

Oral Health

Health Objectives for the Year 2010: Improve oral health status and decrease morbidity and mortality related to oral health problems.

Health Implications

More than half of all children aged 5 to 17 and 99.5% of Americans aged 65 and older have had cavities in their teeth. Millions of people in the United States have developed periodontal disease, and more than 17 million people nationwide have lost all their teeth.¹ Oral diseases that include dental caries, periodontal disease, and tooth loss afflict more persons than any other single disease in the United States and result in needless pain and suffering; difficulty speaking, chewing, and swallowing; increased costs of care; loss of self-esteem; decreased economic productivity through lost work and school days; and, in extreme cases, death.² For many people, the appearance of badly decayed and missing teeth and gum disease has prevented the opportunity for employment.

In addition, oral and pharyngeal cancer, which affects primarily adults older than 55, results in the diagnosis of 30,000 new cases annually, significant morbidity and disfigurement associated with treatment, substantial cost, and 8,000 deaths annually. The five-year survival rate for this cancer is 52%, and it is more common than leukemia, Hodgkin's disease, and cancers of the brain, cervix, ovary, liver, pancreas, bone, thyroid gland, testes, or stomach.

Oral and pharyngeal cancer is the tenth most common cancer found among U.S. men and the fourteenth most common among U.S. women.³

Poor dental health is particularly detrimental to children because it affects their nutrition, growth and development, and ability to learn. Dental disease has also had a significant impact on economic productivity through lost work and school days. In 1989, more than 164 million hours were missed from work (an average of 1.48 hours per employed U.S. adult), and nearly 52 million hours of school were lost (1.17 hours missed per child) because of dental treatment and problems.²

Infections in the mouth can enter the blood stream and harm major organs. One example is bacterial endocarditis, a condition in which the lining of the heart and the heart valves become inflamed resulting in a 50% mortality rate.⁴ The presence of oral disease can jeopardize any organ transplantation and dental treatment of oral diseases can result in an infection of the heart. Infections can also travel to artificial knee, hip, and shoulder joints and complicate bone marrow transplantation. Poor mouth care can also contribute to oral cancer.

Table 1. Oral Health Indicators

	Lancaster Recent	Lancaster Objective 2010	Nebraska Recent	Nebraska Objective 2010	National Recent	National Objective 2010 ¹
Percent of children with decayed primary and permanent teeth						
2-4 years of age	-- ²	9.0	--	--	16.0 ³	12.0
6-8 years of age	-- ²	16.0	--	--	29.0 ³	22.0
15 years of age	-- ²	15.0	--	--	20.0 ³	15.0
Percent of children who have received protective sealants in permanent molar teeth:						
At age 8	-- ²	70.0	--	--	23.0 ³	70.0
At age 14	-- ²	70.0	--	--	24.0 ³	70.0
Percent of community water systems with optimally fluoridated water						
	17.4 ⁴	50.0	15.8 ⁴	--	--	--
Percent of the population served by water systems with optimally fluoridated water						
	91.2 ⁴	98.0	70.6 ⁵	--	62.0 ⁶	70.0
Percent of preschool, elementary, middle and senior high school aged children who have visited a dentist in the past 12 months						
	71.3 ⁷	98.0	--	--	34.0/53.0 ⁸	--
Percent of adults aged 18 and older who have seen a dentist in the last year						
	75.9 ⁹	85.0	71.0 ¹⁰	--	61.0 ¹¹	70.0
Percent of high risk pregnant women who have received a dental screening						
	-- ²	70.0	--	--	--	--
Percent of children and adults who report brushing twice daily and flossing once daily						
	-- ²	85.0	--	--	--	--

Recent studies suggest that periodontal disease, an infectious disease, may present a systemic challenge for pregnant women, increasing their risk of delivering a pre-term low-birth-weight baby. More than 60% of mortality among infants without anatomic or congenital defects is attributable to pre-term low birth weight. The social and economic burden associated with pre-term low birth weight is enormous; about \$1.5 billion was spent in the United States in 1981, with most of the money allocated to tertiary care rather than prevention.⁵

Research has also demonstrated an association between periodontal disease and an increased risk of coronary heart disease and stroke. Research has indicated that the bacteria that build up on people's teeth are also capable of creating blood clots. Studies have

shown that people with periodontal disease have about twice the usual risk of dying from heart disease. Researchers have suggested that the body's reaction to the bacteria may cause harm through the long-term, low-grade infection of periodontal disease, which causes the body to produce a steady supply of potent toxins. Given lengthy exposure, these toxins could be involved in the development of diabetes and other diseases.

