



# Oral Health in Burlington Office of Local Health and Vermont:

Preventive and Access to Care, Risk Factors, and Outcomes

# Burlington Office of Local Health

- Unless stated otherwise, all data are calculated for residents living within the area served by Burlington Office of Local Health, including:
  - Bolton, Burlington, Charlotte, Colchester, Essex, Hinesburg, Huntington, Jericho, Milton, Richmond, St. George, Shelburne, South Burlington, Underhill, Westford, Williston, Winooski.

# Oral Health Data – Burlington Office of Local Health

**Preventive and Access to Care:** How many Burlington area residents are accessing oral health care? Receiving preventive services? How many dentists are in the area? What percentage of the population on public water systems have fluoridated water?

**Risk Factors:** How many Burlington area high school students have an increased risk of oral health problems due to risky behaviors?

**Oral Health Outcomes:** How are Burlington area residents doing in terms of oral health outcomes?

# Preventive and Access to Care

## Indicators

- ❑ Dental insurance
- ❑ Dental visits
- ❑ Preventive dental services
- ❑ Number of dental providers
- ❑ Community water fluoridation
- ❑ Water consumption

## Data Sources

- ❑ Behavioral Risk Factor Surveillance Survey (BRFSS)
- ❑ Medicaid claims
- ❑ Dentist Census
- ❑ Water Fluoridation Reporting System
- ❑ Youth Risk Behavior Survey (YRBS)

# Behavioral Risk Factor Surveillance Survey (BRFSS)

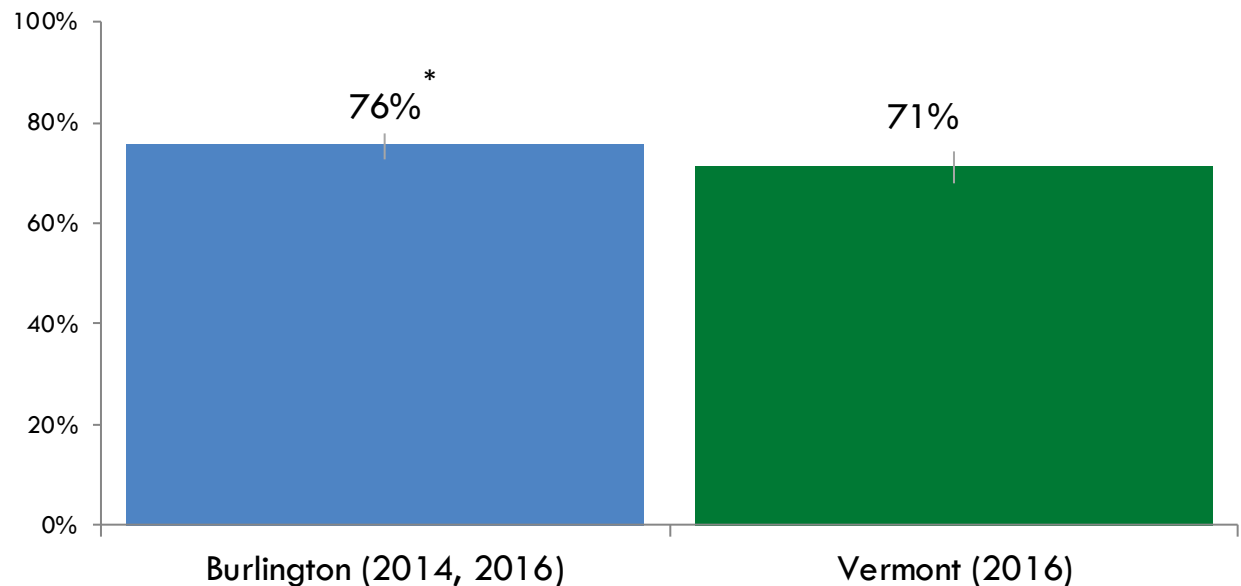
- Telephone survey of adults
- Typically between 6,000 and 7,000 Vermont adults (18 or older) are interviewed as part of the Vermont BRFSS each year.
- Self-reported data
- Conducted by the Vermont Department of Health in collaboration with the Centers for Disease Control and Prevention (CDC)
- Additional information can be found on the VDH and CDC websites:
  - <http://healthvermont.gov/research/brfss.aspx>
  - <http://www.cdc.gov/brfss/>

# Access to Care – Dental Visits Among Adults (BRFSS)

In 2014 and 2016, 76% of Burlington area adults saw their dentist for any reason during the previous year. This is significantly better than the state percentage.

