

**New Hampshire Oral Health Program**  
**NOFO DP18–1810 New Hampshire Oral Health Surveillance Plan**  
Period of Performance: 2018–2023

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## List of Acronyms

<b>ASTDD</b>	Association of State and Territorial Dental Directors
<b>BRFSS</b>	Behavioral Risk Factor Surveillance System
<b>CDC</b>	Centers for Disease Control and Prevention
<b>CMS</b>	Centers for Medicare & Medicaid Services
<b>CPHDH</b>	Certified Public Health Dental Hygienist
<b>CSTE</b>	Council of State and Territorial Epidemiologists
<b>CWF</b>	Community Water Fluoridation
<b>DHPSA</b>	Dental Health Professional Shortage Area
<b>ED</b>	Emergency Department
<b>EFDA</b>	Expanded Function Dental Assistants
<b>FFS</b>	Fee for Service
<b>FQHC</b>	Federally Qualified Health Center
<b>HIPAA</b>	Health Insurance Portability and Accountability Act
<b>HRSA</b>	Health Resources and Services Administration
<b>MCO</b>	Managed Care Organization
<b>NH BODE</b>	New Hampshire Board of Dental Examiners
<b>NH DPHS</b>	New Hampshire Division of Public Health Services
<b>NH OHC</b>	New Hampshire Oral Health Coalition
<b>NH OHSS</b>	New Hampshire Oral Health Surveillance System
<b>NOFO</b>	Notice of Funding Opportunity
<b>NOHSS</b>	National Oral Health Surveillance System
<b>NPCR</b>	National Program of Cancer Registries
<b>NSCH</b>	National Survey of Children’s Health
<b>NTDC</b>	Non-Traumatic Dental Conditions
<b>OHP</b>	Oral Health Program
<b>OHSS</b>	Oral Health Surveillance System
<b>OPEN</b>	Oral Health Progress and Equity Network
<b>US DHHS</b>	United States Department of Health and Human Services
<b>WISDOM</b>	Web-based Interactive System for Direction and Outcome Measures
<b>WFRS</b>	Water Fluoridation Reporting System

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## I. Introduction

### 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.<sup>1</sup> 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 New Hampshire, as 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. The costs of oral disease treatment are significant, and the majority of those costs are paid by individuals or through private insurance.

Each oral disease or condition 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. Serious oral health disparities exist by race, age, geography, and income.

### The Importance of Oral Health Surveillance

Public health surveillance is the ongoing systematic collection, analysis, and interpretation of outcome-specific data for use in planning, implementing, and evaluating public health practice. Multiple data systems form the foundation of public health surveillance. 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. In addition, a state OHSS should consider collecting information on the oral health workforce, infrastructure, financing, and policies impacting oral health outcomes.<sup>2</sup>

Surveillance systems are not just data collection systems. They must include mechanisms to communicate findings to those responsible for programmatic and policy decisions and to the public, and to assure data are used to inform and evaluate public health measures to prevent and control oral diseases and conditions.

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<sup>1</sup> Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000. <https://www.nidcr.nih.gov/research/data-statistics/surgeon-general>

<sup>2</sup> Phipps K, Kuthy R, Marianos D, Isman B. *State-Based Oral Health Surveillance Systems: Conceptual Framework and Operational Definition*. Council of State and Territorial Epidemiologists, 2013. <https://www.astdd.org/docs/state-based-oral-health-surveillance-systems-cste-whitepaper-oct-2013.pdf>

## New Hampshire's Oral Health Surveillance System

The New Hampshire Oral Health Surveillance System (NH OHSS) was established in 2000 and is modeled on the state-level surveillance systems outlined in the 2013 white paper released by CSTE, *State-Based Oral Health Surveillance Systems, Conceptual Framework and Operational Definition*.

The purpose of the NH OHSS is to provide a consistent source of updated, reliable, and valid information for use in developing, implementing, and evaluating interventions to improve the oral health of New Hampshire's residents. Assessment is the key objective of the state's public health efforts to address the nature and extent of oral diseases and their risk factors by collecting, analyzing, interpreting, and disseminating oral health data. These activities provide a mechanism to routinely monitor state-specific oral health data and the impact of interventions within specific priority populations over time.

The NH OHSS uses existing National Oral Health Surveillance System (NOHSS) indicators as well as novel surveillance indicators unique to our state. Data are shared in written reports and through the New Hampshire Division of Public Health Services' (NH DPHS) Web-based Interactive System for Direction and Outcome Measures (WISDOM) data system.

## New Hampshire's Oral Health Surveillance Plan

The New Hampshire Oral Health Surveillance Plan outlines a five-year plan for the collection, analysis and dissemination of key oral health outcome data as well as those infrastructure and programmatic factors that affect the oral health of New Hampshire residents.

## II. Objectives

The overall goal of the NH OHSS is to enhance understanding of oral health burden, risk factors, and infrastructure in order to inform program and policy decisions. The key objectives are to:

1. Estimate the extent and severity of oral disease and risk factors in New Hampshire.
2. Measure utilization of oral health services in New Hampshire.
3. Monitor utilization and effectiveness of community-based and school-based oral health prevention programs.
4. Identify populations at high risk of oral disease and 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 New Hampshire's oral health programs and policies.
7. Provide information for policy and program decision making and public health resource allocations.

The NH OHSS will be updated and maintained according to the Surveillance Plan. Ongoing evaluation of the strengths and gaps in surveillance measurements and in surveillance of priority populations will help to identify opportunities to improve the NH OHSS.

### III. Oral Health Surveillance System Logic Model

The logic model for New Hampshire’s surveillance system is provided below.

