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CDC Aims to Prevent Oral Diseases Among Older Americans

The eyes may be the window to the soul, but the mouth mirrors a person's health and well-being throughout life and into old age. That is because oral diseases and conditions can affect many other aspects of an individual's general health status, and have an impact on emotional and psychological well-being through speech, laughter and social expression. Several health conditions can, in turn, have an impact on oral health. Oral health and general health are therefore inseparable, experts agree.

Many people erroneously believe that losing one's teeth is an inevitable part of aging and that there is nothing they can do about it. While in the 1950s fewer than 50% of older adults retained their teeth, now more than 72% of the nation's 37 million adults age 65 and over keep their teeth into old age (*Trends in Oral Health Status: United States, 1988-1994 and 1999-2004,* 2007). As a result, strategies for maintaining healthy teeth and gums—such as good oral hygiene, fluoride in drinking water and toothpaste, and regular professional care—are just as important for older adults as for children. Yet, while the growing number of older adults who are retaining their teeth is good news, they also face the challenge of preserving those teeth at a time when physical, cognitive or financial limitations may hinder their ability to maintain their oral health.

There is more at stake for oral health than just having an attractive smile and cavity-free teeth. Oral problems can lead to needless pain and suffering; difficulty speaking, chewing and swallowing; loss of self-esteem; and higher health care costs. Each year about 34,000 Americans are diagnosed with mouth and throat cancers, which can result in disfigurement and death. In addition, periodontal (gum) diseases are associated with diabetes, and there is emerging evidence of a relationship between severe periodontal disease and cardiovascular disease and stroke.

"All adults need to know more about what they can do to maintain their oral health," explained Barbara Gooch, D.M.D., M.P.H., a dental officer in the Division of Oral Health within the Centers for Disease Control and Prevention's (CDC) National Center for Chronic Disease Prevention and Health Promotion. "Older adults, along with caregivers, health care providers and policy makers, should be aware of effective ways to prevent and control oral diseases."

Teeth are lost due to tooth decay and gum disease, not aging alone. The risk for these oral problems may increase with age because of problems with saliva production, receding gums that expose "softer" root surfaces to decay-causing bacteria, or difficulties flossing and brushing due to poor vision, cognitive problems, chronic diseases or physical disabilities. Certain medications can impair the production of saliva, which is needed to lubricate the mouth and gums, reduce bacterial growth, and provide important minerals, such as calcium, phosphates, and fluoride to "heal" tooth surfaces where tooth decay is just beginning. The combination of dry mouth, receding gums, poor oral hygiene, and a lack of fluoride can lead to tooth decay that can result in the need for extensive and costly treatment.

Maintaining good oral health is even more challenging for adults with chronic illnesses and disabilities. Often physical and cognitive limitations can make it difficult for them to brush their teeth. Seniors who are homebound or in nursing homes, even those who no longer have their teeth or wear dentures, should receive regular oral examinations and dental care. For many of these seniors, daily assistance with oral hygiene is critical. The use of fluoride products also is important, particularly brushing with fluoride toothpaste and drinking fluoridated water, but mouth rinses, varnishes, or supplements may also be recommended.

By the time people are in their 60s and older, they generally know the importance of brushing, flossing, and regular dental checkups to maintain good oral health. Seniors also should be aware that fluoride is not just for kids, but protects against tooth decay at all ages. Older adults also should avoid smoking or other tobacco products, use alcohol only in moderation, and be conscious of maintaining a nutritious diet, even if they have lost teeth and have a more difficult time chewing fresh fruit and vegetables. Lifelong dedication to these habits can help ensure healthy teeth and good oral health for a lifetime.

For many older adults, their need for preventive and treatment services will continue and may increase at a time when their annual incomes are likely to diminish. In 2004, for example, typical annual costs for dental care among older adults in the United States were $620, according

to research by Richard J. Manski, D.D.S., M.B.A., Ph.D., a professor at the University of Maryland-Baltimore College of Dental Surgery (Manski 2007). Most older adults pay for dental services out-of-pocket because dental insurance coverage usually ends upon retirement. Furthermore, Medicare does not cover routine dental services and Medicaid coverage is limited and is available in less than half the states.

UNDERSTANDING ORAL CONDITIONS AND DISEASES

The two most common oral conditions are dental caries (commonly called tooth decay or "cavities") and periodontal (gum) disease.

