

Oral Health Program

Strategic Plan

2011–2014



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention



Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion

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Overview

The Centers for Disease Control and Prevention (CDC) is one of 13 major operating components of the Department of Health and Human Services (HHS). CDC's Oral Health Program is located within the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP). The CDC's current (FY 2010) budget for oral health activities is approximately \$14.4 million. Over the past decade, a gradual but steady rise in the level of funding has allowed CDC to implement and expand several initiatives.

CDC initiated a cooperative agreement program, called the State-based Oral Disease Prevention Program, in FY 2001. This program provides financial support and technical assistance to state oral health programs to help them strengthen their capacity to provide oral health promotion and disease prevention programs. The initial cycle of the cooperative agreement program provided support to 12 states and the Republic of Palau; the second cycle, which began in 2008, initially provided funding to 16 states. In 2010, a modest increase in CDC's budget allowed the agency to fund three additional states. In addition, CDC has cooperative agreements with the Association of State and Territorial Dental Directors (ASTDD) and the Children's Dental Health Project (CDHP) to provide assistance and tools that can be used by state and community oral health programs and oral health coalitions to strengthen their programs. As resources permit, the Oral Health Program will seek to expand these cooperative agreements and develop formalized relationships with other national organizations in order to promote and accomplish our mission, priorities, goals, and objectives.

Over the past decade, CDC also has focused on improving the data systems available through its Web site. In 1999, CDC implemented the Water

Fluoridation Reporting System (WFRS), an Internet-based tool to help state fluoridation managers monitor the quality of water fluoridation within their states. In 2001, the National Oral Health Surveillance System (NOHSS) was implemented on the CDC Web site. Provided in collaboration with ASTDD, NOHSS includes nine indicators that allow states to monitor the burden of oral diseases, the use of the oral care delivery system, and the status of community water fluoridation.

CDC now plays a greater role in leading surveillance aspects of national surveys and promoting analyses of data from those surveys, including the National Health and Nutrition Examination Survey (NHANES). In 2002, a tool called My Water's Fluoride was added to the Web site. This tool provides information on the fluoridation status of water systems for participating states. In 2000, CDC and the National Institute of Dental and Craniofacial Research

(NIDCR), National Institutes of Health, entered into a partnership to provide the Dental, Oral and Craniofacial Data Resource Center, whose primary function is to collect data and other information needed to support research, program evaluation, and policy development at CDC, NIDCR, and other agencies within the U.S. Department of Health and Human Services. CDC assumed the management and lead for this project in 2007.

CDC has continued to advance health promotion and dental disease prevention activities across a broad front. These activities have included development of guidelines for infection control in dental practice settings (2003) and guidelines for use of fluoride to prevent dental caries in the United States (2001).





CDC provided major funding and staff support for reviews of evidence supporting recommendations by the U.S. Task Force on Community Preventive Services related to interventions to promote oral health. These reviews, published as part of *The Guide to Community Preventive Services* in 2001 and 2002, provided strong recommendations for implementing community water fluoridation and school-based or school-linked programs to deliver dental sealants for the prevention and control of dental caries.

CDC staff members not only serve on numerous federal and private organizational committees, they also organize and host others. These efforts often result in documents with national scope, such as the federal coordinating committee for the first Surgeon General's report on oral health, *Oral Health in America* (May 2000), or in national guidelines or recommendations, such as expert panels with the American Dental Association on

fluoride supplements, infant formula and fluoride, oral cancer diagnostics, and clinical guidelines for placement of dental sealants. The division also recently hosted an expert work group on water fluoridation methodology and a group that developed recommendations for school-based sealant programs.



I. Oral Health Program: Strategic Planning for 2011–2014

Strategic Planning Process Overview

CDC's Oral Health Program is updating its strategic plan to better allocate resources to guide the program's work for the next three to five years.

As a first step, the program solicited input from key partners, stakeholders, and informants to assist CDC to have the greatest impact on oral health in the coming years.

Past strategic planning efforts developed vision, mission, and role statements and described core functions, public health priorities, and goals for the program. Much of this work is still current and presented below. Public health priorities, goals, and initiatives are based on their importance to the oral health of the nation, consistency with CDC's core functions, and existing as well as reasonably anticipated future resources.

The five public health priorities and eight current goals address core/essential functions and key subject areas. These areas include dental caries (tooth decay), periodontal (gum) diseases, oral and pharyngeal (mouth and throat) cancers, infection control, dental public health infrastructure, elimination of health disparities, health policy and translation/dissemination of CDC products, and organizational capacity and function.