**Figure 1: New Hampshire Oral Health Surveillance System Logic Model**

INPUTS	STRATEGIES/ ACTIVITIES	SHORT-TERM OUTCOMES	INTERMEDIATE OUTCOMES	LONG-TERM OUTCOMES
<p>CDC Funding</p> <p>Technical Assistance</p> <p>Training</p> <p>Evaluation/ performance measurement</p> <p><b>New Hampshire</b> Chronic Disease Section and OHP staff</p> <p>Chronic Disease Epidemiologist</p> <p>Bureau of Health Statistics and Data Management</p> <p>Environmental Epidemiologist</p> <p>Partners<sup>3</sup></p> <p>Infrastructure &amp; capacity</p>	<p><b>Oral Health Surveillance Plan</b></p> <ul style="list-style-type: none"> <li>• Update Oral Health Surveillance Plan</li> <li>• Work with stakeholders to identify new measures and data collection approaches</li> </ul> <p><b>Data Collection</b></p> <ul style="list-style-type: none"> <li>• Work with partners to collect oral health data</li> <li>• Provide needed support to partners relative to data collection</li> <li>• Implement 3<sup>rd</sup> Grade Survey</li> <li>• Oversee data quality control</li> </ul> <p><b>Data Reporting</b></p> <ul style="list-style-type: none"> <li>• Update online dashboard/ WISDOM</li> <li>• Work with stakeholders to develop and refine written data materials</li> <li>• Develop and implement dissemination strategy for materials</li> <li>• Share data with CWF communications team</li> </ul>	<p>Updated plan to inform oral health surveillance</p> <p>High quality oral health data collected</p> <p>Oral health surveillance data shared with a wide range of audiences</p>	<p>Enhanced understanding of oral health burden, risk factors, and infrastructure</p>	<p>Oral health surveillance data used to inform program and policy decisions</p> <p>Increase in access to oral health care</p> <p>Decrease in dental caries</p> <p>Decrease in oral health disparities</p>

<sup>3</sup> Partners include ASTDD, CDC Oral Health Division, NH Oral Health Coalition, NH Department of Education, Manchester Health Department, NH School Nurse Association, NH Dental Director, NH Dental Society, Northeast Delta Dental, NH Department of Environment Services, Department of Environmental Services, Drinking Water and Groundwater Bureau.

#### IV. Oral Health Indicators and Data Sources

The following table summarizes the oral health surveillance indicators that comprise New Hampshire’s OHSS.

**Table 1: New Hampshire NOFO-Required Oral Health Surveillance Indicators**

Prioritized Indicators	Data Sources	Frequency of Collection	Most Recent Year that Data are Available	Projected Data Years Available through 2023
<b>Core Indicators</b>				
Proportion of 3 <sup>rd</sup> grade students with decay experience	Third-Grade Survey	Every 3–5 years	2013-2014 School Year	2021-2022 School Year
Proportion of 3 <sup>rd</sup> grade students with untreated decay				
Proportion of 3 <sup>rd</sup> grade students with dental sealants				
Oral and pharyngeal cancer incidence	NH State Cancer Registry	Annual	2013-2017	2019
Oral and pharyngeal cancer mortality	NH State Cancer Registry	Annual	2014-2018	2019
Proportion of Medicaid and CHIP-enrolled children who received dental services (any dental services, preventative services, dental sealants) in the past year	Centers for Medicare & Medicaid Services (CMS)’s CMS-416 Form	Annual	2019	Annual
Proportion of children aged 1-17 who had a dental visit or preventative dental visit in the past year	National Survey of Children’s Health (NSCH)	Every 2–4 years	2017-2018	Annual
Proportion of adults aged 18+ with no permanent teeth removed	Behavioral Risk Factor Surveillance System (BRFSS)	Every 2 years	2018	2020, 2022
Proportion of adults aged 18+ who had a dental visit in the past year				
Proportion of adults aged 18+ with diabetes who had a dental visit in the past year				
Proportion of NH residents served by a fluoridated public water supply	Water Fluoridation Reporting System (WFRS)	Every 2 years	2019	2021, 2021
State oral health workforce: <ul style="list-style-type: none"> <li>• Number of active dentists</li> <li>• Number of active Registered Dental Hygienists</li> <li>• Number of CPHDHs</li> <li>• Number of EFDAs</li> </ul>	New Hampshire Board of Dental Examiners (NH BODE)	Annual	2019	Annual
State oral health programs and infrastructure:	US DHHS, HRSA NH DHHS, OHP	Annual	2019	Annual



Prioritized Indicators	Data Sources	Frequency of Collection	Most Recent Year that Data are Available	Projected Data Years Available through 2023
<ul style="list-style-type: none"> <li>Proportion of population living in designated Dental Health Professional Shortage Areas</li> <li>Proportion of FQHC Patients who Receive Oral Health Services at FQHCs</li> <li>Number of schools served by a school-based oral health program</li> </ul>				
<b>Additional Indicators</b>				
Adults aged 65+ who have lost all of their natural teeth due to decay or gum disease (complete edentulism)	Behavioral Risk Factor Surveillance System (BRFSS)	Every 2 years	2018	2020, 2022
Adults aged 65+ who have lost six or more of their natural teeth due to decay or gum disease (partial edentulism)				
Proportion of Medicaid adults over age 21 who present at hospital emergency rooms for non-traumatic dental conditions	Medicaid claims analysis from EBI (FFS & MCO)	Annual	2018	TBD
Total payment by Medicaid for hospital emergency room visits for non-traumatic dental conditions for adults over age 21				

Table 2: Indicators Included in the NH OHSS by Domain and Age Group

Domain	Preschool Children	School Children	Adults	Older Adults
Oral Health Outcomes		<u>3<sup>rd</sup> Grade</u> Decay experience Untreated tooth decay Sealant prevalence	<u>18-65+ Years</u> Permanent tooth loss	<u>65+ Years</u> Complete tooth loss
			<u>All Ages</u> Incidence of and mortality from cancers of the oral cavity and pharynx	
Access to Care	<u>Medicaid/CHIP 0-20 years</u> Preventive dental service		<u>18+ Years</u> Dental visit	
	<u>1-17 Years</u> Dental visit or preventive dental visit		<u>Adults 18+ Years with Diabetes</u> Dental visit	
			<u>Adults 21+</u> Proportion of Medicaid adults age 21 and older who present at hospital emergency rooms for non-traumatic dental conditions Total payment by Medicaid for hospital emergency room visits for non-traumatic dental conditions for adults age 21 and older	