Tooth Decay. Almost all older adults have experienced tooth decay and have many restorations (fillings), but what is less well known is that nearly one in five has untreated decay (cavities) (Dye 2007). Traditionally, dental disease prevention programs have focused on children. Now, as adults are increasingly keeping their teeth into old age and may even be developing new decay at a higher rate than children (Griffin 2004), programs are starting to focus on the oral health needs of adults as well. CDC is trying to inform older adults about the benefits of fluoride, which reduces and prevents decay in persons of all ages. "People have the idea that fluoridation is only helpful for children, but it is effective throughout the lifespan, (Griffin 2007)" said Dr. Gooch. Currently, only 69% of Americans on public water systems receive optimally fluoridated water, according to the *National Fluoridation Report* (Bailey et al., 2008).

Periodontal (Gum) Diseases. Gingivitis, the mildest of periodontal diseases, is an inflammation of the gum tissue resulting in gums that often appear red or swollen and bleed easily. It generally is the result of bacterial plaque, the sticky film that forms on teeth constantly. Without good daily oral hygiene, gingivitis typically develops. In addition, plaque left on the teeth too long will form hard deposits, also known as calculus or tartar. These hard deposits can only be removed in the dental office by a process known as "scaling." Although with good oral hygiene early gingivitis is reversible, left untreated, it may lead to more severe periodontal disease – infection of the soft tissues and bone that support the teeth. This, in turn, can lead to tooth loss.

"Periodontal disease, like tooth decay, is a chronic infection in adults and both conditions are preventable," according to CDC epidemiologist Paul Eke, M.P.H., Ph.D. About 17%, or one

in six older adults have advanced periodontal disease that can lead to tooth loss (Dye 2007). Cigarette smoking, known to be a strong risk factor for cancer, including oral cancer, as well as stroke and cardiovascular disease, is also a strong risk factor for periodontal disease, accounting for up to half of disease. According to Dr. Eke, "It is clear that community effort on tobacco cessation for older adults is a strategy that not only will help prevent cancer, stroke and cardiovascular disease, but also reduce the burden of periodontitis."

Toothless (Edentate) Adults. According to 1999–2004 data from the U.S. National Health and Nutrition Examination Survey, about one fourth of older adults have lost all their natural teeth. Low-income elderly are twice as likely as those with higher incomes to have lost all teeth, according to these data. State-by-state analysis shows that the percentage of older adults having lost all their teeth ranges from a low of 10% in Hawaii to more than 40% in West Virginia (*CDC Behavioral Risk Factor Surveillance System 2007*). One of the government's *Healthy People 2010* national objectives is to reduce to 20% or below the proportion of adults age 65 to 74 years who are toothless. Meeting dietary recommendations may be more difficult when people without teeth—even if they are denture wearers—seek out soft, easily chewable foods and avoid fresh fruits and vegetables (*Oral Health in America: A Report of the Surgeon General* 2000 and Manski 2007).

Dry Mouth (Xerostomia). Dry mouth—also known as xerostomia—is a sticky, dry feeling in the mouth, throat or lips. A lack of saliva will increase the risk for tooth decay and mouth infections. It also can cause problems with tasting, chewing, swallowing, and talking. Saliva contains some antimicrobial properties as well as minerals that not only lubricate and protect the soft tissues of the mouth, but also help to rebuild tooth enamel attacked by decay-causing bacteria (*Oral Health in America: A Report of the Surgeon General* 2000).

More than 400 commonly used medications—most notably antihistamines, diuretics, and antidepressants—can cause dry mouth. In addition, many medical treatments, such as head and neck radiation or chemotherapy, can cause inflammation of oral mucous tissues and reduce the flow of saliva. Dry mouth also can be a sign of certain diseases and conditions, such as Sjögren's syndrome, diabetes or Parkinson's disease. To relieve the symptoms of dry mouth and prevent oral problems, dentists and other health professionals recommend drinking extra water and reducing intake of sugar, caffeine, alcohol, and tobacco. They may also suggest purchasing artificial saliva, available at most drug stores, or sugar-free hard candy. To prevent tooth decay,

use of additional preventive measures, such as fluoride rinses and gels and more frequent visits to the dental office, also may be encouraged. Finally, there are medications that can help the salivary glands work better.

