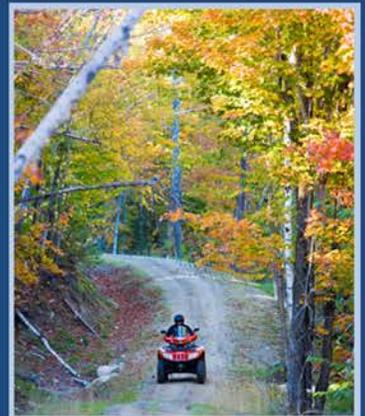


New Hampshire Oral Health Data 2015



State of New Hampshire
Department of Health and Human Services
Division of Public Health Services



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New Hampshire Oral Health Data 2015

Margaret Hassan, Governor

Nicholas A. Toumpas, Commissioner
Department of Health and Human Services

Marcella Bobinsky, Acting Director
Division of Public Health Services

Prepared By:

New Hampshire Department of Health and Human Services
Division of Public Health Services
Bureau of Population Health and Community Services
Chronic Disease Prevention and Screening Section
Oral Health Program
December 2015

For additional information on *New Hampshire Oral Health Data, 2015* contact:

Nancy R. Martin, RDH, MS
Division of Public Health Services
Bureau of Population Health and Community Services
Chronic Disease Prevention and Screening Section
Oral Health Program
29 Hazen Drive, Concord, New Hampshire 03301-6504
nmartin@dhhs.state.nh.us
Phone: 603-271-4535 or 1-800-852-3345 ext. 4535
TDD Access: 1-800-735-2964
<http://www.dhhs.nh.gov/dphs/bchs/rhpc/oral/>

Content Contributors and Reviewers:

Karen Paddleford, MPH
Nancy Martin, RDH, MS
Hope Saltmarsh, RDH, MEd
Whitney Hammond, MSW

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A couple canoeing on Pawtuckaway Lake in New Hampshire, NHDTTD/Jerry and Marcy Monkman

A young couple takes a break from hiking on the summit of Mount Monadnock in New Hampshire, NHDTTD/Jerry and Marcy Monkman

Family ski trip, NHDTTD/George W. Disario

A man rides his ATV on through the forest at Jericho Mountain State Park in Berlin, New Hampshire. White Mountains, NHDTTD/Jerry and Marcy Monkman



MESSAGE FROM THE DIRECTOR

The oral health of New Hampshire residents is important to the Department of Health and Human Services. When residents suffer from poor oral health, sometimes missing days at work and school, the impact to the State is staggering. We need to get the message out that good oral health contributes to overall health.

The Department continues to collaborate with our partners to improve people's ability to receive oral health care. Significant improvements have been made since the NH Oral Health Data, 2010 report was released. New community dental centers offer increased access to more affordable dental services. Recent data show the success of school-based oral health programs statewide; New Hampshire's third grade students have much less untreated tooth decay and higher rates of protective dental sealants on their teeth when compared with other states.

While we celebrate our success, we must not become complacent. Although statewide data indicate significant improvements, more work needs to be done to ensure optimal oral health for all New Hampshire residents, including those who face financial, geographic, and other barriers. Students in six of New Hampshire's counties experience a disproportionately high rate of caries, a rate that differs significantly from that of the State as a whole. Dental visits to hospital emergency departments for relief of tooth pain and infection continue to be the second most common complaint in hospital emergency departments in the State. Adults with lower levels of education and lower income experience a disproportionately high rate of tooth loss and are less likely to have had a dental visit within the past year. These examples serve as indicators that our work in improving the oral health status of New Hampshire residents is far from complete.

I would like to thank our community partners who annually provide us with data that describe the oral health of New Hampshire residents, allowing us to produce this report. Thanks also to the many stakeholders of our efforts. I invite each of you to use these data to work with the Department and with your local community to find evidence-based solutions that will improve the oral health of each New Hampshire resident.

Marcella Jordan Bobinsky, Acting Director

A handwritten signature in cursive script that reads "Marcella Jordan Bobinsky".

New Hampshire Department of Health and Human Services, Division of Public Health Services

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I. Introduction

In the year 2000, the Surgeon General published a report titled, *Oral Health in America*. Years later, this report continues to be a seminal piece of literature, elevating oral health as a public health issue and underscoring the fact that oral health is essential and connected to overall health. The status of one's oral health impacts their ability to interact with the world in many ways. A healthy mouth means more than just having a pretty smile. Having a healthy mouth allows us to eat healthy food and to communicate both verbally through speech and non-verbally through facial expressions. Conversely, numerous studies have linked oral diseases to conditions such as diabetes, heart disease, stroke, and pre-term birth.

We know much about the burden of oral disease and injury, and also about the risk and protective factors that impact oral health status. We also know that different sectors of the population have varying levels of access to oral health care and that they face the burden of disease disproportionately. As the Surgeon General's report laid out the status of oral health and oral health disparities for the Nation, this report does the same for the State of New Hampshire.

National Oral Health Surveillance System

Soon after the publication of *Oral Health in America*, and in accordance with the objective of Healthy People 2010 (objective 21-16), the National Oral Health Surveillance System (NOHSS) was established. Indicators included in the NOHSS were selected and defined by consensus among representatives from the U.S. Centers for Disease Control and Prevention (CDC), the Council of State and Territorial Epidemiologists (CSTE), and the Association of State and Territorial Dental Directors (ASTDD). The purpose of the NOHSS is to monitor the burden of oral health disease, use of the oral health care delivery system, and the status of community water fluoridation. Data are collected from participating programs, and state and national measures are disseminated through an interactive NOHSS website. The use of standardized data definitions results in uniform data, allowing state programs to understand where they stand in comparison with the Nation and with other state programs. These comparisons, along with the review of trends over time, allow for informed prioritization and programmatic decision making. Through the NOHSS, New Hampshire reports on eight oral health indicators: dental visits, teeth cleaning, complete tooth loss, fluoridation status, caries experience, untreated caries, dental sealants, and cancer of the oral cavity and pharynx. The following table includes the eight NOHSS measures reported by the New Hampshire Oral Health Program. Where available and applicable, national measures, Healthy People 2020 targets, and indicators as to whether or not the targets have been achieved have been included.

Table 1. National Oral Health Surveillance System Indicators Reported by the NH Oral Health Program

Indicator	New Hampshire	United States	Related Healthy People 2020 Target	Achievement of Target
Adults aged 18+ who have visited a dentist or dental clinic in the past year	69% (2014)	65% (2014)	49%	↑
Adults aged 18+ who have had their teeth cleaned in the past year, among those with natural teeth who have visited a dentist or dental clinic	77% (2010)	69% (2010)	-	-
Adults aged 65+ who have lost all of their natural teeth due to decay or gum disease*	12% (2014)	15% (2014)	22%	↑
Adults aged 65+ who have lost six or more teeth due to tooth decay or gum disease	40% (2010)	40% (2010)	-	-
Percentage of third grade students with Caries experience**	35% (2014)	-	49%	↑
Untreated caries in third grade students**	8% (2014)	-	26%	↑
Percentage of third grade students with dental sealants on at least one permanent molar tooth**	61% (2014)	-	28%	↑
Fluoridation of public water supplies	46% (2012)	75% (2012)	80%	↓

"-" indicates that national level data are not available or that there is not a related Healthy People 2020 Target for the selected indicator.

* Population for Healthy People 2020 Target is limited to adults ages 65 to 74.

** Population for Healthy People 2020 Target includes children ages 6 to 9.

Sources: NOHSS, CDC BRFS, CDC Water Fluoridation Statistics, Healthy People 2020

II. Executive Summary

New Hampshire continues to show progress when it comes to the oral health of our residents. Overall, the State has achieved or surpassed many of the targets set by Healthy People 2020 oral health objectives; and since the last report in 2010, the State shows improvement in several of the included measures, in particular those measures related to the oral health of children. The capacity of the State's Oral Health Program (OHP) has expanded with the addition of new staff, supported by funding from the Centers for Disease Control and Prevention (CDC); and continued collaborative efforts with stakeholders from across the State demonstrate the depth of professionals with a shared commitment to improve the oral health of New Hampshire residents. There have been many achievements in recent years, but there are still areas in which the state can improve; some key examples based on statewide data are included below.

Achievements:

- Between the school years ending in 2001 and 2014, the proportion of New Hampshire's third grade students with sealants increased by 33%; during that same period, the rate of caries experience among New Hampshire third graders decreased by 32%, and the rate of untreated caries decreased by 62%.
- Between 2012 and 2014, the rate of complete edentulism among New Hampshire's older adults, ages 65 and up, has decreased by 8%.

Areas for Improvement:

- Between 2012 and 2014, the proportion of New Hampshire adults who reported that they had visited a dentist within the past year decreased by 5%.
- Nationwide, 75% of people served by community water systems receive fluoridated water; in New Hampshire the rate is 46%.

While the State as a whole appears to be performing well compared with prior performance, national averages, and Healthy People 2020 targets, a closer look at the data shows that geographic and socioeconomic disparities exist. Geographically, data indicate that those residing in the rural northern part of the State receive preventive services such as sealants at a lower rate as compared with the overall State, experience higher rates of childhood caries, and higher rates of edentulism among older adults. In addition, the northern part of the State has a shortage of dental health professionals, limiting access to care for residents. In terms of socioeconomic disparities, data indicate that those with lower income and/or lower educational attainment are less likely to access dental care and more likely to experience adverse outcomes such as tooth loss.

These disparities are a call to action to continue to work toward ensuring that all New Hampshire residents have access to preventive care and toward improving the oral health status of all New Hampshire residents.

III. Background

The New Hampshire Oral Health Program

Organizationally, the Oral Health Program (OHP) fits within the State of New Hampshire’s Department of Health and Human Services (DHHS), Chronic Disease Prevention and Screening Section. Within this section, it is one of many programs “committed to achieving true improvements in people’s health by encouraging healthy personal behaviors.” Ultimately, the programs within the Section are all aimed at achieving the goals of “improv[ing] quality of life and extend[ing] years of healthy living for New Hampshire residents.”ⁱ

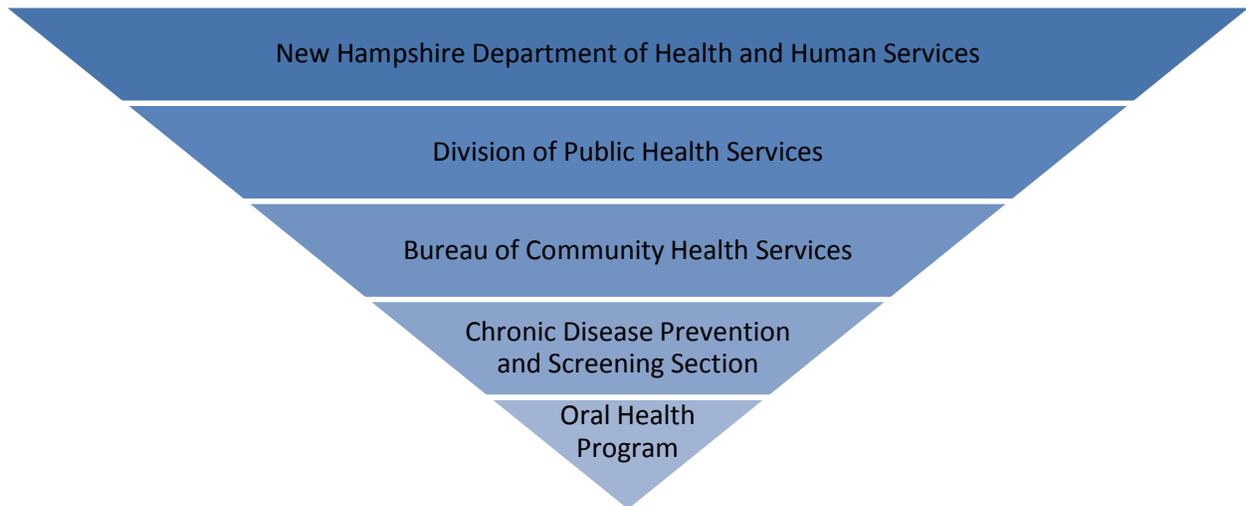


Figure 1. Organizational Hierarchy of the New Hampshire Oral Health Program

Program Staffing and Activities

The OHP is staffed by a Program Director, Program Coordinator, 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 Program contributes to the statewide oral health agenda through representation on New Hampshire’s Oral Health Coalition and participation in network activities such as the development of the *2015 NH Oral Health Plan*. The Program has proven success in leveraging funding and mobilizing partnerships both internally within the State government and externally with local

organizations to pilot innovative oral health projects and to collect data to show the need that exists within the State for populations not currently covered through program activities.