Strategic initiatives are presented for each goal area; the final strategic and operational plans will serve as a dynamic guide for setting program priorities. In addition, it is recognized that core functions such as surveillance, state infrastructure support, and evaluation are critical activities relative to most of these strategic priorities and goals.



II. Vision, Mission, Role, and Core Functions

Vision:

A nation where all people enjoy good oral health that contributes to leading healthy, satisfying lives.

Mission:

To prevent and control oral diseases and conditions by building the knowledge, tools, and networks that promote healthy behaviors and effective public health practices and programs.

Role:

To provide national leadership to prevent and control oral diseases and conditions, and promote oral health.

Core Functions:

- **Monitor/Surveillance:** Monitor the burden of disease, risk factors, preventive services, and other associated factors.
- **Research:** Support public health research that directly applies to policies and programs.
- **Communications:** Communicate timely and relevant information to impact policy, practices, and programs.
- **Preventive strategies:** Support the implementation and maintenance of effective strategies and interventions to reduce the burden of oral diseases and conditions.
- **State infrastructure:** Build capacity and infrastructure for sustainable, effective, and efficient oral health programs.
- **Evaluation:** Evaluate programs to ensure successful implementation.
- **Investigate and diagnose:** Investigate health hazards and outbreaks in the community.
- **Partnerships:** Identify and facilitate partnerships to support CDC strategic priorities and community efforts.
- **Policy development:** Develop and advocate sound public health policies.



III. Public Health Priorities

Public health priorities are developed with input from multiple sources, including CDC leadership, key stakeholders, other federal agencies, and within the broader context of the Oral Health Program within HHS and CDC. These priorities also recognize public health core functions and essential services that are inherent in our role as a program within CDC's National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP). Within this context, the Oral Health Program's priorities are to:

1. Utilize the best science and methods to improve surveillance of oral diseases and their risk factors, monitor and characterize the burden of oral diseases across the life stages, and communicate these findings.
2. Broaden our understanding of health disparities and determinants of oral health disparities, and apply multi-disciplinary evidence-based approaches to address these disparities.
3. Develop and promote effective evidence-based strategies and interventions to prevent oral diseases; translate, disseminate, and evaluate CDC products including recommendations, guidelines, and science; communicate timely and relevant information to impact policy, practices, and programs.
4. Strengthen infrastructure of state oral health programs and promote oral health in communities through development and implementation of macro-level policy and systems change approaches, and evaluate programs to ensure that implementation has been successful.
5. Increase organizational capacity and function with an emphasis on leadership effectiveness, internal and external collaborations and partnerships, global outreach, and workforce development.



IV. Goals: Focusing the Efforts of the Oral Health Program

In alignment with the missions of CDC and NCCDPHP, the Oral Health Program views its primary role as focusing on the prevention of oral diseases. In support of its mission, we established goals in eight key areas. Issues that support selection of the eight goals and related strategic priorities that guide the program's activities are discussed in the following sections.

Goal 1. Prevent and control dental caries across the life stages.

1A. Strategic initiative: Characterize the burden of dental caries across the life stages.

1B. Strategic initiative: Develop and promote effective evidence-based strategies and interventions to prevent dental caries.

Dental caries (tooth decay, cavities) continues to be a major problem for Americans. Ninety-six percent of adults aged 50–64 years have had dental caries. Tooth decay affects more than one-fourth of U.S. children aged 2–5 years and half of children aged 12–15 years. Children and adolescents from low-income families are hardest hit: about two-thirds of those aged 12–19 years have had caries, and one in four has untreated caries. Untreated tooth decay can cause pain, dysfunction, and absence from school, and poor appearance—problems that can greatly affect a child's quality of life.

Much progress has been made over the past four decades in reducing the burden of dental caries, largely through effective preventive interventions that include fluorides and dental sealants. However, the Midcourse Review of *Healthy People 2010*, which provides national health objectives for the nation, noted several instances where caries was increasing. The most recent estimates indicate that dental caries experience and untreated caries

are increasing among children aged 2–4 years. Untreated caries also has increased for children aged 6–8 years and for adults aged 35–44 years. The Midcourse Review also noted disparities in the prevalence of caries and untreated caries among several age groups of children and adults (see Goal 4, Health Disparities). Caries also remains a problem for the increasing number of older adults who have retained most of their teeth. One-fourth of adults older than age 65 years have lost all of their teeth because of tooth decay and advanced gum disease. Tooth loss can affect a person's self-esteem and may contribute to nutrition problems by limiting the types of food that a person can eat.

