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## Emergency Department Encounters for Dental Related Conditions, Montana, 2010-2012<sup>1</sup>

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Lack of consistent preventive dental care leads to untreated dental caries, present in 23.7% of the adult civilian non-institutionalized population from 2005 to 2008.<sup>2</sup> If not treated by a dentist, dental caries may progress to serious conditions such as abscesses and cellulitis which require urgent treatment. Untreated caries may result in tooth loss, nutritional problems, and even life-threatening systemic infections. An increasing proportion of children and adults are being treated in Emergency Departments (EDs) for non-traumatic dental conditions; several studies found that the majority of these patients are either self-pay or Medicaid beneficiaries, suggesting that they may not have adequate resources to seek appropriate preventive dental care.<sup>3</sup> These ED visits are largely preventable and they impose substantial costs on the ED system.<sup>4</sup> Most patients seen in an ED for non-traumatic dental conditions are treated with antibiotics and pain relievers but their underlying conditions are often not resolved, which is likely to lead to repeat visits.<sup>5</sup> This report focuses on ED encounters for non-traumatic dental conditions for Montana residents from 2010 to 2012.

We tabulated ED encounters to Montana residents from 2010 to 2012 with a primary diagnosis of a dental related condition (excluding injury; ICD-9-CM: 520-523), with a specific focus on diagnosis of dental caries (521.0x) and abscess (522.5).<sup>6</sup> The number of encounters per year ranged from 3061 to 2232 from 2010 to 2012 (262 per 100,000 population) for the three year period, which was 1.0% of all emergency department encounters.<sup>7</sup> We do not currently receive personally identifying information from the encounter summary, thus, we were unable to examine repeat encounters.

<sup>1</sup> The Montana Hospital Discharge Data System (MHDDS) receives annual de-identified hospital discharge data sets through a Memorandum of Agreement with the Montana Hospital Association. Most hospitals in Montana participate in voluntary reporting from their Uniform Billing forms, version 2004. The MHDDS receives information on more than 90% of inpatient admissions in Montana. It does not receive data outpatient procedures at this time.

<sup>2</sup> CDC/NCHS, National Health and Nutrition Examination Survey, Table 70, <http://www.cdc.gov/nchs/data/has/2012/070.pdf>

<sup>3</sup> Lewis C et al *Dental complaints in emergency departments: a national perspective* Ann Emerg Medicine 2003 Jul;42(1):93-9; Anderson L et al *Utilization of Hospital Emergency Departments for non-traumatic dental care in New Hampshire, 2001-2008* J Community Health 2011 Aug;36(4):513-6; Hong et al *Secular Trends in Hospital Emergency Department Visits for Dental Care in Kansas City, Missouri, 2001-2006* Public Health Reports 2011 Hocker et al *Dental visits to an North Carolina emergency department: a painful problem* N C Med J 2012 Sep – Oct; 73(5):346-51

<sup>4</sup> Elangovan S et al *Outcomes in patients visiting hospital emergency departments in the United States because of periodontal conditions* J Periodontol 2011 Jun; 82(6):809-19

