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Where oral health lives

Policy Statement:

State-Based Oral Health Surveillance Systems

Association of State and Territorial Dental Directors

Adopted: April 2015; Revised: December 2022

Summary

State oral health surveillance systems (SOHSS) identify population needs, protect and promote population-wide oral health, and monitor the impact of those efforts. In 2020/2021, only 59% of states (30 states) reported having a written oral health surveillance plan and publicly available data. With an ongoing and coordinated oral health surveillance system in place, a state can (1) monitor the oral diseases, conditions, and risk factors of their residents, (2) document and monitor disparities, and (3) evaluate programs aimed at mitigating these diseases and conditions.

The Council of State and Territorial Epidemiologists (CSTE) developed an operational definition of a SOHSS that recognizes that oral health surveillance should address a variety of conditions, risk factors and external influences; employ a variety of methods and data sources; and go beyond basic disease reporting. In addition, it must address the overarching purpose of surveillance: to provide actionable information to guide public health policy and programs.

Over the past two decades, the public health surveillance framework has been transformed by external factors: new information technologies, health care reform, new data sources, and an expanded view of what constitutes oral health and adequate oral health surveillance. The changed healthcare landscape has increased the need for oral health surveillance data to support decision-making and program evaluation and enhanced the capability of state oral health programs to conduct surveillance.

To identify population needs, protect and promote population-wide oral health, and monitor the impact of those efforts, state and territorial oral health programs (S/TOHP) must have sufficient infrastructure, ongoing funding and capacity for collecting, analyzing, and disseminating oral health data on a regular and scheduled basis.

ASTDD supports and strongly recommends state health jurisdictions develop an identified oral health surveillance plan and implement and maintain a robust state-based oral health surveillance system that whether independently or in collaboration with other public health programs is fundamental in determining resource allocation, program planning and interventions, and policy decisions that are data-driven, evidence-based and actionable.

Problem:

Oral health surveillance systems identify population needs, protect and promote population-wide oral health, and monitor the impact of those efforts. In 2020/2021, only 59% of states (30 states) reported having a written oral health surveillance plan and publicly available data, with another four then in process.[1]

An ongoing and coordinated State Oral Health Surveillance System (SOHSS) allows a state to (1) monitor the oral diseases, conditions, and associated risk factors of their residents, (2) document and monitor disparities, and (3) evaluate programs aimed at mitigating these diseases, conditions and risk factors. Each of these may be influenced by a variety of factors, including access to dental care and the cost to individuals to obtain it, individual risk factors and determinants of oral diseases, availability of interventions, workforce issues, public health infrastructure, and public policies.[2]

In the United States, the two most common oral diseases are dental caries (tooth decay) and periodontal disease. Although largely preventable, caries is the most prevalent chronic disease in both children and adults.[3,4] While less common, oral and pharyngeal cancers, orofacial clefts, malocclusion, oral-facial pain, and other oral health problems can severely affect general health and quality of life. The public health implications of poor oral health status are substantial and consequential. Poor oral health impacts a person's ability to eat, speak, work, communicate and learn. Although most oral diseases and conditions are preventable, virtually all adults and many children have experienced oral disease.

Serious oral health disparities exist by race, age, income and geography and have been documented at all ages and across racial/ethnic and socioeconomic groups. Social determinants of health (such as the ability to pay for services, insurance coverage for care and other financial constraints, the availability of transportation, technology deficits and others) further amplify disparities and may complicate effective data collection. An effective SOHSS must collect data in such a way that disparities can be identified and addressed. When resources are scarce, it is important to allocate them to the population(s) most in need. The costs to treat oral disease are significant. The US Centers for Disease Control and Prevention (CDC) noted $136 billion in total annual costs related to dental care, using costs measured in 2018 dollars and 2018 National Health Expenditure Data.[5]

CDC guidelines for evaluating public health surveillance systems recommend that health-related events be considered for surveillance if they affect many people, require large expenditures of resources, are largely preventable, and are of public health importance.[6] Based on these criteria, oral health outcomes, associated health behaviors, and other factors linked to oral health should be included in state-based public health surveillance systems.[7] Yet funding constraints from both federal and state sources have had adverse implications for the scope and breadth of state surveillance systems, resulting in inadequate and inconsistent staffing and with inclusion of meaningful and consistent oral health indicators often falling low in priorities. Without sufficient data, the impact of a SOHSS falls short.

