

Improving the Oral Health of Prisoners to Improve Overall Health and Well-Being

General health and oral health are linked. The surgeon general's report on the state of the nation's oral health indicates that you can't have one without the other. The same report notes that while the oral health of the nation improved significantly over the 20th century, there are major disparities in oral health among subpopulations.¹ The formal call for papers for this issue of the Journal yielded no papers on oral health in the prison system. A review of the literature in PubMed turned up very few published articles on the oral health of prisoners or systems to provide prisoners with oral health care; of the 12 peer-reviewed articles found, 5 were published outside the United States, 4 were published in 1977 or earlier, and only 1 discussed juvenile offenders in detention. To better understand the status of oral health in our nation's prisons, we read what literature we could find and spoke to several dentists who work in the prison system.

ORAL HEALTH DISPARITIES IN THE GENERAL POPULATION

Large disparities in oral health are evident even among our nation's children. The gap is widest between children from high-income families and those from low-income families. Although all children enrolled in Medicaid are entitled to comprehensive dental services, only 18% of Medicaid-eligible children have ever received even a single preventive dental service. Only 72% of Hispanic children and less than half

(47%) of Black children visit a dentist at least once per year, whereas almost all White children receive dental care. In California, 68% of Hispanic elementary school students and 75% of Hispanic high school students have unmet dental care needs.²

We found no data on the oral health status or unmet oral health needs of juvenile offenders. However, we do know that, in the general population, 80% of tooth decay occurs among 25% of children aged 5–17 years,³ primarily in those from minority and low-income families and in those with low educational levels.² These are the children who are disproportionately represented in juvenile justice facilities.

These disparities correspond directly to a lack of preventive services. Overall, 1 in 4 US children have received dental sealants, but fewer than 1 in 10 Black and Hispanic children have received them.² The picture only gets worse for adults. In 2000, 47% of White adults received a dental examination, while only a quarter of Black and Hispanic adults did.² Black men have the highest rate of oral cancer and the lowest survival rate of any population group.⁴ More than one third of older Blacks have lost all of their teeth, compared with one quarter of older Whites.⁴

Disparities are about more than statistics. Whites have a much rosier view of the condition of their teeth than do Blacks or Mexican Americans. Most Whites are satisfied with the state of their teeth, and fewer than one third describe the condition of

their teeth as fair or poor.² In contrast, almost half (46%) of Blacks describe their teeth as fair or poor, as do a majority (55%) of Mexican Americans.²

ORAL HEALTH STATUS OF THE PRISON POPULATION

We learned from prison dental care providers that care in these facilities had improved because of the need to upgrade them to meet all the Occupational Safety and Health Administration (OSHA) general industry standards. (29 CFR 1910). There are currently no specific OSHA standards or directives for dentistry⁵; however, the Centers for Disease Control and Prevention did issue guidelines for infection control in dental health care settings.⁶ Dental care is listed as an essential health service by the National Commission on Correctional Health Care. Nonetheless, the oral health of prisoners is generally poor. Like members of lower socioeconomic groups in the general population, prisoners are likely to have extensive caries and periodontal disease.^{7,8} At the United States Penitentiary in Leavenworth, Kan, White inmates had significantly fewer decayed teeth than did Black inmates, and the number of decayed teeth increased significantly with inmate age.⁷ A state prison system study found that inmates had more missing teeth at every age and a higher percentage of unmet dental needs than did employed adults in the US population.⁸ A survey of a sample of adult felons found a higher mean number of decayed

surfaces and a higher percentage of unmet dental needs than did those reported in reference groups.⁹ The prevalence of moderate and deep periodontal pocket depth was also higher, and at least one fourth of the sample had 1 or more urgent treatment needs.⁹ Among prisoners in Maine, smoking and dental health were the most commonly reported health problems after mental health and substance abuse.¹⁰

Improving oral health can improve overall health. For example, current research is explicating the interaction between infections in the mouth and cardiovascular disease^{11–14} and diabetes.^{15,16} A recent study of continuously incarcerated individuals in the North Carolina prison system found that the prison dental care system was able to markedly improve the oral health of a sample of inmates between 1996 and 1999,¹⁷ affirming the idea that dental health improves when access to services is provided.

OBSTACLES TO PROVISION OF ORAL HEALTH CARE

In 1998, the federal government spent \$1.3 billion and the state governments spent \$1.0 billion on dental care.¹ There is no reliable information on what it would cost to bring those who lack care up to a reasonable level of oral health.

Not unexpectedly, finances and staffing are the major obstacles to provision of oral health care in prisons. In a survey of state corrections departments, 26% of the respondents from 45 states and the District of Columbia indicated that care was provided through managed care.¹⁸

Recruiting dentists to serve in the prison system is difficult, given the declining number of dentists in relation to population counts and the strong demand for dentists in private practice. The state dental schools of North Carolina and Florida have programs in which students or residents are rotated through prison facilities; more such programs could help alleviate the shortage of dentists in the prison system. Loan forgiveness programs might also encourage dental school graduates to work in prisons.