The figure below summarizes the operations of the OHP, providing detail about resources, activities, and intended outcomes.

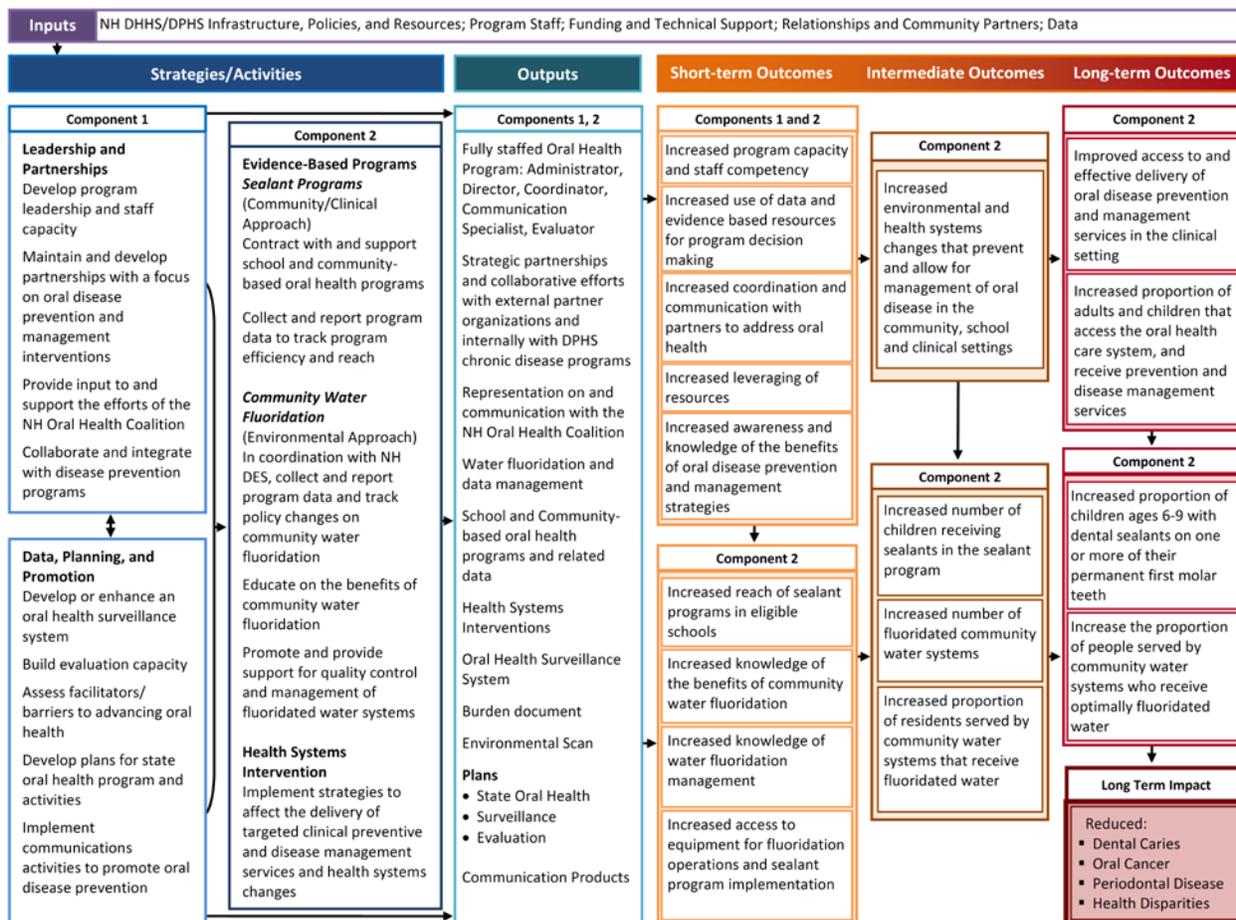


Figure 2. NH Oral Health Program Logic Model, Adapted from CDC State Oral Health Program Logic Model (DP13-1307)

While this report is intended to provide an overall statewide snapshot of oral health status, contributing factors, and the impact of poor oral health, it is important to recognize the contribution that Program efforts play in improving oral health status and in shaping statewide surveillance data. The following bullet list highlights the breadth of the OHP's reach, as well as the success that the Program has had toward achieving the goal of improved oral health for New Hampshire residents.

OHP Funded School-Based Programs, 2013-2014 School Year

- Funded programs operated in 119 schools throughout the State; an increase of 17% from the 2009-2010 school year.
- Over 10,000 students were screened. Of those receiving screening, 2,323 received preventive care (sealants and/or topical fluoride application), an increase of 37% from the 2009-2010 school year.
- Oral health education was provided to 14,465 students, an increase of 18% from the 2009-2010 school year.
- The relative rate of sealant application for second and third grade students increased by 16% between the 2009-2010 school year and the 2013-2014 school year. During that period, the rate of untreated decay among the same population decreased by 8%.

OHP Funded Community-Based Programs

- The OHP funds a total of 9 community-based dental programs throughout the State on an annual basis.
- With a grant awarded by the United States Health Resources and Services Administration (HRSA), in 2014, the OHP supported the opening of two new dental facilities, expanding access to care and creating opportunities for Dental Medicine students at the University of New England to obtain clinical experience in rural New Hampshire. In addition, the grant funds supported the expansion of two existing school-based dental programs in areas with identified need.

Innovative Programming and Community Partnerships

- With local foundation funding, the OHP has partnered with the Women, Infants, and Children (WIC) program to pilot an innovative service delivery method, resulting in the provision of preventive dental care, oral health education, and paid dental referrals for high-risk pregnant women and their children.
- The OHP partnered with the State's primary care association to apply for federal funding to support expanded services across rural regions of the State.
- As funding allows, the OHP conducts oral health screening surveys in senior centers across the State and coordinates with the DHHS Bureau of Elderly and Adult Services to arrange paid referrals for seniors with urgent oral health needs.
- The OHP participates in the Elder Health Coalition, sponsored by The Endowment for Health.
- The OHP partners with and has representation on the NH Oral Health Coalition.
- In partnership with a broad array of community partners, including dental professional organizations, the Oral Health Coalition, local foundations, and community-based providers, the OHP contributed to the development of New Hampshire's 5-year Oral Health Plan, setting the agenda and framework for continued forward movement in the arena of oral health.

Program Funding

The funding of the Oral Health Program varies by year depending on the availability and receipt of grants and programmatic focus and activities. OHP school and community-based program contracts with New Hampshire agencies are annually funded through the Preventive Health and Human Services Block grant (45%) and State of New Hampshire general funds (55%). In addition to these funds, the Oral Health Program has received and utilized funding from private foundations and federal entities in order to expand capacity and carry out activities aimed at reducing and preventing oral disease and improving the oral health of New Hampshire residents. Current and past funders include:

Federal Funding:

- The Centers for Disease Control and Prevention (CDC)
- The Health Resources and Services Administration (HRSA), Bureau of Health Workforce
- National Association of Chronic Disease Directors (NACDD)

Recent Private Funding Managed through Fiscal Agents:

- HNH Foundation
- Northeast Delta Dental
- Jessie B. Cox Foundation

Purpose and Use of Available Data

Quality data enables us to understand current health status. Collected over time, data can inform us about changes in health status and can indicate the impact of our efforts; because of this, it serves as an invaluable resource for informing programmatic and resource related decision making.

Oral Health Data Report

This report is organized to provide detail about oral disease, the impact of that burden, associated risk and protective factors, and also about the oral health workforce capacity in New Hampshire. In addition, contextual detail about New Hampshire, including the public health service delivery system and the demographic and socioeconomic profile has been included. For measures specific to oral health, where available, relevant national data and targets have been included for comparison purposes.

The report establishes a documented burden of disease and highlights disparities that exist in both disease experience and access to preventive care. It is intended to serve as a valuable resource for the public, dental and medical clinicians, researchers, public health professionals, and decision makers at the organizational, local, and state levels. It is the hope of the NH Oral Health Program that this report will raise awareness about the need for oral health services and

about the importance of monitoring oral health data, and that it will guide efforts to prevent and treat oral disease, ultimately contributing to overall health.

NH Health WISDOM and the Social Vulnerability Index

While not specific to this report, it is worth noting that since the release of the 2010 report, the NH DHHS, Division of Public Health Services (DPHS) has taken on an initiative to disseminate public health data online through NH Health WISDOM (Web-based Interactive System for Direction and Outcome Measures) (<http://wisdom.dhhs.nh.gov/wisdom/>) and the Social Vulnerability Index (SVI) tool (<http://nhdphs.maps.arcgis.com/home/>). The Division has long recognized the importance of making data available to those with a stake in the health of New Hampshire residents, including the general public, funders, program planners, and decision makers. NH Health WISDOM serves as a data clearinghouse, with dashboards organized by priority areas established in the State Health Improvement Plan (SHIP). The Oral Health dashboard includes six indicators, which are displayed in graph format to show trends over time, as well as in map format to show variance by county. The SVI tool allows the user to view the vulnerability rating of census tractsⁱⁱ based on socioeconomic, demographic, housing, and transportation related measures. Ratings are relative to the State average and are displayed with shading to provide an at-a-glance indication of a tract's vulnerability as compared with the State as a whole. Together, these online resources provide the data needed to understand where our State stands in terms of health status, as well as what regions of the State necessitate further attention due to oral health disparities and elevated vulnerability.

IV. The State of New Hampshire

The Delivery of Public Health Services

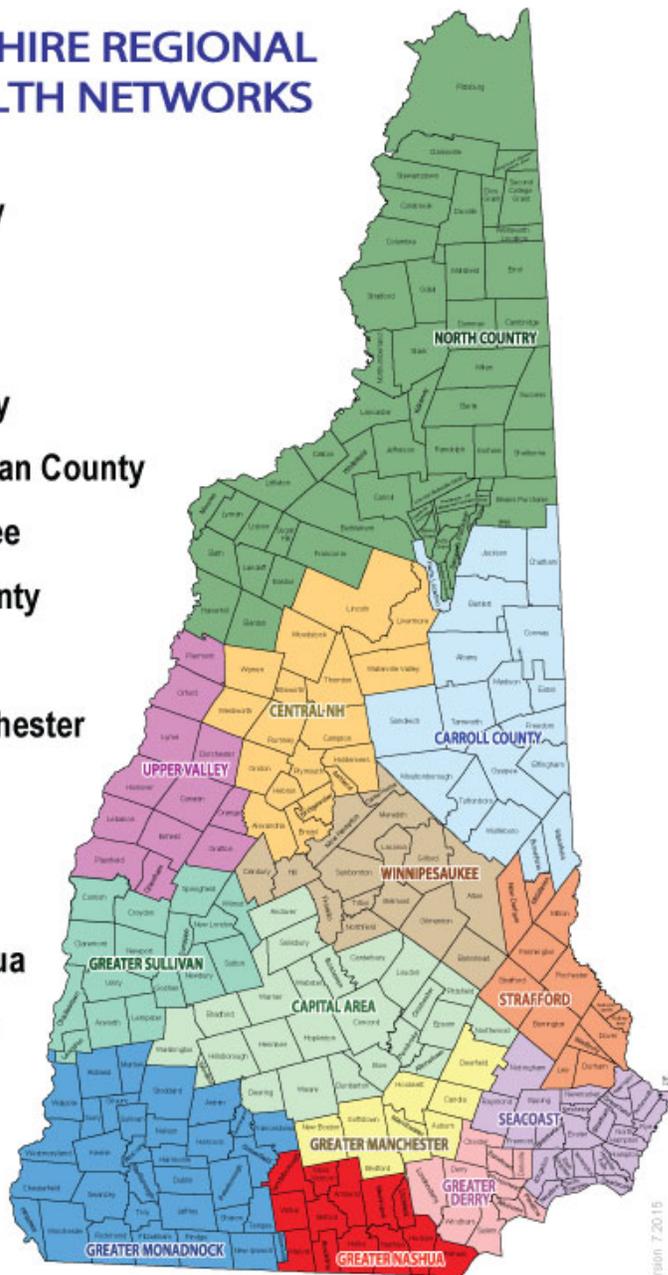
New Hampshire is unique to other states in the way that public health services are organized and delivered. Historically, the State has lacked formal infrastructure in terms of municipal and county public health capacity. To address this issue, the Department of Health and Human Services (DHHS), Division of Public Health Services (DPHS) adopted a key initiative in 2002 to incrementally develop a robust framework to support regional public health services planning and program implementation.

