

12-CD-01

Committee: Chronic Disease

Title: Proposed New and Revised Indicators for the National Oral Health Surveillance System

I. Statement of the Problem

In 1998 and 1999, CSTE published three position statements (1,2,3) recommending that nine oral health indicators be included in the National Public Health Surveillance System:

1. Dental visits
2. Teeth cleaning
3. Edentulism
4. Fluoridation status
5. Dental Sealants
6. Caries history
7. Obvious signs of tooth decay
8. Incidence of oral and pharyngeal cancer
9. Mortality from oral and pharyngeal cancer

Since that time, new state data sources have become available to monitor these and new indicators of oral health. Additionally, changes to some of the data sources or tools originally identified have led to data sources for priority populations within these indicators or the need to revise these indicators.

The first four indicators were to be reported using existing surveillance systems, including the Behavioral Risk Factor Surveillance System (BRFSS), the Youth Risk Behavior Surveillance System (YRBSS), and the water fluoridation surveillance system now known as the Water Fluoridation Reporting System (WFRS), a collaborative effort between CDC and the Association of State and Territorial Dental Directors (ASTDD). The next three indicators (5-7) were to be reported from state oral health surveys using the Basic Screening Survey guide published by ASTDD in 1999 (4). The final two indicators (8 and 9) were to be reported from the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) and CDC's National Program of Cancer Registries (NPCR) (3).

These indicators were to be used "at the local, state and national level to monitor the burden of oral disease, the use of the oral health care delivery system, visits for preventive services and the status of fluoride in community water systems" (1). Additionally, the data were to be used to allocate "scarce resources for prevention and control efforts, to measure the effect of interventions and to develop hypotheses regarding risk factors for disease and poor utilization of services" (1,2,3). The relationship of these indicators to Healthy People objectives for 2000 and 2010 was noted in two of the three position statements, and seven of the nine indicators are, or closely relate to, Healthy People 2010 (HP2010) and 2020 (HP2020) objectives. These original goals and alignment with Healthy People remain important for the existing and new oral health indicators.

CSTE's 1999 position statements describing these nine indicators for oral health established the basis for a National Oral Health Surveillance System (NOHSS) (5) as part of the National Public Health Surveillance System (NPHSS) described by CSTE in 1996 (6). The first seven NOHSS indicators are presented on a website hosted by CDC (<http://www.cdc.gov/nohss>) and updated as new data become available. As a result of these efforts, all states have data for water fluoridation and the oral health status and dental care utilization of adults every two years, and 43 states have reported statewide estimates for dental sealants, caries history and obvious signs of decay, as of May 9, 2012. The oral and pharyngeal cancer indicators will be added to the NOHSS website soon, but are also available in the United States Cancer Statistics report and website (7).

In 1998, ASTDD formed a workgroup tasked with describing an oral health surveillance system with special attention to guidance emerging from CDC, CSTE and the National Association of Chronic Disease Directors (NACDD). The workgroup identified 72 unique indicator concepts from an environmental scan of indicators in use by states and selected seven indicators aligned with Healthy People 2010 (HP2010) objectives for which state data were available or feasible to collect (5). The work group described these seven indicators as an initial set to be reviewed periodically and revised in keeping with CDC guidance on evaluation of oral health surveillance systems (8).

Since the initial set of indicators was developed, in 2006, an additional measure was added for adults (loss of six or more teeth among older adults) following publication of the indicator in an MMWR special issue on healthy aging (9) and after review by the ASTDD Data Committee. This indicator is based on the same BRFSS rotating core question used for the complete tooth loss indicator and provides data for all states every two years. ASTDD's Data Committee collaborated with the National Assembly on School Based Health Care (NASBHC) to develop a question for the NASBHC National Census (10) to monitor a HP2010 objective that has continued with Healthy People 2020 (HP2020). ASTDD has revised the initial Basic Screening Survey manual twice since 1999, with the latest version including special modules for children enrolled in Head Start programs and for older adults in skilled nursing facilities or attending congregate meal sites.

Upon release of the HP2020 objectives in December 2010, ASTDD's Data Committee formed a small work group made up of state dental directors and epidemiologists from ASTDD, CDC and CSTE. The work group was tasked with reviewing the NOHSS indicators for alignment with HP2020 objectives and to assess whether state data sources were available for these or related objectives. The work group paid special attention to existing data sources that were available to states and from a publicly available source and that could be used with minimal additional burden on state oral health programs. From this review, the work group identified needed changes to NOHSS indicators that are related to changes in objectives from HP2010 to HP2020, availability of state data sources for existing objectives or priority populations and two new indicators identified as a high priority by state dental directors.