*The Healthy Vermonters 2020 goal is 85%.*

### Percent of Adults Who Visited the Dentist in the Last Year



Data Source: Behavioral Risk Factor Surveillance System (BRFSS)

\*Significantly different from the state of Vermont.

Age-adjusted based on the proportional age breakdowns of the U.S. population in 2000.

# Dental Insurance

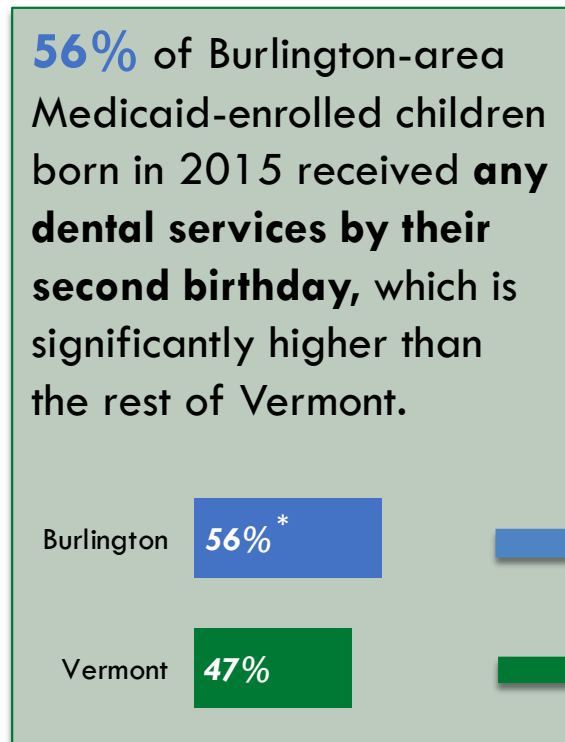
- 44% of Vermont adults reported they did not have dental insurance in 2012 (BRFSS).
- Some variation exists by Office of Local Health, but there are not large differences.

# Medicaid Claims Data

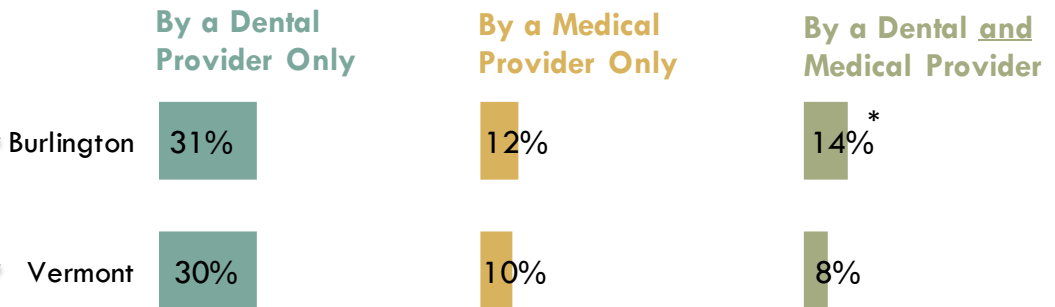
- These data are not representative of all Burlington area residents.
  - These data only include those who sought care, and does not include those who needed care but did not seek care.
  - These data do not include those who have commercial insurance or do not have dental insurance.



# Access to Care: Dental Services Among Medicaid-Enrolled Children by Their 2<sup>nd</sup> Birthday



**By type of provider**, percent of Medicaid-enrolled children born in 2015 who received any dental services by their second birthday:



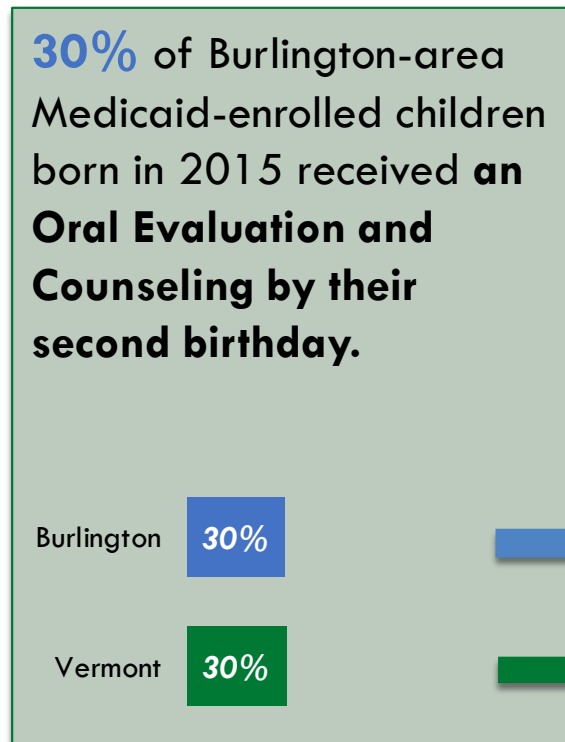
Data Source: Medicaid Claims Data

NR = Not reported due to a small number seen by one or more types of providers.

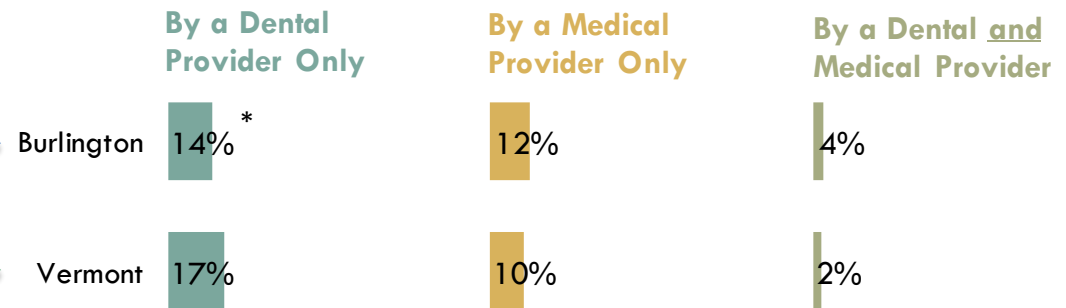
\* Significantly different from the rest of Vermont.

Percentages by provider type are rounded to the whole number, but the overall total takes into account the full percentages.

# Access to Care: Dental Services Among Medicaid-Enrolled Children by Their 2<sup>nd</sup> Birthday



**By type of provider,** percent of Medicaid-enrolled children born in 2015 who received an Oral Evaluation and Counseling by their second birthday:



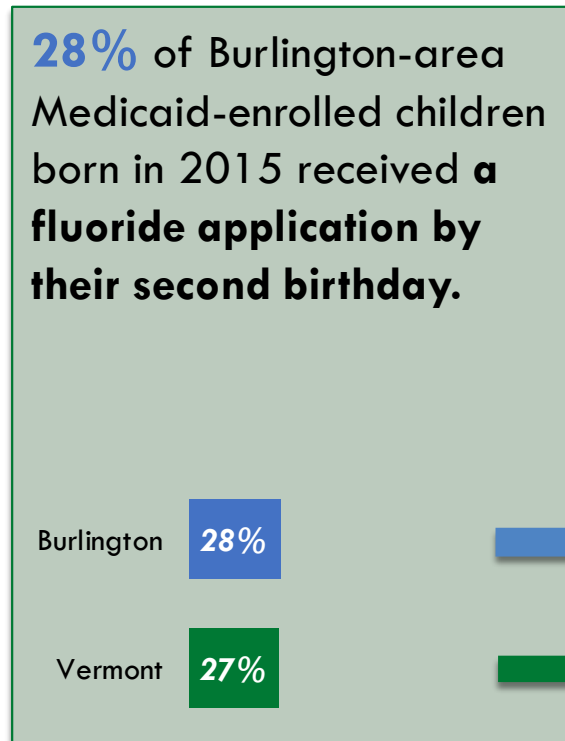
Data Source: Medicaid Claims Data

NR = Not reported due to a small number seen by one or more types of providers.