In 2006, efforts under this initiative resulted in the development of funded Public Health Networks (PHNs) that encompass every city and town in the State. At the outset, the focus of the PHNs was limited to emergency preparedness, but as allowed by funding, DPHS has increased the range of programs delivered through the PHNs. In addition, the Division has encouraged other private and public entities to leverage DPHS support through the provision of additional funding. The result has been expanded capacity; and in some regions, the PHN serves as the lead entity for supporting current health initiatives, including those with an oral health focus.

Since their inception in 2006, the PHNs have evolved not only in terms of public health focus, but also in terms of governance. Beginning in 2013, regional Public Health Advisory Councils were formalized to serve in an advisory capacity over each PHN. In addition to providing guidance on PHN focus and activities, it is within the purview of the Advisory Councils to collaborate with other community leaders in order to expand capacity toward the protection and promotion of the overall health of the communities which they serve. With support from the DPHS and other funders, the dedication and experience of community partners, and with oversight from the Public Health Advisory Councils, the PHNs serve as the backbone of public health service organization and delivery throughout New Hampshire.

NEW HAMPSHIRE REGIONAL PUBLIC HEALTH NETWORKS

- North Country
- Upper Valley
- Central NH
- Carroll County
- Greater Sullivan County
- Winnepesaukee
- Strafford County
- Capital Area
- Greater Manchester
- Seacoast
- Greater Monadnock
- Greater Nashua
- Greater Derry



THESE REGIONS ARE USED FOR PUBLIC HEALTH PLANNING AND THE DELIVERY OF SELECT PUBLIC HEALTH SERVICES.

Version 7.2015

Figure 3. Map of New Hampshire Regional Public Health Networks

Source: State of New Hampshire, Department of Health and Human Services, Division of Public Health Services. Regional Public Health Networks and Advisory Councils. [accessed September 8, 2015]. URL: <http://www.dhhs.nh.gov/dphs/rphn/index.htm>

Demographic and Socioeconomic Profile

Based on data from the American Community Survey (ACS) 2009-2013 5-Year Estimates, New Hampshire is home to over 1.3 million residents. The gender split is fairly even, and the majority of the population is comprised of adults ages 18 and older (79 percent). Eight percent of New Hampshire residents are of a racial and/or ethnic minority. Survey results indicate that 8% of residents speak a primary language other than English, and that 3% of residents speak English less than “very well”. In terms of poverty, 9% of residents subsist on income that puts them below the Federal Poverty Level. Eight percent of residents ages 25 and older have not completed high school.

Table 2. Select Demographic and Socioeconomic Characteristics, NH, 2009-2013

Total Population	1,319,171
Demographic or Socio-Economic Characteristic	Percent
Gender	
Male	49%
Female	51%
Age	
Under age 5	5%
Ages 5 through 17	16%
Ages 18 through 64	65%
Ages 65+	14%
Race, Ethnicity, and Language	
White, Non-Hispanic	92%
Racial and/or ethnic minority	8%
Primary language other than English	8%
English spoken less than "very well"	3%
Poverty Status	
Below federal poverty level (FPL)	9%
Household Income	
Less than \$15,000	9%
\$15,000 to \$24,999	8%
\$25,000 to \$34,999	9%
\$35,000 to \$49,999	13%
\$50,000 to \$74,999	19%
\$75,000 or more	43%
Educational Attainment (Population ages 25 and older)	
Did not graduate high school	8%
High school diploma or GED	29%
Attended college or technical school	19%
Graduated from college or technical school	43%

Source: United States Census Bureau / American FactFinder. “DP05: ACS DEMOGRAPHIC AND HOUSING ESTIMATES”, “DP03: SELECTED ECONOMIC CHARACTERISTICS”, “DP02: SELECTED SOCIAL CHARACTERISTICS IN THE UNITED STATES”, 2009 – 2013 American Community Survey. U.S. Census Bureau’s American Community Survey Office. [accessed Aug 20, 2015]. URL: <http://factfinder2.census.gov>

While the statewide estimates for New Hampshire may not garner immediate concern, a closer look at the data by census tract highlights that certain geographic areas carry the burden of low socioeconomic status at a disproportionately high rate. Data from the ACS show that while the overall poverty rate for the State is 9%, in some communities, nearly half of the population lives in poverty (49%). Similarly, there are communities within the State where a considerable proportion of the population aged 25 and older have not completed high school (39%). The maps below show the proportion of residents below the Federal Poverty Level and the proportion of residents who have not completed high school by census tract. Shades of green indicate a rate that is lower than the State average, while shades of red indicate a rate that is higher, an indication that the region is more vulnerable.

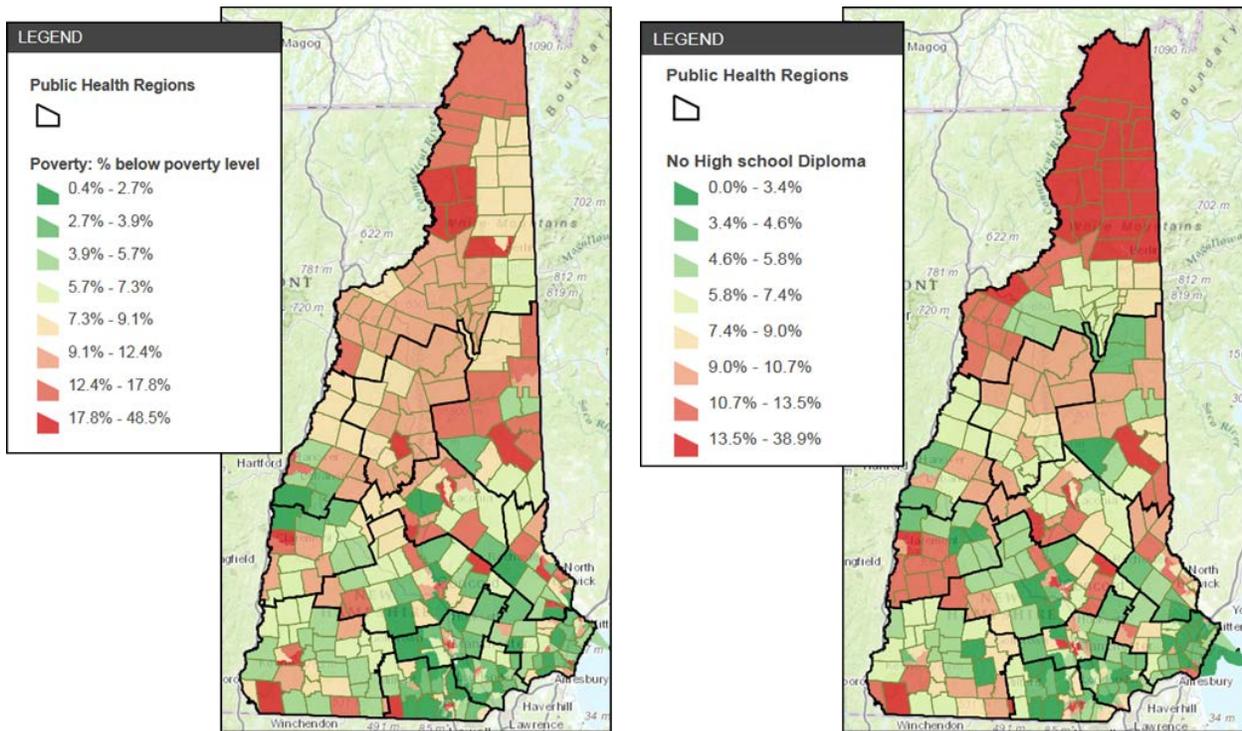


Figure 4. Poverty and Educational Attainment Rates by Census Tract, NH, 2009-2013

Source: State of New Hampshire, Department of Health and Human Services, Division of Public Health Services. Social Vulnerability Index. [accessed August 28, 2015]. URL: <http://nhdphs.maps.arcgis.com/home/>

V. The Burden of Oral Disease and Injury in New Hampshire

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. The problems persist into adulthood, with 9 out of 10 people 20 years of age and older in the United States having at least some degree of decay experience, either treated or untreated.ⁱⁱⁱ

In addition to the pain and stress caused by dental caries, there is an economic impact. According to data from the Data and Analysis Center (DAC), the nation's largest claims-based dental health data warehouse, individuals who develop caries in their molars between the ages of 7 and 12 incur more than \$1,000 in service costs per initial cavity by the age of 40 and \$2,187 by the age of 79. As the number of cavities increases, so does the cost; it's estimated that the cost to treat just two or more cavities over a person's lifetime exceeds the cost of a lifetime of preventive oral health care.^{iv} It's important to note that the estimates in this analysis are reflective of the 2003 dollar; with inflation, cited costs would likely be higher as of 2015. Also important to note is that these cost estimates are based on treated decay; untreated decay can result in more costly hospitalization.

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

Variable	Related Healthy People 2020 Target	2000-2001		2003-2004		2008-2009		2013-2014	
		%	CI 95%						
Caries Experience	49%	52%	(45.5-58.4)	51%	(45.7-56.3)	44%	(39.7-47.4)	35%	(31.0-39.7)
Untreated Caries	26%	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

While the overall State rate of decay experience among third graders in New Hampshire has surpassed achievement of the related Healthy People 2020 target of 49% decay experience among 6-9 year olds^v, there are regions of the State and populations within the State where continued efforts are necessary to meet this target. Specifically, in schools where more than half of the students are eligible for free and reduced lunch (FRL), the rate of decay experience among third graders remains higher than the target at 54%. Geographically, in Coos County, the rate of decay experience among third grade students is highest in the state at 56%.

As the number of cavities increases, so does the cost; it's estimated that the cost to treat just two or more cavities over a person's lifetime exceeds the cost of a lifetime of preventive oral health care.

It is important to note that while the remaining counties have achieved the target set by Healthy People 2020 for caries experience, there are several in which the rate is significantly higher than the State rate. Similarly, while the State rate and the rate for each of the counties and schools identified by proportion of FRL have achieved the target set by the relevant Healthy People 2020 objective for untreated decay among 6-9 year olds (26%), there are geographic regions and populations that experience rates of untreated decay that are disproportionately higher than that of the State. The figures below show the disparities that exist both geographically by county and by socioeconomic status, using FRL as a proxy for income. Counties shaded in orange have rates of caries experience and untreated caries that are significantly higher than the State's respective rates. These higher rates of caries experience could signal a lack of access to routine preventive care, ultimately leading to a lack of successful disease prevention.

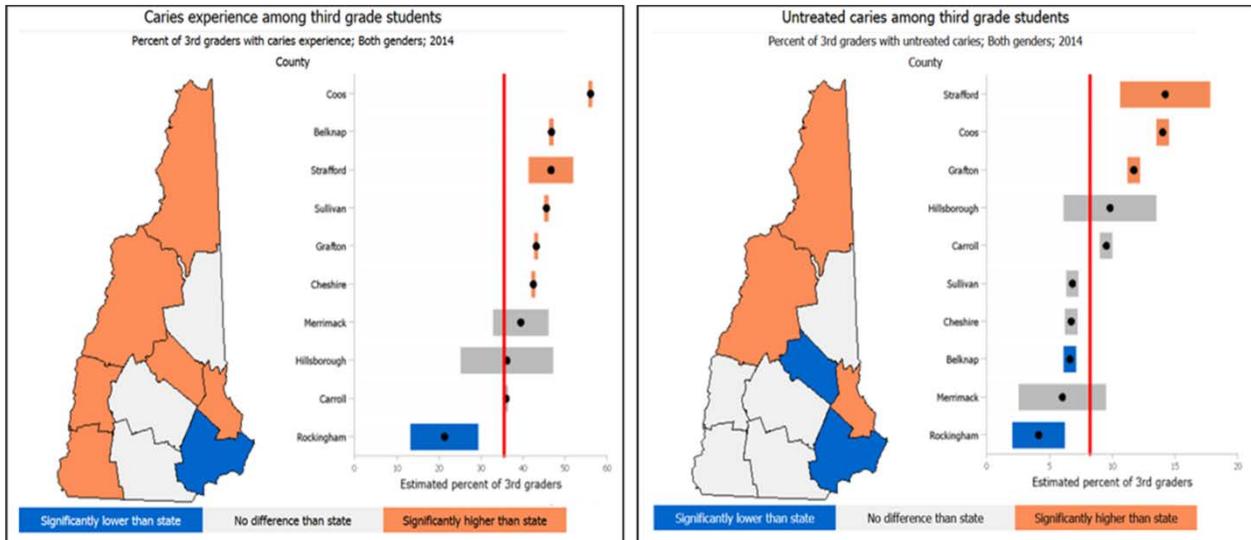


Figure 5. Caries Experience and Untreated Caries Among NH Third Graders by County, 2013-2104