State oral health programs and state oral health surveillance systems have evolved since NOHSS was established in 1999. States have expressed great interest in using these new data sources to track additional oral health surveillance indicators beyond the current set. Among the 20 states funded through CDC cooperative agreements to build state infrastructure for oral health, most have used or plan to use the proposed new indicators for program planning and surveillance.

Key points for continuing, revising or adding each indicator:

Dental visits: Frequent use of the oral health care delivery system leads to better oral health by providing an opportunity for clinical preventive services and early detection of oral diseases. Infrequent use of dental services has been associated with poor oral health among adults with lower income and education levels; such persons have more decayed teeth requiring treatment, more severe periodontal disease, and are more likely to be edentate than adults with more education and higher incomes (11, 12,13). This indicator is related to the HP2020 Objective OH-7, one of 26 HP2020 Leading Health Indicators in 12 topic areas, "Increase the proportion of children, adolescents, and adults who used the oral health care system in the past 12 months."

Adults (existing indicator, no change): The Behavioral Risk Factor Surveillance System continues to include the dental visit question on the core questionnaire, providing data for adults aged 18 years and older for every state every two years.

Children and adolescents (existing indicator, data source revised): The Youth Risk Behavior Surveillance System last included the dental visit question in 2007. However, the National Survey of Children's Health includes a dental visit question and provides data for every state every three years and is now the preferred source to monitor this indicator for children and adolescents <18 years old.

Federally Qualified Health Center (FQHC) patients (new indicator): FQHCs serve patients with low income or who lack access to health care, including oral health care, from other providers. FQHCs annually report the number of patients who had a dental visit to the Uniform Data Set (UDS) maintained by the Health Resources and Services Administration (HRSA). The UDS provides data for every state annually. This indicator is also related to HP2020 Objective OH-11, "Increase the proportion of patients who receive oral health services at Federally Qualified Health Centers each year."

Adults with diabetes (new indicator): The Behavioral Risk Factor Surveillance System includes a self-reported measure of diabetes every year and a dental visit question on the rotating core questionnaire every two years. Together, these can be used to estimate the percentage of adults with diabetes who had a dental visit in the past year. People with diabetes are more susceptible to periodontal disease and regular dental visits can help improve early detection and treatment of periodontal disease.

Teeth cleaning (existing indicator, loss of data source for adults, new data source for pregnant women):

The BRFSS last asked the dental cleaning question in 2010. Due to resource constraints, it is unclear at this time when the question will be asked again on the survey. This indicator was used in combination with the dental visit indicator to differentiate between dental visits that were not primarily preventive in nature and may indicate sub-optimal access to or use of preventive dental care. This indicator relates to HP2020 Objectives OH-4 "Reduce the proportion of adults who have ever had a permanent tooth extracted because of dental caries or periodontal disease" and OH-5 "Reduce the proportion of adults aged 45 to 74 years with moderate or severe periodontitis."

Women, in the 12 months prior to their most recent pregnancy (new indicator): Beginning with the Pregnancy Risk Assessment Monitoring System (PRAMS) Phase 6 questionnaire, a standard question about teeth cleaning in the 12 months before pregnancy was included on the core questionnaire, providing data every year for all PRAMS participating states, currently 40 states and New York City.

Tooth loss:

Edentulism among adults aged 65 years and older (existing indicator, no change): Complete tooth loss among older adults can compromise quality of life and nutritional status. BRFSS continues to include the tooth loss question on the rotating core questionnaire, providing data for all states every two years. This indicator relates to HP2020 Objective OH-4.2 "Reduce the proportion of older adults aged 65 to 74 years who have lost all of their natural teeth."

Lost 6 or more permanent teeth among adults aged 65 years and older (existing indicator, no change): Even partial tooth loss can compromise quality of life and nutritional status. BRFSS continues to include the tooth loss question on the rotating core questionnaire, providing data for all states every two years. This indicator relates to HP2020 Objective OH-4.1 "Reduce the proportion of adults aged 45 to 64 years who have ever had a permanent tooth extracted because of dental caries or periodontitis."

Water fluoridation (existing indicator, no change): The Water Fluoridation Reporting System continues to provide data for every state every two years. It currently provides county level data for selected states and will soon provide county level data for every county served by one or more community water systems. This indicator is the same as the HP2020 Objective OH-13 "Increase the proportion of the U.S. population served by community water systems with optimally fluoridated water."