Mouth and Throat Cancer. Oral and pharyngeal cancers, which are diagnosed in about 34,000 Americans each year, result in about 7,550 deaths annually, reports the National Cancer Institute. Oral cancers involve the mouth, tongue, lips, and pharynx (throat).The average age of those diagnosed with oral cancer is 60. The primary risk factors for oral cancers in the U.S. are tobacco use and heavy alcohol consumption. Oral cancer occurs twice as often in males as in females. African-American males have the highest incidence of these cancers (*SEER Cancer Statistics Review 1975–2004).*

Prognosis is generally poor, partly because these cancers are most often diagnosed at late stages. Early signs of oral cancer often are painless and difficult to identify. The five-year survival rate for these cancers is only about 60%, with marked disparities by racial group. While white men had a five-year survival rate of 60%, African American men had a five-year survival rate of 35.5%. People who do survive are at increased risk for future cancers and often suffer from disfiguring surgery and psychological trauma. People diagnosed early, however, have a five-year survival rate of over 80%, and the American Cancer Society and other experts consider oral cavity exams important for early detection and treatment of oral cancer at localized stages. Despite this, 1998 data indicate that only 20% of adults 40 years or older reported having received an oral cancer examination during their lifetime." (*Macek 2003*)

More public and professional education is needed to prevent high-risk behaviors that include cigarette, cigar or pipe smoking, use of smokeless tobacco, and excessive use of alcohol. Also, more research is needed on methods for detecting oral cancer. "We don't know how accurate the physical exam is and we are looking for better tests," Dr. Gooch said. The National Institutes of Health is working to develop biomarkers and other new tools to improve prevention, detection and treatment of oral cancer.

WHAT CDC IS DOING FOR THE ORAL HEALTH OF OLDER ADULTS

CDC currently is supporting state-based programs to promote oral health across the lifespan. Its activities focus on monitoring oral health status, implementing effective prevention programs, and stimulating public health research. CDC works with the states to track oral

diseases and target prevention programs to populations at greatest risk. It supports web-based information systems such as the National Oral Health Surveillance System (www.cdc.gov/nohss) that link oral health data from various state-based systems, such as the adult-focused Behavioral Risk Factor Surveillance System. CDC also works with states to expand proven prevention strategies such as water fluoridation and tobacco cessation programs that can improve health and reduce health care costs. Yet, more than 100 million Americans still do not have access to water that contains enough fluoride to protect their teeth, even though the per capita cost of fluoridation over a person's lifetime is less than the cost of one dental filling.

CDC also funds community-based oral health research studies through its national network of prevention research centers at academic health science centers. These projects intend to develop and test innovative strategies to promote oral health. One project at Columbia University is evaluating an oral health training program for nurses and home health aides for homebound elders in Manhattan. Initially, investigators found that the oral health of these seniors was poor and that knowledge of oral health among nurses and home health attendants was limited. Through this project the home health agency has recognized the importance of oral health and daily provision of oral care and now includes oral health and function in quality performance measures monitored by the agency. "Daily oral care, including use of fluoride toothpaste and denture care, are simple but effective preventive measures that are often overlooked by the institutions and agencies that provide home care services for the elderly. It is important that daily oral care becomes a standard of care, and that the caretakers of homebound elderly—nurses and home care workers—receive improved oral health care education that underscores the relationship between oral health and quality of life, including ability to eat, speak, and socialize among the elderly," stated Principal Investigator Kavita Ahluwalia, D.D.S., M.P.H.

CDC also has provided resources to expand partnerships among the aging services network and key stakeholders, such as state dental directors, dental and nondental professionals, including nurses and home health aides, and schools of dentistry and dental hygiene. Four states—Arizona, Iowa, Pennsylvania, and Rhode Island—received CDC-funded SENIOR (State-based Examples of Network, Innovation, Opportunity, and Replication) grants to implement pilot oral health projects for selected groups of seniors receiving home-delivered meals or utilizing congregate meal centers. Recipients worked with multiple partners, such as the state Office on

Aging and schools of dentistry, to learn more about the oral health needs of these predominantly low-income and ethnically diverse seniors. Programs will use an array of approaches to raise awareness about oral conditions and effective preventive services and increase the likelihood that older adults with limited resources and functional abilities receive dental services. For instance, the state of Iowa partnered with the Department of Elder Affairs and the University of Iowa College of Dentistry to train public health nurses in six counties to assess the oral health of homebound seniors and provide referrals to professional dentists in the community. They also sought to determine the acceptability of several preventive interventions, e.g., fluoride varnish, electric toothbrushes, toothpaste and floss, saliva substitute, and xylitol (a sugar substitute that prevents tooth decay). Because of the project's success, the state is seeking ways to expand the project throughout Iowa.

For FY 2008, CDC is partnering with the National Association of Chronic Disease Directors on their Opportunity Grants for Healthy Aging. The general intent of these grants is to develop state health department readiness around aging. Two awards of approximately $25,000 will be made specifically for oral health projects, which may collect or analyze existing data, develop formal internal and external partnerships with programs of particular relevance to healthy aging and oral health, develop a strategic plan, and/or identify best practices and develop a list of prevention, treatment, and research opportunities.