Effective evidence-based interventions exist to prevent and control tooth decay and reduce health care costs, notably community water fluoridation (which reduces dental decay in children, adolescents, and adults by about 25% across the lifespan) and school-based and school-linked dental sealant programs (which reduce decay by up to 60%). However, many children and adults still go without such measures. According to 2008 data from the Water Fluoridation Reporting System (<http://www.cdc.gov/fluoridation/statistics/2008stats.htm>), 72.4% of people who receive their water from public water systems have access to water with enough fluoride to prevent decay, less than the *Healthy People 2010* objective of 75%. Thus, 75 million Americans who receive their water from public water systems still do not receive optimally fluoridated water, although the per capita cost of water fluoridation over a person's lifetime is less than the cost of one dental filling. The United States also does not meet the national objective of 50% of children aged 8 years receiving dental sealants—only 32% of children in this age group have received sealants. Surveys also have indicated disparities in receipt of sealants among different racial and ethnic groups (see Goal 4).



Thus, strengthening activities to monitor and characterize the burden of dental caries across the lifespan through national and state-based surveillance is important. This effort will allow those health care professionals working in public health settings to develop and use evidence-based health promotion programs designed to prevent and control dental caries among populations most at risk for this dental disease.

Goal 2. Prevent and control periodontal diseases.



2A. Strategic initiative: Improve surveillance of periodontal infections and their risk factors.

2B. Strategic initiative: Build an evidence base of effective strategies and interventions in periodontal disease.

Periodontal diseases are a group of conditions affecting the gingiva (gums), connective tissues, and bone that support the teeth. Periodontal diseases range from simple gum inflammation (gingivitis) to serious disease, which results in major damage to the soft tissue and bone that support the teeth. Severe periodontal diseases affect 4%–12% of adults, depending on the case definition. This condition can lead to tooth loss, impaired dental function, and diminished quality of life. Recent studies also have suggested that periodontal disease may influence

the risk for certain systemic diseases, such as cardiovascular diseases, diabetes, and reproductive outcomes.

Surveillance of periodontal diseases has traditionally focused on complicated assessments of multiple sites inside the mouth. These assessments are extremely resource-intensive and often are outside the capacity and resources of state and local surveillance systems. To address this gap, CDC has worked with the American Academy of Periodontology and other experts to develop and validate self-reported measures of periodontal infections to be used in surveillance and as screening tools. A pilot test of potential questions has been completed, and work continues to further test and validate these questions in the current NHANES.

Goal 3. Prevent and control oral and pharyngeal cancers and their risk factors.

3A. Strategic initiative: Improve the surveillance of oral and pharyngeal cancers and their risk factors.

3B. Strategic initiative: Build an evidence base of effective strategies and interventions to improve early detection of oral and pharyngeal cancers and to reduce incidence and mortality.

Oral and pharyngeal cancers (i.e., cancer of the lip, tongue, floor of the mouth, palate, gingiva and alveolar mucosa, buccal mucosa, or oropharynx) continue to pose a threat to the health of U.S. adults, with no marked improvements in survival rates over the past several decades. In 2010, estimates show that more than 36,000 people learned they had mouth or throat cancer, and more than 7,800 (about 5,430 men and 2,450 women) died of these diseases. Early detection is important because the 5-year survival rate for early stage cancer is approximately 80%, while the survival rate drops to 9% for late-stage disease.

Expansion of national and state oral and pharyngeal cancer surveillance is necessary to increase



knowledge of the factors that contribute to the incidence and burden of oropharyngeal cancer and its impact in the general population and subgroups. Surveillance also is needed to identify groups at high risk and associated behaviors, which include tobacco use and alcohol consumption. CDC's past work in this area has included providing supplemental funds to two states to help them evaluate their cancer registry data on mouth and throat cancers and find ways to improve the data's accuracy. These findings are being further analyzed and will help other state cancer registries collect more accurate, useful data.

Emerging research on oral cancer risk factors and disparities also will shape future surveillance and intervention efforts. Further attention will be given to the relationship between oral cancer and tobacco and excessive alcohol use, which account for up to 75% of all oral cancers. In addition, there is a growing body of research related to the relationship between certain oral cancers and human papilloma viruses (HPV), particularly the aggressive strains associated with 70% of cervical cancer in women.



Goal 4. Eliminate disparities in oral health.