Domain	Preschool Children	School Children	Adults	Older Adults
Intervention Strategies		School-based oral health programs		
			Community water fluoridation	
Workforce and Infrastructure			Number of dental professionals	FQHC Patients who Receive Oral Health Services at FQHCs Dental Health Professional Shortage Areas

## V. Data Dissemination and Use

### Data Dissemination Methods

Surveillance results will be disseminated to interested programs and policy makers at the local, state and national level through presentations, published reports and briefs. The New Hampshire Oral Health Program anticipates sharing information through several mechanisms:

- **WISDOM:** Oral health indicator data will continue to be disseminated through New Hampshire’s Web-based Interactive System for Direction and Outcome Measures (WISDOM) system. WISDOM currently includes three oral health indicators:
  - Visited the dentist or dental clinic within the past year for any reason (Core Indicator)
  - Adults that have had any permanent teeth extracted (Core Indicator)
  - Adults aged 65+ who have had all their natural teeth extracted (Additional Indicator)
- **Infographics:** User-friendly infographics will be developed to share oral health data.
- **New Hampshire Oral Health Plan:** The New Hampshire Oral Health Coalition (NH OHC) will be updating the New Hampshire Oral Health Plan and will be sharing data in that update.
- **3<sup>rd</sup> Grade Survey Report:** The 2014 3<sup>rd</sup> grade survey report will be updated with data from the 2021-2022 school year (delayed one year due to COVID-19). This report will be completed and disseminated by the end of 2022.
- **Presentations:** The NH OHP anticipates sharing data at meetings and in presentations.

Reports will contain current oral health data and trend data as available. Reports will be distributed electronically to our partners within the health department and across the state and shared with other state oral health programs as well as CDC and ASTDD. Reports will be available electronically on the state website and, as funds will allow, a limited number will be printed for distribution at meetings.

Venues for presentation of surveillance results include but are not limited to the New Hampshire Oral Health Coalition, New Hampshire Dental Society annual meeting, New Hampshire Dental Hygienists’ Association annual meeting, the ASTDD National Oral Health Conference, the CSTE annual meeting, Maternal and Child Health annual meetings, and the Bi-State Primary Care Association annual meeting as well as through funders such as Northeast Delta Dental and the New Hampshire Children’s Health Foundation.

### Data Use Methods

Presentations, reports and infographics will be used to increase awareness about oral diseases and their risk factors, monitor trends and disparities, develop new interventions, and expand existing programs. The NH OHP management team will identify additional partners that may benefit from data disseminated by the OHP.

## VI. Resources and Sustainability

### Personnel and Partners

The OHP is staffed by a Program Director, Epidemiologist, Evaluation Specialist, and Communication Specialist. With oversight from the Chronic Disease Prevention and Screening Section Administrator, the staff carries out activities aimed at improving the oral health of New Hampshire residents ranging from contracting for the provision of direct services to vulnerable populations to supporting and monitoring effective community water fluoridation.

The Program contracts with and supports agencies across the state to provide preventive and restorative services to those who lack access to dental care. Contracted organizations include school-based oral health programs and community-based oral health programs. In addition to supporting the provision of direct services through contract arrangements, the OHP contributes to the statewide oral health agenda through representation on the Steering Committee of the NH OHC and on the advisory boards for the New Hampshire Technical Institute and the Concord Dental Sealant Coalition. The OHP Program Director is also the New Hampshire state representative for the Oral Health Progress and Equity Network (OPEN). The OHP will also be collaborating with the NH OHC to update the NH Oral Health Plan.

### Comprehensive Budget

Resources needed to operate and sustain the NH OHSS 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. The OHP budget includes shared salaries of an epidemiologist (25%), a business systems analyst (20%), and a contracted evaluator (48 hours). In addition, the OHP has budgeted \$25,000 to conduct the 3<sup>rd</sup> grade survey in 2021. Funds for the stated personnel and activities are supported by the *Improving and Sustaining Oral Health Outcomes in New Hampshire* grant from CDC.

### Sustainability

The OHP has well established partnerships, both internal and external, who are integral to sustaining the NH OHSS. The OHP collaborates with the NH Oral Health Coalition, NH Dental Society, NH Children's Health Foundation, Bi-State Primary Care Association, NH Department of Health and Human Services Division of Medicaid Services, and NH DHHS Maternal and Child Health. In addition, the OHP has several shared positions within our Chronic Disease Section to support the sustainability of the NH OHSS including an epidemiologist, a business systems analyst, and a program specialist. The communication specialist position is currently vacant, however it is the intent of the Chronic Disease Section to fill that position as it is another shared position and is vital to sustaining the NH OHSS. Until that position is filled, the OHP is working with internal partners to assist with communication strategies and data dissemination.

## VII. Privacy and Data Confidentiality

## Strategies to protect privacy and ensure data confidentiality

The NH OHSS follows Health Insurance Portability and Accountability Act (HIPAA) standards for patient privacy and protected health information. The system limits identifiers collected to only essential data elements, and the data are stored on a secure, private, electronic server at the New Hampshire Department of Health and Human Services. Unique identifiers can only be seen by health department staff that have been trained on HIPAA, data security, and confidentiality. Unique identifiers will never be released to external partners and aggregate data will never be reported for counts less than five.

## VIII. Evaluation

### Surveillance system evaluation strategy

The purpose of evaluating the NH OHSS is to ensure that the oral health indicators are being monitored effectively and efficiently and to increase the utility and productivity of the system. 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 the NH OHSS based on CDC's framework for program evaluation:

- Engage OHP's stakeholders;
- Describe the OHSS;
- Focus the evaluation design;
- Gather credible evidence regarding the performance of the OHSS;
- Justify and state conclusions, make recommendations; and
- Ensure use of evaluation findings and share lessons learned.

Evaluation of the NH OHSS will include both process and outcomes components. The activities outlined in the logic model and this plan will form the basis for process evaluation. The process evaluation will examine to what extent proposed surveillance activities have occurred as planned and any barriers that have arisen. Ongoing review will also identify lessons learned and any recommended changes to the NH OHSS. Outcome evaluation for the NH OHSS will focus on examining the extent to which oral health surveillance data have reached intended audiences and to what extent data have been utilized to inform program and policy decisions. Audience reach will be assessed by tracking the reach of materials, including the number of people accessing WISDOM, downloading materials from the NH OHP website or partners' websites, and tracking the number of written materials shared. This information will be reviewed to assess the level of reach against expectations and to determine which materials are of greatest utility to audiences and which of the dissemination formats appear to be most effective.

