CDC Home | Search | Health Topics A-Z

MMWR

Weekly

September 23, 1988 / 37(37);578-583

Perspectives in Disease Prevention and Health Promotion -- Progres s Toward Achieving the National 1990 Objectives for Fluoridation and Den tal Health

Of the 1990 health objectives for the nation (1), 12 pertain to fluoridation and dental health. At the time of the Mid-Course Review (2), two of the objectives had been achieved, four are probably attainable, three appear unlikely to be attained, and data are insufficient to evaluate progress for the remaining three objectives.

HEALTH STATUS By 1990, the proportion of 9-year-old children who have experienced dental caries in their permanent teeth should be decreased to 60%.

This objective has been achieved. The proportion of 9-year-olds who had had dental caries in their permanent teeth was 49% in 1979-80, compared with 71% in 1971-1973 (3,4). Preliminary results from a 1986-87 national survey of U.S. schoolchildren indicate that more than 65% of 9-year-olds were caries-free in the permanent teeth (5). These data show that the downward trend in the prevalence of caries in the general schoolchild population is continuing.

Although the overall prevalence of dental caries is declining in U.S. children, the prevalence and severity of dental caries vary according to age, geographic location, socioeconomic status, and race. State and community surveys of children have identified differences between national findings and findings of certain targeted populations. For example, in South Carolina (1982-83), approximately 70% of 9-year-old black children had had dental caries in the permanent teeth (6). Native American children also had much higher rates of dental caries than the general population (Indian Health Service, Native American Oral Health Survey, unpublished data, 1983-84).

Preventive and restorative care programs must remain a priority for high-risk populations, and the promotion of fluorides and sealants should continue in order to maintain the caries decline.

By 1990, the prevalence of gingivitis in children 6-17 years should be decreased to 18%.

National data are insufficient to assess progress toward this objective. A national survey of schoolchildren, conducted in 1986-87 by the National Institute of Dental Research (NIDR), included an assessment of gingival bleeding and destructive periodontal disease in children aged 13-17 years. Results from this survey, expected in 1988, will allow further assessment of progress toward meeting this objective.

By 1990, in adults the prevalence of gingivitis and destructive periodontal disease should be decreased to 20% and 21%, respectively.

This objective has been met partially for adults experiencing destructive periodontal disease. Because of recent modifications in the assessment of gingivitis, however, progress in gingivitis prevalence is difficult to assess.

From the 1985-86 National Oral Health Survey of Adults and Seniors conducted by NIDR, only 14% of employed adults (18-64 years of age) had periodontal pockets, and less than 10% had severe periodontal disease. Although less than 25% of adults greater than or equal to65 years of age had periodontal pockets, at least one third of dentulous seniors appeared to be at risk for significant levels of periodontal disease.

Many adults can maintain an acceptable level of periodontal health over a lifetime through a combination of personal and professional care. Public and private care programs should target the elderly and other persons at high risk for periodontal disease.

REDUCTION OF RISK By 1990, no public elementary or secondary school (and no medical facility) should offer highly cariogenic foods or snacks in vending machines or in school breakfast or lunch programs.

Data are insufficient to assess progress toward this objective, but it seems unlikely that the objective will be attained by 1990. Several factors operate to impede the achievement of this objective. For example, sugared snacks are often a major source of revenue for schools, e.g., bake sales and candy sales. The U.S. Department of Agriculture recently ruled that the presence of a federally supported school food program cannot prevent the sale of snack foods on school premises except during mealtimes. Other important impediments include the inability to quantify the relative cariogenicity of foods and the lack of convenient food alternatives to sugary snacks.

By 1990, virtually all students in secondary schools and colleges who participate in organized contact sports should routinely wear proper mouth guards.

Based on data from private and public organizations, this objective is unlikely to be achieved. No national surveillance program exists for monitoring the use of protective mouthpieces by participants in contact sports; however, several national sports organizations have mandatory requirements for the use of protective mouthpieces at the secondary school and collegiate levels. Data provided from the National Collegiate Athletic Association (NCAA) indicate that a substantial proportion of injuries sustained by college athletes occur in the cranial/facial region of the body. However, only three NCAA sports--football, ice hockey, and men's lacrosse--require the use of mouth guards.

Current strategies for increasing routine mouth-guard use rely almost exclusively on the interest and involvement of physicians and dentists working with athletes' associations and teams.