4A. Strategic initiative: Broaden the understanding of health disparities, determinants of health disparities, and evidence-based approaches to addressing disparities in oral health.

Health disparities may involve inequalities in health outcomes or receipt of health care services among different groups defined by their race/ethnicity, gender, health behaviors, education, income level, job security, insurance status, housing, and geographic region of the United States. Researchers continue to see disparities in the burden of oral diseases. For example, preschoolers from low-income families have nearly three times as much untreated tooth decay as children from higher income families. One of the greatest racial and

ethnic disparities is seen among adults aged 35–44 years for untreated tooth decay. The prevalence of untreated tooth decay among non-Hispanic blacks is more than twice that of non-Hispanic whites. Twice as many non-Hispanic blacks and Mexican American adults aged 20–64 years have untreated tooth decay as do non-Hispanic white adults.

Although periodontal disease is decreasing in the United States, researchers continue to see a higher prevalence among people of lower income, non-Hispanics blacks, those without a high school education, and current smokers (NHANES 1999–2004). Disparities also exist in the receipt of preventive services such as dental sealants; non-Hispanic white children aged 8 years are nearly twice as likely as non-Hispanic black and Mexican American children to have received

sealants. Although much progress has been made in the past decade in closing some of the gaps in dental disease and use of some preventive services (such as sealants), challenges remain in eliminating inequalities in oral health and receipt of preventive measures. CDC will continue to focus on monitoring the burden of oral diseases and receipt of preventive services and providing information to public health practitioners, dental care professionals, and policy makers on effective approaches to reducing and eliminating health disparities.

Goal 5. Promote prevention of disease transmission in dental health care settings.

5A. Strategic initiative: Provide evidence-based dental infection control information and recommendations.

5B. Strategic initiative: Maintain current high levels of adoption of the current CDC infection control guidelines into dental practice.

CDC's *Guidelines for Infection Control in Dental Health-Care Settings* (2003) set the standard for



dental office infection control practices in the United States and provide guidance for dental practitioners, public consumers of dentistry, and policy makers around the world. Implementation of these recommendations can minimize the risk for disease transmission in the dental environment, whether from patient to dental care personnel, from dental personnel to patient, or from one patient to another.

In 2008, researchers completed an evaluation project that assessed the existing level of implementation of CDC's dental infection control guidelines in private dental practices as a result of CDC's dissemination efforts. The evaluation examined the knowledge, attitudes, perceptions, and behaviors of dentists as they related to the CDC guidelines; available and effective channels of dissemination to dental health care professionals; and barriers and facilitators to dissemination and adoption of the guidelines. This information will be used to guide CDC's future dental infection control research agenda and to develop plans to foster and promote further awareness and adoption of the guidelines by dental practitioners and regulatory groups.

Goal 6. Increase state oral health program infrastructure capacity and effectiveness.

6A. Strategic initiative: Assess the impact of increased dental public health infrastructure and capacity on the state oral health program effectiveness, efficiency, and sustainability.

Since 2001, CDC has provided support to selected states through a cooperative agreement program designed to build infrastructure and strengthen states' capacity to provide oral health promotion and disease prevention programs. The ASTDD report, *Building Infrastructure and Capacity in*

State and Territorial Oral Health Programs (2000), outlined components that state dental directors and dental consultants considered essential for an effective state oral health program. Information from this report was used to develop the cooperative agreement program. CDC began its cooperative



agreement program, called the State-based Oral Disease Prevention Program, in 2001 with awards to five states and one territory; the program was expanded in 2002 to include seven additional states. At the time, most of these programs consisted of only a state oral health program director and administrative support. Since then, CDC has worked with the funded states, national partner organizations, and national consultants to more fully define the essential components for developing and enhancing the infrastructure and

capacity of state-based oral health programs. The program now includes the following eight components:

1. Oral health program leadership and staff.
2. Oral disease surveillance system, including a burden of oral disease document.
3. Strategic planning and the development of a state oral health plan.
4. Statewide oral health coalition and strong partnerships.
5. Use of evidence-based preventive interventions, including community water fluoridation and school-based dental sealant programs.
6. Policy and health systems strategies that promote oral health.
7. Program evaluation.
8. Collaboration with other state chronic disease programs.

As states demonstrate accomplishment in these areas, they build the case for more investment,



from various sources, to expand or implement new statewide prevention activities to reduce the burden of oral disease and oral health disparities. A second cycle of the cooperative agreement program began in July 2008 with awards to 16 states; an additional three states received cooperative agreements in September 2010.