## IX. New Hampshire Oral Health Data

Included in this section are updated data for the indicators outlined in the NH OHSS Plan. These data provide a picture of oral health outcomes, access to care, risk factors and intervention strategies, as well as the oral health workforce.

### Caries Experience Among Children

Dental caries, more commonly referred to as cavities or tooth decay, is the result of bacteria on the tooth that destroys enamel. Once present, caries require treatment to prevent further decay. Left untreated, caries can cause pain, problems with chewing (ultimately impacting nutritional intake), tooth loss, spread of decay, and further infection. In some cases, the infection can spread beyond the mouth to the heart, lungs, brain, and the bloodstream.

Although largely preventable through good oral hygiene, proper nutrition, and adequate fluoride supplementation, at the national level, caries remains the most common chronic disease among children ages 6-11 and among adolescents ages 12-19.

Data related to childhood caries is collected periodically through a scientifically sound statewide survey of third grade students. In the most recent New Hampshire survey, conducted during the 2013-2014 school year, 35% of children screened showed signs of caries experience (including untreated and/or treated decay), representing a relative decrease of 32% from the 2000-2001 school year. During the same period, the rate of untreated caries went from 22% to 8%, representing a relative decrease of 62%.

**Table 3: Caries Experience and Untreated Caries Among NH Third Graders, 2000-2001 to 2013-2014<sup>4</sup>**

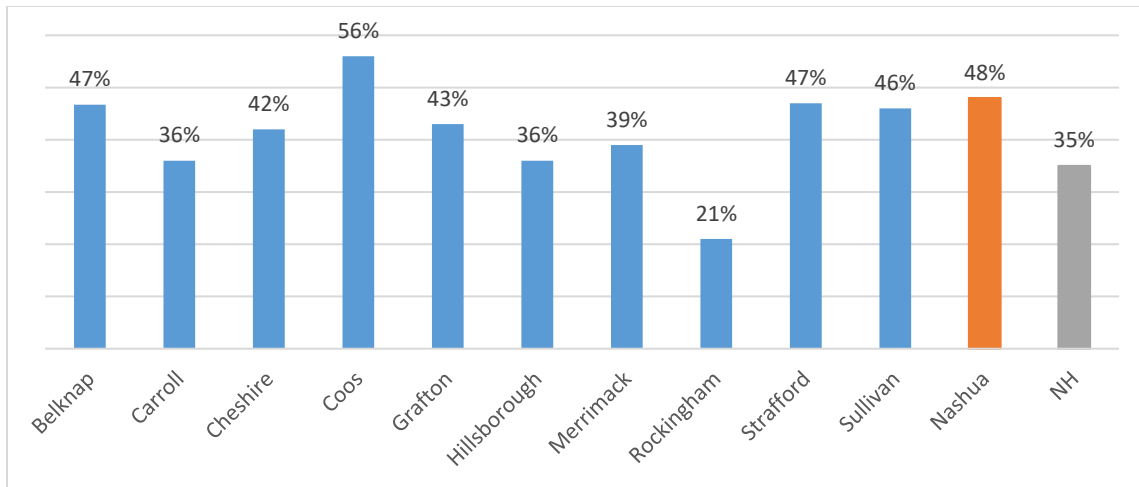
	2000-2001		2003-2004		2008-2009		2013-2014	
	%	CI 95%	%	CI 95%	%	CI 95%	%	CI 95%
<b>Caries Experience</b>	52%	(45.5-58.4)	51%	(45.7-56.3)	44%	(39.7-47.4)	35%	(31.0-39.7)
<b>Untreated Caries</b>	22%	(14.3-29.1)	24%	(18.0-30.2)	12%	(9.6-14.3)	8%	(6.7-9.7)

Source: State of New Hampshire, Department of Health and Human Services, Division of Public Health Services, Chronic Disease Prevention and Screening Section. Third Grade Surveys, 2000-2001, 2003-2004, 2008-2009, 2013-2014

Figure 2 shows 2013-2014 data about decay experience; these data indicate that Coös County had the highest prevalence of decay experience (56%), while Rockingham County had the lowest (21%). As shown in Figure 3, Coos (14%) and Strafford (14%) Counties had the highest prevalence of untreated decay and Rockingham County had the lowest prevalence of untreated decay (4%). When compared with the Counties, the city of Nashua students experienced the highest prevalence of children with untreated decay (17%). However, City of Nashua students had a higher prevalence of dental sealants as compared with most counties.

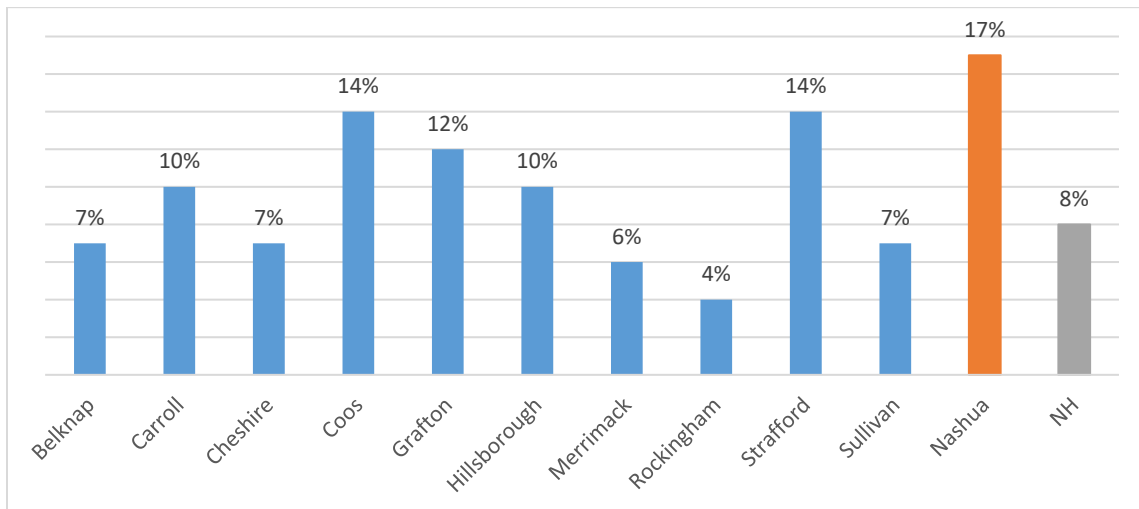
<sup>4</sup> Due to COVID-19, survey has been delayed to School Year 2021-2022.

