West Virginia Oral Health Surveillance Plan 2020-2025




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Bureau for Public Health
Office of Maternal, Child & Family Health
350 Capitol Street, Room 427
Charleston, WV 25301
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WEST VIRGINIA ORAL HEALTH SURVEILLANCE PLAN 2020-2025

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LIST OF ABBREVIATIONS

ASTDD	Association of State and Territorial Dental Directors
BPH	Bureau for Public Health
BRFSS	Behavioral Risk Factor Surveillance System
BSS	Basic Screening Survey
CDC	Centers for Disease Control and Prevention
CHIP	Children's Health Insurance Program
CSHCN	Children with Special Health Care Needs
CSTE	Council of State and Territorial Epidemiologists
DHHR	Department of Health and Human Resources (West Virginia)
DWS	Dental Workforce Survey
FQHC	Federally Qualified Health Center
HIPAA	Health Insurance Portability and Accountability Act
HP2030	Healthy People 2030
HRSA	Health Resources and Services Administration
HS-PIR	Head Start Program Information Report
IOM	Institute of Medicine
NOHSS	National Oral Health Surveillance System
NSCH	National Survey of Children's Health
OHP	Oral Health Program
OHSS	Oral Health Surveillance System
OMCFH	Office of Maternal, Child and Family Health
PHI	Protected Health Information
PRAMS	Pregnancy Risk Assessment Monitoring System
UDS	Uniform Data System
WFRS	Water Fluoridation Reporting System
WVBD	West Virginia Board of Dentistry
WVCR	West Virginia Cancer Registry
WVOHSS	West Virginia Oral Health Surveillance System
WVPCA	West Virginia Primary Care Association
YRBSS	Youth Risk Behavior Surveillance System

INTRODUCTION

HISTORICAL PERSPECTIVE

The West Virginia Oral Health Program (OHP) is administered by the West Virginia Department of Health and Human Resources (DHHR), Bureau for Public Health (BPH), Office of Maternal, Child and Family Health (OMCFH). West Virginia (WV) has the highest rate of tooth loss among adults age 65 and older in the nation,[i] but until 2010 the State had no oral health plan. The OHP also had no program funding or staff dedicated specifically to surveillance activities. Moreover, WV received significant negative national attention when a report by the Pew Center on the States entitled "The Cost of Delay: State Dental Policies Fail One in Five Children" gave WV a grade of F due to its lack of infrastructure.[ii] Since then, the OHP has made significant strides toward improving its oral health infrastructure including:

- creation of a comprehensive state oral health plan;
- transitioning the part-time dental director to full-time;
- hiring community-based oral health sealant coordinators/fluoride specialists;
- hiring epidemiology support to plan and conduct surveillance activities; and
- developing and supporting a comprehensive oral health surveillance system.

To date, WV has successfully used data from its oral health surveillance system for both program planning and policy development. These successes include, but are not limited to:

- DentaQuest grant to facilitate medical and dental collaboration;
- Health Resources and Services Administration (HRSA) grant which helped establish a dental student loan repayment program to increase the dental workforce; and
- ongoing funding from the Centers for Disease Control and Prevention (CDC) for oral health prevention and surveillance activities.

In April 2013, WV released its first comprehensive plan for a statewide oral health surveillance system covering the years 2013-2018. This document, which covers the years 2020-2025 updates the state's oral health surveillance plan to account for changes in previously existing data sources and the availability of new data sources.

THE PURPOSE OF PUBLIC HEALTH SURVEILLANCE

The 1988 Institute of Medicine (IOM) report on the future of public health outlines three core functions for public health: assessment, policy development and assurance [IOM]. In that report (updated in 2003), the IOM recommended that every public health agency regularly and systematically collect, assemble, analyze, and disseminate information on community health status to carry out the assessment function. Public health agencies accomplish this task through public health surveillance -- the ongoing, systematic collection, analysis and interpretation of health data.[iii] Surveillance is essential for planning, implementing, and evaluating public health practice and, ideally, is integrated with data dissemination to public health decision makers and other stakeholders.[iv] The overarching purpose of public health surveillance is to provide actionable health information to guide public health policy and programs.[v]