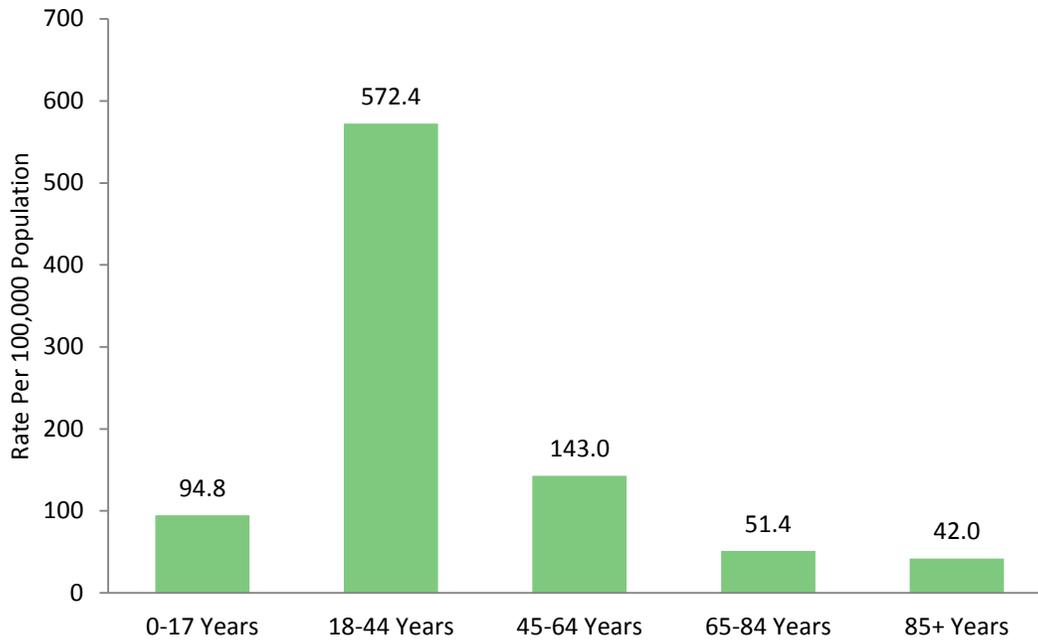
<sup>5</sup> Lewis et al., 2003; Davis et al *Doctor my tooth hurts: the costs of incomplete dental care in the emergency room* J Public Health Dent 2010 Summer; 70(3):205-10; Anderson et al., 2011; Hong et al., 2011; Hocker et al., 2012

<sup>6</sup> <http://www.icd9data.com/>

<sup>7</sup> National Center for Health Statistics. Postcensal estimates of the resident population of the United States for July 1, 2010-July 1, 2012 United States resident population by year, county, single-year of age, sex, bridged race, and Hispanic origin, prepared by the U.S. Census Bureau with support from the National Cancer Institute. Available on the Internet at: <http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm> as of April 24, 2004; Oct 26, 2012; June 13, 2013

The age group with both the highest rate (570 per 100,000 population) and largest percentage of total encounters for dental related conditions (1.8%) was 18-44 years (Figure 1). Encounter rates for dental related conditions were nearly identical for males and females (258 per 100,000 population and 266 per 100,000 population, respectively). Encounter rates by age and gender were similar to those found in nationwide studies.<sup>8</sup> However, Montana residents residing in urban and rural counties had higher encounter rates than those living in frontier counties areas (289 per 100,000 population versus 193 per 100,000 population).<sup>9</sup> Nearly all (> 99%) dental related condition encounters in Montana were ‘treat and release,’ that is, routinely discharged after the encounter.

Figure 1. Rate of Emergency Department Encounters for Dental Conditions (ICD-9-CM: 520-523) by Age Group, Montana Residents, 2010-2012