**Figure 2: Region-Specific Prevalence Estimates of Decay Experience, 2013-2014\***



Source: State of New Hampshire, Department of Health and Human Services, Division of Public Health Services, Chronic Disease Prevention and Screening Section. Third Grade Survey, 2013-2014

**Figure 3: Region-Specific Prevalence Estimates of Untreated Decay, 2013-2014\***



Source: State of New Hampshire, Department of Health and Human Services, Division of Public Health Services, Chronic Disease Prevention and Screening Section. Third Grade Survey, 2013-2014

### Partial and Complete Edentulism

Edentulism, or tooth loss, is an irreversible condition. It can impact individuals to varying degrees ranging from partial to complete tooth loss. Largely a condition associated with older adults, edentulism has been noted as the “final marker of disease burden for oral health.”<sup>5</sup> The burden or impact of edentulism is manifested physically, financially, socially, and emotionally. Related specifically to oral health, edentulism can result in further bone loss of the mandible and maxilla changing a

<sup>5</sup> Emami, E., Souza, R., Kabawat, M., & Feine, J. (2013, May 8). The Impact of Edentulism on Oral and General Health. [accessed October 30, 2020]. URL: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3664508/>

person’s facial profile, reduce one’s ability to effectively chew, and can be accompanied by oral functional and sensory deficiencies. Related to overall health, edentulism impairs one’s ability to take in proper nutrition, and has been associated with increased rates of a number of chronic conditions and diseases including, but not limited to, upper gastrointestinal and pancreatic cancer, noninsulin-dependent diabetes mellitus, hypertension, ischemic heart disease, and kidney disease.

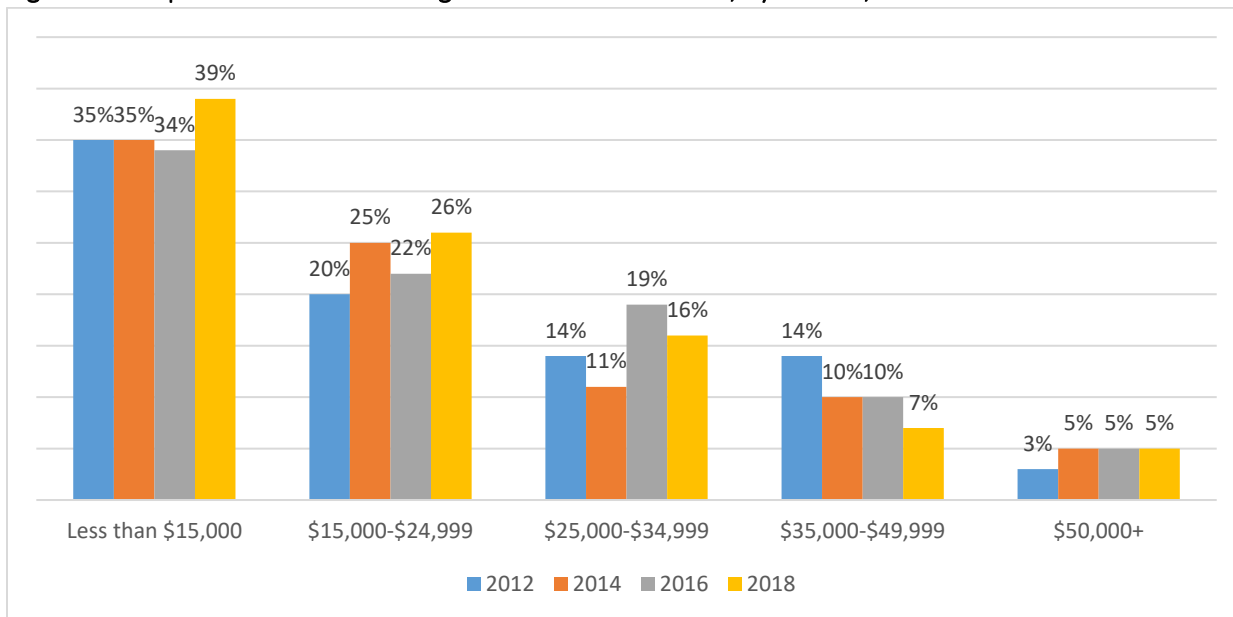
According to the 2018 BRFSS results, 12% of adults in New Hampshire age 65 and older have lost all their natural teeth due to tooth decay or gum disease (complete edentulism). Lower income seniors in the state are far more likely to experience complete edentulism than those who have higher incomes.

**Table 4: Complete Edentulism Among NH Adults 65 and Older, 2012-2018**

	2012		2014		2016		2018	
	%	CI 95%	%	CI 95%	%	CI 95%	%	CI 95%
<b>Complete Edentulism (adults aged 65+)</b>	13%	(11.3-14.8)	12%	(10.4-13.9)	12%	(10.6-14.0)	12%	(10.7-14.1)

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2020. [accessed on line November 22, 2020]. URL: <https://www.cdc.gov/oralhealthdata/index.html>

**Figure 4: Complete Edentulism Among NH Adults 65 and Older, by Income, 2012-2018**



Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2020. [accessed on line November 22, 2020]. URL: <https://www.cdc.gov/oralhealthdata/index.html>