CDC is evaluating the original cooperative agreement program in order to:

- Promote improvements,
- Identify what constitutes an effective state oral health program, and
- Guide decisions regarding the direction of future CDC technical assistance, tools, and resources designed to build state program infrastructure and capacity.

The evaluation results will be used for future modifications of the cooperative agreement program as well as to develop standardized measures to assess the impact of infrastructure development activities on policy change and oral health prevention activities.

Goal 7. Increase use of cross-cutting policy development and translational approaches to promote oral health.

7A. Strategic initiative: Increase the capacity of the Oral Health Program to promote oral health through development and implementation of macro-level policy approaches.

7B. Strategic initiative: Increase the capacity of the Oral Health Program to use evidence-based strategies to translate and disseminate CDC guidelines, recommendations, and effective preventive

interventions especially related to fluoridation, sealants, and infection control.

Cross-Cutting Approaches. CDC's Oral Health Program has participated in several cooperative agreements with other NCCDPHP divisions that were designed to educate state policymakers about the importance of oral health and effective interventions to prevent oral diseases in children and adults. CDC also has provided support for National Governors Association policy academies, which were designed to help governors formulate and implement policies and programs to address the oral health of children.



In addition, working with the Children's Dental Health Project, CDC has developed a tool to assess and prioritize opportunities for systems and policy changes that support oral health initiatives at the state level. CDC will continue to explore additional ways to influence policies to improve the nation's oral health; these efforts may include conducting policy-relevant research, developing partnerships, and

encouraging the use of resources through promotion of evidence-based science.

Similarly, effective translation and dissemination strategies must be developed to promote the adoption of evidenced-based interventions, guidelines, and recommendations into practice. CDC's Oral Health Program will continue to actively engage its partners in determining the best ways to develop useful approaches to translation of its evidence-based reviews and other scientific findings, as well as the best means for disseminating such information to dental, medical, and public health professionals, among others.



Goal 8. Assure an efficient and effective organization.

8A. Strategic initiative: Improve the organizational capacity and functioning of the Oral Health Program with an emphasis on increasing leadership effectiveness, partnerships, and workforce development.

This goal centers on the Oral Health Program as an organization and its capacity to lead the federal focus on oral disease prevention and support of key organizational partners.

Areas of importance include:

Partnerships: Partnerships are essential for accomplishing the program's mission and furthering its goals. Such partnership activities may be internal, such as working across other chronic disease prevention programs within NCCDPHP to provide information to health professionals and consumers on the connections between oral health and tobacco use, diabetes control, heart disease and stroke prevention, or reproductive health. Other activities may involve expanding and enhancing relationships with external professional associations and organizations to further efforts to reduce and eliminate disparities in oral health or provide information to clinicians on evidence-based approaches for prevention of oral diseases. Partnership approaches also may include developing new organizational relationships, such as with school nurses to target populations at high risk for oral diseases. Effective partnerships can help CDC to expand its programmatic capacity and leverage its resources.

Workforce Development: CDC's Oral Health Program provides several opportunities for training the dental public health practitioners and leaders of the future. Through its Dental Public Health Residency program, CDC prepares dentists for board certification as specialists in dental public health. This training includes skills related to the design of surveillance systems, selection of interventions to prevent oral diseases, health promotion, oral health program planning, and advocacy and policy development. In addition, CDC has provided other fellowships and internships to students enrolled in degree programs in public health and dentistry who were interested in public health issues. Prior fellows and interns have gone on to lead oral health efforts at state and federal levels and at academic health centers.

A study by Tomar, 2006, *Journal of Public Health Dentistry*, 66[1] concluded that the current dental public health workforce is small and that current training programs may not be optimally designed to accomplish the goal of ensuring good oral health for everyone. Identifying CDC's role in providing such training and leverage points for supporting the development of dental public health workforce competencies and capacities has become critical to ensuring a cadre of well-prepared professionals and leaders for the public health workforce.

Internal Organizational Effectiveness: The strategic planning work group noted the importance of having an organizational culture that will foster and facilitate enhancement of supervisory, management, and leadership practices within the Oral Health Program. Transparency in decision making will be emphasized as the program implements its strategic plan. The program also will continue to provide opportunities and invest in staff training and development.



For more information please contact:
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
Oral Health Program
4770 Buford Highway, NE, MS F-10
Atlanta, GA 30341-3717
Phone: (770) 488-6054
E-mail: oralhealth@cdc.gov
Web site: www.cdc.gov/OralHealth/

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