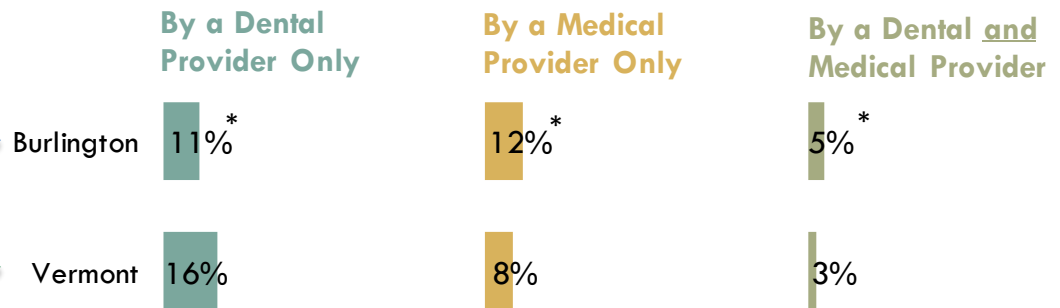
\* Significantly different from the rest of Vermont.

Percentages by provider type are rounded to the whole number, but the overall total takes into account the full percentages.

# Access to Care: Dental Services Among Medicaid-Enrolled Children by Their 2<sup>nd</sup> Birthday



**By type of provider**, percent of Medicaid-enrolled children born in 2015 who received a fluoride application by their second birthday:



Data Source: Medicaid Claims Data

NR = Not reported due to a small number seen by one or more types of providers.

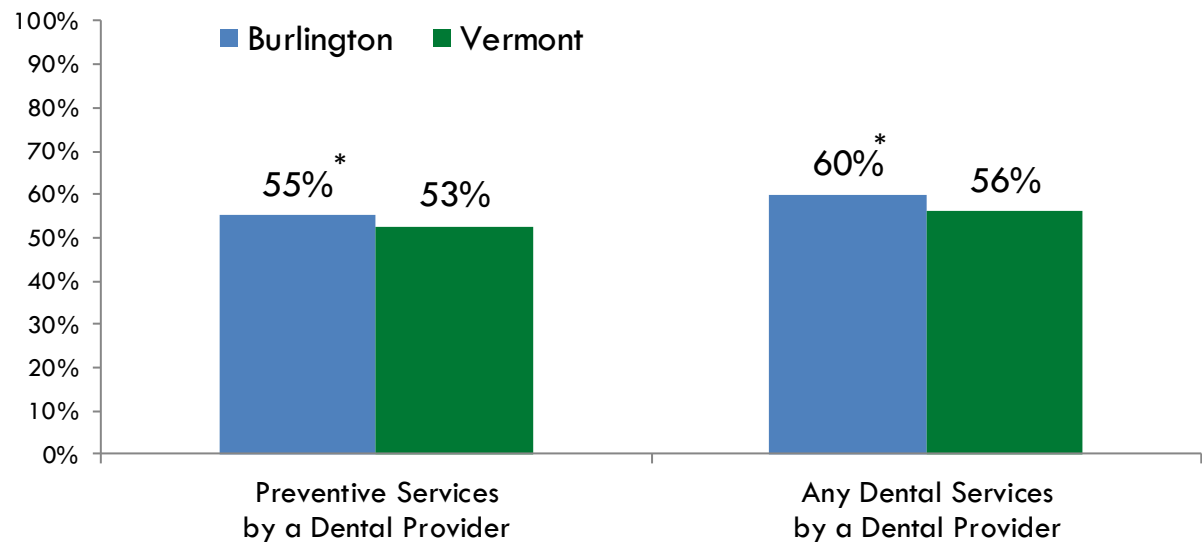
\* Significantly different from the rest of Vermont.

Percentages by provider type are rounded to the whole number, but the overall total takes into account the full percentages.

# Access to Care: Dental Services Among Medicaid-Enrolled Children Aged 2-5

60% of all Burlington Medicaid-enrolled children aged 2-5 received any dental services by a dental provider in 2017. This is significantly higher than the rest of Vermont.