THE CRIMINAL JUSTICE SYSTEM AND PUBLIC HEALTH POLICY

The health status of inmates in the prison system is not routinely incorporated into data and reports that summarize the state of the nation's health. Yet the number of imprisoned citizens is already high, and further increases are expected if current policies remain in place. Therefore, the health of these prisoners is an important part of the nation's health. The 630 000 people who migrate back and forth across the "border" between prisons and communities represent a public health opportunity that can be addressed if and when there is a safety net that serves these citizens while they are detained and when they return to their communities.¹⁹

To help people be all that they can be, we must pay attention to their entire well-being. Because oral health is inextricably linked to overall health, as well as to self-esteem, we have a responsibility to ensure that oral health services are available and accessible as part of our health care delivery systems both within and outside prison walls. If good oral

health care is provided to prisoners, the benefits will extend to their families, their communities, and the nation as a whole. ■

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References

1. Oral Health in America: A Report of the Surgeon General. Rockville, Md: National Institute of Dental and Craniofacial Research; 2000.
2. Gehshan S, Lubin T. Racial and Ethnic Disparities in Oral Health. Washington, DC: National Conference of State Legislatures; 2004. Also available at: <http://www.ncsl.org/print/health/forum/RacialDisparities.pdf>. Accessed August 5, 2005.
3. Newberger J. Richer or poorer could mean sickness or health. Available at: <http://www.connectforkids.org/node/111>. Accessed June 27, 2005.
4. Visible Differences: Improving the Oral Health of African American Males. Washington, DC: Joint Center for Political and Economic Studies; 2004.
5. Dentistry: OSHA standards. Available at: <http://www.osha.gov/SLTC/dentistry/standards.html>. Accessed August 12, 2005.
6. Centers for Disease Control and Prevention. Guidelines for infection control in dental health care settings.

MMWR Morb Mortal Wkly Rep. 2003; 52(RR17):1–61. Available at : <http://www.cdc.gov/mmwr/PDF/RR/RR5217.pdf>. Accessed August 12, 2005.

7. Mixson J, Eplee H, Feil P, Jones J, Rico M. Oral health status of a federal prison population. *J Public Health Dent*. 1990;50:257–261.
8. Salive ME, Carolla JM, Brewer TF. Dental health of male inmates in a state prison system. *J Public Health Dent*. 1989;49:83–86.
9. Clare JH. Survey, comparison, and analysis of caries, periodontal pocket depth, and urgent treatment needs in a sample of adult felon admissions, 1996. *J Correctional Health Care*. 1998;5: 89–101.
10. The Health Status of Maine's Prison Population: Results of a Survey of Inmates Incarcerated by the Maine Department of Corrections. Portland: Maine Civil Liberties Union; 2003.
11. Desvarieux M, Demmer R, Rundek T, et al. Relationship between periodontal disease tooth loss, and carotid artery plaque: the Oral Infections and Vascular Disease Epidemiology Study (INVEST). *Circulation*. 2005;111(5):576–582.
12. Beck J, Elter J, Heiss G, Couper D, Mauriello S, Offenbacher S. Relationship of periodontal disease to carotid artery intima-media wall thickness: the The Atherosclerosis Risk in Communities (ARIC) Study. *Arterioscler Thromb Vasc Biol*. 2001;21:1816–1822.
13. Loesche WJ. Periodontal disease: link to cardiovascular disease. *Compend Contin Educ Dent*. 2000;21(6):463–466.
14. Pallasch TJ, Slots J. Oral microorganisms and cardiovascular disease. *J Calif Dent Assoc*. 2000;28(3): 204–214.
15. Ueta E, Osaki T, Yoneda K, Yamamoto T. Prevalence of diabetes mellitus in odontogenic infections and oral candidiasis: an analysis of neutrophil suppression. *J Oral Pathol Med*. 1993;22(4):168–174.
16. Syrjanen J. Vascular diseases and oral infections. *J Clin Periodontol*. 1990; 17(7, pt 2):497–500.
17. Clare JH. Dental health status, unmet needs, and utilization of services in a cohort of adult felons at admission and after three years incarceration. *J Correctional Health Care*. 2002;9: 65–75.
18. Makrides J, Schulman J. Dental health care of prison populations. *J Correctional Health Care*. 2002;9:291–303.
19. US Department of Homeland Security. 2004 Yearbook of Immigration Statistics. Available at: <http://uscis.gov/graphics/shared/statistics/yearbook/index.html>. Accessed June 27, 2005.