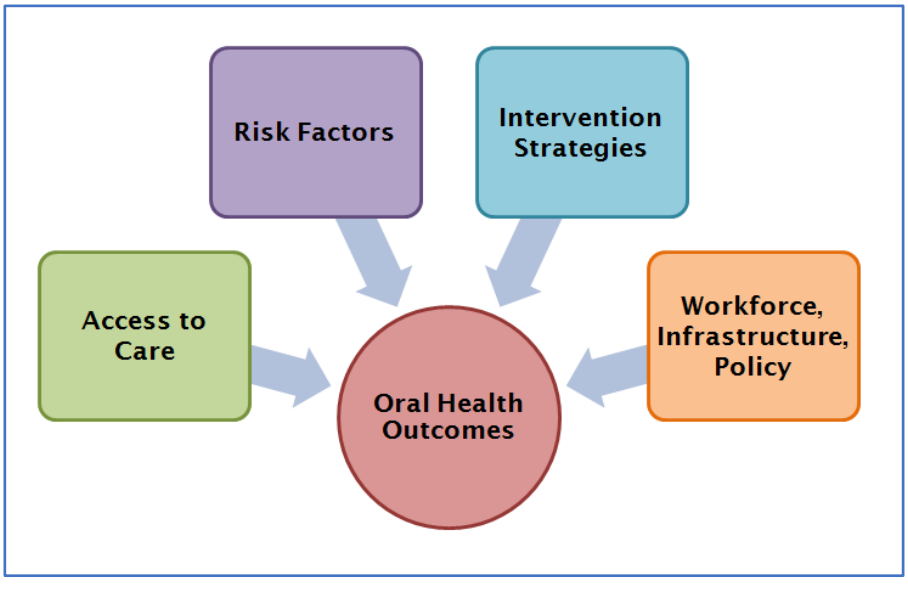
THE PUBLIC HEALTH IMPORTANCE OF ORAL HEALTH

The 2000 report, *Oral Health in America: A Report of the Surgeon General*, states that oral health is more than healthy teeth.[vi] That means being free of chronic oral-facial pain, oral and pharyngeal (throat) cancers, oral soft tissue lesions, cleft lip or other birth defects, oral injuries due to sports-related trauma or physical abuse, and scores of other diseases and disorders that affect the oral, dental, and craniofacial tissues. The report notes that oral health is integral to general health and stresses the importance of good oral health at both the individual and population (public health) level.

In the United States, the two most common oral diseases are dental caries (tooth decay) and periodontal (gum) disease. Although less common, cancers of the oral cavity and pharynx, orofacial clefts (cleft lip and cleft palate), malocclusion, oral-facial pain, and other oral health problems can severely affect general health and quality of life. For example, poor oral health impacts the ability to eat, communicate and learn, and affects how we look and interact with others, sometimes creating low self-esteem or making it difficult to find jobs where public interaction is important.

Each oral disease or condition, also referred to as an oral health outcome, is influenced by a variety of factors including access to dental care, individual risk factors and risk determinants, availability of interventions, workforce and financing issues, public health infrastructure and public policies (See Figure 1). Following is a brief overview of the major oral health outcomes including common risk factors and intervention strategies.

Figure 1: Factors Impacting Oral Health Outcomes



Dental Caries: Dental caries has been described as the single most common chronic childhood disease. In 2011-2016, approximately 23% of U.S. children aged 2-5 and 52% of children aged 6-8 years had experienced dental caries in primary teeth while 17% of children aged 6-11 and 57% of adolescents aged 12-19 had experienced dental caries in permanent teeth.[vii] The impact of dental caries accumulates over time; of those 20-64 years of age, 90% had caries experience (treated or untreated decay).[7] The

prevalence of dental caries experience is generally higher in low-income and minority populations, representing a significant health disparity.

There are effective preventive intervention strategies for dental caries. Caries prevalence and severity can be reduced by appropriate use of fluorides through community water fluoridation, personal or professional topical fluoride applications and use of toothpaste with fluoride. CDC has recognized community water fluoridation as one of ten great public health achievements of the 20th century, yet not everyone has access to fluoridated water.[viii] Dental sealants are another effective intervention, preventing caries development in the pits and fissures of molar (back) teeth.[ix] Dental sealants can be applied in dental offices or community settings (e.g., schools), yet far too few children are benefiting from this proven preventive service; in 2011-2016 in the U.S., only 32% of 6-8 year olds, 51% of 9-11 year olds and 48% of 12-19 year olds had dental sealants on at least one permanent molar.[7]

To reduce the prevalence of untreated dental decay, all individuals, regardless of income or dental insurance coverage, must have access to restorative dental care. Access to dental care, in turn, is influenced by infrastructure, workforce, financing and policy factors, including availability of low-cost clinics, dentist-to-population ratio, percent of dentists accepting government-funded dental insurance, reimbursement rates for government-funded programs, plus dental practice acts involving supervision, scope of practice and reimbursement.

Periodontal Disease: Periodontal disease is another common public health problem in the United States. More than 46% of adults 30 years and older have destructive periodontal disease (periodontitis) with 9% having severe periodontitis characterized by loss of the bony structure supporting the teeth and resulting in partial or total tooth loss.[x] Among adults aged 65 years and older, nearly two thirds (68%) have periodontitis with 11% classified as severe.[10] As with dental caries, substantial oral health disparities exist. The prevalence of periodontitis is higher in men, Hispanics, adults with less than a high school education, adults below 100% of the Federal Poverty Level, and current smokers.[10] The most common risk factor for periodontitis is smoking; tobacco use prevention and cessation could be a potentially effective population level intervention strategy.

Cancers of the Oral Cavity and Pharynx: Although substantially less common than dental caries and periodontitis, cancers of the oral cavity and pharynx have a significant impact on the health care system and should be included in public health surveillance. The National Cancer Institute estimates that in 2020 there will be 53,260 new cases of and 10,750 deaths from cancers of the oral cavity and pharynx.[xi] Cancers of the oral cavity and pharynx are more common in men than women, among those with a history of tobacco or heavy alcohol use, and individuals infected with human papillomavirus (HPV). Based on data from 2013-2017, the number of new cases of oral cavity and pharynx cancer was 11.4 per 100,000 men and women per year.[11] Currently, the primary public health and personal prevention strategies are tobacco cessation and no more than moderate alcohol consumption. HPV vaccines might prevent oral cavity and pharynx cancers as the vaccines prevent an initial infection with HPV types that can cause these cancers, but studies have not yet been done to determine if HPV vaccines will prevent them.