### Percent of Medicaid-Enrolled Vermonters Aged 2-5 Receiving Preventive Dental Services and Any Dental Services in 2017



Data Source: Medicaid Claims Data

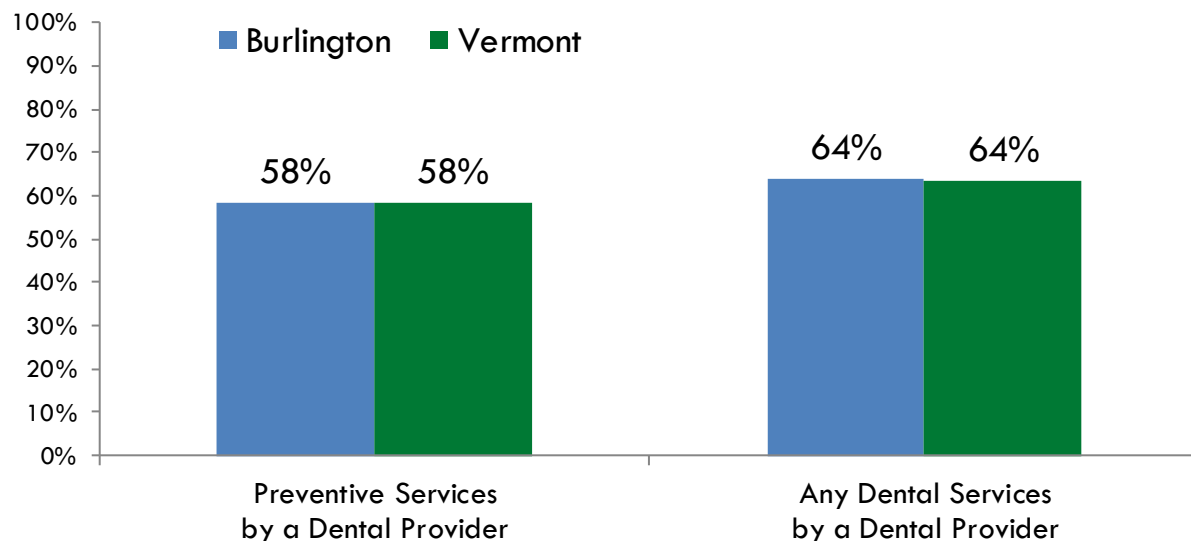
\*Significantly different from the rest of Vermont.

# Access to Care: Dental Services Among Medicaid-Enrolled Vermonters Aged 6-20

64% of Burlington Medicaid-enrolled Vermonters aged 6-20 received any dental services by a dental provider in 2017.

*The Healthy Vermonters 2020 goal for the percent of people in grades K-12 who use the dental care system each year is 85%.*

## Percent of Medicaid-Enrolled Vermonters Aged 6-20 Receiving Preventive Dental Services and Any Dental Services in 2017