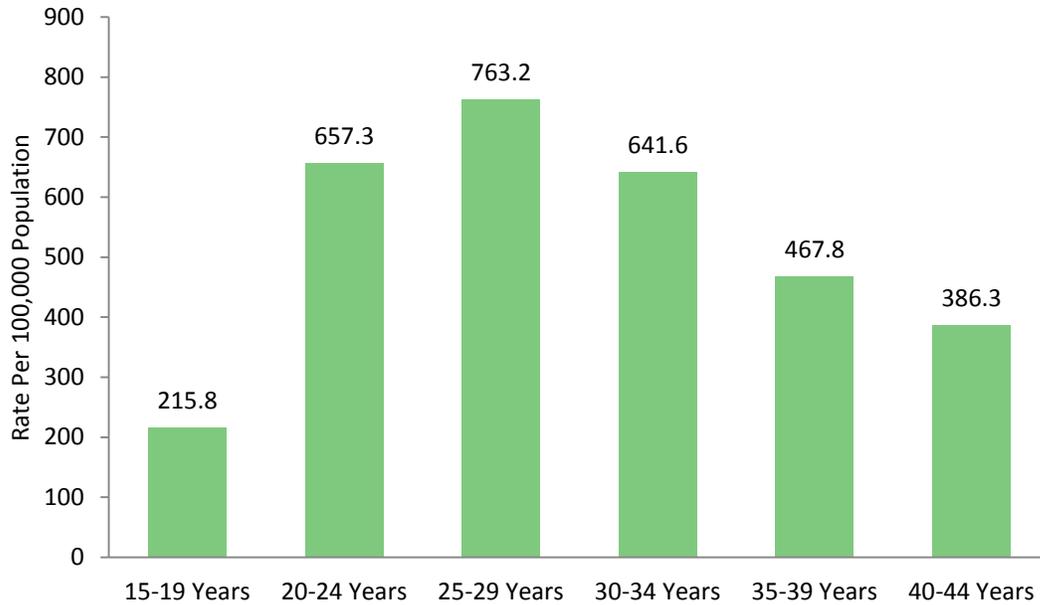


Because the ED encounter rates were highest for those aged 18 through 44 years of age, we examined ED encounter rates for five year age intervals for those aged 15 through 44 years (Figure 2). Rates increased with age until peaking for those aged 25 through 29 years before declining.

<sup>8</sup>Seu K et al *Emergency Department Visits for Dental-Related Conditions, 2009* HCUP Statistical Brief #143. November 2012. Agency for Healthcare Research and Quality

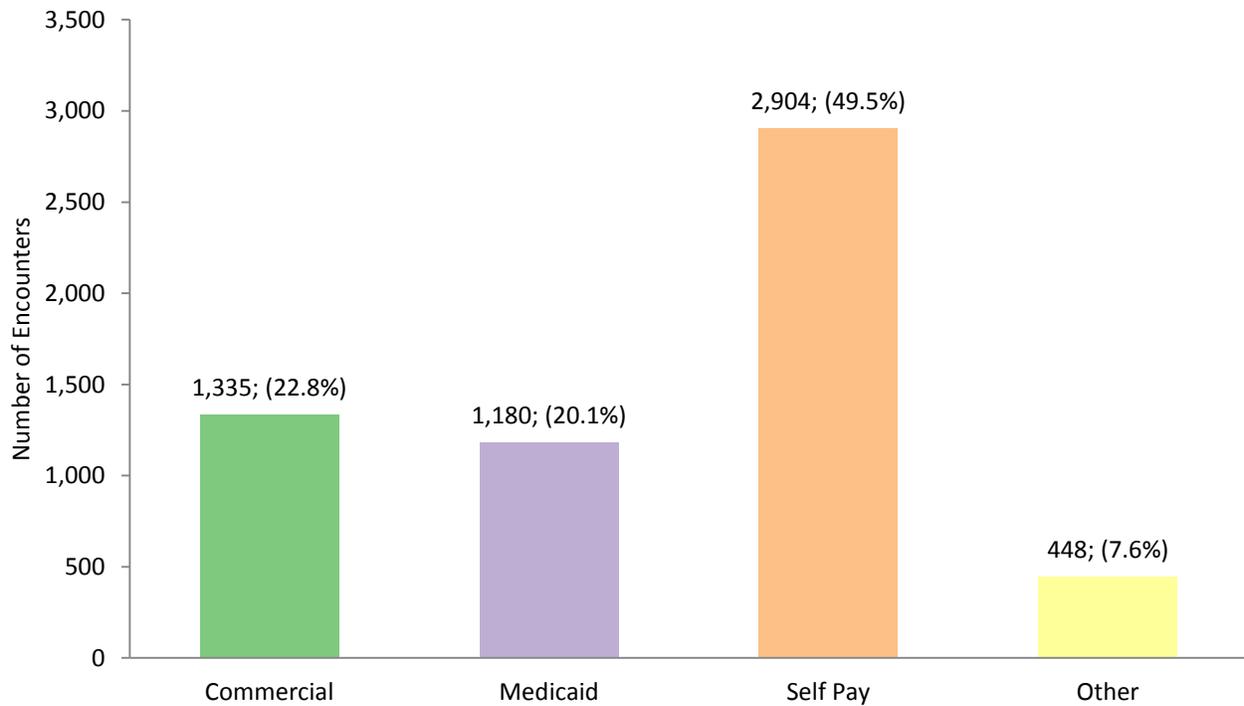
<sup>9</sup>[http://ruralinstitute.umt.edu/Maps\\_Frontier.asp](http://ruralinstitute.umt.edu/Maps_Frontier.asp)