Orofacial Clefts: For reporting purposes, orofacial clefts are generally classified as either (1) cleft palate without cleft lip or (2) cleft lip with and without cleft palate. Based on 2004-2006 data from 14 state birth defects tracking programs, the estimated incidence of cleft palate without cleft lip is 1 in 1,574 live U.S. births (2,651 cases annually), and the incidence of cleft lip with or without cleft palate is 1 in 940 live births (4,437 cases annually).[xii] Orofacial clefts in the U.S. are most common among American Indian and Asian children. Risk factors include family history and maternal use of tobacco, alcohol and street drugs during pregnancy. Prevention strategies include folic acid supplementation plus tobacco, alcohol and drug use cessation during the prenatal period.

Disparities in Access to Dental Care: As previously mentioned, oral health disparities are profound in the United States. Children in lower-income families have higher dental caries rates than non-poor children; racial and ethnic minority populations have worse oral health than the population in general; and rural residents have worse oral health than urban residents.[6] These disparities start in childhood and persist throughout the lifecycle.

Limited or infrequent access to dental care contributes to poor oral health. Unfortunately, in the U.S. about 46% of children aged 2-17 years did not visit a dentist in 2015, with Black/African American (55%) and Hispanic children (50%) more likely to have not visited a dentist compared with White children (41%).[xiii] For adults 18 years and older, 32% report having no dental visit within the past year, with substantial disparities by education, income and race/ethnicity.[xiv] In WV, 68% of those with an annual income less than $15,000 had no dental visit compared with 29% of those with an income of $50,000 or more.[14]

Financial Implications: The cost of treating dental disease is significant. According to the Centers for Medicare & Medicaid Services (CMS), spending for dental services in 2018 was $135.6 billion, with out-of-pocket personal spending accounting for approximately 40% of all dental spending.[xv]

Summary: The public health implications of poor oral health status are vast. 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 some oral disease. Serious oral health disparities exist by race, age, geography, and income. The costs of oral disease treatment are significant, and most of those costs are paid by individuals or through private insurance. Much of the population cannot afford dental care or does not take advantage of public insurance benefits.

CDC guidelines for evaluating public health surveillance systems recommend that health-related events (in this case oral diseases and conditions) be considered for surveillance if they affect many people, require large expenditures of resources, are largely preventable, and are of public health importance.[xvi] ***Based on these criteria, oral health outcomes, associated health behaviors, and other factors linked to oral health are included in West Virginia's oral health surveillance system.***

FRAMEWORK FOR A STATE ORAL HEALTH SURVEILLANCE SYSTEM

According to the Council of State and Territorial Epidemiologists (CSTE), a state oral health surveillance system (OHSS) should provide information necessary for public health decision making by routinely collecting data on oral health outcomes, access to care, risk factors and intervention strategies for the

whole population, representative samples of the population, or priority subpopulations.[xvii] In addition, a state OHSS should consider collecting information on the oral health workforce, infrastructure, financing, and policies impacting oral health outcomes. A state OHSS can access data from existing sources, supplemented by additional information, such as data from a Basic Screening Survey (BSS), to fill data gaps.

Surveillance systems are not just data collection systems. They must include mechanisms to 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. According to the Association of State and Territorial Dental Directors' *Best Practice Report on State Based Oral Health Surveillance Systems*, a state oral health surveillance system should (1) have an oral health surveillance plan, (2) define a clear purpose and objectives relating to the use of surveillance data for public health action, (3) include a core set of measures/indicators to serve as benchmarks for assessing progress in achieving good oral health, (4) analyze trends, (5) communicate surveillance data to decision makers and the public in a timely manner, and (6) strive to assure that surveillance data is used to improve the oral health of state residents.[xviii]

OPERATIONAL DEFINITION FOR A STATE ORAL HEALTH SURVEILLANCE SYSTEM

Healthy People 2030 (HP2030) Objective OH-D01 – "increase the number of states and the District of Columbia that have an oral and craniofacial health surveillance system" – deserves special mention. CSTE has developed an operational definition for a state oral health surveillance system. This operational definition is a core or foundational set of surveillance elements. A state is considered to have an oral health surveillance system if they have ***all of the following ten items***.[17]

1. A written oral health surveillance plan updated within the previous five years.
2. Oral health status data for a representative sample of third grade children, including prevalence of caries experience, untreated tooth decay, and dental sealants on permanent molars meeting criteria for inclusion in the National Oral Health Surveillance System (NOHSS). Data must have been collected within the previous five years.
3. Permanent tooth loss data for adults obtained within the previous two years.
4. Annual data on the incidence of and mortality from cancers of the oral cavity and pharynx.
5. Annual data on the percent of Medicaid- and CHIP-enrolled children who had a dental visit within the past year.
6. Data on the percent of children 1-17 years who had a dental visit within the past year.
7. Data on the percent of adults (≥18 years) and adults with diabetes who had a dental visit within the past year, obtained within the previous two years.
8. Data on the fluoridation status of public water systems within the state, updated every two years.
9. Annual data on state oral health programs and the environment in which they operate, including workforce and infrastructure indicators.
10. Publicly available, actionable data to guide public health policy and programs disseminated in a timely manner. This may take the form of an oral disease burden document, publicly available reports, or a web-based interface providing information on the oral health of the state's population developed or updated within the previous five years.