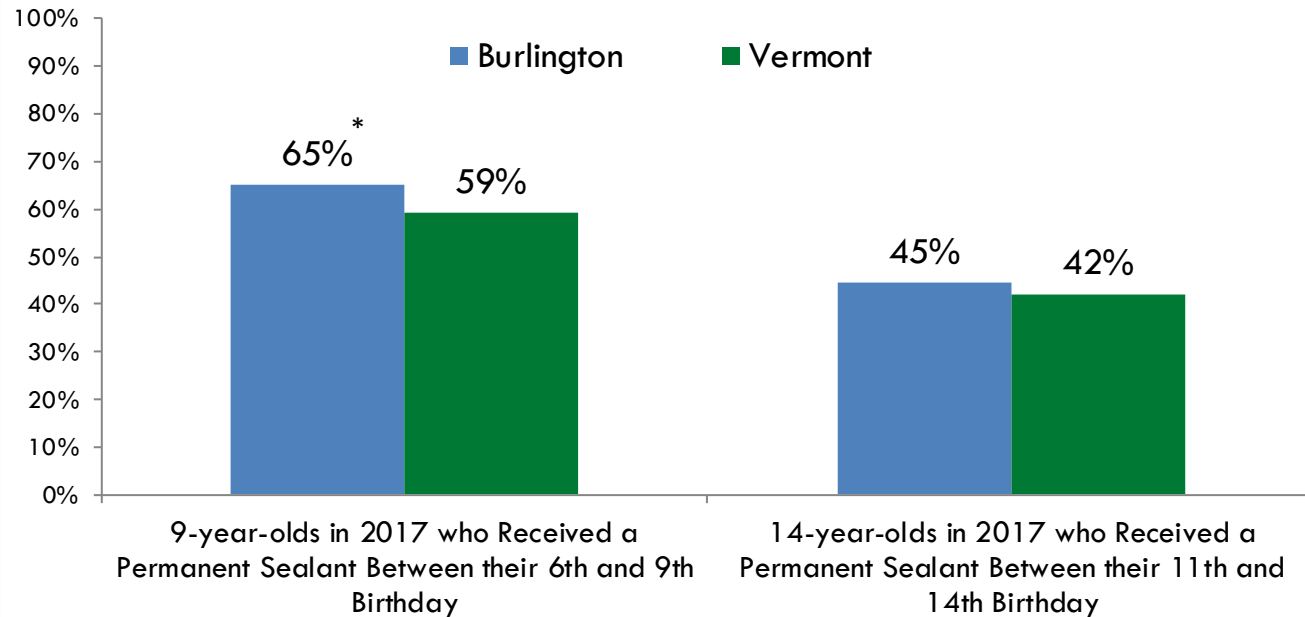
Data Source: Medicaid Claims Data

# Preventive Services: Dental Sealants Among Medicaid-Enrolled Children

Of Medicaid-enrolled children in Burlington:

- 65% of 9-year-olds received at least one permanent sealant in the last 3 years, which is significantly better than the rest of Vermont.
- 45% of 14-year-olds received at least one permanent sealant in the last 3 years.

### Percent of Medicaid-Enrolled Children who Received a Permanent Sealant in the Last 3 years



\*Significantly different from the rest of Vermont.

Data Source: Medicaid Claims Data

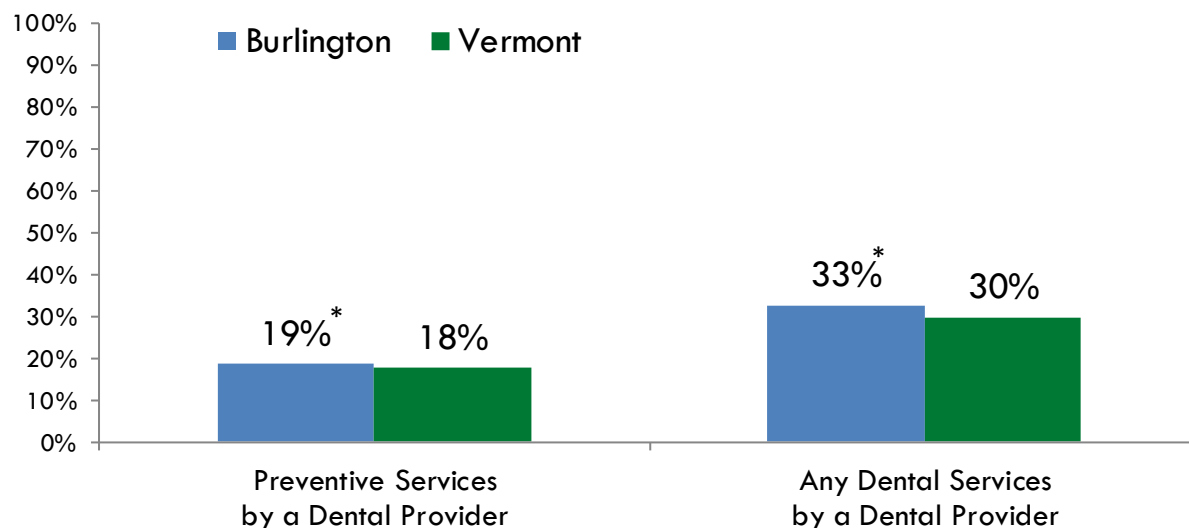
These data only include children who were Medicaid-enrolled for at least 95% of the time in the three years. About 27% of Burlington 9-year-olds and 27% of Burlington 14-year-olds are represented in these data.

# Access to Care: Dental Services Among Medicaid-Enrolled Adults Aged 21-64

33% of Burlington Medicaid-enrolled adults aged 21-64 received any dental services by a dental provider in 2017. This is significantly higher than the rest of Vermont.