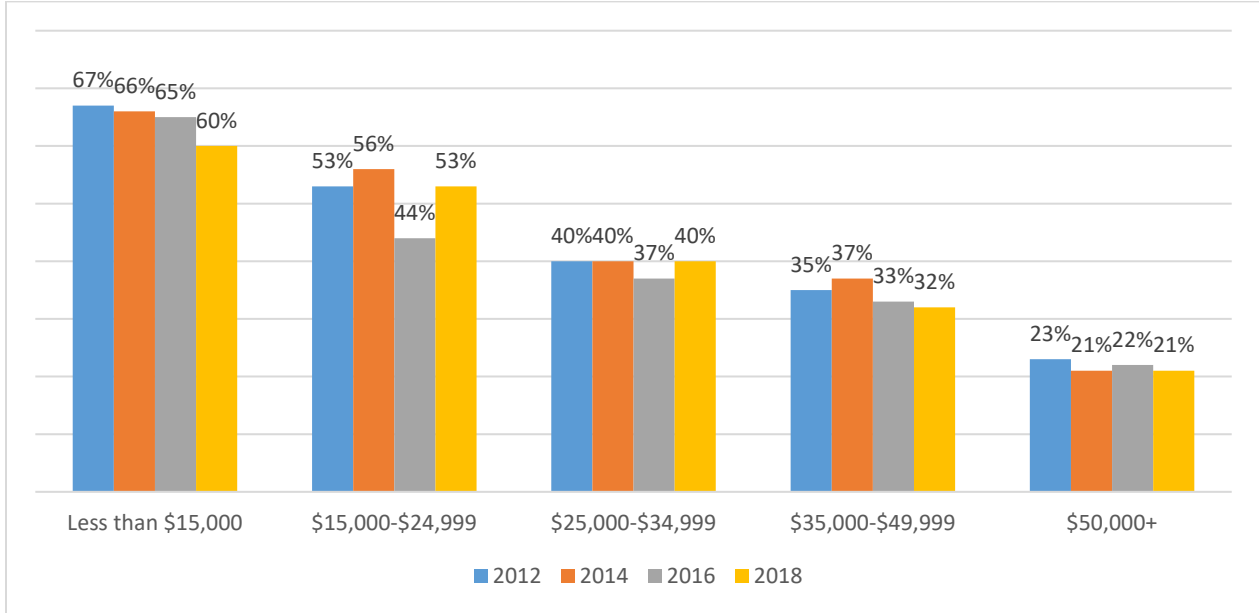
In 2018, 32% of adults in New Hampshire age 65 and older have lost six or more of their natural teeth due to tooth decay or gum disease (partial edentulism). This is a slight decline since 2012. Lower income seniors in the state are far more likely to experience complete edentulism than those who have higher incomes.

**Table 5: Partial Edentulism Among NH Adults 65 and Older, 2012-2018**

	2012		2014		2016		2018	
	%	CI 95%	%	CI 95%	%	CI 95%	%	CI 95%
<b>Partial Edentulism (adults aged 65+)</b>	37%	(34.6-39.6)	36%	(33.3-38.9)	32%	(29.3-34.1)	32%	(30.0-34.6)

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2020. [accessed on line November 22, 2020]. URL: <https://www.cdc.gov/oralhealthdata/index.html>

**Figure 5: Partial Edentulism Among NH Adults 65 and Older, by Income, 2012-2018**



Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2020. [accessed on line November 22, 2020]. URL: <https://www.cdc.gov/oralhealthdata/index.html>

According to the 2018 BRFSS results, 59% of adults in New Hampshire have had no permanent teeth removed. This is a new measure and thus, prior year data are not available.

**Table 6: No Tooth Loss Among NH Adults, 2018**

	2018
<b>Proportion of adults aged 18+ with no permanent teeth removed</b>	59%

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data. 2020.

### Oral and Pharyngeal Cancer

Oral and pharyngeal cancers are cancers of the mouth and throat, including the tongue, gums, floor of mouth, palate, lip, oral cavity, pharynx, and other areas of the mouth. While further research is needed to help us understand the breadth of potential risk factors, current research indicates that men are more likely



to develop this type of cancer, and risk increases with age.<sup>6</sup> Environmental factors that contribute to one’s risk include tobacco use, heavy alcohol use, having a diet low in fruits and vegetables, exposure to the sun, and personal history of oral cancer. As is true with other types of cancer, there is a personal and societal impact associated with oral and pharyngeal cancers in terms of financial costs, productivity, quality of life, and loss of life.

Based on data from 2013-2017, the age-adjusted annual incidence rate of oral and pharyngeal cancer among New Hampshire residents was 11.9 per 100,000 population, with men experiencing a higher cancer incidence rate (18.1 per 100,000 population) as compared with women (6.2 per 100,000 population). The overall incidence rate has remained the same from 2008-2012 and 2013-2017, overall and for women, but has increased for men.

The age-adjusted mortality rate over the 5-year period of 2014-2018 was 2.5 per 100,000 population, again with men experiencing a higher death rate (3.9 per 100,000 population) as compared with women (1.2 per 100,000 population). Mortality rates have remained about the same overall and for men and women between 2008-2012 and 2014-2018.

**Table 7: Oral and Pharyngeal Cancer Incidence and Mortality, 2008-2012 and 2013-2017**

	2008-2012		2013-2017	
	Rate	CI 95%	Rate	CI 95%
<b>Age-Adjusted Annual Incidence Rate over Rate Period</b>	11.3	10.6-12.1	11.9	11.2-12.7
<b>Male</b>	16.5	15.2-17.9	18.1	16.8-19.5
<b>Female</b>	6.6	5.8-7.5	6.2	5.5-7.0
<b>Age-Adjusted Annual Mortality Rate over Rate Period<sup>7</sup></b>	2.4	2.1-2.8	2.5	2.1-2.8
<b>Male</b>	3.7	3.1-4.4	3.9	3.3-4.5
<b>Female</b>	1.3	1.0-1.7	1.2	0.9-1.6

Source: Centers for Disease Control and Prevention and the National Cancer Institute. State Cancer Profiles. [accessed: August 21, 2020]. URL: <http://statecancerprofiles.cancer.gov>

### Dental Visits and Preventive Care

Access to routine preventive care is important for achieving and maintaining oral health. Yet many face barriers to accessing this care including lack of access, lack of knowledge about the need for preventive care, cost, and fear.