WEST VIRGINIA'S ORAL HEALTH SURVEILLANCE SYSTEM

PURPOSE

The West Virginia Oral Health Surveillance System (WVOHSS) plan establishes core oral health indicators that will be measured in the WVOHSS. It also establishes the frequency with which data on these indicators will be collected. The purpose of the WVOHSS is to continuously monitor the status and trends of oral health indicators in WV. The data will be used for immediate public health action, program planning and evaluation, policy planning, and will serve as a valuable tool in helping the OHP identify how to better allocate resources.

TARGET POPULATIONS

The OHP is concerned with promoting oral health across the lifespan. The OHP focuses on education and access to care for the entire population as well as specific high-risk groups. These high-risk groups include:

- pregnant women,
- racial and ethnic minority populations,
- people of lower socioeconomic status, and
- older adults.

PARTNERS AND STAKEHOLDERS

WVOHSS has formed partnerships with other initiatives within the OMCFH such as the Pregnancy Risk Assessment Monitoring System (PRAMS) and the Children with Special Health Care Needs Program (CSHCN) to collect and share data. The WVOHSS includes other stakeholders such as the WV Department of Education, WV Oral Health Coalition, West Virginia University School of Dentistry, Marshall University, West Virginia schools of dental hygiene, primary medical care providers, WV Primary Care Association, WV Office of the Insurance Commissioner, WV Dental Association, WV Dental Hygienists' Association, social service organizations, community programs, and consumer advocacy groups that use data for the promotion of healthy lifestyles and the prevention and control of oral disease.

GOALS, OBJECTIVES, ACTIVITIES, AND COMPONENTS

Monitoring the status of oral disease in the state's population is essential for setting achievable goals and objectives as well as for planning, implementing, and evaluating oral health programs. Therefore, the primary goal of the WVOHSS is to track oral health trends in WV. The objectives of the WVOHSS are to measure the burden of oral disease in WV and to monitor progress towards both state and national oral health objectives.

Objectives:

1. Estimate the extent and severity of oral disease and risk factors in West Virginia.
2. Measure utilization of oral health services in West Virginia.
3. Monitor utilization and effectiveness of community-based and school-based oral health prevention programs including, but not limited to, community water fluoridation and dental sealant programs.

4. Identify populations at high risk of oral disease and document the unmet needs of these populations.
5. Provide current, scientific, and reliable data for the state.
6. Use oral health data to plan, implement, and evaluate the impact of West Virginia's oral health programs and policies.
7. Provide information for decision making and public health resource allocations.
8. Evaluate West Virginia's strengths and gaps in surveillance measurements and in surveillance of priority populations to identify opportunities to improve the WVOHSS.

Activities:

1. Serve as a central repository for oral health data.
2. Identify gaps in the data.
3. Collect both primary and secondary data for all indicators.
4. Analyze and interpret data in addition to ensuring the quality of the data.
5. Complete and regularly update surveillance reports, burden document and fact sheets.
6. Disseminate the reports, fact sheets and burden document.
7. Report BSS data to the National Oral Health Surveillance System.

Components:

1. Oral health indicators monitored by WVOHSS.
2. Data sources and timeline.
3. Resources for the sustainability of WVOHSS.
4. Dissemination of WVOHSS information.
5. Confidentiality of data.
6. Evaluation plan.
7. Oral health surveillance logic model (Appendix 1).

ORAL HEALTH INDICATORS

The indicators that form the framework of the WVOHSS include the indicators outlined in the Council of State and Territorial Epidemiologists (CSTE) operational definition of an oral health surveillance system, a subset of indicators approved by CSTE for inclusion in the National Oral Health Surveillance System (NOHSS), plus a set of indicators specific to WV. The CSTE approved indicators are being used because CSTE is the organization responsible for defining and recommending which diseases and conditions should be reportable within states and which should be voluntarily reported to the Centers for Disease Control and Prevention.

For a public health surveillance system to be effective and responsive, it must adapt to new health challenges and data sources. Consequently, the indicators included in the WVOHSS may change during the 5-year time frame outlined by this plan. The indicators currently included in the WVOHSS are outlined in Table 1. Refer to Appendix 2 for a list of the indicators with their frequency and data source.