Unfortunately, many people consider oral health separate from their general health. But with this view can come complex, expensive, and even life-threatening emergencies. Just as poor oral health can lead to poor general health, poor general health can lead to poor oral health. More than 90% of systemic diseases have oral manifestations.⁶

Current Status and Trends

Although the prevalence of dental caries has declined dramatically among school children during the past 30 years, it remains the most common infectious disease of U.S. children. More than one-half of all children aged 6–8 and two-thirds of all 15-year-old adolescents continue to experience dental decay.⁷ Sixty percent of adolescents have gum disease.⁸

Among parents reporting their children's unmet health care needs, 57% reported unmet dental needs – nearly five times the number reporting the need for eyeglasses.⁹ Twice as many parents claimed unmet desires for their children's dental treatment as for their medical care.¹⁰ Nearly one-third of the cavities in children aged 6–8 have not been repaired – a higher percentage today than ten years ago.⁷ Fewer children visit a dentist before entering kindergarten today than ten years ago,

despite widespread understanding that tooth decay starts before two years of age.⁷

While the overall oral health of adults is improving, dental caries, gingivitis, and periodontal disease continue to affect many adults. A national survey spanning the years 1988 to 1991 found that 94% of adults with one or more teeth had experienced decay on the enamel surfaces or crowns of their teeth, and 25% had experienced decay on the root surfaces of their teeth. Nearly half of all employed Americans between 18 and 64 years of age and more than 50% of older adults between 65 and 74 years of age had experienced gingivitis and periodontal disease.⁴ Approximately 44% of elderly adults no longer have their natural teeth.¹¹

Although \$50.6 billion was spent for dental care in the United States in 1997, a majority of Americans don't have

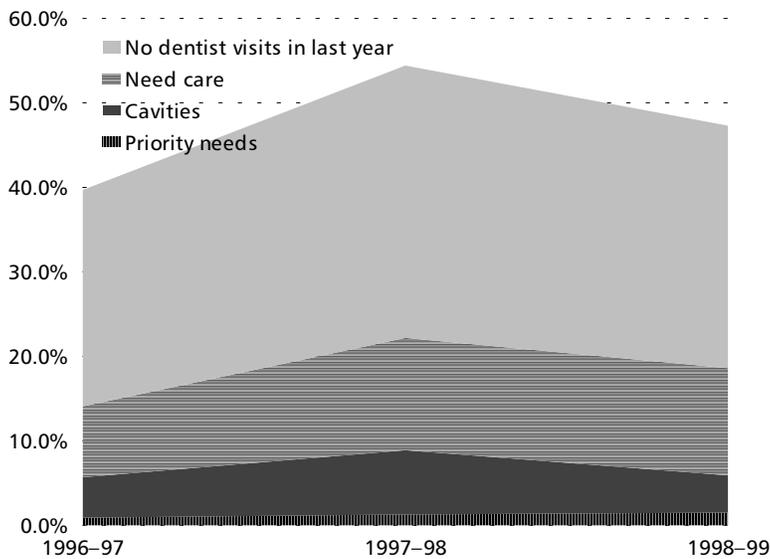


Figure 1: Percent of all Lincoln public school children with oral health needs.

dental insurance. According to the Health Care Financing Administration, 47% of dental services were paid for out-of-pocket. Only 4.4% of dental care expenditures were from public funds, with most of it (roughly 4% or \$2 billion) being from Medicaid.¹²

Lack of dental insurance affects dental-care utilization and oral health status. Forty-eight percent of people without private dental insurance did not have a dental visit in the last year, compared to 28% with insurance who did not have a dental visit.¹² Even when high-risk groups have dental Medicaid, they may not receive needed dental care. More than 80% of the 21.1 million Medicaid-eligible children did not receive preventive dental services.¹²

Unfortunately, dental care is an optional service for adults in the Medicaid program. Vulnerable adult population groups have even greater difficulty accessing dental services: the homeless, homebound, elderly, minorities, uninsured, medically compromised or disabled, as well as low-income persons with HIV.