National strategies need to be broadened in scope to include organized contact sports at all levels, to encourage compliance with existing rules, and to monitor the incidence and severity of facial and oral injuries.

PUBLIC AWARENESS By 1990, at least 95% of schoolchildren and their parents should be able to identify the principal risk factors related to dental diseases and be aware of the importance of fluoridation and other measures in controlling these diseases.

Based on findings from the 1985 and 1986 National Health Interview Survey (NHIS), progress has been achieved toward this objective. Data from the 1986 NHIS indicated that 65% of respondents knew that the purpose of fluoridation was to improve dental health (National Center for Health Statistics (NCHS), 1986 NHIS-- Dental Supplement, unpublished data. 1986). A 1977 Gallup poll indicated that 45% of respondents knew the importance of fluoridation; the 1985 NHIS indicated, however, that the public incorrectly ranks oral hygiene and professional care ahead of fluoride as "definitely important" in preventing tooth decay (6). Thus, continued oral health promotion activities by public health agencies and professional organizations are needed to disseminate accurate dental health messages. Oral health education and promotion efforts should not be limited to children but should extend to all age groups.

By 1990, at least 75% of adults should be aware of the necessity for both thorough personal oral hygiene and regular professional care in the prevention and control of periodontal disease.

This objective has been achieved. Information from the 1983 and 1985 NHIS indicated that most surveyed adults recognized that regular dental visits and personal oral hygiene are important measures to prevent and control periodontal disease (7; NCHS, 1983 NHIS--Dental Supplement, unpublished data, 1984).

Although the public apparently recognizes the most important measures to prevent periodontal disease, it may not be able to differentiate between specific risk factors related to periodontal disease and those related to tooth decay. Consequently, the dental profession and dental product manufacturers need to provide health education messages that more clearly distinguish between actions appropriate for preventing periodontal disease and those required to prevent tooth decay. In addition, the importance of regular professional care for the edentulous (toothless) needs to be emphasized.

SERVICES By 1990, at least 95% of the population on community water systems should be receiving the benefits of optimally fluoridated water.

This objective is not likely to be achieved by 1990. In 1985, an estimated 61.9% of the U.S. population using public water systems had access to drinking water with fluoride levels capable of preventing dental caries (greater than or equal to0.7 ppm), representing 54.5% of the total U.S. population.

The slow but steady growth rate of community water fluoridation over the past 40 years has averaged 1%-2% per year, adding 1-3 million persons each year to the population benefiting from fluoridated water. Recently, the number of new persons being added to fluoridated systems has begun to level off. Opposition to fluoridation activity remains strong and focuses on efforts within local and state legislatures.

Given its high degree of effectiveness and efficiency in preventing decay, community water fluoridation should be the foundation for improving oral health in the United States. Efforts should be concentrated on fluoridating systems serving at least 1000 persons. The national strategy for fluoridation requires action at all levels of government and community. Federal training and technical assistance, information dissemination, and surveillance should be maintained. In addition, further biomedical and health services research is needed on total dietary fluoride intake, health benefits, safety, and costs.

By 1990, at least 50% of schoolchildren living in fluoride-deficient areas that do not have community water systems should be served by an optimally fluoridated school water supply.

Data are insufficient to assess progress toward this objective. The population of children living in fluoride-deficient areas that potentially could be served by school water fluoridation is unknown.

Over the past several years, the number of schools with fluoridated water systems has declined. A major reason for this decline is the regionalization of public water systems resulting in the incorporation of schools formerly on independent water supplies. School water fluoridation probably will never make a major contribution to the overall fluoridation effort. Perhaps the most efficient means of reaching the most children not currently served by fluoridated water is the continued promotion of fluoridation of public water supplies.

By 1990, at least 65% of schoolchildren should be proficient in personal oral hygiene practices and should be receiving other needed preventive dental services in addition to fluoridation.

Progress toward improving the proficiency in personal oral hygiene of children is unknown; however, progress has been made in the provision of necessary preventive dental services.

Data from the 1986 NHIS indicated that 95% of children 5-17 years of age reportedly have used a fluoridated dentifrice, and 14% reportedly have used fluoride mouthrinses at home. Parents of 5.5 million children aged 2-16 years reported that their children participate in school-based fluoride mouthrinse programs, often established in schools where a large proportion of the students do not have access to fluoridated water. Only 13% of children aged 2-8 years reportedly have used dietary fluoride supplements as an alternative to water fluoridation.