Table 1: Indicators Included in the WVOHSS by Domain and Age Group

<table>
<tr><th>Domain</th><th>Preschool Children</th><th>School Children</th><th>Adults</th><th>Older Adults</th></tr>
<tr><td rowspan="3">Oral Health Outcomes</td><td rowspan="2"><u>Universal Pre-K</u>
Decay experience
Untreated tooth decay
Need for urgent care
<u>Head Start</u>
Need dental care</td><td rowspan="2"><u>3rd Grade</u>
Decay experience
Untreated tooth decay
Need for urgent care
Sealant prevalence
<u>Medicaid/CHIP (6-9, 10-14 Years)</u>
Sealant placement</td><td><u>18-64 & 45-64 Years</u>
Any tooth loss
<u>45+ Years</u>
6+ teeth lost</td><td><u>65+ Years</u>
6+ teeth lost
Complete tooth loss</td></tr>
<tr><td colspan="2"><u>All Adults</u>
Incidence of and mortality from cancers of the oral cavity and pharynx, percent of cancers detected at earliest stage</td></tr>
<tr><td colspan="2"><u>1-17 Years</u>
Parent’s self-report of child’s oral health</td><td colspan="2"><u>High-Risk Adults</u>
<u>(Perinatal women/FQHC patients/Older Adults)</u>
Tooth loss
Untreated tooth decay
Need for urgent care</td></tr>
<tr><td rowspan="2">Access to Care</td><td colspan="2"><u>Medicaid/CHIP 0-20 years</u>
Dental visit & preventive dental service
<u>1-17 Years</u>
Dental visit & preventive dental visit
<u>Head Start</u>
Dental visit
<u>Grades 9-12</u>
Dental visit</td><td colspan="2"><u>18+ Years</u>
Dental visit
<u>Adults 18+ Years with Diabetes</u>
Dental visit
<u>Pregnant Women</u>
Teeth cleaning before and during pregnancy
<u>Women of Childbearing Age (18-44 Years)</u>
Dental visit
<u>Medicaid/CHIP 21+ Years</u>
Dental visit</td></tr>
<tr><td colspan="4"><u>All Ages</u>
Dental visit for federally qualified health center (FQHC) patients</td></tr>
<tr><td rowspan="3">Intervention Strategies</td><td></td><td>School-based or school-linked dental sealant programs</td><td colspan="2" rowspan="2"></td></tr>
<tr><td colspan="2">Topical fluoride programs</td></tr>
<tr><td colspan="4">Community water fluoridation</td></tr>
<tr><td>Risk Factors</td><td></td><td><u>Grades 7-8 & 9-12</u>
Tobacco use</td><td colspan="2"><u>All Adults</u>
Tobacco use</td></tr>
<tr><td>Workforce and Infrastructure</td><td colspan="4">Number and practice profile of dental professionals
Dentists that accept Medicaid
Number and location of safety net dental clinics
Number of school-based health centers with an oral health component</td></tr>
</table>

DATA SOURCES AND DATA COLLECTION TIMELINE

Most of the indicators in West Virginia’s OHSS are available from existing data sources such as the Behavioral Risk Factor Surveillance System. The indicators that will require primary data collection are: (1) the prevalence of decay experience, untreated decay and need for urgent care in universal pre-kindergarten and 3rd grade children, (2) the prevalence of dental sealants in 3rd grade children, (3) the prevalence of untreated decay, tooth loss and need for urgent care among high-risk adults including perinatal women, Federally Qualified Health Center (FQHC) patients and older adults at senior centers, (4) the number of children served by school-based dental sealant programs, (5) the number of children served by community-based topical fluoride programs, (6) the number of safety-net dental programs, and (7) the practice profile of dental professionals.

Information on the oral health status of universal pre-kindergarten children, 3rd grade children, perinatal women, FQHC patients, and elders at senior centers (items 1-3) will be obtained using the Association of State and Territorial Dental Director’s (ASTDD) Basic Screening Survey (BSS) protocol. Information on number of children served by community-based programs and the number of safety-net dental programs (items 4-6) will be obtained through oral health program surveys of state, local and safety-net programs. Information on the practice profile of dental professions will be obtained through biennial

dental and dental hygiene workforce surveys conducted in collaboration with the West Virginia Board of Dental Examiners.

Following is a brief description of each data source in alphabetical order. Refer to Appendix 2 for additional information.

Basic Screening Survey (BSS): A standardized set of surveys designed to collect information on the observed oral health of participants. Preschool and school aged children are examined for the presence of untreated and treated decay and urgency of need for dental care. In addition, presence of dental sealants on permanent molars is recorded for school-aged children. High-risk adults (perinatal women, FQHC patients, older adults at senior centers) in West Virginia are screened for the presence of untreated tooth decay, tooth loss and urgency of need for dental care. These observations and screenings are conducted by trained dental professionals in accordance with state law.

Behavioral Risk Factor Surveillance System (BRFSS): A state based, ongoing data collection program designed to measure behavioral risk factors in the adult, non-institutionalized population 18 years of age or older. States select a random sample of adults for a telephone interview. Questions include the length of time since last dental visit and the number of teeth removed due to oral disease.

Dental Workforce Survey (DWS): The OHP partners with the WV Board of Dentistry to mail out surveys to dentist and dental hygienists who are completing their license renewal. This survey gives the OHP insight into the issues that might surround the dental workforce and provides information on clinically active dentists and dental hygienists in WV. This survey is conducted every other year, the year opposite when providers must report continuing education credit.