Figure 2. Rate of Emergency Department Encounters for Dental Conditions (ICD-9-CM: 520-523), by Age Group, Montana Residents, 2010-2012



For ED encounters for dental related conditions for those aged between 15 and 44 years, total charges were roughly \$750,000 per year or an average of \$380 per encounter. Nearly half of ED encounters for dental related conditions were self-pay; 26.8% of all ED encounters for the 15 through 44 year old age group were self-pay.

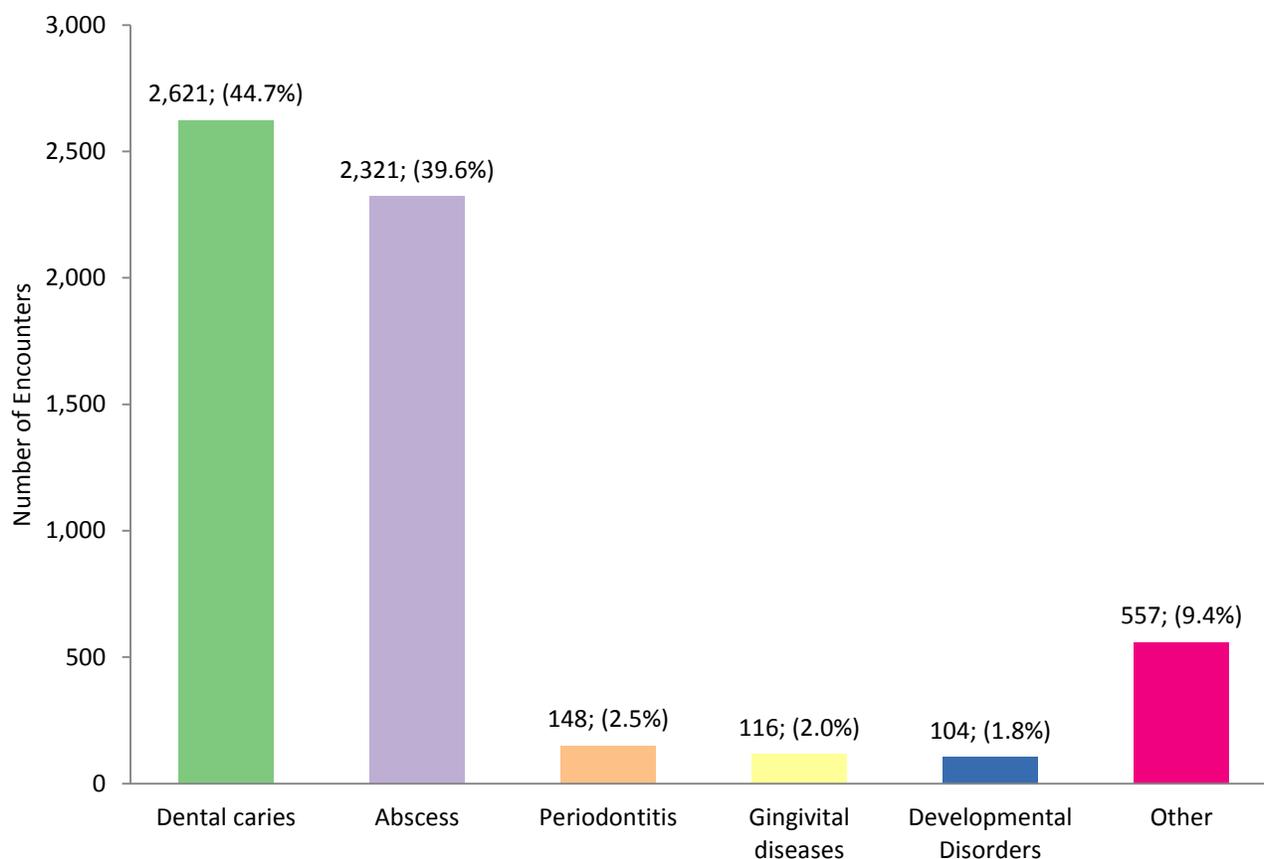
Figure 3. Number of Emergency Department Encounters for Dental Conditions (ICD-9-CM: 520-523), by Primary Payer, Montana Residents Aged 15-44, 2010-2012