Source: State of New Hampshire, Department of Health and Human Services, Division of Public Health Services. NH Health WIDSOM. [accessed August 28, 2015]. URL: <http://wisdom.dhhs.nh.gov/wisdom/>

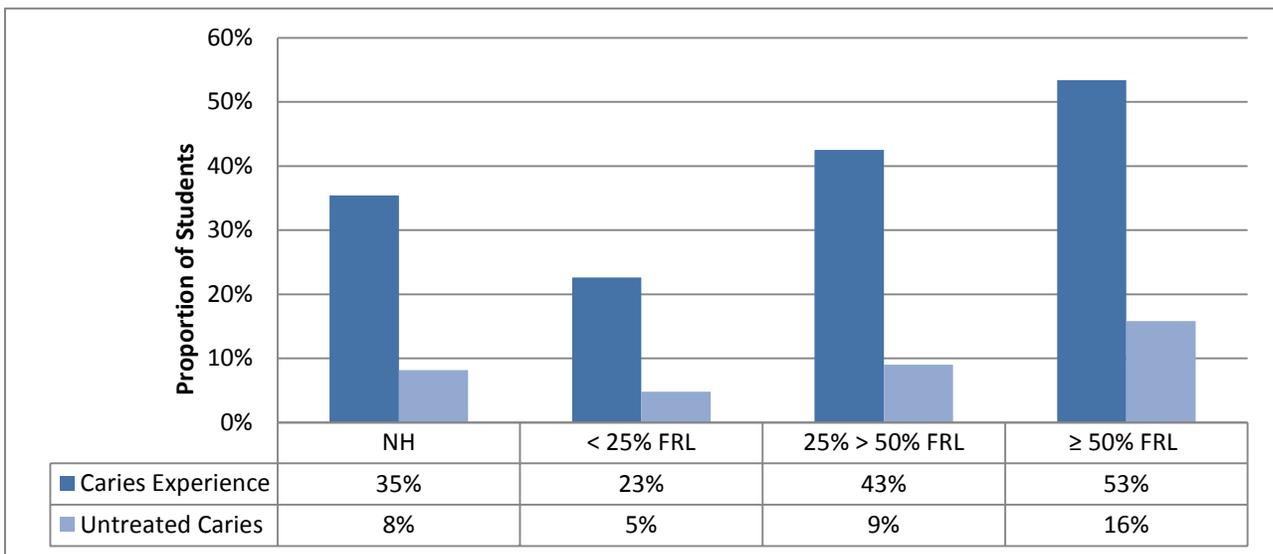


Figure 6. Caries Experience and Untreated Caries Among NH Third Graders, Stratified by School FRL Status, 2013-2014

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

Complete and Partial 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.”^{vi} 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 person’s facial profile, reduce one’s ability to effectively chew, and can be accompanied by oral functional and sensory deficiencies.^{ibid.} 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.^{ibid.}

Data related to edentulism, or tooth extraction, is collected through the CDC’s Behavioral Risk Factor Surveillance System (BRFSS). Through collection efforts for the BRFSS, United States

Rates of complete edentulism vary most when stratifying the population by income level, with those earning less than \$15,000 per year experiencing the highest rate.

residents are surveyed by telephone about health-related risk behaviors, chronic health conditions, and use of preventive

services. Collected data are analyzed to provide state prevalence rates. Due to changes in methodology that took place in 2012, including the addition of cell phone numbers for data collection efforts, data from years preceding 2012 are not comparable with data collected during and after 2012. According to the 2014 BRFSS results, 42% of adults in New Hampshire have had at least one tooth extracted (partial edentulism), representing a relative decrease of 5% from 2012. Among those ages 65 and older, 12% reported that all of their natural teeth had been extracted, a relative decrease of 8% from 2012.

Table 4. Partial and Complete Edentulism Among NH Adults, 2012-2014

Variable	Related Healthy People 2020 Target	2012		2014	
		%	CI 95%	%	CI 95%
Complete Edentulism (adults aged 65+)	22%	13%	(11.3-14.8)	12%	(10.4-13.9)
Partial Edentulism (all adults)	-	45%	(42.8-46.1)	42%	(40.3-43.8)

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]. 2015. [accessed Aug 20, 2015]. URL: <http://wwwdev.cdc.gov/brfss/brfssprevalence/>

The Healthy People 2020 objective that aligns most closely with edentulism data collected through BRFSS sets a target of 22% for complete tooth loss among adults aged 65 to 74 years.^v While this target has been exceeded at the State level, when stratifying the data geographically

or by socioeconomic characteristics, it is clear that further efforts are needed to address remaining disparities. Residents of Coos County, in the northern part of the State, experience a rate of edentulism that does not reach the related Healthy People target and that is significantly higher than the State rate at 25%. The rate of edentulism, both partial and complete, is inversely associated with both income and educational attainment; as income or level of education increases, the rate of edentulism decreases. Rates of complete edentulism vary most when stratifying the population by income level, with those earning less than \$15,000 per year experiencing the highest rate at 35%, and those earning \$75,000 or more experiencing the lowest rate at 2%. Geographic and socioeconomic disparities are evidenced in the following figures.

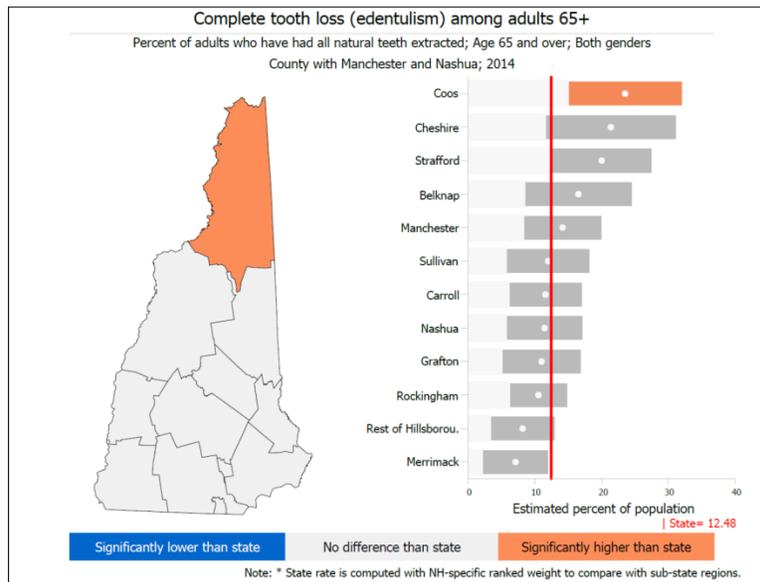


Figure 7. Edentulism Among NH Adults Aged 65+ by County, 2014

Note: BRFSS data used to generate county specific rates and comparative state rate was weighted to allow for geographic stratification.

Source: State of New Hampshire, Department of Health and Human Services, Division of Public Health Services. NH Health WIDSOM. [accessed August 28, 2015]. URL: <http://wisdom.dhhs.nh.gov/wisdom/>

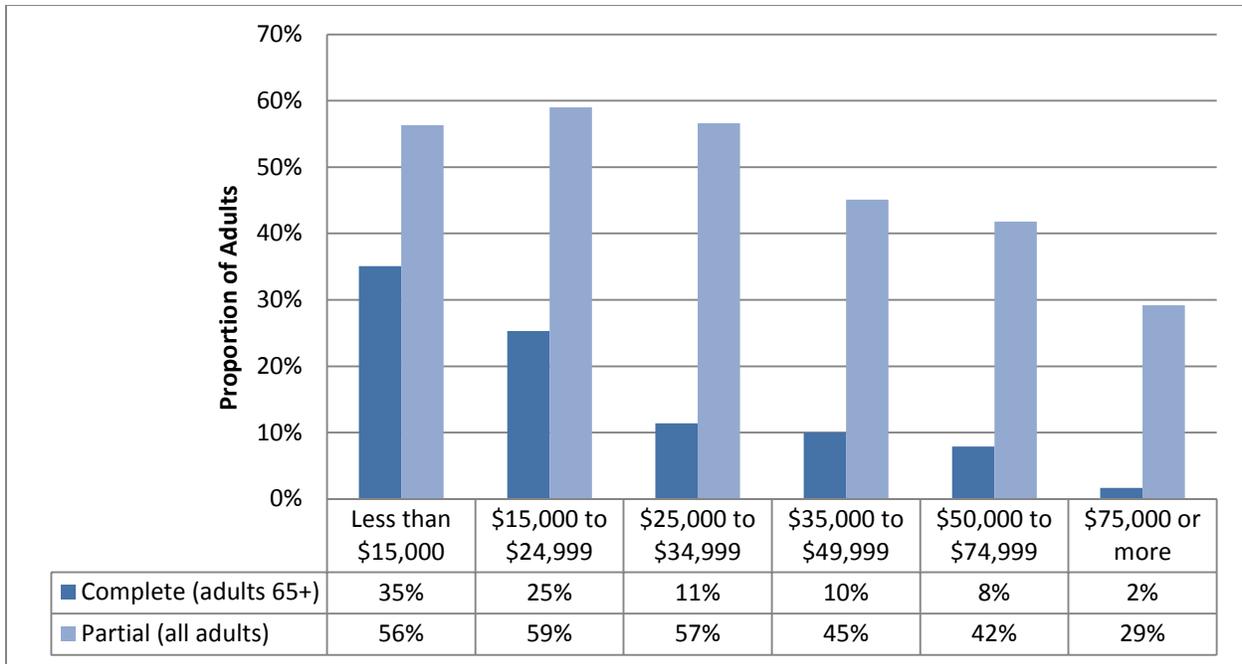


Figure 8. Complete and Partial Edentulism Among NH Adults, Stratified by Income Level, 2014

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]. 2015. [accessed Aug 20, 2015]. URL: <http://wwwdev.cdc.gov/brfss/brfssprevalence/>

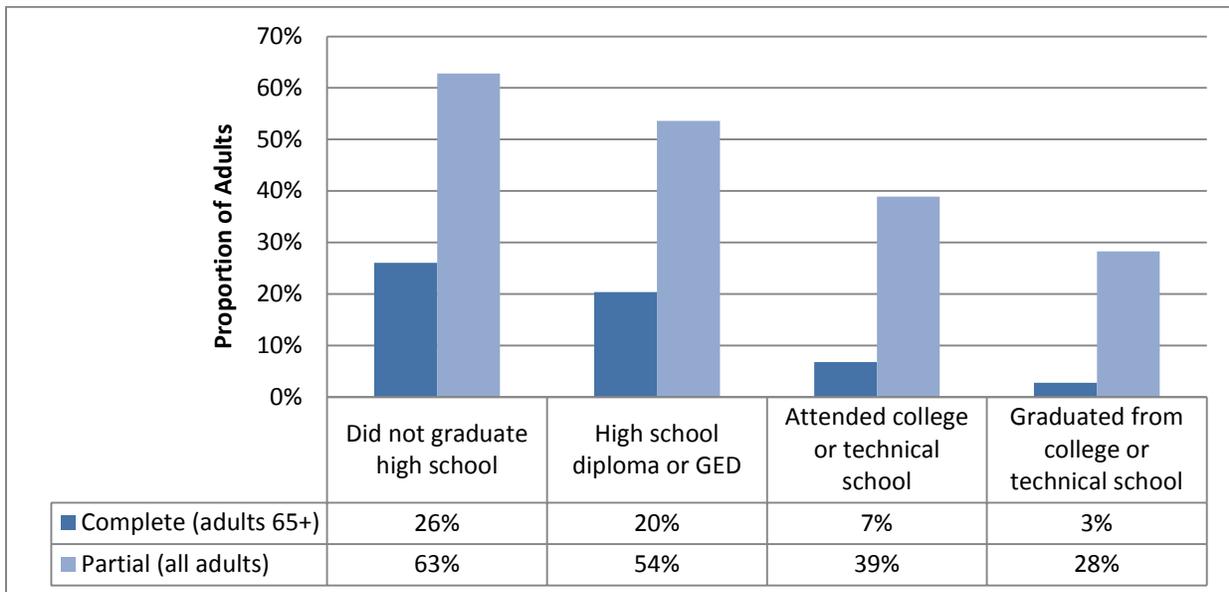


Figure 9. Complete and Partial Edentulism Among NH Adults, Stratified by Educational Attainment, 2014

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]. 2015. [accessed Aug 20, 2015]. URL: <http://wwwdev.cdc.gov/brfss/brfssprevalence/>

The Need for Treatment: Emergency Department Visits

This section will be updated when 2012 data become available.