Head Start Program Information Report (HS-PIR): Provides comprehensive data on the services, staff, children, and families served by Head Start and Early Head Start programs.

Medicaid: A state-administered program intended to provide health care and health-related services to low-income or disabled individuals.

National Survey of Children's Health (NSCH): NSCH, funded and directed by the Health Resources and Services Administration (HRSA) Maternal and Child Health Bureau (MCHB), provides data on multiple aspects of children's lives including physical and mental health, access to health care, and the child's family, neighborhood, school, and social context. The original version of NSCH was conducted in 2003, 2007 and 2011-2012. A revised version of the survey was conducted as a mail and web-based survey by the Census Bureau in 2016, 2017, 2018 and 2019. Among other changes, the 2016 National Survey of Children's Health integrated two surveys: the previous NSCH and the National Survey of Children with Special Health Care Needs.

Pregnancy Risk Assessment Monitoring System (PRAMS): A CDC-sponsored initiative to reduce infant mortality and low birth weight. PRAMS is a collection of state-specific, population-based data on maternal attitudes and experiences prior to, during, and immediately following pregnancy. The PRAMS sample of women who have had a recent live birth is drawn from the state's birth certificate file.

Uniform Data System (UDS): UDS, operated by HRSA, contains information that is used to review the operation and performance of health centers.

Water Fluoridation Reporting System (WFRS): WFRS is a management and tracking tool that helps states manage the quality of their community water fluoridation programs. WFRS information forms the basis for national reports that describe the percentage of the U.S. population on public water systems who receive optimally fluoridated drinking water.

West Virginia Board of Dentistry (WVBD): Regulates the practice of dentistry in West Virginia. The WVBD sets and defines standards for safe dental practices and provides dentists and dental hygienists with license to practice in the state of West Virginia.

West Virginia Cancer Registry (WVCR): A registry that collects information on all cancers diagnosed and/or treated in the state of West Virginia. The cancer data is analyzed to determine and monitor trends in cancer incidence and stage at diagnosis among West Virginia residents.

West Virginia Primary Care Association (WVPCA): In 2016, the West Virginia School-Based Health Assembly and the West Virginia Primary Care Association merged. The WVPCA advocates for the availability of comprehensive and coordinated school health services for children including oral health.

West Virginia Vital Records (WVVR): A registry that provides registration and certification of the vital events that occur in West Virginia. These events include births, marriage, deaths, and fetal deaths.

Youth Risk Behavior Surveillance System (YRBSS): A school-based survey conducted biennially (odd years) to assess and monitor priority health risk behaviors that contribute markedly to the leading causes of death, disability and social problems among youth and adults in the United States. YRBSS includes national, state, territorial and local school-based surveys of high school students.

Table 2 presents a data collection timeline for each of the previously mentioned data sources. The timeline includes previously collected data (2011-2019) in addition to data collection plans for the 2020-2024 period covered by this plan.

Table 2: Timeline for Surveillance System Data Collection, 2011-2024

PRIMARY DATA														
School Year	**2011/12**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
BSS: Pre-K	C			C					NC					P
BSS: 3rd			C				C				P			
State FY	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2109**	**2020**	**2021**	**2022**	**2023**	**2024**
BSS Perinatal				C							P			
BSS FQHC		C					C					P		
BSS Older Adults		C				C							P	
Workforce				C		C		C		P		P		P
Program Survey											P	P	P	P
SECONDARY DATA														
State FY	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2109**	**2020**	**2021**	**2022**	**2023**	**2024**
BRFSS		X		X		X		X		X		X		X
HS-PIR	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Medicaid	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NSCH (Revised)						X	X	X	X	X	X	X	X	X
PRAMS	X	X	X	X	X	X	X	X	X	X	X	X	X	X
UDS	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WFRS	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WVBDE	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WVCR	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WVPCA											X	X	X	X
WVVR	X	X	X	X	X	X	X	X	X	X	X	X	X	X
YRBSS	X		X		X		X		X		X		X	

C=Completed, P=Planned, NC=Not completed due to school closures associated with COVID-19, X=Data available from outside source

RESOURCES AND SUSTAINABILITY

Resources needed to operate and sustain the surveillance system include funding and personnel. Other resources such as travel, training, supplies, computers and related services, including mail, telephone, computer support, internet connections, and hardware and software maintenance are needed as well.

Partnerships are integral to sustaining the WVOHSS. The OHP collaborates with the West Virginia Board of Dentistry (WVBD) to administer its Dental and Dental Hygiene Workforce Surveys. The WVBD helps with mailing by including the surveys with license renewal applications. Dissemination of WVOHSS Information

Surveillance reports will be disseminated to interested programs and policymakers through presentations and reports published on the OHP's website. These reports will contain current oral health data and any notable trends. The surveillance results will aid in updating WV's oral health disease burden document as well as provide information at the national level to the NOHSS and the ASTDD State Synopses. Venues for oral dissemination of surveillance results will include meetings of State Oral Health Coalition, WVPCA, Medicaid, and MCH Programs.

As the WVOHSS evolves, it will be enhanced by refining the indicators and improving the system's ability to communicate surveillance results. Future plans include compilation of currently available data into a

report that will contain a summary of the results from the various indicators incorporated in the WVOHSS. This information will also be included in the annual Legislative Report.

