the ED.[2] In a single Kansas City, Missouri ED, dental-related issues totaled $6.9 million during a six-year period (2001-2006).[5] Nationwide, patients are using the ED for their dental care due to barriers which prevent them from obtaining proper oral healthcare. Lack of dental insurance, limited access to discounted services for the uninsured, lack of desired appointment availability, lack of trust in dentists, lack of transportation, fear of dentists, and language barriers are some of the common barriers preventing people from obtaining preventive oral healthcare.[6,7]

The majority of patients who visit the ED for dental care are Medicaid and self-pay patients. Access to preventive and restorative dental care is lacking for those without insurance and those covered by public programs. Although most of these patients use the ED for acute dental pain and infection control, the underlying dental problem often is not resolved. In contrast, people with commercial dental insurance rarely use hospital EDs for dental problems.[4] This study found that 82% of dental-related ED patients in 2012 were self-pay or Medicaid patients. While financial cost is one of the reasons patients go to the ED for dental complaints, there are additional barriers that hinder preventive oral health

care, such as lack of access to safety-net dental clinics, lack of insurance, time constraints, fear, and language barriers.[1]

Safety-net clinics and community dentists provide low cost dental care and accept Medicaid patients. However, there are not enough clinics or providers to meet the dental demands. Only 20 dental safety net clinics exist for the entire Greater Kansas City area. These clinics are limited in staff and time, making the process of obtaining an appointment a challenge. With the surveyed clinics reporting appointment wait times ranging from days to months, it appears that a provider shortage exists. Furthermore, only two of the surveyed clinics provided comprehensive care (inclusive of preventive care to oral surgery), suggesting patients who are unable to access a comprehensive care clinic (for preventive care, x-rays, fillings, oral surgery and extractions, root canal therapy crowns, bridges, or partials and dentures) may need to visit more than one clinic to address multiple or more serious dental problems. Anecdotally, during the safety-net clinic survey calls, it was discovered that for most of the clinics, the appointment protocol involved an initial evaluation visit followed by subsequent visits to address the dental problem. As such, multiple initial visits may be necessary for patients who seek care at multiple clinics due to the need for comprehensive care that may not be offered in the initial clinic visited by the patient. It may be necessary for patients to take multiple days off of work or school to receive the proper dental care.

A possible solution to assist in appointment scheduling might involve utilizing ED case-managers to make follow-up appointments for dental patients prior to ED discharge. However, with clinic appointment scheduling only available during business hours, after-hour ED patients would have to coordinate with the case manager at a later time to schedule a clinic appointment, which places an additional barrier in the process. Another potential solution would be to extend the dental clinic service hours into the evening, which may alleviate the burden for people who cannot afford to take time off from work or school.

Limitations of this study included its retrospective design looking only at a 12-month period. This study did not incorporate follow-up. The study focused on an ED located in an urban academic medical center without an affiliated dental school. This study also may not be generalizable to other EDs within the region or state. However, our results do resemble previously reported data and insurance status of patients visiting the ED for dental-related complaints. Lastly, our data were extracted from a large database and there is possibility of human error both as it was entered into the mainframe system and as it was extracted for this study.

In conclusion, these findings have important health care implications. The number of patients with dental-related complaints seen in the ED might be reduced if more accessible and affordable dental care were available. ED physicians provide acute care for these patients, but until the root cause of the problem is rectified, these patients will continue going to the ED for dental care due to the limited safety-net clinical dental care infrastructure in the Kansas City metro area. In Kansas, one of the largest unmet health needs is the lack of access to dental care.[19] While extended care permit dental hygienists are recognized in Kansas, their scope of practice is limited. Extended care permit dental hygienists are those with a requisite number of hours of practice experience, who obtain a permit to provide more types of care to underserved populations (e.g., provide temporary fillings, make denture adjustments, smooth sharp teeth, extract lose baby teeth, and apply

local anesthetics in certain situations). No extended care permit dental hygienists practice in the dental health professional shortage county in which the ED included in this study is located. The concept of mid-level dental providers in Kansas has been debated for several years but has yet to receive legislative traction. However, the admission of mid-level dental providers in Kansas could contribute to the solution for reducing emergency room utilization for emergent dental care.

Acknowledgements

We would like to extend our thanks to the following people who facilitated the conduct of this project: Leslie Sullivan, Eric Howser, Seamus Murphy, Michael Hastings, and Lucia Jones-Herrera.