More resources are needed, however, to expand the focus of state oral health programs to older adults. The primary barrier to the provision of prevention services to older adults is a lack of designated funding.

"Seniors are in need of interventions designed to prevent and control oral disease; oral diseases, including dental caries (tooth decay) and periodontal (gum) disease are progressive and cumulative and become more complex over time, said Chris Wood, RHD, BS, oral health program manager, Nevada State Health Division and president of the Association of State and Territorial Dental Directors. "That is bad news for older adults, especially for the 70% who don't have any kind of dental insurance." According to Ms. Wood, "State programs constantly struggle with how to help uninsured seniors find care they can afford. Although lack of affordable dental care is frequently cited as a major problem for older Americans, little federal or state funding is directed towards filling the gaps. Until the need is recognized and resources are allocated to

address it, state programs will continue to struggle with how they can best help older Americans access the preventive and restorative treatment they need.

BARRIERS TO DENTAL CARE

The U.S. Preventive Services Task Force recommends regular dental visits for all people age 65 and older, yet only 43% of older adults reported a dental visit in 2004, according to Agency for Healthcare Research and Quality data (Manski 2007). As they enter their retirement years, most elders lose employer-based dental insurance, and at the same time are dealing with a reduction in income, explained Dr. Manski. That means that most elderly people pay their dental expenses out of pocket and for many, these expenses come at a time of reduced income. Unfortunately for retirees, Medicare does not cover routine dental care and Medicaid provides only limited coverage in certain states.

Other reasons why older adults do not regularly use dental services include lack of perceived need for care; mobility limitations and transportation difficulties; fear of dental visits; limited availability of dental services in certain rural and urban areas; and diminished physical, cognitive and functional status associated with multiple complex medical conditions and disabilities. Other issues that affect certain populations include low-literacy skills that can keep an older adult from understanding information and services. These barriers to dental care will be compounded as the 76 million baby boomers reach retirement age, creating the largest cohort of older adults this country has ever seen.

Barriers to good oral health care are especially prominent in long-term care facilities due to a lack of insurance coverage, limited patient mobility, the inconvenience of making trips to the dentist, and the lack of funding and expertise within facilities to provide complete dental care. In 1997, about 80% of nursing homes reported that dental services were available in their facilities and 18% of all senior nursing home residents reported receiving dental services in the past month (Dye 2007). However, poor oral hygiene and the existence of widespread oral health problems have been reported among nursing home residents (Dolan 2005, Kiyak 1993, Maupomé 2002, Murray 2006). Tooth decay rates are very high among the nursing home and public housing populations, especially for those who depend on others to do their oral hygiene care, according to Judith A. Jones, D.D.S., M.P.H., D.Sc.D., who heads the general dentistry department at the Boston University School of Dental Medicine. Yet, most oral health problems for people living

in nursing homes "could be prevented just by good daily oral hygiene and regular preventive care," Dr. Jones explained. "For many, it is just not available."

Teresa Dolan, D.D.S., M.P.H., dean of the University of Florida's College of Dentistry, pointed out that there are few dentists trained specifically in the oral health care of the geriatric population. The U.S. Health Resources and Services Administration supports only a few university dental training programs that have a geriatric component, Dr. Dolan observed. "The funding for those programs has decreased dramatically," she noted. "While most dental school curriculums include some geriatric content, there is not much clinical experience in nursing home settings for the more compromised patients that you would find there." There also are fewer dentists from underserved racial and ethnic groups, which may be a disincentive for those populations to seek dental care.

CHALLENGES FOR THE FUTURE

The trend toward better oral health among older adults is expected to continue, as each new generation becomes better educated and more affluent. Baby boomers, born in the late 1940s and early 1950s when water fluoridation began in the United States, are more likely to retain their teeth and have better oral health than their predecessors.

But challenges remain.

Experts on oral health who attended a September 2004 summit on older adults in Boston organized by Dr. Jones called for building the science base for what works for elder dental care. They also recommended highlighting "best practice" models; determining the economic costs of poor oral health care; enlarging and training the dental workforce (particularly specialists who work with institutionalized and frail elders); establishing preventive programs where elders live and work; increasing collaborations with the aging network, AARP, Older Women's League and other organizations; and creating a role for oral health in the continuum of care for the elderly.

Dental care advocates have been pushing for legislation to extend coverage to groups without dental insurance. Such legislation would amend the Social Security Act to require states to provide oral health services to aged, blind or disabled individuals under the Medicaid program and add dental benefits to Medicare. To date, Congress has taken no action on specific legislation addressing the oral health needs of this population.