CONFIDENTIALITY OF WVOHSS DATA

Management of WVOHSS data complies with the Health Insurance Portability and Accountability Act (HIPAA) privacy rules for protecting the privacy of health information. This standard also applies to data confidentiality and integration. No protected health information (PHI) will be released to partners or to the public. However, surveillance staff will be given access to PHI for analysis purposes alone and other program staff will view this information only when necessary. Surveillance results will be reported as aggregated data.

EVALUATION PLAN FOR WVOHSS

The purpose of evaluating the WVOHSS is to ensure that the oral health indicators are being monitored effectively and efficiently. It also serves as an effort to increase WVOHSS's utility and productivity. Periodic evaluation will be performed to determine the system's usefulness in monitoring oral health trends over time, determining the effectiveness of interventions, and planning future programmatic and policy initiatives. The OHP will evaluate WVOHSS based on the six tasks proposed in the "Updated Guidelines for Evaluating Surveillance Systems" (Guidelines) published in *Morbidity and Mortality Weekly Report*, July 27, 2001/ (50) RR13; 1-35:

1. Engage WV stakeholders
2. Describe WVOHSS
3. Focus the evaluation design
4. Gather credible evidence regarding the performance of WVOHSS
5. Justify and state conclusions, make recommendations
6. Ensure use of evaluation findings and share lessons learned

The evaluation of WVOHSS will focus on providing recommendations for improving the quality, efficiency, and usefulness of the system. WVOHSS will also be evaluated to determine the system's sustainability, the timeliness of analysis of surveillance data, dissemination of the reports and whether the reports have reached stakeholders as well as tracking the policy and legislative actions that have been taken due to surveillance results.

APPENDIX 1: LOGIC MODEL FOR WEST VIRGINIA'S ORAL HEALTH SURVEILLANCE SYSTEM

INPUTS	ACTIVITIES	OUTPUTS	OUTCOMES
Staff ● State dental director ● OHP manager ● OHP epidemiologist ● OHP staff ● IT support ● Data collection & data entry staff **Data Sources** ● National data sources ● State data sources ● Local data sources ● New data collection to fill gaps **Equipment** ● Hardware (desktop computers, printers, IT server) ● Software (SAS, MS Office Suite, MS Access, internet) **Other** ● Stakeholder & community support ● Funding	**Implementation of Surveillance Plan** ● Review existing surveillance plan & indicators ● Assess data & information needs and identify data gaps ● Link existing data sources ● Network with other agencies for collaborations ● Sustain and modify WVOHSS as needed **Data Management** ● Identify data gaps ● Acquire data from sources ● Enture data security & conficentiality ● Analyze data and interpret findings ● Maintain/update data regularly **Reporting** ● Routine dissemination of surveillance reports at local, state and national level ● Incorporate findings into existing burden document & update every 5 years ● Report BSS results to NOHSS **Evaluation** ● Engage stakeholders ● Evaluate surveillance plan ● Evaluate performance and progress of WVOHSS by gathering credible evidence ● Justify and state conclusions, make recommendations as needed ● Develop sustainability strategies	**Data Dissemination** ● Burden document updated every 5 years ● Surveillance plan updated every 5 years ● Routine surveillance reports, data briefs and/or infographics ● Data management plans	**Short-Term** ● Increased monitoring of oral health trends ● Increased use of data by stakeholders **Intermediate** ● Increase in evidence-based interventions, planning and evaluation ● Target program activities for populations most in need as identified by surveillance data **Long-Term** ● Increase in use of data by policymakers for developing and implementing oral health policies ● Increase in programs for high-risk populations **DISTAL OUTCOMES** ● Documented changes in oral health indicators ● Improved oral health of West Virginia's residents

APPENDIX 2: WEST VIRGINIA ORAL HEALTH SURVEILLANCE SYSTEM INDICATORS BY TOPIC AREA

Topic Area	Indicator	Frequency	Data Source	Related National Objectives
Oral Health Outcomes	Head Start children needing dental care	Annual	Head Start PIR https://hses.ohs.acf.hhs.gov/pir/	HP2030, OH-01 HP2030, OH-02
	Children aged 3-5 years attending universal pre-kindergarten ● Dental caries experience ● Untreated dental caries ● Need for urgent dental care	Every 5 years	West Virginia Basic Screening Survey	HP2030, OH-01 HP2030, OH-02
	Third grade children ● Dental caries experience ● Untreated dental caries ● Need for urgent dental care ● Dental sealants	Every 5 years	West Virginia Basic Screening Survey	HP2030, OH-01 HP2030, OH-02 HP2030, OH-10 COHSII, C-2 COHSII, C-6 COHSII, C-9 COHSII, C-11
	Children aged 1-17 years with 1+ oral health problems ● Condition of teeth ● Oral health problems ● Decayed teeth/cavities	Annual	National Survey of Children's Health https://www.childhealthdata.org/browse/survey	MCHB, NOM 14 HP2030, OH-02
	Dental sealant use among children enrolled in Medicaid or CHIP ● 6-9 years ● 10-14 years	Annual	Form CMS-416 https://www.medicaid.gov/medicaid/benefits/early-and-periodic-screening-diagnostic-and-treatment/index.html	HP2030, OH-10 COHSII, C-6
	High-risk adult populations (perinatal women/FQHC patients/elders at senior centers) ● Tooth loss ● Untreated dental caries ● Need for urgent dental care	Every 5 years	West Virginia Basic Screening Survey	HP2030, OH-03 HP2030, OH-05
	Tooth loss in adults ● No tooth loss among adults aged 18-64 years ● 6+ teeth lost among adults aged 45+ years ● 6+ teeth lost among adults aged 65+ years ● Total tooth loss among adults 65+ years	Every 2 years (even years)	Behavioral Risk Factor Surveillance System http://www.cdc.gov/cdi/index.html	HP2030, OH-05