We attempted to treatment procedures based on Current Procedure Terminology (CPT) codes.<sup>10</sup> The principal CPT code is ordered to prioritize procedures with the highest reimbursement; the most common principal CPT codes, accounting for 63% of encounters, were evaluation and management codes for the ED visit (99281, 99282, and 99283).<sup>11</sup> The only CPT code not related to evaluation and management found on as principal CPT code on more than 5% of ED encounters was 64400, a code for injecting anesthetic. Alternative sets of codes exist for dental procedures; we do not know if the CPT codes received reflect limited treatment for dental related conditions at EDs or are due to coding and transmission policy.<sup>12</sup>

The two most common dental conditions reported as primary diagnosis for dental condition related admissions were dental caries and abscess (Figure 4). Dental caries are a slow growing condition, and an encounter reflects years of failure to receive proper care from a dentist. Although an abscess is an acute condition, it also reflects long term neglect, rather than an acute change in healthy teeth.

Figure 4. Number of Emergency Department Encounters for Dental Conditions (ICD-9-CM: 520-523), by Condition, Montana Residents Aged 15-44, 2010-2012



<sup>10</sup> CPT copyright 2012 American Medical Association. All rights reserved. CPT is a registered trademark of the American Medical Association.

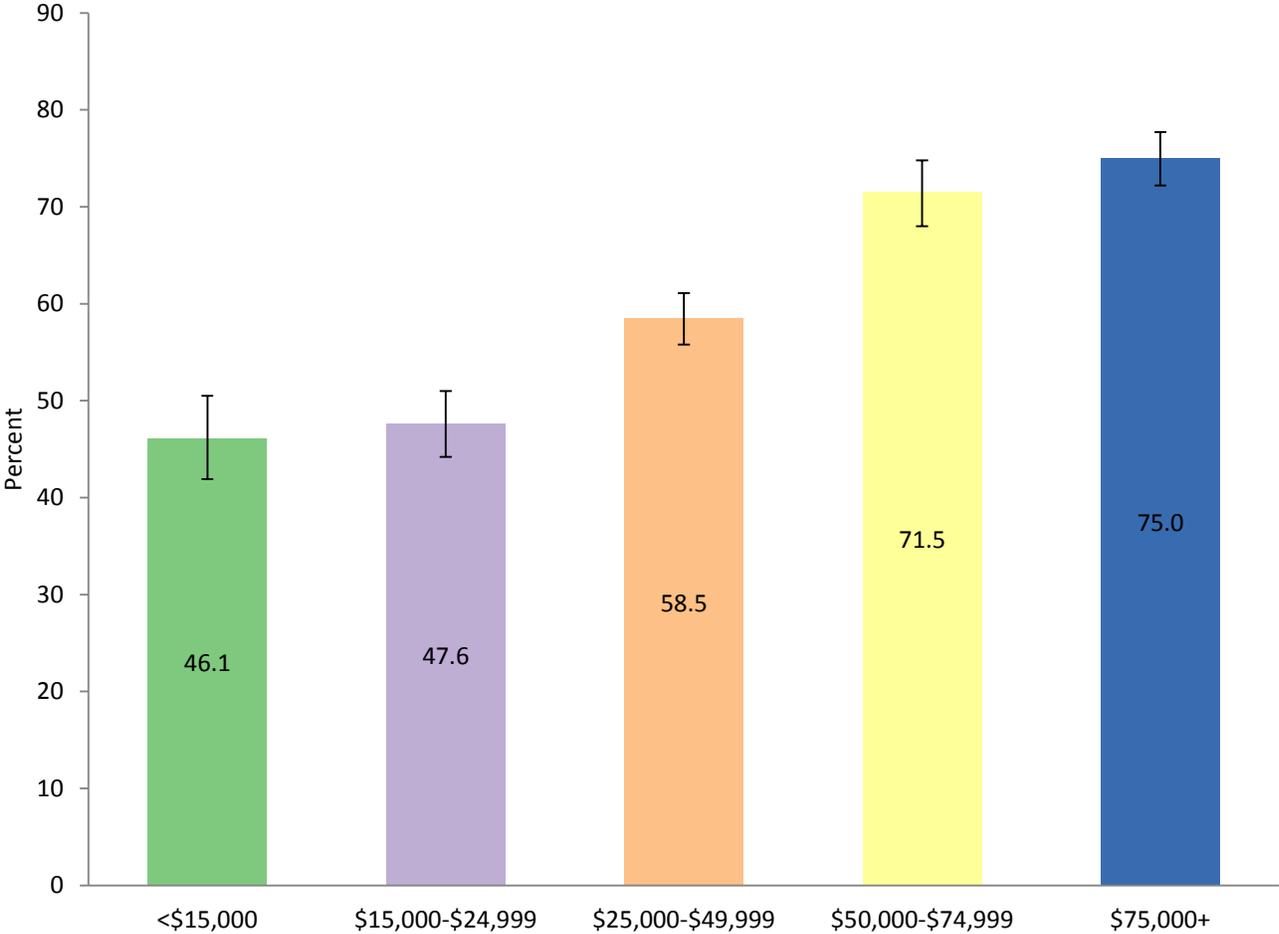
<sup>11</sup> <http://www.symbiosisbilling.com/blog/bid/50271/Importance-of-RVUs-on-Reimbursements>