By 2008, an estimated \$93 billion will have been spent on dental services.¹¹ However, there are proven, effective methods to reduce dental caries and disease. Community fluoridation is the single most effective and efficient means of preventing dental caries in children and adults, regardless of education and income. A 1996 study by the Centers for Disease Control and Prevention showed that for every dollar spent on fluoridating public water systems, \$80 was saved in dental treatment costs. While the city of Lincoln has optimally fluoridated water, only 20% of the community water supplies in Lancaster County are fluoridated.

Children living in nonfluoridated communities frequently benefit from other fluoride sources, such as school-based fluoride rinse programs, professionally applied topical fluorides, and use of fluoridated toothpastes and mouthrinses. In Lancaster County 90% of schools in communities without an optimally fluoridated water supply participate in a school-based fluoride rinse program. However, not all of the children in these schools elect to participate in the program, nor do the school programs reach children under five years of age.

Sealants have proven to be the most effective means of preventing pit-and-fissure caries (80–90% of dental caries in children). The widespread use of sealants could have a dramatic effect on decreasing the incidence of dental caries in children. Sealants, however, are underused and public awareness of sealants is low.

Health Disparities

Almost all Americans have been affected by oral diseases; however, poor and low-income persons, members of racial and ethnic minority groups, and persons with little education are particularly at risk and experience higher disease levels.

Eighty percent of dental caries found in children are concentrated in 25% of children aged 5–17.¹³ Americans for whom the burden of oral disease is greatest often have the most difficulty gaining access to the dental-care system. Low access has been correlated with low income, minority status, non-English family language, low education levels, and inner-city or rural residence. In spite of having higher documented levels of dental disease and treatment needs, members of low-income households and minority populations historically have used fewer dental services than their more affluent and nonminority counterparts. Data indicates that poor children have 37% fewer dental visits than nonpoor children.⁴ Among children ages 6–8, 72% of Native-American/Alaskan Native children, 50% of Hispanic children, 34% of Black children, and 31% of all children experience untreated dental decay.¹⁴

Recent reports also show that dental caries are a significant health problem for U.S. preschool-aged children. An estimated 5–10% of preschool-aged children have baby bottle tooth decay, or early childhood caries, a severe form of tooth decay. The percentage is even higher in certain populations: survey results show that 20% of children from families with low incomes and 43% of children in some Native-American populations have baby bottle tooth decay/early childhood caries.¹⁵

Preventive oral health services and health promotion initiatives have been primarily directed towards the young. However, researchers, dental health experts, and professionals in the fields

of health promotion and aging are beginning to recognize the importance of focusing attention on the oral health needs of the expanding older adult population. More older adults are keeping their teeth later in life. But, at the same time, recent studies have disclosed that the overall dental health status of older adults is not good, and that poor oral health is a barometer for general health problems in this population. For the growing proportion of American elders who do have teeth, dental and oral problems are a leading cause of discomfort, impaired quality of life, and serious (even fatal) disease among older Americans. Oral bacteria can and do initiate life-threatening diseases elsewhere in the body, such as in the lungs and heart. Fortunately, recent research has also determined that the oral health and quality of life of older adults can be maintained and improved through oral disease prevention and health promotion. The extent of tooth loss in individuals is used as a measure which reflects not only the prevalence of caries and periodontal disease, but also the availability and use of appropriate professional and community preventive services.¹⁶

Despite a general reduction in tooth loss in the adult population, 25% of Native-Americans and Alaska Natives aged 35 through 44 have fewer than 20 natural teeth; among those aged 55 and older, nearly 75% have fewer than 20 natural teeth.⁴

Most young adults have some degree of gingivitis. From 1988 to 1994, 48% of adults aged 35–44 had gingivitis.⁴ Prevalence of gingivitis is high among Hispanics, Native-Americans, and adults with low incomes. The prevalence and severity of periodontal disease increases with age and varies by socioeconomic status. The prevalence of periodontal disease is higher than the national

average among Native-Americans and Alaska Natives, adults with less than a high school education, and migrant workers.⁴

Only about half of the people with oral or pharyngeal cancer survive more than five years. People who do survive frequently face significant functional problems, disfigurement that decreases quality of life, and an increased risk of developing new oropharyngeal cancers as well as other types of cancer. Minorities experience the worst outcomes. For example, African-Americans have a

much poorer five-year survival rate for oral and pharyngeal cancer than whites (31% vs. 55%).⁴ Yet, African Americans are less likely than whites to make preventative dental visits. Tobacco use, especially when combined with heavy alcohol use, is the major risk factor for more than 75% of oral and pharyngeal cancer in the United States.¹⁷ Therefore, early detection and prompt treatment combined with the cessation of risky behaviors greatly increase the probability of long-term survival.