Caries history: Revisions to the Basic Screening Survey in 2011 provided guidance to states to collect data on caries experience among Head Start program participants, as well as children attending Kindergarten and 3rd grade. Most people experience caries by the time they reach adulthood, so no indicator is tracked for caries experience among adults in NOHSS or in Healthy People.

Caries experience among children attending Head Start (new indicator): This indicator relates to HP2020 Objective 1.1 “Reduce the proportion of young children aged 3 to 5 years with dental caries experience in their primary teeth.”

Caries experience among children attending Kindergarten (new indicator): This indicator relates to HP2020 Objective 1.1 “Reduce the proportion of young children aged 3 to 5 years with dental caries experience in their primary teeth.”

Caries experience among 3rd grade children (existing indicator, no change): As of May 9, 2012, 43 states had reported this indicator to NOHSS. This indicator relates to HP2020 Objective OH-1.2 “Reduce the proportion of children aged 6 to 9 years with dental caries experience in their primary and permanent teeth.”

Obvious signs of tooth decay: Revisions to the Basic Screening Survey in 2011 provides guidance to states to collect data on untreated tooth decay among Head Start program participants, as well as children attending kindergarten and 3rd grade, and older adults in long-term care or skilled nursing facilities or attending congregate meal sites.

Untreated tooth decay among children attending Head Start (new indicator): This indicator relates to HP2020 Objective OH 2.1 “Reduce the proportion of children aged 3 to 5 years with untreated dental decay in their primary and permanent teeth.”

Untreated tooth decay among children attending Kindergarten (new indicator): This indicator relates to HP2020 Objective OH 2.1 “Reduce the proportion of children aged 3 to 5 years with untreated dental decay in their primary and permanent teeth.”

Untreated tooth decay among 3rd grade children (existing indicator, no change). As of May 9, 2012, 43 states had reported this indicator to NOHSS. This indicator relates to HP2020 Objective OH 2.2 “Reduce the proportion of children aged 6 to 9 years with untreated dental decay in their primary and permanent teeth.”

Untreated coronal caries and root caries among older adults residing in long-term care or skilled nursing facilities (new indicator). This indicator relates to HP2020 Objectives OH-3.2 “Reduce the proportion of older adults aged 65 to 74 years with untreated coronal caries” and OH-3.3 “Reduce the proportion of older adults aged 75 years and older with untreated root surface caries.”

Untreated coronal caries and root caries among older adults attending congregate meal sites (new indicator). This indicator relates to HP2020 Objectives OH-3.2 “Reduce the proportion of older adults aged 65 to 74 years with untreated coronal caries” and OH-3.3 “Reduce the proportion of older adults aged 75 years and older with untreated root surface caries.”

Preventive dental visit (new indicator): Preventive dental visits are especially important for low-income children. This indicator is related to HP2020 Objective OH-8 “Increase the proportion of low-income children and adolescents who received any preventive dental service during the past year.”

Children aged 0 to 20 years enrolled in Medicaid (new indicator): The Centers for Medicare and Medicaid Services (CMS) requires state Medicaid programs to report the number of children who receive preventive dental services during the year, and the number of children enrolled, on the Early and Periodic Screening, Diagnosis and Treatment program report (CMS Form 416). CMS is in the process of revising its Medicaid Statistical Information System (MSIS) to support reporting of these measures directly from claims data, reducing the burden of reporting on states.

Children aged 0 to 20 years enrolled in the Children's Health Insurance Program (new indicator): CMS requires state CHIP programs to report the number of children who receive preventive dental services during the year, and the number of children enrolled through the CHIP Annual Reporting Template System (CARTS).

Dental sealants: Dental sealants should be applied to first and second molar teeth soon after eruption to prevent tooth decay. This indicator is related to HP2020 Objective OH-12.2 "Increase the proportion of children aged 6 to 9 years who have received dental sealants on one or more of their permanent first molar teeth."

Third grade students (existing indicator, no change): School-based sealant programs typically serve students in 2nd grade. As of May 9, 2012, 43 states had reported the percentage of 3rd grade students with dental sealants.

Children enrolled in Medicaid ages 6 to 9 years (new indicator): The Centers for Medicare and Medicaid Services (CMS) requires state Medicaid programs to report the number of children who receive dental sealants during the year, and the number of children enrolled, on the Early and Periodic Screening, Diagnosis and Treatment program report (CMS Form 416). This measure will capture sealants placed on first molars soon after eruption. CMS is in the process of revising its Medicaid Statistical Information System (MSIS) to support reporting of these measures directly from claims data, reducing the burden of reporting on states.

