

Dental Health

Mouth and throat diseases, from cavities to cancer, cause pain and disability for millions of Americans. This fact is disturbing because almost all oral diseases can be prevented. In addition, cosmetic changes in the appearance of the teeth may be an issue. Among smokers, for example, 28% report moderate and severe levels of tooth discoloration compared to 15% of non-smokers.⁴⁷³

Tooth decay is significant problem for both children and adults. Among children, 20% of those who are 2-4 years old, 50% of those 6-8 years old, and nearly 60% of those 15 years old have tooth decay.⁴⁷⁴ Low income children are disproportionately affected with about 33% having untreated decay, which can lead to pain, dysfunction, school absenteeism, underweight, and poor appearance. Tooth decay is also a problem for older adults who have retained most of their teeth. Fluoridation of public drinking water supplies is an effective approach to prevention of cavities and tooth decay and an estimated 69% of persons served by community water supplies received optimally fluoridated water, including residents of Kansas City.⁴⁷⁵

Despite an increase in tooth retention, tooth loss remains a problem among older adults. National data show that 8% of adults have lost all their natural teeth primarily because of tooth decay and advanced gum disease.⁴⁷⁶ Absence of natural teeth is inversely associated with education; 15% of adults with <12 years education had lost all their natural teeth compare with 3% of those with a bachelor's degree or higher. The poor and near poor were more likely to have lost all their natural teeth than those who were not poor. In Missouri, during 2002, the age-adjusted percentage of persons ≥ 65 years old who have most of their natural teeth (loss of 5 or fewer teeth) was 44.6%, while 26.4% had lost all their natural teeth.⁴⁷⁷ In the Kansas City metropolitan area, 19.5% of adults have lost all their natural teeth.⁴⁷⁸ There also is an association between tooth loss and the number of live births (parity) a woman has had although this relationship is not moderated through dental care, psychosocial factors, or dental health damaging behaviors.⁴⁷⁹

⁴⁷³ Alkhatib MN et al. Smoking and tooth discoloration: findings from a national cross-sectional study. *BMC Public Health* 2005;5:27.

⁴⁷⁴ Centers of Disease Control and Prevention. Oral health. Preventing cavities, gum disease, and tooth loss, 2005. www.cdc.gov/nccdphp.

⁴⁷⁵ Bailey W et al. Populations receiving optimally fluoridated public drinking water – United States, 1992-2006. *MMWR Morb Mortal Wkly Rep* 2008;57:737-741.

⁴⁷⁶ Pleis JR, Lethbridge-Çejku M. Summary health statistics for U.S. adults: National Health Interview Survey, 2006. *NCHS Vital Health Stat* 2007;10(235). www.cdc.gov/nchs

⁴⁷⁷ Centers for Disease Control and Prevention. Retention of natural teeth among adults – United States, 2002. *MMWR Morb Mortal Wkly Rep* 2003;52:1226-1229.

⁴⁷⁸ Kilmer G et al. Surveillance of certain health behaviors and conditions among states and selected local areas – Behavioral Risk Factor Surveillance System (BRFSS), United States, 2006. *MMWR Surv Summ* 2008;57:SS-7.

⁴⁷⁹ Russell SL et al. Exploring potential pathways between parity and tooth loss among American women. *Am J Public Health* 2008;98:1263-1270.

In 2004, Americans made about 500 million visits to dentists and an estimated \$78 billion was spent on dental services. Yet, 4.7 million children 2-17 years of age (7%) had unmet dental needs because their families could not afford dental care.⁴⁸⁰ Thirty-five percent of uninsured children have had no dental contact for more than 2 years compared with 17% of children on Medicaid and 13% of children with private health insurance. Twenty-three percent of uninsured children have unmet dental needs compared with 4% of children with private insurance and 9% of children with Medicaid. Hispanic children are 1.6 times as likely as white children and 1.4 times as likely as black children to have had no dental contact for more than 2 years. Children enrolled in Medicaid or the State Children's Health Insurance Program (SCHIP) are 1.7 times more likely to have untreated dental caries than other children, with those enrolled in SCHIP) being significantly less likely to have untreated dental caries than those enrolled in Medicaid.⁴⁸¹ This would be related to improvements in funding for SCHIP dental services.⁴⁸²