Future solutions to dental access problems will embrace a patchwork of new approaches, insurance issues, and alternative delivery programs, Dr. Jones predicted. "Financing is an important piece of the access puzzle. It is not the only piece, but an importance piece, of access," Dr. Jones said. "Clearly there is a need to look at new models and find out which ones would really work, and where in the existing aging network we could piggy-back oral disease prevention to actually develop effective programs."

Dr. Gooch and others at CDC point to the need for new paradigms of care delivery for older adults. "Certainly, access to care is very important, but there are other interventions that can happen at the community level and among individuals, that can begin to reduce the burden of disease," Dr. Gooch said. Besides regular dental visits and home care, these interventions include avoiding tobacco, limiting alcohol use, using fluoride toothpaste and drinking fluoridated water. "These are all healthy practices that will improve your oral health over time," Dr. Gooch explained. "That is our major message."

This media background paper was written by Nancy Aldrich. William F. Benson was senior editor and project manager.

STORY IDEAS FOR JOURNALISTS

1) Surveys indicate that adults do not know much about periodontal disease or oral cancer, and especially the links between these diseases and tobacco use. Talk to public health and medical experts in your area about these topics.

2) Write about the links between periodontal and other systemic diseases, such as cardiovascular disease, diabetes and stroke. Older adults can not only use this information themselves, but can disseminate it to their children and grandchildren.

3) According to a recent analysis of the *HealthStyles* survey, while most adults know that fluoride works to prevent tooth decay in children, they are not as aware that it continues to be effective for them as well. In articles discussing the levels of tooth decay in your state, stress the fact that tooth decay is a common problem for adults and that fluoride isn't only effective for preventing tooth decay in children.

4) Find out what your community is doing in the areas of fluoridation, tobacco avoidance, public education and other issues that impact oral health. Show your readers data for your state. (See Table 1 located at www.cdc.gov/mmwr/preview/mmwrhtml/mm5250a3.htm.)

5) Profile models of dental care for older adults in your state or community.

6) Interview dental school officials in your state and find out if there are any special services for elders.

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RESOURCES FOR REPORTERS

Centers for Disease Control and Prevention Division of Oral Health, http://www.cdc.gov/OralHealth/index.htm, (770) 488-6054, email: OralHealth@cdc.gov; communications: Linda Orgain, (770) 488-5301, lorgain@cdc.gov
CDC Water Fluoridation Reporting System, 2002 data, http://www2.cdc.gov/nohss/FluoridationV.asp [NOTE-- 2006 data to be released in 2008]

Centers for Medicare and Medicaid Services, http://www.cms.hhs.gov/oralhealth/; Office of Public Affairs, (202) 690-6145

National Institute of Dental and Craniofacial Research, http://www.nidcr.nih.gov, (301) 496-4261, email: nidcrinfo@mail.nih.gov; media: Bob Kuske, (301) 594-7560

Other Organizations:

AARP dental plan, http://www.deltadentalins.com/aarp/, (866) 583-2085; AARP media: (202) 434-2560, media@aarp.org

American Dental Association, http://www.ada.org, media: (312) 440-2806, mediarelations@ada.org

American Head and Neck Society, http://www.headandneckcancer.org/, (310) 437-0559

American Society of Geriatric Dentistry, http://www.scdonline.org/displaycommon.cfm?an=7; media: Kaye Englebrecht, CAE, Executive Director, (312) 673-4992

Oral Cancer Foundation, http://www.oralcancerfoundation.org/, (949) 646-8000

Oral Health America, http://www.oralhealthamerica.org/, (312) 836-9900; media: Elizabeth Rogers, (773) 307-9976;

Special Care Dentistry, www.scdonline.org, (312) 527-6764, SCD@SCDonline.org; media: Kaye Englebrecht, CAE, Executive Director, (312) 673-4992

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Oral Cancer: Deadly to Ignore, http://www.cdc.gov/OralHealth/publications/factsheets/oc_facts.htm

Oral Health Resources — Adults, http://www.cdc.gov/oralhealth/topics/adult.htm

Oral Health: Preventing Cavities, Gum Disease, and Oral Cancers at a Glance, http://www.cdc.gov/nccdphp/aag/aag_oh.htm
Oral Health for Older Americans, http://www.cdc.gov/OralHealth/publications/factsheets/adult_older.htm
Oral Health in America: A Report of the Surgeon General, http://www.surgeongeneral.gov/library/oralhealth/
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