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. According to the CDC, 62 out of 100 people diagnosed with oral and pharyngeal cancers are living 5 years after an initial diagnosis.^{vii} While further research is needed to help us understand the breadth of potential risk factors, current research provides us with some evidence-based insight into the exposures and factors that increase the risk for developing oral and pharyngeal cancers. Based on data, men are more likely to develop this type of cancer, and risk increases with age. 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, personal history of oral cancer, and having a human papillomavirus (HPV) infection.^{ibid.} 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.

The National Cancer Institute and CDC's State Cancer Profiles summarize data from the State Cancer Registry and National Vital Statistics in order to characterize the cancer burden by state. Incidence and mortality data are provided in a standardized format, allowing for comparison across geographic regions and to relevant Healthy People 2020 Goals. In interpreting the data, it is important to note that while incidence is likely reduced through primary prevention, mortality is reduced through early detection and treatment. Based on the most recent available data from 2008-2012, the age-adjusted annual incidence rate of oral and pharyngeal cancer among New Hampshire residents was 11.3 per 100,000 population, with men experiencing a significantly higher cancer incidence rate (16.5 per 100,000 population) as compared with women (6.6 per 100,000 population).

The age-adjusted mortality rate over the 5-year period of 2008-2012 was 2.4 per 100,000 population, again with men experiencing a significantly higher death rate (3.7 per 100,000 population) as compared with women (1.3 per 100,000 population). It is important to note that the oral and pharynx has been identified as the eighth leading invasive cancer sites in New Hampshire males. Five-year trend data reported on the Cancer State Profiles website indicate that while the overall and gender-specific incidence rates for oral and pharyngeal cancers have remained stable, the respective mortality rates have decreased. Although Healthy People 2020 objective targets are not gender specific, the mortality rate among females in New Hampshire exceeds achievement of the related target. The overall mortality rate is nearing achievement; however, the mortality rate among males remains higher than the target set by Healthy People 2020.^v

Table 5. Oral and Pharyngeal Cancer Incidence and Mortality Rates Among NH Residents, 2008-2012

Variable	Related Healthy People 2020 Target	2008-2012	
		Rate	CI 95%
Annual Incidence Rate over Rate Period ¹	-	11.3	(10.6-12.1)
Male	-	16.5	(15.2-17.9)
Female	-	6.6	(5.8-7.5)
Annual Mortality Rate over Rate Period ²	2.3	2.4	(2.1-2.8)
Male	-	3.7	(3.1-4.4)
Female	-	1.3	(1.0-1.7)

¹ Incidence rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). Rates are for invasive cancer only unless otherwise specified.

² Death rates are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). The Healthy People 2020 goals are based on rates adjusted using different methods but the differences should be minimal. Population counts for denominators are based on Census populations as modified by NCI. The 1969-2013 US Population Data File is used with mortality data.

Source: Centers for Disease Control and Prevention and the National Cancer Institute. State Cancer Profiles. 2008-2012. [accessed: September 15, 2015]. URL: <http://statecancerprofiles.cacner.gov>

The incidence rate included in the preceding table equates to an average count of approximately 180 new cases of oral and pharyngeal cancer per year among New Hampshire residents. Male residents account for the majority of these new cases (71%). The mortality rate of 2.4 per 100,000 population equates to an average count of approximately 37 deaths per year, again with males accounting for the majority (73%).

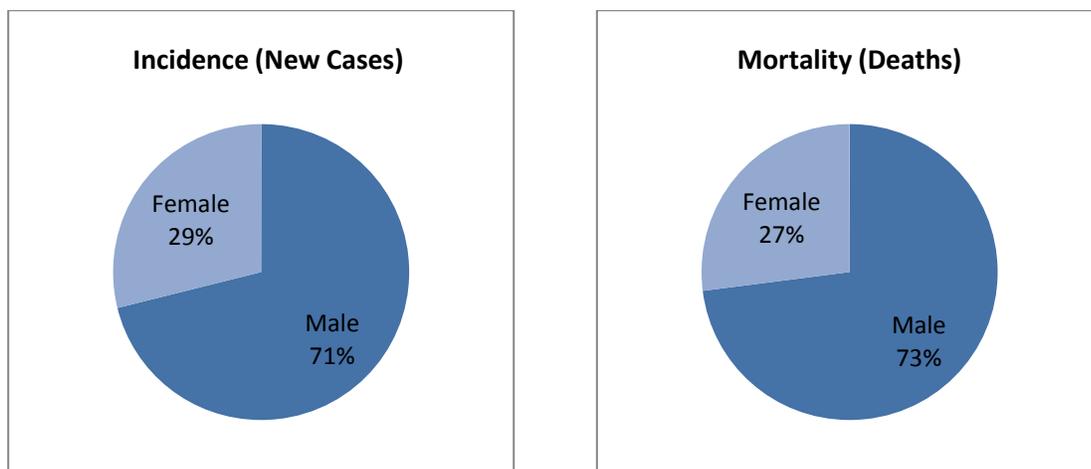


Figure 10. Gender Breakdown of Average Annual Oral Pharyngeal Incidence and Mortality Counts Among NH Residents, 2008-2012

Source: Centers for Disease Control and Prevention and the National Cancer Institute. State Cancer Profiles. 2008-2012. [accessed: September 15, 2015]. URL: <http://statecancerprofiles.cacner.gov>

VI. Risk and Protective Factors

There are many factors that influence an individual's level of risk for developing oral disease or for having poor oral health related outcomes; conversely, protective factors can help to prevent negative outcomes. Access to affordable dental care, preventive services such as regular prophylaxis for all ages, topical fluoride application and dental sealants for children, oral health education, and fluoridated drinking water all influence oral health outcomes.

Dental Insurance Coverage and Affordable Dental Care

High cost is often cited as a barrier, preventing individuals from accessing dental care. Even for those who have dental insurance coverage, out-of-pocket costs to cover co-pays, deductibles, and uncovered services can quickly add up. According to the Report on the Economic Well-Being of U.S. Households in 2014, published by the Board of Governors of the Federal Reserve System, 25% of U.S. residents did not receive needed dental care during the 12 months prior to the survey because they were unable to afford it.^{viii}

While all states are required to provide a comprehensive dental Medicaid benefit to individuals younger than age 21 who are eligible for coverage based on income, the same is not true for those ages 21 and older. In the state of New Hampshire, the adult Medicaid dental benefits are limited to the provision of trauma-related care and emergency treatment for the relief of pain and infection. Finding a provider who will accept Medicaid insurance for dental care can prove challenging; in surveys conducted by the OHP, this has been a frequently cited barrier. Nationally, in 2013, the average Medicaid fee-for-service reimbursement rate for pediatric dental care services was equal to 49% of commercial dental insurance charges; and in states providing at least limited dental benefits for adults, the reimbursement rate for those services was equal to about 41% of commercial dental insurance charges for the respective services.^{ix}

Federally Qualified Health Centers (FQHCs), more commonly referred to as Community Health Centers, are an important part of the safety net system. With federal funding, these health centers are charged with providing comprehensive care to underserved and vulnerable populations, including but not limited to those who are publicly insured or uninsured. According to data from the HRSA Health Center Program website, in 2014, 11 FQHCs in New Hampshire provided services to 83,884 total patients. The majority of patients served had income equal to or less than 200% of the Federal Poverty Level (FPL) (77%); and 48% had income equal to or less than 100% FPL. Most patients were either uninsured or publicly insured (78%). A total of 9% of patients served by FQHCs in New Hampshire in 2014 received dental care, either directly or through paid referral.^x It is expected

In the State of New Hampshire, the adult Medicaid dental benefits are limited to the provision of trauma-related and emergency treatment for the relief of pain and infection.

that this proportion will increase because the capacity of two FQHCs was expanded in the end of 2014 to include on-site dental facilities.

In 2013, funded through a five-year cooperative agreement with the CDC, the State of New Hampshire joined the long-standing effort to collect data through the Pregnancy Risk Assessment Monitoring System (PRAMS). The PRAMS includes data collected from approximately 1 in 12 mothers of newborns. The data set includes a limited number of questions that are focused on oral health-specific measures. Overall, 66% of women surveyed reported that they had insurance to cover dental care during pregnancy. While 20% of women indicated that they had a problem that required dental care during their pregnancy, only 14% (or 71% of those indicating need) went to a dentist for care related to a problem. The gap between those needing care and those accessing care indicates that barriers exist.

Table 6. Insurance and Access to Dental Care Among Pregnant Women in NH, 2013

Variable	2013	
	%	CI 95%
Women who had insurance to cover dental care during pregnancy	66%	(61.2-70.3)
Women who needed to see a dentist for a problem during pregnancy	20%	(16.6-24.7)
Women who went to see a dentist for a problem during pregnancy	14%	(11.3-18.3)

Source: State of New Hampshire, Department of Health and Human Services, Maternal and Child Health Section. Pregnancy Risk Assessment Monitoring System (PRAMS). 2013.

Data collected through the PRAMS shows that socioeconomic disparities exist among pregnant women in New Hampshire. While 66% of overall newborn mothers reported that they had insurance to cover dental care during pregnancy, the rate of coverage was significantly lower among those women with an income level equal to or less than the Federal Poverty Level.

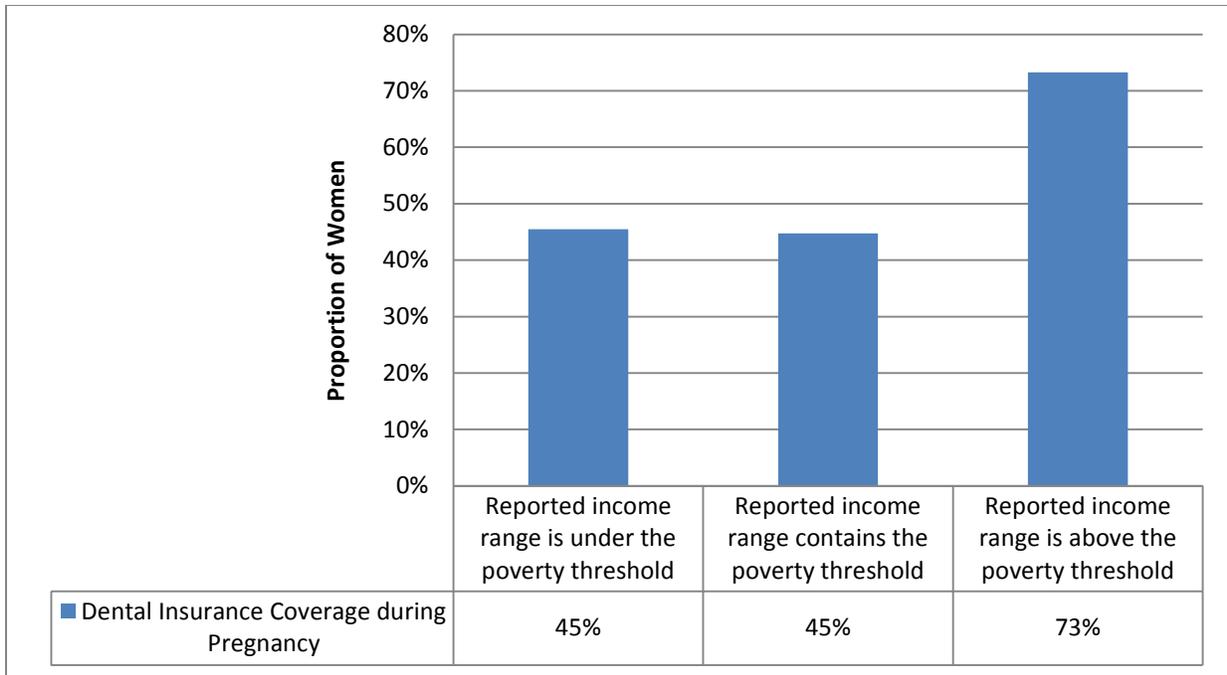


Figure 11. Dental Insurance Coverage among Pregnant Women in NH, Stratified by Income Level. 2013

Source: State of New Hampshire, Department of Health and Human Services, Maternal and Child Health Section. Pregnancy Risk Assessment Monitoring System (PRAMS). 2013.

Dental Visits and Preventive Care

Access to routine preventive care is important for achieving and maintaining oral health. Many sources cite that people with the least access to preventive oral health care have higher rates of oral disease.^v Conversely, accessing dental care can reduce the risk for disease. While we know about the importance of preventive care, we also know that there are barriers that prevent the use of such services, including lack of access, lack of knowledge about the need for preventive care, cost, and fear.