<sup>12</sup> <http://www.cms.gov/Regulations-and-Guidance/HIPAA-Administrative-Simplification/TransactionCodeSetsStands/CodeSets.html>;

<http://www.ada.org/3827.aspx>

However, many Montanans including Medicaid beneficiaries, lack access to a regular dental provider. Less than half of Montanans with income less than \$15,000 visited a dentist in the past year in 2012 (46.1%; 95% Confidence Interval (CI): (41.9, 50.5)), In contrast, three quarters of Montanans with income greater than \$75,000 (75.0%; 95% CI: (72.2, 77.7)); Figure 5) had visited a dentist.<sup>13</sup>

Figure 5. Percent of Montanans Who Saw a Dentist in the Past Year, by Income, Montana Behavioral Risk Factor Surveillance Survey, 2012



<sup>13</sup> Medicaid Dental Fact Sheet, Montana DPHHS <http://www.dphhs.mt.gov/medicaid/dental/DentalFactSheet-FindandKeep.pdf>; 2011 Montana Behavioral Risk Factor Surveillance System, <http://www.brfss.mt.gov/Data/data.php>

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Emergency department encounters for dental related conditions are a preventable burden on the Montana healthcare system. Such encounters account for roughly 2% of total encounters for those aged between 15 and 44 years, and can be prevented through regular dental care. Montana Medicaid covers routine dental services.<sup>14</sup> Assessing barriers to preventive and diagnostic dental services for Montana citizens should be a primary focus of future public dental health initiatives. Due to the rural nature of Montana and the lack of dentists providing care on a sliding-fee scale, changing the perception of dental care and creating affordable access to care by increasing the number of dental professionals in underserved areas may offer an opportunity to decrease emergent dental needs.

For information about the Montana Hospital Discharge Data System, please contact Cody L Custis, Epidemiologist,  
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Please visit our website at <http://www.dphhs.mt.gov/publichealth/epidemiology/index.shtml>

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<sup>14</sup> <http://www.dphhs.mt.gov/medicaid/dental/index.shtml>