According to the 2018 BRFSS results, 69% of adults in New Hampshire reported having visited a dentist or dental clinic in the year prior to the survey. This proportion decreased from 72% in 2016. Higher income Granite Staters are more likely to report having visited a dentist or dental clinic in the past year than lower income residents. Among adults with diabetes, the proportion who had had a dental visit in the year prior to the survey was 62% in 2018 (prior year data are unavailable).

<sup>6</sup> Centers for Disease Control and Prevention. Oral and Pharyngeal Cancer. [accessed: October 30, 2020]. <https://www.cancer.org/cancer/oral-cavity-and-oropharyngeal-cancer.html>

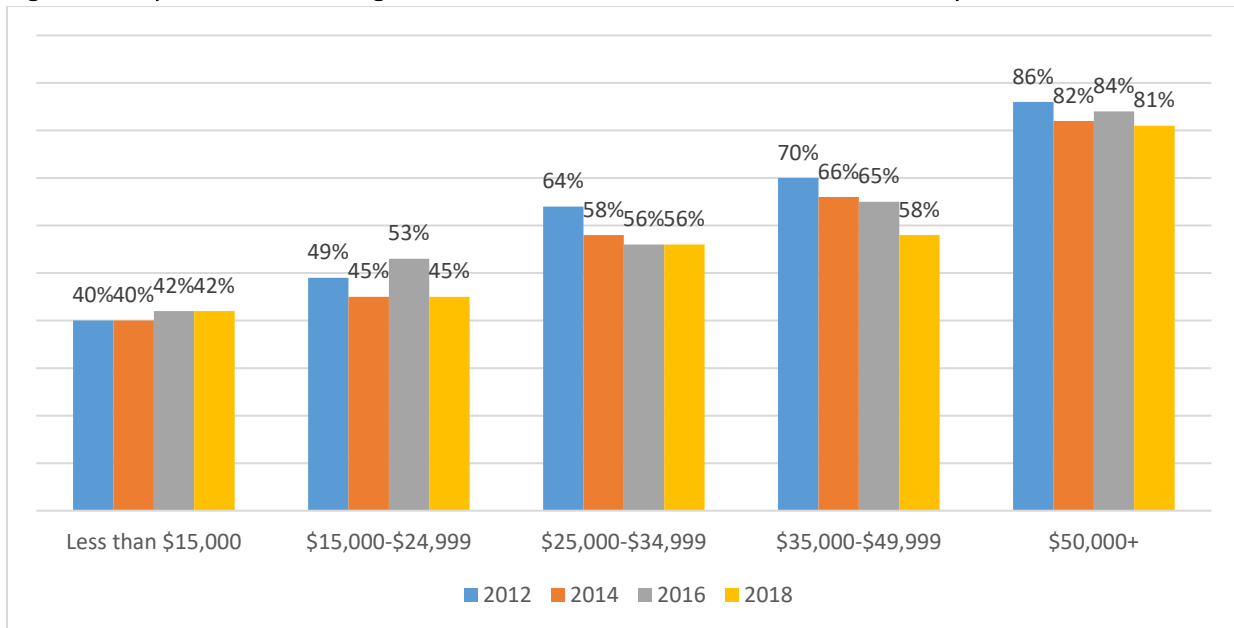
<sup>7</sup> Mortality rate is for period 2014-2018.

**Table 8: Proportion of Adults Aged 18+ Who Had a Dental Visit in the Past Year, 2012-2018**

	2012		2014		2016		2018	
	%	CI 95%	%	CI 95%	%	CI 95%		
Adults who reported visiting a dentist or dental clinic in the past year	73%	(71.5-74.6)	69%	(67.7-71.2)	72%	(70.3-73.5)	69%	(67.1-70.7)
Adults with diabetes who had a dental visit in the past year	--	--	--	--	--	--	62%	(56.9-66.0)

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2020. [accessed August 16, 2020]. URL: <https://www.cdc.gov/oralhealthdata/index.html> 2018 data from NH DHHS Bureau of Public Health Statistics and Informatics.

**Figure 6: Proportion of Adults Aged 18+ Who Had a Dental Visit in the Past Year, by Income, 2012-2018**



Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2020. [accessed on line November 22, 2020]. URL: <https://www.cdc.gov/oralhealthdata/index.html>

The proportion of New Hampshire children who had a dental visit or preventative dental visit in the year prior to the survey has remained the same between 2016-2017 and 2017-2018, about 84%.

**Table 9: Proportion of Children who had a Dental Visit or Preventative Dental Visit in the Past Year, 2016-2017 and 2017-2018**

	2016-2017		2017-2018	
	Rate	CI 95%	Rate	CI 95%
Proportion of children aged 1-17 who had a dental visit or preventative dental visit in the past year	84.9%	81.7-87.7	84.0%	80.7-86.8

Source: US Census Bureau. National Survey of Children’s Health (NSCH). [accessed: August 21, 2020] URL: <https://www.childhealthdata.org/browse/survey>

The proportion of New Hampshire CHIP-enrolled children who received dental services in the past year increased from 2014 to 2018, from 50.4% to 55.0%.

**Table 10: Proportion of Medicaid and CHIP-enrolled Children who Received Dental Services in the Past Year, 2014 and 2018**

	2014	2018
Proportion of Medicaid and CHIP-enrolled children and adolescents ages 1 to 20 who received at least one preventative dental service in the past year	50.4%	55.0%

Source: 2014 data: Centers for Medicare & Medicaid Services. Dental and Oral Health Services in Medicaid and CHIP. February 2016. [accessed: October 14, 2020] URL: <https://www.medicaid.gov/state-overviews/scorecard/eligibles-who-received-preventative-dental-services/index.html> 2018 data: Centers for Medicare & Medicaid Services. [accessed: October 14, 2020] URL: <https://www.medicaid.gov/state-overviews/scorecard/eligibles-who-received-preventative-dental-services/index.html>

## Dental Sealants

Decay damages teeth permanently; dental sealants can help to protect the teeth, preventing that damage from occurring. While sealants are just one part of a child’s total preventive care, they are a very important part. The process of applying a sealant is quick and non-invasive and a sealant can last as long as 5 to 10 years.