Data related to adult dental visits is collected through the CDC’s Behavioral Risk Factor Surveillance System (BRFSS). As with other BRFSS measures, due to changes in methodology that took place in 2012, data from years preceding 2012 are not comparable with data collected during and after 2012. According to the 2014 BRFSS results, 69% of adults in New Hampshire reported having visited a dentist or dental clinic in the year prior to the survey, representing a relative decrease of 5% from 2012. While there is not a Healthy People 2020 objective that aligns directly with the BRFSS measure, there is a related objective which sets a target for children, adolescents, and adults accessing the oral health care system at 49%.^v

Table 7. Dental Visits Among NH Adults, 2012-2014

Variable	Related Healthy People 2020 Target	2012		2014	
		%	CI 95%	%	CI 95%
Adults who reported visiting a dentist or dental clinic in the past year	49%	73%	(71.5-74.6)	69%	(67.7-71.2)

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]. 2015. [accessed Aug 20, 2015]. URL: <http://wwwdev.cdc.gov/brfss/brfssprevalence/>.

As stated previously, the Healthy People 2020 objective relating to access is not directly aligned with the BRFSS measure which is limited to adult access to care. However, the rate of access among adults in New Hampshire exceeds the target set for the larger population of children, adolescents, and adults. Consistent with other measures, access to care appears to be associated with both income and educational attainment; as income or level of education increases, the proportion of those who have accessed care also increases. While 85% of those with an income of \$75,000 or more reported having visited a dentist or dental clinic in the past year, only 40% of those earning less than \$15,000 reported having had a visit. Similarly, when stratifying the data by educational attainment, those who did not graduate from high school experienced the lowest rate of dental care access at 42%, with those who had graduated from college or technical school accessing care at a rate of 84%. Socioeconomic disparities are evidenced in the following figures.

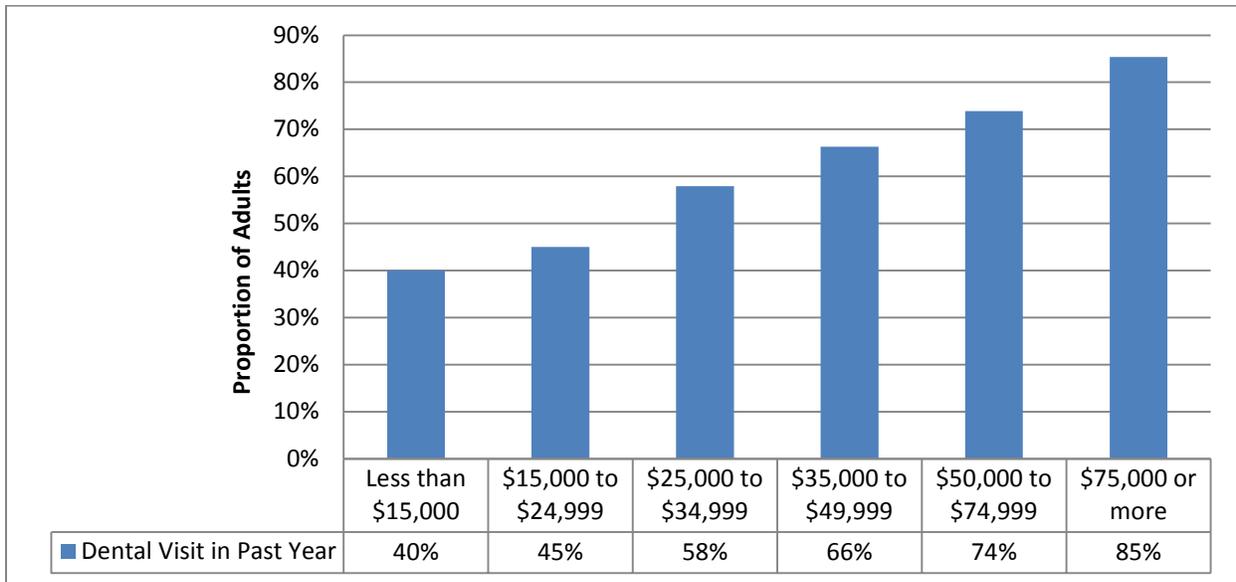


Figure 12. Dental Visits in the Past Year Among NH Adults, Stratified by Income Level, 2014

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]. 2015. [accessed Aug 20, 2015]. URL: <http://wwwdev.cdc.gov/brfss/brfssprevalence/>.

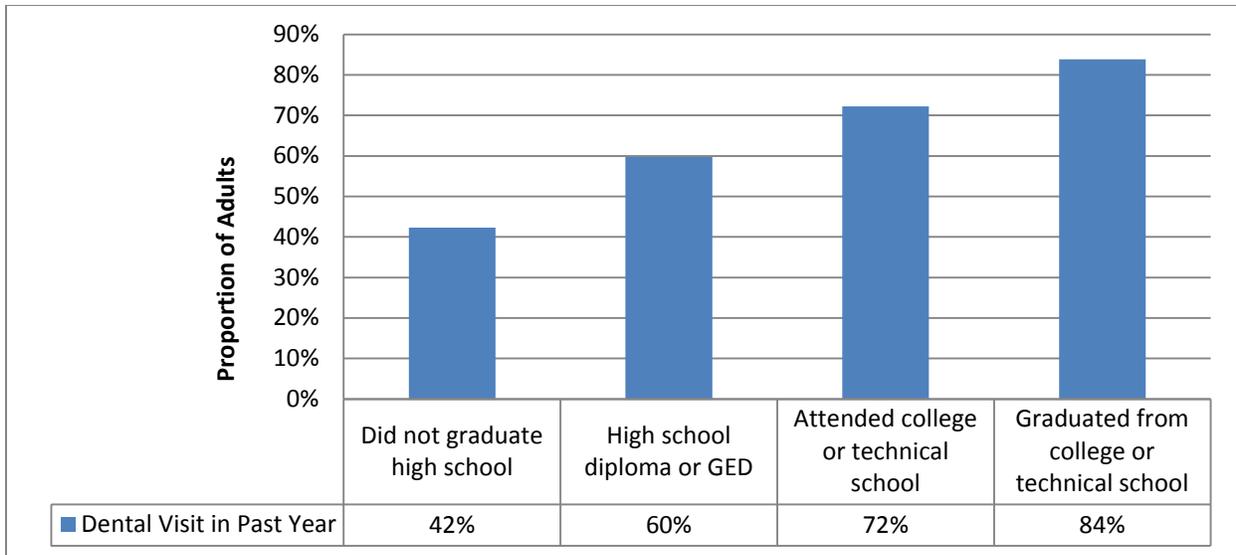


Figure 13. Dental Visits in the Past Year Among NH Adults, Stratified by Educational Attainment, 2014

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]. 2015. [accessed Aug 20, 2015]. URL: <http://wwwdev.cdc.gov/brfss/brfssprevalence/>.

Dental Prophylaxis

By definition, prophylaxis is an action taken to prevent disease. When it comes to oral health, prophylaxis is a treatment for the prevention of oral disease, including cleaning of the teeth, detection and removal of plaque, and checking of restorations. As a stand-alone service, there is limited evidence to show that prophylaxis is an effective preventive service, but the service typically takes place as part of a routine preventive visit, and as such is considered to be an important part of routine preventive care for individuals of all ages.

While data about receipt of dental prophylaxis among the general population of New Hampshire is not available, the PRAMS survey does provide data for this measure, specific to new mothers during the year prior to their pregnancy. According to 2013 data, 63% of new mothers reported that they had their teeth cleaned by a dentist or hygienist at least one time during the 12 months prior to their pregnancy.

Table 8. Dental Prophylaxis During 12 Months Prior to Pregnancy Among New Mothers in NH, 2013

Variable	2013	
	%	CI 95%
Women who had their teeth cleaned by a dentist or dental hygienist during the 12 months prior to their pregnancy	63%	(58.4-67.6)

Source: State of New Hampshire, Department of Health and Human Services, Maternal and Child Health Section. Pregnancy Risk Assessment Monitoring System (PRAMS). 2013.

PRAMS data indicates that social disparities exist, with those reporting an income at or above the poverty threshold being nearly three times more likely to have had a cleaning than those who reported an income that was below the federal poverty threshold.

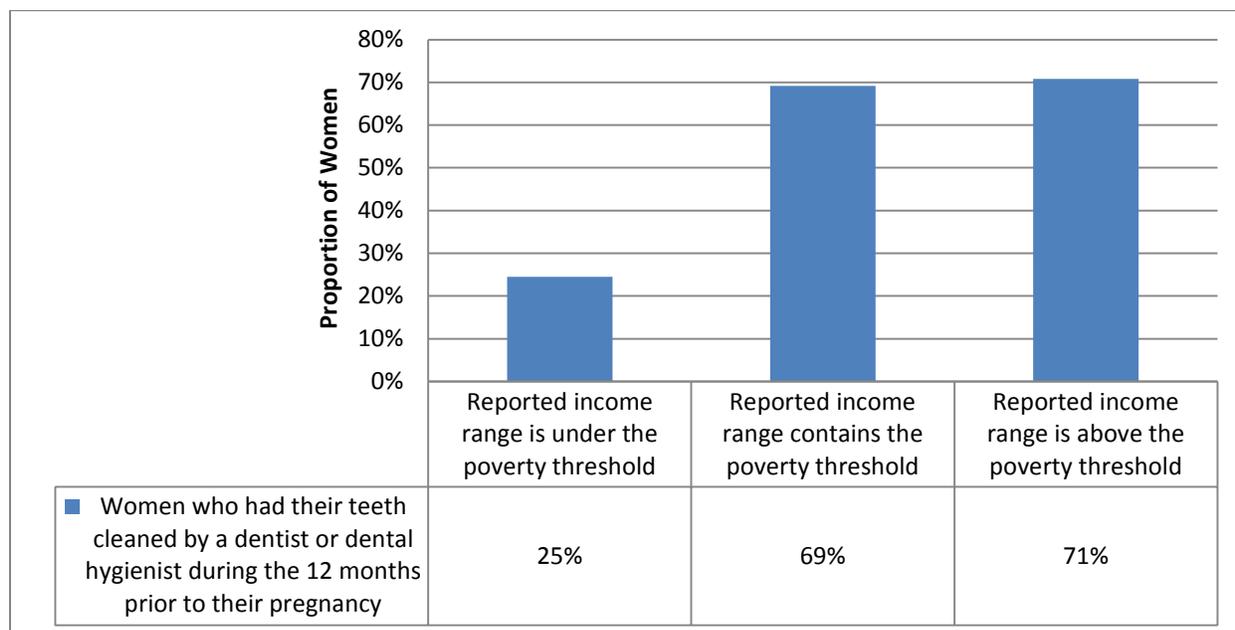


Figure 14. Dental Prophylaxis During 12 Months Prior to Pregnancy Among New Mothers in NH, Stratified by Income Level, 2013

Source: State of New Hampshire, Department of Health and Human Services, Maternal and Child Health Section. Pregnancy Risk Assessment Monitoring System (PRAMS). 2013.

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; it involves filling the grooves on the chewing surfaces of the back teeth with a thin plastic coating. The sealant maintains a tooth’s structure and protects it by keeping germs and food particles out of the groove. According to the CDC, a sealant can last as long as 5 to 10 years; that’s 5 to 10 years of protection for a tooth resulting from a non-invasive process that takes minutes.^{xi}

New Hampshire’s rate of dental sealants among 6-9 year olds is more than twice as high as the related Healthy People 2020 target.

A recent study aimed at determining the cost effectiveness of sealing primary molars of Medicaid enrolled children compared the results of models which simulated standard care, care in which sealants were always placed, and care in which sealants were never placed. The study showed that relative to standard care, always placing sealants on primary molars reduced the

number of required restorations by 88%. The study concluded that while always sealing primary molars is more costly up front, it would reduce the need for more costly subsequent dental treatment, including restorations and extractions, ultimately saving money and reducing overall dental costs.^{xii}

Data collected through New Hampshire’s statewide survey of third grade students supports the body of evidence which indicates that dental sealants do prevent decay, also referred to as caries. Between the 2000-2001 and the 2013-2014 school years, the relative increase in the rate of dental sealants was 33%. During that same period, the relative decrease in the rate of decay experience was 32%.