Data from the 1986 NHIS show that 11% of children aged 7-8 years have dental sealants and that black and low-income children are less likely to have sealants than white and higher-income children.

Appropriate preventive dental services should continue to be promoted, particularly dental sealants for all children and fluoride mouthrinses and supplements for targeted high-risk groups.

SURVEILLANCE By 1990, a comprehensive and integrated system should be in place for periodic determination of the oral health status, dental treatment needs, and utilization of dental services (including reasons for and costs of dental visits) of the U.S. population.

This objective is attainable as progress has been made in expanding the information base for a comprehensive and integrated system.

Numerous oral health surveys conducted by federal, state, and private agencies and organizations monitor oral health status, treatment needs, care utilization, and costs. Surveys have been and

continue to be conducted by NCHS, NIDR, the Health Resources and Services Administration, the Indian Health Service, the U.S. Department of Defense, and numerous states and local communities.

Continuing efforts at the federal level are needed to coordinate information from these surveys. Future efforts should be directed toward expanding the use of computer technology for data acquisition, more sophisticated data processing, better understanding of self-reported response information, and the development of linkages between the various datasets.

By 1985, systems should be in place for determining coverage of all major dental public health preventive measures and activities to reduce consumption of highly cariogenic foods.

Progress has been made toward achieving this objective. Specific national reporting systems and surveys provide public health programs with an indication of the extent of preventive dental activities. Based on recommendations of the Mid-Course Review (2), the focus on reduction of cariogenic foods has been deemphasized because of the complexity of involved issues and the difficulty in quantifying the cariogenicity of foods. Reported by: Dental Disease Prevention Activity, Center for Prevention Svcs, CDC.

Editorial Note

Editorial Note: Overall, the progress made toward achieving the 12 national 1990 objectives in the areas of fluoridation and dental health has been positive and encouraging, and these trends are reflected in improvements in the nation's oral health. Information obtained from the Mid-Course Review will be invaluable in setting objectives for the year 2000.

The downward trend in dental caries in U.S. schoolchildren has been occurring over the past 2 decades. The decline has occurred in all age groups and all regions of the country. However, dental caries remains an important problem for certain high-risk populations. Persons who live in nonfluoridated communities and who do not receive routine dental care may have an increased risk of dental decay, e.g., decay rates in American Indians and migrant populations are significantly higher than the rate in the general population. In addition, black children and children of lower socioeconomic status tend to have more dental disease and more untreated decay and to receive fewer dental services.

Although the incidence of dental caries usually peaks during childhood and adolescence, the long-term sequelae of dental decay lasts a lifetime. Teeth that are restored will generally require additional care in later years as restorations wear out or fracture or as recurrent caries activity occurs. Persons with dry mouth (xerostomia) resulting from disease, medication, radiation therapy, or aging are highly susceptible to dental decay. The recession of gingival tissue, resulting from periodontal disease, abrasion, or aging, exposes root surfaces that are also susceptible to decay. Thus the decline in childhood dental caries should be viewed with cautious optimism as an encouraging trend, not as an indication that the need for oral health care has diminished.

Because dental decay has been almost universally prevalent it has been viewed by many as inevitable. However, the continued decline in caries rates provides strong evidence that dental disease is a preventable condition.

References

1. Public Health Service. Promoting health/preventing disease: objectives for the nation. Washington, DC: US Department of Health and Human Services, Public Health Service, 1980.

2. Public Health Service. The 1990 health objectives for the nation: a midcourse review. Washington, DC: US Department of Health and Human Services, Public Health Service, 1986.

3. National Institute of Dental Research. The prevalence of dental caries in United States children 1979-80: the National Dental Caries Prevalence Survey. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, 1981; NIH publication no. 82-2245.

4. Harvey CR, Kelly JE, National Center for Health Statistics. Decayed, missing, and filled teeth among persons 1-74 years: United States. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, 1981; DHHS publication no. (PHS)81-1673. (Vital and health statistics; series 11, no. 223).

5. National Institute of Dental Research. NIDR releases results of new schoolchildren's survey. NIDR Research Digest July 1988.

6. Office of Public Health Dentistry. The South Carolina Dental Health and Pediatric Blood Pressure Survey 1982-83. Columbia: South Carolina Department of Health and Environmental Control, 1984.

7. Schoenborn CA, National Center for Health Statistics. Health promotion and disease prevention: United States, 1985. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, 1988; DHHS publication no. (PHS)88-1591. (Vital and health statistics; series 10, no. 163).