Children enrolled in Medicaid ages 10 to 14 years (new indicator): The Centers for Medicare and Medicaid Services (CMS) requires state Medicaid programs to report the number of children who receive dental sealants during the year, and the number of children enrolled, on the Early and Periodic Screening, Diagnosis and Treatment program report (CMS Form 416). This measure will capture sealants placed on second molars soon after eruption, although it may also capture sealants placed on first molars that were not sealed earlier or lost sealants. CMS is in the process of revising its Medicaid Statistical Information System (MSIS) to support reporting of these measures directly from claims data, reducing the burden of reporting on states.

Dental treatment needs (new indicator): Need for restorative dental treatment.

Need for restorative dental treatment among children attending Kindergarten (new indicator)

Need for restorative dental treatment among children attending Head Start (new indicator)

Need for restorative dental treatment among children attending 3rd Grade (new indicator). The 43 states that have reported caries experience, untreated tooth decay and dental sealants among 3rd grade students using the Basic Screening Survey have also collected treatment needs.

Need for restorative dental treatment among older adults attending residing in long-term care or skilled nursing facilities (new indicator)

Need for restorative dental treatment among older adults attending congregate meal sites (new indicator)

Dental treatment visit (new indicator): Among low-income children, dental treatment needs are more prevalent. Early treatment can prevent tooth decay from becoming severe.

Medicaid enrolled children with a treatment dental visit (new indicator): The Centers for Medicare and Medicaid Services (CMS) requires state Medicaid programs to report the number of children who receive dental treatment services during the year, and the number of children enrolled, on the Early and Periodic Screening, Diagnosis and Treatment program report (CMS Form 416). CMS is in the process of revising its Medicaid Statistical Information System (MSIS) to support reporting of these measures directly from claims data, reducing the burden of reporting on states.

CHIP enrolled children with a treatment dental visit (new indicator): CMS requires state CHIP programs to report the number of children who receive preventive dental services during the year, and the number of children enrolled through the CHIP Annual Reporting Template System (CARTS).

School-based dental services: The National Assembly for School Based Health Care conducts a survey of school-based health centers providing data for every state every three years. This indicator is the same as the HP2020 Objective OH-9 "Increase the proportion of school-based health centers with an oral health component."

Percentage of school-based health centers that offer dental sealants (new indicator): This indicator is the same as HP2020 Objective OH-9.1 "Increase the proportion of school-based health centers with an oral health component that includes dental sealants."

Percentage of school-based health centers that offer restorative services (new indicator): This indicator is the same as HP2020 Objective OH-9.2 "Increase the proportion of school-based health centers with an oral health component that includes dental care."

Percentage of school-based health centers that offer topical fluoride (new indicator): This indicator is the same as HP2020 Objective OH-9.3 "Increase the proportion of school-based health centers with an oral health component that includes topical fluoride."

Oral and Pharyngeal Cancer:

Incidence of oral and pharyngeal cancer (existing indicator, no change): United States Cancer Statistics, SEER and NPCR cancer registries, ICD-O-2, C000 - C1481 ICD-9, 140.0-149.9. This indicator relates to HP2020 Objectives OH-6 "Increase the proportion of oral and pharyngeal cancers detected at the earliest stage", OH-14.2 "(Developmental) Increase the proportion of adults who received an oral and pharyngeal cancer screening from a dentist or dental hygienist in the past year", and C-6 "Reduce the oral and pharyngeal cancer death rate."

Mortality from oral and pharyngeal cancer (existing indicator, no change): This indicator is the same as HP2020 Objective C-6 "Reduce the oral and pharyngeal cancer death rate."

II. Statement of the desired action(s) to be taken:

The National Oral Health Surveillance System (NOHSS) should include the following existing, revised and new indicators:

1. Dental visit in the past year
 1. Adults aged 18 years and older (Data Source: Behavioral Risk Factor Surveillance System)
 2. Children and adolescents <18 years of age (Data Source: National Survey of Children's Health)
 3. FQHC patients (Data Source: HRSA Uniform Data Set)
 4. Adults with diabetes (Data Source: BRFSS)
2. Teeth cleaning
 1. Teeth cleaning in the past year among adults aged 18 years and older (Data Source: Behavioral Risk Factor Surveillance System – question discontinued)
 2. Women in the 12 months before the most recent pregnancy (Data Source: Pregnancy Risk Assessment Monitoring System)
3. Tooth loss
 1. Complete tooth loss among adults aged 65 years and older (Data Source: Behavioral Risk Factor Surveillance System)
 2. Loss of 6 or more permanent teeth among adults aged 65 years and older (Data Source: Behavioral Risk Factor Surveillance System)
4. Water fluoridation. Percentage of the state population served by community water systems that receives fluoridated water. (Data Source: Water Fluoridation Reporting System)
5. Prevalence of caries experience
 1. On primary or permanent teeth of children
 1. Attending Kindergarten (Data Source: Basic Screening Survey)
 2. Attending Head Start (Data Source: Basic Screening Survey)
 2. On primary or permanent teeth of 3rd grade students (Basic Screening Survey)
6. Prevalence of untreated tooth decay
 1. On primary or permanent teeth of children
 1. Attending Kindergarten (Data Source: Basic Screening Survey)
 2. Attending Head Start (Data Source: Basic Screening Survey)
 2. On primary or permanent teeth of 3rd grade students (Basic Screening Survey)
 3. Coronal caries and root caries among older adults
 1. Residing in long-term care or skilled nursing facilities (Data Source: Basic Screening Survey)
 2. Attending congregate meal sites (Data Source: Basic Screening Survey)
7. Percentage of the population with dental treatment needs (Data Source: Basic Screening Survey)
 1. Attending Kindergarten (Data Source: Basic Screening Survey)
 2. Attending Head Start (Data Source: Basic Screening Survey)
 3. Attending 3rd grade (Data Source: Basic Screening Survey)
 4. Residing in long-term care or skilled nursing facilities (Data Source: Basic Screening Survey)
 5. Attending congregate meal sites (Data Source: Basic Screening Survey)
8. Percentage of the population with a preventive dental visit in the past year
 1. Medicaid enrolled children with a preventive dental visit (Data Source: CMS 416 report – Medicaid Early and Periodic Screening, Diagnosis and Treatment (EPSDT) Utilization)
 2. CHIP enrolled children with a preventive dental visit (Data Source: CMS CHIP Annual Reporting Template System (CARTS))
9. Percentage of the population with dental sealants
 1. 3rd grade students (Data Source: Basic Screening Survey)

2. Children aged 6 to 9 years enrolled in Medicaid (Data Source: CMS 416 report – Medicaid Early and Periodic Screening, Diagnosis and Treatment (EPSDT) Utilization)
3. Children aged 10 to 14 years enrolled in Medicaid (Data Source: CMS 416 report – Medicaid Early and Periodic Screening, Diagnosis and Treatment (EPSDT) Utilization)
10. Percentage of the population with a dental treatment visit in the past year
 1. Medicaid enrolled children with a treatment dental visit (Data Source: CMS 416 report – Medicaid Early and Periodic Screening, Diagnosis and Treatment Utilization)
 2. CHIP enrolled children with a treatment dental visit (Data Source: CMS CARTS)
11. Percentage of school based health centers that provide
 1. Sealants (Data Source: National Assembly for School Based Health Care)
 2. Dental treatment services (Data Source: National Assembly for School Based Health Care)
 3. Topical fluoride (Data Source: National Assembly for School Based Health Care)
12. Oral and pharyngeal cancer
 1. Incidence of oral and pharyngeal cancer (Data Source: United States Cancer Statistics, SEER and NPCR cancer registries)
 2. Mortality from oral and pharyngeal cancer (Data Source: United States Cancer Statistics: National Vital Statistics System)

III. Public Health Impact:

Although oral health of the U.S. population has improved for most groups over recent decades, prevalence of tooth decay among young children has not improved and older adults face declines in oral health status. Significant disparities by income, race and ethnicity persist in oral health status and utilization of preventive services, such as dental sealants (11).

Lack of access to basic dental care remains a significant barrier to better oral health. For children, the impact of poor access was highlighted in a 2008 Government Accountability Office report (12), and in 2011 the Institute of Medicine reported “persistent and systemic” barriers that limit access to oral health care for millions of vulnerable Americans (13).

Changes in the oral health care system required by the Affordable Care Act and emerging innovations in oral health care for children and older adults suggest that surveillance of oral health will be especially important in monitoring trends in oral health status and access to care in this decade. By integrating data from many sources, the National Oral Health Surveillance System can provide a focus on oral health that is useful for planning oral health programs and monitoring the impact of the health care system changes on oral health status and access to oral health care and preventive interventions.

The revisions and additions to the oral health indicators provide more information for program planning and monitoring the impact of interventions designed to improve access to oral health preventive and treatment interventions and the oral health status of the most vulnerable populations in each state.

IV. References

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