Between the 2000-2001 and the 2013-2014 school years, the proportion of New Hampshire third grade students with sealants on their permanent first molar teeth increased from 46% to 61%.

**Table 11: Dental Sealants Among NH Third Graders, 2000-2001 to 2013-2014<sup>8</sup>**

	2000-2001	2003-2004	2008-2009	2013-2014
	%	%	%	%
Proportion of 3 <sup>rd</sup> grade students with dental sealants	46%	43%	60%	61%

Source: State of New Hampshire, Department of Health and Human Services, Division of Public Health Services, Chronic Disease Prevention and Screening Section. Third Grade Surveys, 2000-2001, 2003-2004, 2008-2009, 2013-2014

The number of New Hampshire schools served by a school-based oral health program has increased steadily since 2015, reaching 211 schools in 2019.

**Table 12: Number of Schools Served by a School-Based Oral Health Program, 2015-2019**

	2015	2016	2017	2018	2019
Number of schools served by a school-based oral health program	165	180	189	175	211

Source: New Hampshire Oral Health Program.

## Community Water Fluoridation

Community water fluoridation has contributed to a dramatic decline in tooth decay over the past 70 years. In 2018, New Hampshire ranked 45<sup>th</sup> among states in the nation with only 47% of people being served by community water systems receiving fluoridated water.

<sup>8</sup> Due to COVID-19, survey has been delayed to School Year 2021-2022.

**Table 13: Proportion of NH Residents Served by a Fluoridated Public Water Supply, 2008-2018**

	2008	2010	2012	2014	2016	2018
Proportion of NH residents served by a fluoridated public water supply	43%	43%	46%	47%	47%	47%
State Rank	43	42	43	44	45	45

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Oral Health. Water Fluoridation Data and Statistics [online]. 2020. [accessed Aug 20, 2020]. URL: <http://www.cdc.gov/fluoridation/statistics/index.htm>

### Dental Safety Net

Federally Qualified Health Centers (FQHCs) are often thought of as the safety net for vulnerable populations, providing high quality, affordable comprehensive care, regardless of one’s ability to pay. To support the provision of services, FQHCs receive grant funding under Section 330 of the Public Health Service Act and also enhanced reimbursement from Medicaid and Medicare.

In 2014, New Hampshire FQHCs provided services to a total of 83,884 patients. Of these patients, 9% received oral health services from a dental professional, representing a relative increase of 12% from 2012.

**Table 14: Proportion of FQHC Patients who Receive Oral Health Services at FQHCs, 2012-2019**

	2012	2013	2014	2015	2016	2017	2018	2019
Proportion of patients who receive oral health services at Federally Qualified Health Centers	8%	10%	9%	10%	11%	12%	11%	12%

Source: Health Resources and Services Administration, Bureau of Primary Health Care, Uniform Data System, Program-Grantee Rollup Reports, NH. URL: <https://data.hrsa.gov/tools/data-reporting/program-data/state/NH>

### Hospital Emergency Room Visits for Non-Traumatic Dental Conditions by Medicaid Participants

Many New Hampshire adults have limited access to affordable oral health services and as a result, emergency departments (EDs) are being over utilized by patients seeking care for non-traumatic dental conditions (NTDCs). EDs are already overstretched and lack the staff capacity to adequately treat patients who present with NTDCs. Consequently, patients are often given a prescription for antibiotics and/or pain medication and sent home. Meanwhile, the underlying dental condition has not been addressed and many times the same patients return to the ED when the pain and infection returns. This breakdown in care results in untreated dental pain and infection for too many NH adults which can affect eating, speaking, employment status, and could even lead to death if untreated. Barriers to accessing oral health care affect low income adults, the elderly, and disabled individuals throughout NH. In addition, visits to the ED for NTDCs imposes a significant financial burden on the Medicaid system. In fact, about 9% of Medicaid adults ages 21 and older presented to the ED for a NTDC in 2018, costing Medicaid about \$2.5 million in 2018.

**Table 15: Medicaid Participants’ Visits to Emergency Room for Non-Traumatic Dental Conditions, 2015-2018**

	2015	2016	2017	2018
Proportion of Medicaid adults 21 and older who present at hospital emergency rooms for non-traumatic dental conditions	8.6%	9.7%	9.8%	8.9%
Total payment by Medicaid for hospital emergency room visits for non-traumatic dental conditions for adults 21 and older	\$3,611,373	\$2,546,221	\$2,642,519	\$2,584,292

Source: Medicaid claims analysis from EBI (FFS & MCO), analyzed by the University of New Hampshire, Institute for Health Policy and Practice.

### Dental Providers

According to data from the Board of Dental Examiners, there are 1,237 licensed dentists in the State of New Hampshire, although a portion of these are part-time, semi-retired, and retired dentists who have not yet given up their licenses. Across the State, there are a total of 1,533 active hygienists. There are currently 54 Certified Public Health Dental Hygienists within the State and 23 Expanded Function Dental Assistants. Although the size of the oral health workforce in New Hampshire has grown across all of these professions since 2015, there remains a significant shortage of Certified Dental Assistants throughout NH.

**Table 16: State Oral Health Workforce, 2015 and 2020**

	2015	2020
Number of active dentists	857	1237
Number of active Registered Dental Hygienists	1,308	1,533
Number of CPHDHs	21	54
Number of EFDAs	1	23

Source: The State of New Hampshire, New Hampshire Board of Dental Examiners.

A Dental Health Professional Shortage Area (DHPSA) designation is an indication that a community does not have the dental provider capacity to meet the needs of residents. In 2019, 2% of New Hampshire residents lived in a DHPSA, a similar proportion to 2015. The State’s designated DHPSAs are largely located in the northern communities.

**Table 17: Proportion of Population Living in Designated Dental Health Professional Shortage Areas, 2015 and 2019**

	2015	2019
Proportion of Population Living in Designated Dental Health Professional Shortage Areas	2%	2%

Sources: US Department of Health and Human Services, Health Resources and Services Administration. Data Warehouse. Designated HPSA Statistics. URL: <http://datawarehouse.hrsa.gov/Topics/ShortageAreas.aspx>



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