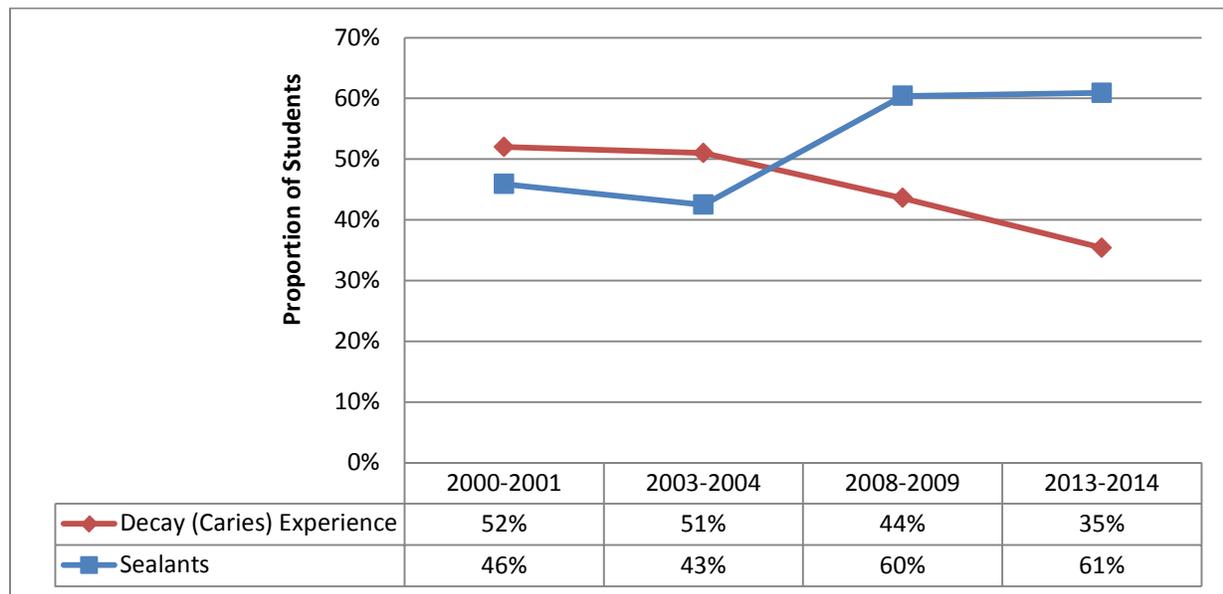


Figure 15. Rate of Sealants and Decay Experience among NH Third Graders, 2000-2001 to 2013-2014

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

Results from the most recent survey of third grade students, conducted during the 2013-2014 school year, show that 61% of children screened had sealants on their permanent first molar teeth. While there is not a Healthy People 2020 objective that is specific to third grade students, there is an objective relating to dental sealants on the permanent first molars of 6-9 year olds. New Hampshire’s rate is more than twice as high as the related Healthy People 2020 target of 28%.^v

Table 9. Presence of Sealants Among NH Third Graders, 2000-2001 to 2013-2014

Variable	Related Healthy People 2020 Target	2000-2001		2003-2004		2008-2009		2013-2014	
		%	CI 95%						
Sealants	28%	46%	(37.7-54.0)	43%	(36.9-48.1)	60%	(56.8-64.1)	61%	(57.4-64.4)

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

Data indicate that the rate of dental sealants across all of New Hampshire’s counties is higher than the target set for the related Healthy People 2020 objective; however, variance does exist.

Schools with at least half of their student population eligible for free and reduced lunch report the highest rate of sealants, an indication that progress is being made in addressing disparities.

Sullivan, Carroll, and Cheshire Counties report significantly higher rates of dental sealants than the State average at 91%, 70%, and 68%, respectively; while Coos County reports a significantly lower rate of 53%. When stratifying the data by income level, using the proportion of students receiving free and reduced lunch

(FRL) as a proxy, schools with at least half of their student population eligible for FRL report the highest rate of sealants at 63%, an indication that progress is being made in addressing disparities. This increased rate, although not statistically significant, may be attributed to the fact that schools with higher rates of FRL-eligible students are likely to have a school-based sealant program.

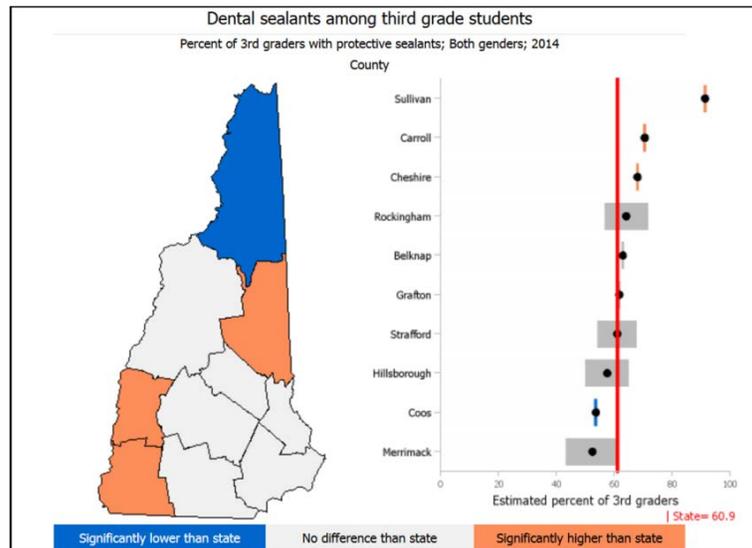


Figure 16. Presence of Sealants Among NH Third Graders by County, 2013-2104

Source: State of New Hampshire, Department of Health and Human Services, Division of Public Health Services. NH Health WISDOM. [accessed August 28, 2015]. URL: <http://wisdom.dhhs.nh.gov/wisdom/>

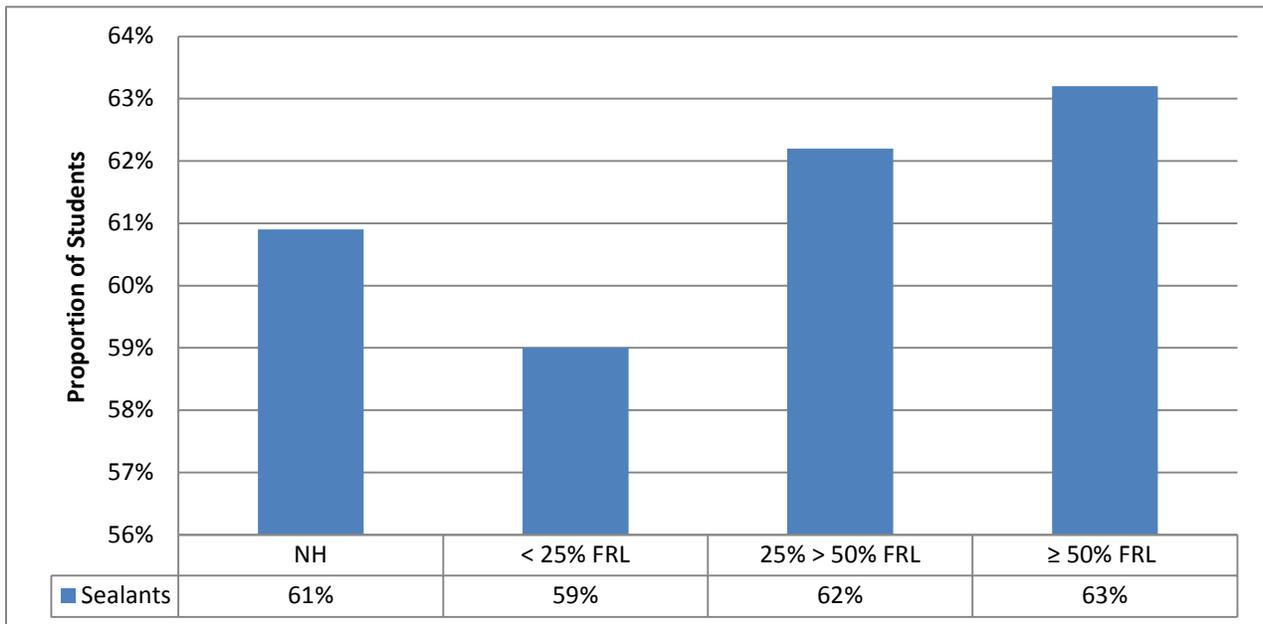


Figure 17. Presence of Sealants Among NH Third Graders, Stratified by School FRL Status, 2013-2014

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.

Community Water Fluoridation

Community water fluoridation refers to “the controlled addition of a fluoride compound to a public water supply to achieve a concentration optimal for dental caries prevention.”^{xiii} Community water fluoridation has contributed to a dramatic decline in tooth decay over the past 70 years. Because of this, it has earned a place in the CDC’s list of the top ten public health achievements of the 20th century.^{xiv} While concern has risen about community water fluoridation, multiple scientific studies have documented its safety and benefits, and there has been no scientific evidence to date linking fluoridation to adverse health effects or systemic disorders; in fact, the documented risks are limited to dental fluorosis, a primarily cosmetic condition, which in most cases within the U.S., does not impact the look or function of teeth.^{xv} In addition to being supported by the CDC, community water fluoridation is supported by the World Health Organization as an effective strategy for preventing caries in children and adults.^{xv}

Fluoridation of water has been identified as “the most cost-effective method of delivering fluoride to all members of the community regardless of age, educational attainment, or income level,”^{xvi} as such, it’s an effective way to reduce disparities in oral health. According to estimates from the New Hampshire Department of Environmental Services, when implementing community water fluoridation, the typical capital cost for a very small water system is approximately \$3,000 to \$5,000 per source per pump house, assuming that the

system will use sodium fluoride and that sufficient floor space exists to accommodate equipment. Typical yearly operational costs are low, ranging from \$0.60 to \$1.10 per person served.^{xvii} The return on investment for community water fluoridation is estimated to be between \$4 and \$27 dollars depending on community size, with larger communities achieving a higher return rate.^{xviii}

As of 2015, there are 10 communities in New Hampshire with fluoridated water systems. In coordination with the Department of Environmental Services, the Oral Health Program collects and reviews data from these systems to ensure that fluoride optimization is being achieved (0.7 +/- 0.1 mg/L). These data are reported to the CDC through the Water Fluoridation and Reporting System; the CDC in turn makes data about community water fluoridation publicly available through the site “My Water’s Fluoride.” This site allows individuals to research the fluoridation status of individual communities and water systems. In addition, the CDC publishes state-level fluoridation statistics to allow for comparison with other states and with the Country.

New Hampshire ranks 43rd among states in the Nation with only 46% of people being served by community water systems receiving fluoridated water.

According to the most recently published data, in 2012, New Hampshire ranked 43rd among states in the Nation with only 46% of people being served by community water systems receiving fluoridated water. This statistic puts New Hampshire far below the related Healthy People 2020 Target of 80%.^v Although the number of fluoridated systems has not changed since 2008, the population of the State has changed in such a way that results in a relative increase of 8% in the proportion of people being served by community water systems who receive fluoride. While the proportion of people receiving fluoride through a community water system has increased, the State’s rank has remained low at 43rd in the Nation.

Table 10. Community Water Fluoridation in New Hampshire, 2008-2012

Variable	Related Healthy People 2020 Target	2008	2010	2012
		%	%	%
Proportion of people served by community water systems receiving fluoridated water	80%	43%	43%	46%
State rank	-	43	42	43

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. 2015. [accessed Aug 20, 2015]. URL: <http://www.cdc.gov/fluoridation/statistics/index.htm>.

In terms of community water fluoridation, New Hampshire ranks last among neighboring New England states, some of which have already achieved the target of 80% set by Healthy People 2020.