	Cancer of the oral cavity or pharynx ● Incidence ● Mortality ● Cases detected at the earliest stage	Annual	Cancer Registries, state specific incidence rates are available at http://statecancerprofiles.cancer.gov/incidencerates/ http://statecancerprofiles.cancer.gov/deathrates/deathrates.html https://www.cdc.gov/cancer/uscs/index.htm	HP2030, OH-07
Access to Care	Dental visit among children aged 1-17 years ● Preventive visit ● Any dental visit	Every 2 years for combined data sets	National Survey of Children's Health https://www.childhealthdata.org/browse/survey	MCHB, NPM 13.2 HP2030, OH-08 HP2030, OH-09 COHSII, C-2
	Dental visit among Head Start children	Annual	Head Start PIR https://hses.ohs.acf.hhs.gov/pir/	MCHB, NPM 13.2 HP2030, OH-08 COHSII, C-2 HP2030, OH-09
	Dental service for children aged 1-20 years enrolled in Medicaid or CHIP ● Preventive visit ● Any dental visit	Annual	Form CMS-416 https://www.medicaid.gov/medicaid/benefits/early-and-periodic-screening-diagnostic-and-treatment/index.html	MCHB, NPM 13.2 HP2030, OH-08 HP2030, OH-09 COHSII, C-2 COHSII, C-3
	Dental visit among adolescents in grades 9-12	Every 2 years	Youth Risk Behavior Surveillance System https://nccd.cdc.gov/youthonline/App/Default.aspx	HP2030, OH-08
	Dental visit among adults aged 18+ years ● All adults ● Adults with diagnosed diabetes ● Women of childbearing age (18-44 years)	Every 2 years (even years)	Behavioral Risk Factor Surveillance System http://www.cdc.gov/brfss/brfssprevalence/index.html http://www.cdc.gov/cdi/index.html (Category = Diabetes)	HP2030, OH-08 COHSII, W-4
	Dental visit among adults 21+ years enrolled in Medicaid or CHIP	Annual	Form CMS-416 https://www.medicaid.gov/medicaid/benefits/early-and-periodic-screening-diagnostic-and-treatment/index.html	HP2030, OH-08
	Population receiving oral health services at Federally Qualified Health Centers	Annual	HRSA's Uniform Data System http://bphc.hrsa.gov/datareporting/index.html	HP2030, OH-08
	Teeth cleaning among pregnant women ● During pregnancy ● Before pregnancy	Annual	Pregnancy Risk Assessment Monitoring System https://www.cdc.gov/prams/prams-data/mch-indicators.html	COHSII, W-3 HP2030, OH-08
Community Interventions	Population served by community water fluoridation	Annual	Water Fluoridation Reporting System, state fluoridation statistics are available at http://www.cdc.gov/fluoridation/statistics/index.htm	HP2030, OH-11
	Children served by school-based or school-linked dental sealant programs	Annual	West Virginia Oral Health Program Survey	HP2030, OH-09 HP2030, OH-10
	Children served by community-based fluoride varnish programs	Annual	West Virginia Oral Health Program Survey	HP2030, OH-09

Risk Factors	Tobacco use among youth	Every 2 years (odd years)	West Virginia Youth Risk Behavior Surveillance System http://wvde.state.wv.us/healthyschools/YRBS.htm	HP2030, TU-04 HP2030, TU-05 HP2030, TU-06
	Tobacco use among adults	Annual	Behavioral Risk Factor Surveillance System http://www.cdc.gov/brfss/brfssprevalence/index.html	HP2030, TU-01 HP2030, TU-02
Workforce & Infrastructure	Dentists that accept Medicaid	Annual	Medicaid	COHSII, C-1
	Number of dentists and hygienists practicing in WV	Annual	West Virginia Board of Dentistry	
	Practice patterns of dental professionals in WV	Every 2 years	WVBD Dental Workforce Survey	
	Number and location of safety net dental clinics	Annual	West Virginia Oral Health Program Survey	
	Number of school-based health centers that offer oral health services	Annual	West Virginia Primary Care Association	

COHSII = Center for Oral Health Systems Integration and Improvement
HP 2030 = Healthy People 2030 objective
MCHB, NOM = Title V Maternal and Child Health Services Block Grant, National Outcome Measure
MCHB, NPM = Title V Maternal and Child Health Services Block Grant, National Performance Measure

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