One of the major complications of diabetes is periodontal disease. Adults with diabetes have both a higher prevalence of periodontal disease and more severe forms of the diseases, contributing to impaired quality of life and substantial oral functional disability. In addition, periodontal disease has been associated with development of glucose intolerance and poor glycemic control among adults with diabetes. Behavioral Risk Factor Surveillance System (BRFSS) data show that nationally 67% of dentate adults with diabetes had a dental visit during the preceding 12 months.⁴⁸³ For Missouri, the rate was 61.4% and for Kansas 78.7%. The *Healthy People 2010* national objective is to have 71% of dentate adults with diabetes have an annual dental visit.

Poor dental health in adults also has been associated with other illnesses and conditions, such as increased risk of preeclampsia in pregnant women.⁴⁸⁴

Missouri

The National Oral Health Surveillance System reported that 63.4% of Missourians visited a dentist or dental clinic within the past year, 63.0% had their teeth cleaned within the past year, 25.2% of persons 65+ years of age had lost all of their teeth, 26.6% of 3rd grade students had untreated tooth decay, and that 27.4% of 3rd grade students had one or more sealants on their permanent 1st molar teeth (www.cdc.gov/nohss). Also, 82.0% of Missourians using public water systems are receiving fluoridated

⁴⁸⁰ Bloom B et al. Summary health statistics for US children: National Health Interview Survey, 2005. *NCHS Vital Health Stat* 2006;10(231). www.cdc.gov/nchs.

⁴⁸¹ Brickhouse TH et al. Effects of enrollment in Medicaid versus the State Children's Health Insurance Program on kindergarten children's untreated dental caries. *Am J Public Health* 2008;98:876-881.

⁴⁸² Wall TP, Brown LJ. Public dental expenditures and dental visits among children in the US, 1996-2004. *Public Health Rep* 2008;123:636-645.

⁴⁸³ Eke PI et al. 2005. Dental visits among dentate adults with diabetes – United States, 1999 and 2004. *MMWR Morb Mortal Wkly Rep* 54:1181-1183.

⁴⁸⁴ Ruma M et al. Maternal periodontal disease, systemic inflammation, and risk for preeclampsia. *Am J Obstet Gynecol* 2008;198:389e1-389e5.

water.

Kansas City

The April 2008 issue of *Men's Health* magazine ranked dental health in 100 US cities; Kansas City was ranked 77th and received a score of D+ based on frequency of flossing and dentist visits, number of teeth pulled, and percent of water fluoridation.

The 2004 *Health Assessment Survey* commissioned by the Kansas City Health Department found that 60% of respondents had dental health insurance (www.kcmo.org/health). Of those with dental insurance, 67% had it through their employer, 25% through a governmental program, and for 8% it was self-purchased. Of all respondent households, 55% had all members covered and 45% had either no one covered or had a portion of the household not covered, usually adults.

Among survey respondents, 75% reported having had a dental check-up in the prior 2 years while 2% reported never having dental check ups. In addition, 33% of respondent households did not have their teeth cleaned on a regular basis. Of those that did have their teeth cleaned, 90% were seen at a dental office, 4% at the University of Missouri's School of Dentistry, 5% at community health centers, and 0.6% at other venues. Seventy-six percent of respondents reported usually or always brushing their teeth at least twice a day.

Kansas City is fortunate to have the only dental school in the state. Of the local health departments serving the Missouri side of the metropolitan area, only the Clay County Health Department has a dental health program. The Platte County Health Department does provide emergency dental services.

Emergency department visits

Dental care is the most commonly cited unmet health care need in the nation⁴⁸⁵ and patients with dental complaints often go to a hospital emergency department. The only published analysis of dental complaint visits to emergency departments using National Centers of Health Statistics' (NCHS) National Hospital Ambulatory Medical Care Survey data found an estimated 2.95 million emergency department visits for dental-related complaints over a 4-year period (1997-2000).⁴⁸⁶ These visits were similar in number to those for "painful urination". Patients with dental complaints were significantly more likely to have Medicaid or no health insurance (self-pay) in comparison to patients without dental complaints. Care provided typically consisted of prescribing antibiotics and analgesics along with referrals to others for follow-up.