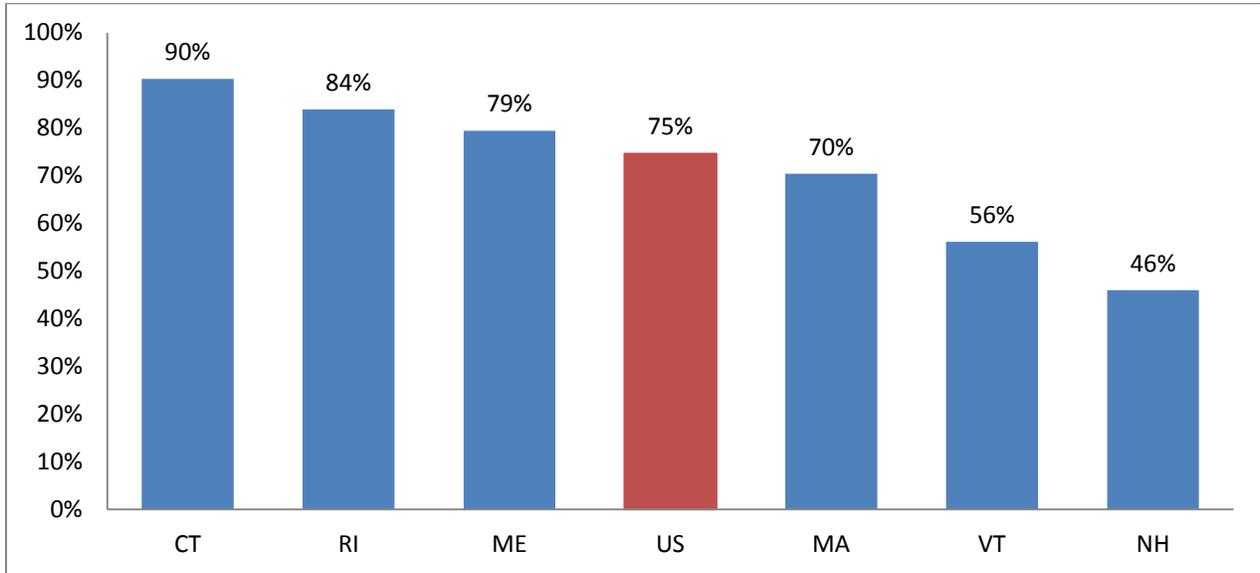


Figure 18. Proportion of People Served by Community Water Systems Receiving Fluoridated Water in New Hampshire Compared to the Nation and Other New England States, 2012

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. 2015. [accessed Aug 20, 2015]. URL: <http://www.cdc.gov/fluoridation/statistics/index.htm>.

VII. Dental Safety Net, Dental Workforce, and Capacity

The availability of trained and competent dental providers is arguably one of the most critical factors influencing access to care. The number of providers alone is not sufficient to indicate capacity to facilitate access; it's also important to consider the density and placement of providers as well as whether or not providers are willing to accept traditionally underserved populations, including those who are uninsured or who are publicly insured through Medicaid.

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. New Hampshire's performance falls short of the national rate of 21% and the Healthy People 2020 target of 33%; however, with the addition of two new dental facilities at New Hampshire FQHCs in December of 2014, it is expected that moving forward, a higher proportion of community health center patients will receive oral health services.^{x,v}

Table 11. Proportion of Patient Who Received Oral Health Services, New Hampshire, 2012-2014

Variable	Related Healthy People 2020 Target	2012	2013	2014
		%	%	%
Proportion of patients who receive oral health services at Federally Qualified Health Centers	33%	8%	10%	9%

Source: Health Center Data. Program Grantee Data. U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Primary Health Care. [accessed September 24, 2015]. URL: <http://bphc.hrsa.gov/uds/datacenter.aspx>.

Dental Providers

New Hampshire does not have any accredited Doctor of Dental Surgery (DDS) or Doctor of Dental Medicine (DMD) programs and is home to a single dental hygiene program at the New Hampshire Technical Institute, Concord's Community College. The licensing entity for dental providers in New Hampshire is the New Hampshire Board of Dental Examiners.

In addition to those who have traditionally been regarded as dental providers, including Dentists and Registered Dental Hygienists (RDH), recent legislation has expanded the field to

There are currently 21 Certified Public Health Dental Hygienists within the State.

include Certified Public Health Dental Hygienists (CPHDH). Certification requires additional coursework and exams beyond what is required of RDHs, in addition to a

minimum number of documented hours of practice. Under public health supervision by an actively-licensed New Hampshire dentist, CPHDHs can perform all activities traditionally allowed by a RDH, and in addition, can place interim therapeutic restorations and perform radiographic bite-wings. While they can perform these additional services, there is currently no mechanism for CPHDHs to be reimbursed for them. As the legislation relating to CPHDHs is recent, it is expected that the number who seek and obtain licensure will continue to grow.

According to data from the Board of Dental Examiners, there are 857 active dentists in the State of New Hampshire. General practice is the most populated specialty, with 78% of active dentists being licensed in the field. The south-central and south-eastern regions of the State have the highest density of dentists, with 31% of dentists being located in Hillsborough County, and 28% being located in Rockingham County. Across the State, there are a total of 1,308 active hygienists; again the majority practice in Hillsborough and Rockingham Counties, which hold 32% and 25% of hygienists, respectively. There are currently 21 Certified Public Health Dental Hygienists within the State. In collaboration with the Oral Health Coalition, and in the interest of increasing and improving access to preventive dental care, the NH Oral Health Program is committed to the training and deployment of Certified Public Health Dental Hygienists throughout the State.

Table 12. Active Dentist by Specialty and County, NH, 2015

County	Active Dentists by Specialty							
	Total	Endo-dontics	General Practice	Oral and Maxillo-facial Surgery	Ortho-dontics	Pedo-dontics	Perio-dontics	Prosthodontics
Belknap	33	-	27	4	2	-	-	-
Carroll	29	1	25	1	2	-	-	-
Cheshire	39	-	28	2	3	3	3	-
Coos	12	-	12	-	-	-	-	-
Grafton	67	2	54	3	3	3	2	-
Hillsborough	269	10	205	12	20	9	8	5
Merrimack	103	4	78	6	4	5	4	2
Rockingham	241	4	188	9	17	10	7	6
Strafford	43	1	35	3	1	1	1	1
Sullivan	21	-	17	4	-	-	-	-
Total	857	22	669	44	52	31	25	14

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

Table 13. Active Registered Dental Hygienists and Certified Public Health Hygienists by County, NH, 2015

County	Active Registered Dental Hygienists	Certified Public Health Dental Hygienists
Belknap	67	-
Carroll	37	1
Cheshire	55	-
Coos	27	1
Grafton	60	3
Hillsborough	418	4
Merrimack	182	4
Rockingham	333	4
Strafford	107	2
Sullivan	22	2
Total	1,308	21

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

Dental Health Professional Shortage Areas

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. There are three types of DHPSA designations, including geographic area, population group, and facility. In simplest terms, designation is based on a population to dentist ratio of 5,000:1 or higher; meaning that when there are 5,000 or more people per dentist, an area is eligible for DHPSA designation. However, given the presence of other factors, designations can be made with a lower population to dentist ratio. For example, if a population has an unusually high need for dental services, or if there are barriers that prevent the population from using the area’s dental providers, then the population to dentist ratio needs to be greater than 4,000:1.

Another consideration that is taken into account when designating DHPSAs is whether or not dental professionals in contiguous areas are over utilized, excessively distant, or inaccessible to the public. Facility level designations are valid within the walls of the facility and are made when the facility provides general dental care services to an area or population group designated as having a DHPSA. An example of a facility-specific designation would be an FQHC. Along with designation come many benefits to alleviate the limited capacity these areas face. J-1 and H-1B Visas (enabling the recruitment of foreign trained providers), loan forgiveness for providers, and National Health Service Corps placements all serve to aid designated communities with provider recruitment. Additionally, a designation serves as a platform for other designations, such as Rural Health Clinic status, and for funding opportunities.

Consistent with data discussed previously, which indicated that those in the northern counties access care at a lower rate than the State average, the figure below shows that the State's designated DHPsAs are largely located in the northern communities.

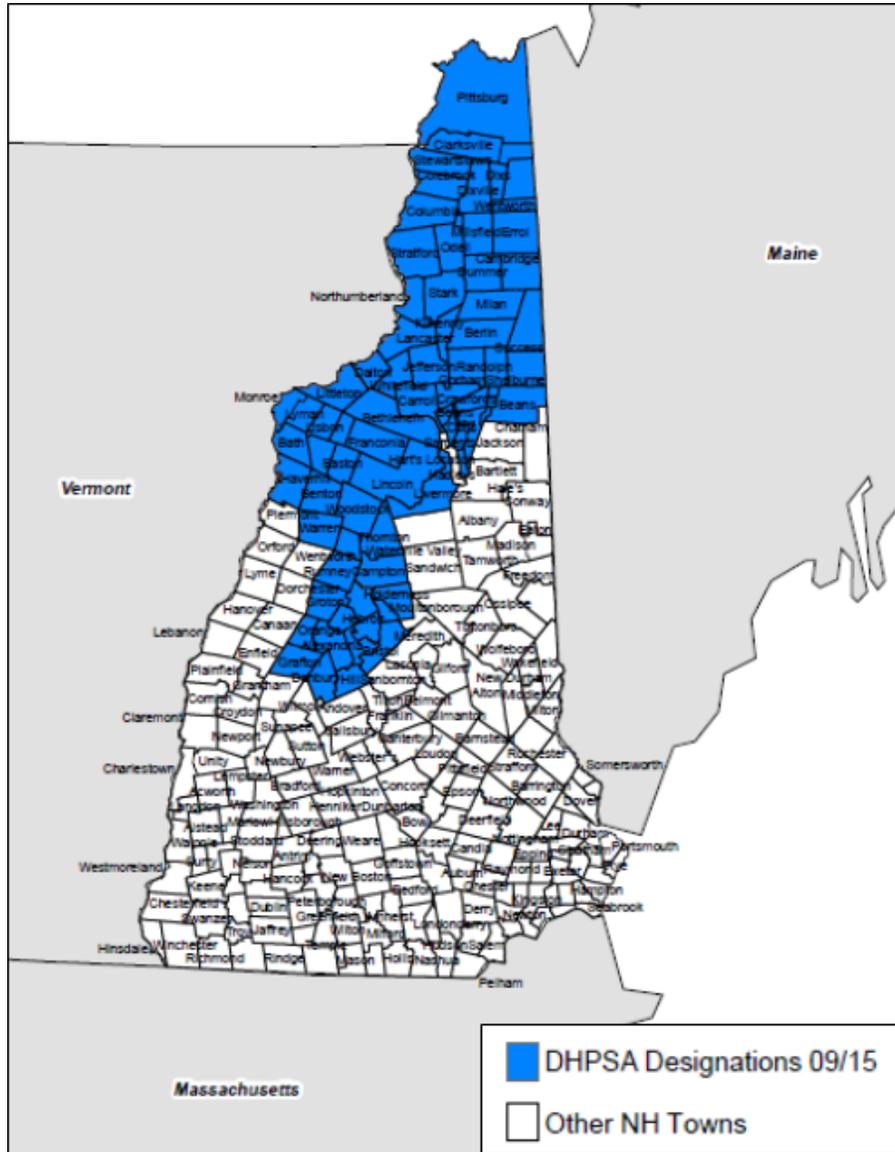


Figure 19. Designated Dental Health Professional Shortage Areas, NH, 2015

Source: State of New Hampshire, Department of Health and Human Services, Division of Public Health Services, Rural Health and Primary Care Section

According to data from the US Department of Health and Human Services, Human Resources and Services Administration, there are 30,449 New Hampshire residents living in designated DHPsAs as of October, 2015. This equates to an estimated 2% of New Hampshire residents, based on the most recent population estimate from the US Census Bureau. Nationwide, an

estimated 15% of residents live in DHPSAs. The percentage of need met is a measure that is calculated by dividing the number of dentists currently serving the population by the number that would be required to serve the population to eliminate the DHPSA designation. In New Hampshire, it is estimated that 63% of the need is met; and the addition of 4 practitioners would result in removal of designations.

Table 14. Designated Dental Health Professional Shortage Area Statistics, NH and the US, 2015

Variable	New Hampshire	United States
Population living in a designated DHPSA	30,449	47,483,505
Estimated proportion of population living in a designated DHPSA	2%	15%
Percent of need met	63%	41%
Practitioners needed to remove designations	4	7,187

Sources: US Department of Health and Human Services, Health Resources and Services Administration. Data Warehouse. Designated HPSA Statistics. [accessed October 12, 2015]. URL: <http://datawarehouse.hrsa.gov/Topics/ShortageAreas.aspx>

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VIII. Conclusion

The data put forth in this report establish the current burden of oral disease in New Hampshire, including risk and protective factors that contribute to oral health, the capacity within the State to carry out prevention efforts, and the ability to address the oral health needs of residents. Across the various measures, data indicate that residents in the northern part of the State and residents with a lower socioeconomic status carry the heaviest disease burden when it comes to oral health. It is in these regions, and for these populations, that further attention must be focused in order to eliminate disparities.

The New Hampshire Department of Health and Human Services, Oral Health Program will continue to monitor the disease burden in the State as well as activities aimed at addressing oral disease, through ongoing data collection and surveillance. It is the Program's hope that this report will be used by decision makers as the basis to appropriately target programs, policies, and activities in order to effectively address the needs of New Hampshire residents.

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