References

[1] Lewis C, Lynch H, Johnston B. Dental complaints in emergency departments: A national perspective. Ann Emerg Med 2003; 42(1):93-99. PMID: 12827128.

[2] Lee HH, Lewis CW, Saltzman B, Starks H. Visiting the emergency department for dental problems: Trends in utilization, 2001 to 2008. Am J Public Health 2012; 102(11): e77-83. PMID: 22994252.

[3] Okunseri C Pajewski NM, Jackson S, Szabo A. Wisconsin Medicaid enrollees' recurrent use of emergency departments and physicians' offices for treatment of nontraumatic dental conditions. J Am Dent Assoc 2011; 142(5):540-550. PMID: 21531936.

[4] Cohen LA. Expanding the physician's role in addressing the oral health of adults. Am J Public Health 2012; 103(3):408-412. PMID: 23327256.

[5] Institute of Medicine. Oral Health and Overall Health and Well-Being. In: Advancing Oral Health in America. Washington, DC: The National Academies Press, 2011, 31-81.

[6] Silk H, King R, Bennett IM, Chessman AW, Savageau JA. Assessing oral health curriculum in US family medicine residency programs: A CERA study. Fam Med 2012; 44(10):719-722. PMID: 23148005.

[7] Davis EE, Deinard AS, Maïga EW. Doctor, my tooth hurts: The costs of incomplete dental care in the emergency room. J Public Health Dent 2010; 70(3):205-210. PMID: 20337900.

[8] Hong L, Ahmed A, McCunniff M, Liu Y, Cai J, Hoff G. Secular trends in hospital emergency department visits for dental care in Kansas City, Missouri, 2001-2006. Public Health Rep 2011; 126(2):210-219. PMID: 21387951.

[9] Bailit H, D'Adamo J. State case studies: Improving access to dental care for the underserved. J Public Health Dent 2012; 72(3):221-234. PMID: 22747649.

[10] Cohen LA, Harris SL, Bonito AJ, et al. Coping with toothache pain: A qualitative study of low-income persons and minorities. J Public Health Dent 2007; 67(1):28-35. PMID: 17436976.

[11] Anderson L, Cherala S, Traore E, Martin NR. Utilization of Hospital emergency departments for non-traumatic dental care in New Hampshire, 2001-2008. J Community Health 2011; 36(4):513-516. PMID: 21104429.

[12] Hocker MB, Villani JJ, Borawski JB, et al. Dental visits to a North Carolina emergency department: A painful problem. N C Med J 2012; 73(5):346-351. PMID: 23189415.

[13] Cohen LA, Bonito AJ, Eicheldinger C, et al. Comparison of patient visits to emergency departments, physician offices, and dental offices for dental problems and injuries. J Public Health Dent 2011; 71(1):13-22. PMID: 20726944.

[14] Cohen LA, Harris SL, Bonito AJ, et al. Low-income and minority patient satisfaction with visits to emergency

departments and physician offices for dental problems. J Am Coll Dent 2009; 76(3):23-31. PMID: 19928365.

[15] The University of Kansas Medical Center. The Emergency Department. KUMC Emergency Medicine. October 18, 2013. Available at: http://www.kumc.edu/school-of-medicine/emergency-medicine.html. Accessed February 3, 2014.

[16] Medicare Rights University. Does Medicare ever cover dental services? Medicare Interactive. Available at: http://www.medicareinteractive.org/page2.php?topic=counselor&page=script&slide_id=1591. Published 2011. Accessed February 3, 2014.

[17] The Henry J. Kaiser Family Foundation. Medicaid Benefits: Dental Services. State Health Facts. 2014. Available at: http://kff.org/medicaid/state-indicator/dental-services/. Accessed February 4, 2014.

[18] Crall JJ. The Search for Successful Strategies to Improve Oral Health. National Conference of State Legislatures and Center for Health Care Strategies Inc. April 2007. Available at: http://www.ncsl.org/print/health/Crall_NCSL_042007.pdf. Accessed January 23, 2015.

[19] Kansas Dental Project. We have a serious problem in Kansas. Available at: http://www.kansasdental.com. Accessed on Dec 13, 2014.

Keywords: emergency medical services, dental care, oral health, medically uninsured