⁴⁸⁵ Edelstein BL. Public and clinical policy considerations in maximizing children's oral health. *Pediatr Clin North Am* 2000;47:1177-1189.

⁴⁸⁶ Lewis C et al. Dental complaints in emergency departments: a national perspective. *Ann Emerg Med* 2003;42:93-99.

Using local hospital discharge data, the Office of Epidemiology & Community Health Monitoring examined emergency department visits by Kansas City residents for dental complaints. That analysis found that between 2001-2006, Kansas Citizens made 19,316 visits to emergency departments for dental complaints (1.7% of all emergency department visits). There was a very significant increasing trend in such visits over the 6-year period, while the trend for all other emergency department visits was stable. The nature of complaints were as follows: dental caries 3,935, pulpitis or periapical abscess 2,862, cheek, lip, jaw injury or broken tooth 1,672, temporomandibular joint disorders 287, and all other dental diseases 10,540.

Total emergency department charges for these dental complaint visits were approximately \$6.9 million. Average charges were highest for temporomandibular joint disorders \$747, followed by cheek, lip, jaw injury or broken tooth \$549, dental caries \$432, pulpitis or periapical abscess \$421, and all other dental diseases \$277. Self-pay and Medicaid constituted 70.6% (38.3% self-pay; 32.3% Medicaid) of the payment sources compared to 51% for all other types of emergency department visits.

Women made more than half (53.9%) of the emergency department visits for dental complaints as they did for other emergency department visits (54.8%). Significantly more blacks used the emergency department for dental complaints than visited the emergency department for other complaints. And, half (50.8%) of the dental visits were made by persons 19-35 years of age; this age-group made 32.2% of the visits for other complaints.

Children

Only 1% of the 2,700 dentists in Missouri were enrolled in Medicaid and the Missouri Children Health Insurance Program. These low percentages resulted in a shortage in the Kansas City region of dentists willing to accept children on MC+/Medicaid.

In 2003, Citizens for Missouri's Children released a report, *Dental Care Counts, Decay in the Heartland: A Crisis for Kansas City Children*. According to that report, only 15% of dentists in the region accepted children with MC+/Medicaid. This translated into 1 dentist for every 923 children enrolled in MC+/Medicaid. As a result, less than one-third of eligible children were screened for dental problems. The report also stated that the health care maintenance organizations under contract with the state of Missouri also had low dental screening rates.

In 2007, the REACH Healthcare Foundation and the Health Care Foundation of Greater Kansas City joined together to fund a 3-year project known as *Project Ready Smile* with the aim of having young children arrive at kindergarten with healthy teeth and mouths. This goal is to be accomplished by 1) expanding the pool of dentists willing to treat young children, 2) encourage families to establish a dental home for themselves and their young child, and 3) educate children and families about oral health habits that should begin early in a child's life. The project encourages dentists to accept at least 5 *Project Ready Smile* participants over the course of a year.

Score 1 for Health, a collaboration between the Kansas City University of Medicine and

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Biosciences and the Deron Cherry Foundation, screened school aged children for dental problems during school years 2004-2005 and 2005-2006.⁴⁸⁷ Of 3,422 students screened, 27% had no evidence of treatment or need for treatment. The prevalence of untreated dental decay in children 6-8 years old was 36% (*Healthy People 2010* objective, 21%) and 40% of 3rd graders had untreated dental decay. The prevalence of untreated cavities among children 6-11 years of age were: whites 33%, blacks 38% and Hispanics 39%. Using the percent of children in a school who were eligible for the free/reduced lunch program as a measure of socioeconomic status, the percent of *Score 1 for Health* participants with untreated tooth decay increased with decreasing school socioeconomic status.

⁴⁸⁷ Campbell A, Sterling TK. *Score 1 for Health. 2007 Community Report.* www.kcumb.edu/Score1CommunityReport/