Public Health Infrastructure

Even when oral health is acknowledged, many consider it separate from their general health. What many people do not know is that oral health is health. The condition of the mouth reflects the condition of the body and can help dental and medical care providers identify many serious diseases. Apart from taking a thorough medical history and checking blood pressure, dentists and dental hygienists see signs in the mouth that mirror systemic conditions or diseases in the body, and given the increasing evidence that periodontal disease is a significant risk factor for pre-term pregnancy/low birth weight, cardiovascular disease, and other systemic diseases, oral health can no longer be ignored and should be considered an essential component of total health care.

Access to dentists must parallel access to physicians, and the medical and dental health care providers must collaborate more closely with patient care and risk reduction management of oral and systemic diseases.

Through a stronger collaboration of health professionals with schools and community-based programs and with greater emphasis on education, we must end misconceptions about oral health. We must raise our children to view oral health as an integral part of overall health because who we are and what we believe begins in childhood.

Medical and dental care providers will need to work collaboratively to develop essential screening protocol for the identification of risk indicators and to advocate for resources to assure high-risk population groups have access to the essential screening and treatment services.

Although we have oral health data and surveillance on a national level, state and local efforts lag far behind. If our community is to have a significant impact on identifying and eliminating oral health disparities, we must develop and implement a quality system for gathering and reporting oral health data and information.

Recommendations

- ◆ Develop and implement school and community education programs, consumer-oriented brochures, and educational materials to increase awareness of specific methods for preventing and controlling dental caries, gingivitis, periodontal disease, oral soft-tissue lesions, and cancer and for reducing risk for cardiovascular and other systemic chronic diseases. Target the educational efforts and materials to the most vulnerable or high-risk population groups, such as the low-income, the least educated, racial and ethnic minorities, immigrants, the developmentally and medically compromised or disabled, the elderly, and the uninsured. Efforts to reach these high-risk population groups should include nontraditional approaches and outreach.
- ◆ Develop and implement school-based and preschool-based dental screenings, referrals, and treatment services for high-risk children. Presently, a school-based dental screening and referral program is being implemented in the Lincoln Public Schools and the Headstart and Early Intervention programs, with high-risk children being targeted with the Mobile Health Clinic and transportation services, but the programs must be expanded to include rural and parochial schools and other preschool programs.
- ◆ Develop and implement school-based dental sealant programs for high-risk children. Target schools with high percentages of children qualifying for the Free/Reduced Meals Program. Our school-based services have been more reactive to the emergency and priority needs of our children, but we must begin to take a proactive approach with the placement of sealants for preventing tooth decay.
- ◆ Develop and implement community-based dental screenings, referrals, and treatment services for at-risk adult population groups. Preventive oral health services and health promotion initiatives have been primarily directed toward the young. Dental resources for adult services are limited and are more targeted toward addressing dental emergencies. Resources are needed for routine and regular dental care for high-risk population groups to gain adequate employability.
- ◆ Develop and implement standard screening and follow-up protocol among medical and dental health care providers for the identification of risk indicators and risk-reduction management of oral and systemic diseases. Target pregnant mothers using services through Women, Infants, and Children program (WIC) and the High-Risk Infant Program.
- ◆ Target school personnel, community leaders, and parents with educational programs that focus on the benefits of water fluoridation, the use of topical and systemic fluorides, and school-based rinse programs.

Notes

Table 1

-- Currently no data source.

1. U.S. Dept. of Health and Human Services, Office of Public Health and Science, *Healthy People 2010 Objectives: Draft for Public Comment*, September 1998.

2. Currently no data source. Could be obtained through community surveys, community screening programs, or development of a community surveillance system for the topics.

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Related discussion or indicators are located in the chapters on *Tobacco Use*, and *Nutrition and Physical Activity*.

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Narrative sources

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