Healthy People, the national process that provides a comprehensive set of national goals and objectives for improving the health of all Americans, has identified building public health surveillance systems as a national objective since 2010 or earlier. Healthy People 2030 continues the specific objective to increase the proportion of states and the District of Columbia that have an oral and craniofacial health surveillance system, with "developmental status, meaning it is a high-priority public health issue that has evidence-based interventions to address it, but doesn't yet have reliable baseline data."[8]

Method:

Public health surveillance is defined as "...the ongoing, systematic collection, analysis, and interpretation of health data, essential to the planning, implementation, and evaluation of public health practice, closely

integrated with the dissemination of these data to those who need to know and linked to prevention and control."[9,10] According to CDC, the purpose of public health surveillance is to address a defined public health problem and use the data to guide efforts that will protect and promote population health. CDC further states that public health surveillance is the ongoing and systematic implementation of a set of processes including planning and system design, data collection, data analysis, interpretation of results of analysis, dissemination and communication of information, and application of information to public health programs and practice.[11]

An oral health surveillance system monitors broad-based oral diseases and conditions, along with strategies associated with oral health outcomes, particularly access to dental care and community water fluoridation. The existence of such a system strongly implies an oral health surveillance *plan*, and timely, public availability of *actionable* data. These data, disseminated in a timely manner, and intended to guide public health policy and programs, may take the form of an oral disease burden document, publicly available reports, or increasingly a web-based interface providing information on the oral health of the state's population developed or updated within the previous five years.

In its 2013 whitepaper, *State-Based Oral Health Surveillance Systems: Conceptual Framework and Operational Definition,* the Council of State and Territorial Epidemiologists (CSTE) developed an enhanced operational definition of a SOHSS. The paper, which remains timely a decade later, recognized that oral health surveillance should address a variety of conditions, risk factors and external influences; employ a variety of methods and data sources; and go beyond basic disease reporting. In addition, it must address the overarching purpose of surveillance: to provide actionable information to guide public health policy and programs.[12]

The operational definition for a SOHSS includes a core or foundational set of eight surveillance indicators that CSTE encourages all states to collect:[13]

- Oral health status data for a representative sample of third grade children, including prevalence of caries experience, untreated tooth decay, and dental sealants meeting criteria for inclusion in NOHSS (National Oral Health Surveillance System) collected at least every five years
- Permanent tooth loss data for adults obtained every two years
- Annual data on oral and pharyngeal cancer incidence and mortality
- Annual data on the percent of Medicaid- and CHIP-enrolled children who had a dental visit within the past year
- Data on the percent of children 1-17 years who had a dental visit within the past year, obtained every four years
- Data on the percent of adults (≥18 years) and adults with diabetes who had a dental visit within the past year, obtained every two years
- Data on the fluoridation status of public water systems within the state, updated every two years
- Annual data on state oral health programs and the environment in which they operate, including workforce and infrastructure indicators, submitted to the Annual Synopses of State and Territorial Dental Public Health Programs.

States have access to multiple surveillance databases with oral health information [Note: acronyms are listed at the end of this document.] These include BRFSS, YRBSS, PRAMS/PRAMS-like systems, children's oral health data meeting NOHSS criteria, the ASTDD Annual State Synopses, state cancer registry/NCI

SEER, orofacial cleft data, Medicaid dental claims data, and WFRS). States also have access to the National Oral Health Data Portal, which has "consolidated most of the important oral health data sources in one place for people from all levels of oral health and data literacy to find the information they need." In addition to national databases, states may have access to and be able to utilize their own data sources. States may expand their oral health surveillance system to include a wider variety of indicators based on the needs and resources of the individual state.

Over the past two decades, the public health surveillance framework has been transformed by a variety of external factors such as new information technologies, health care reform, new data sources, and an expanded view of what constitutes oral health and meaningful oral health surveillance. The changing healthcare landscape has increased the need for oral health surveillance data to support decision-making and program evaluation and enhanced the capability of state oral health programs to conduct surveillance.

As part of its mission to assist health agency officials and public health administrators to build and maintain strong State and Territorial Oral Health Programs (S/TOHP), ASTDD developed a set of guidelines to describe state oral health program roles for each of the ten essential public health services.[14,15] The first is *assessmen*t, to "Assess and monitor the population's oral health status, factors that influence oral health, and community needs and assets" and to "Investigate, diagnose and address oral health problems and hazards affecting the population." Primary roles for a state are to:

- "Maintain an ongoing understanding of oral health by collecting, monitoring, and analyzing data on oral health and factors that influence oral health with a particular emphasis on disproportionately affected populations" and
- "Use data and information to document, and when possible, determine the root causes of oral health disparities and inequities."

ASTDD can provide technical assistance as available and appropriate to states in developing approaches to assessment and to providing data for NOHSS.

In its 2021 Best Practice Approach Report, *Dissemination of Data from State-Based Surveillance Systems*, ASTDD "encourages health jurisdictions to implement an oral health surveillance system and create a communications or dissemination plan for the system that considers six general topics: primary audience, communication message, communication channel, message marketing, cultural sensitivity, and evaluation."[16]

The report builds on CSTE's recommendations that: [17]

> In addition to the eight core indicators... all states have a written oral health surveillance plan plus publicly available, actionable data to guide public health policy and programs. One of the first steps in developing a state oral health surveillance system (SOHSS) or updating an existing system is to produce an oral health surveillance plan -- a written roadmap for establishing, maintaining, and evaluating a surveillance system. The plan should clearly define the system's purpose, objectives, indicators, data sources, primary population(s), required operating resources, data collection schedule and protocol, data analysis methods, intended data usage and dissemination protocols, privacy and confidentiality practices, and evaluation protocol. In general, a surveillance plan should describe practices that assure a SOHSS: 1) is readily able to adopt new methods; 2) captures information about populations at highest risk; 3) is able to

> link health outcomes data with data on co-morbidities and risk factors; 4) disseminates data to the appropriate individuals in a timely manner; and 5) is sustainable.
>
> Surveillance systems should: 1) communicate findings to those responsible for programmatic and policy decisions and to the public, and 2) assure data are used to inform and evaluate public health measures to prevent and control oral diseases and conditions. [As previously stated,] there is no value to a surveillance system unless the information is used for actions that prevent or control disease or a health condition.

To identify population needs, protect and promote population-wide oral health, and monitor the impact of those efforts, S/TOHP must have sufficient infrastructure, funding and capacity for collecting, analyzing, and disseminating oral health data on a regular and scheduled basis. Infrastructure implies dedicated staffing for data collection and analysis to support and facilitate the program's ability to carry out the assessment functions noted above. Ongoing funding is necessary to support staff, such as an epidemiologist who can coordinate robust data collection, and for resources to develop and implement the communications structures needed for dissemination to the public and to decision-makers. The use of health informatics and engaging in data-sharing with other state level agencies and partners will support and enhance a SOHSS.

Policy Statement

ASTDD supports and strongly recommends state health jurisdictions develop an identified oral health surveillance plan and implement and maintain a robust state-based oral health surveillance system. On a regular and timely basis, a surveillance system should monitor oral health status, access to dental care, individual risk factors for oral diseases and determinants of oral health, availability of interventions, workforce issues, public health infrastructure, and public policies, and should include dissemination of publicly available and actionable data. At a minimum, a state-based oral health surveillance system should include the items identified by CSTE, with expansion to a wider variety of indicators based on the needs and resources of the individual state. Whether independently or in collaboration with other public health programs, a SOHSS supported by sufficient funding and trained staff is fundamental for determining resource allocation, and for informing program planning and interventions and policy decisions that are data-driven and evidence-based.

Acronyms Used in the Policy Statement

ASTDD: Association of State and Territorial Dental Directors

BRFSS: Behavioral Risk Factor Surveillance System

CDC: Centers for Disease Control and Prevention

CHIP: Children's Health Insurance Program

CSTE: Council of State and Territorial Epidemiologists

NCI SEER: National Cancer Institute's Surveillance Epidemiology and End Results Program

NOHSS: National Oral Health Surveillance System

PRAMS: Pregnancy Risk Assessment Monitoring System

S/TOHP: State and Territorial Oral Health Programs

WFRS: Water Fluoridation Reporting System

YRBSS: Youth Risk Behavior Surveillance System

The ASTDD Dental Public Health Policy Committee is pleased to acknowledge Kathy Phipps, DrPH, for the original draft of this paper, and the members of the Committee in 2022 for their contributions in reviewing and revising it.

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