*The Healthy Vermonters 2020 goal for the percent of people age 18+ who use the dental care system each year is 85%.*

## Percent of Medicaid-Enrolled Vermonters Aged 21-64 Receiving Preventive Dental Services and Any Dental Services in 2017



Data Source: Medicaid Claims Data

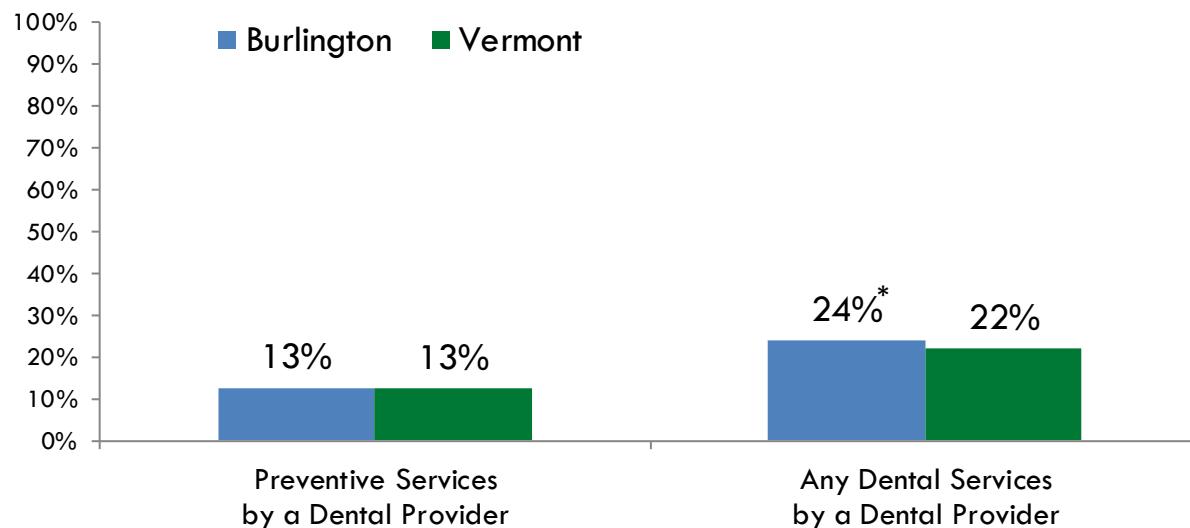
\* Significantly different from the rest of Vermont.

# Access to Care: Dental Services Among Medicaid-Enrolled Adults Aged 65+

24% of Burlington Medicaid-enrolled adults aged 65+ received any dental services by a dental provider in 2017. This is significantly higher than the rest of Vermont.

*The Healthy Vermonters 2020 goal for the percent of people age 18+ who use the dental care system each year is 85%.*

### Percent of Medicaid-Enrolled Vermonters Aged 65+ Receiving Preventive Dental Services and Any Dental Services in 2017



Data Source: Medicaid Claims Data

\*Significantly different from the rest of Vermont.



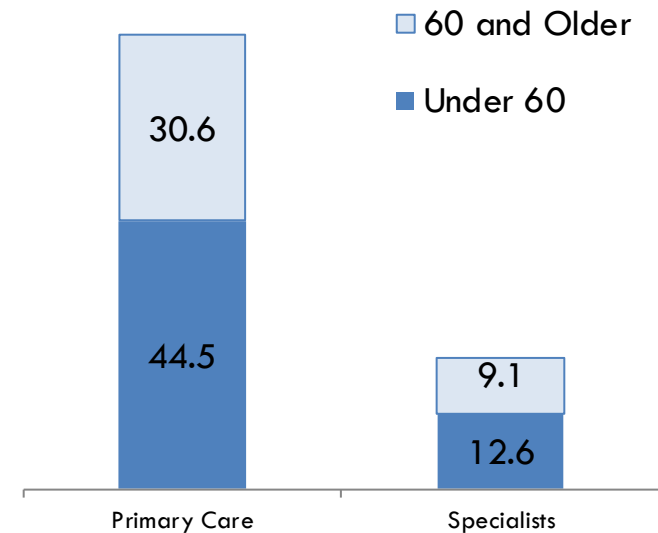
# 2017 Dentist Census

- ❑ Completed with license renewal August-September 2017.
- ❑ Self-reported data.
- ❑ The final response rate was 100%.
- ❑ Included in this report are dentists who provide patient care in Vermont.
- ❑ 14 dentists who reported fewer than 2 patient care hours per week on the average were excluded.

# Access to Care – Oral Health Care Providers

- In 2017 in Burlington, there were 75.1 full-time equivalent (FTE) primary care dentists and 21.7 full-time equivalent specialists.
  - ▣ Primary care dentists include general practice and pediatric dentistry.
  - ▣ Specialist dentists in Burlington include:
    - oral surgery (6.9 FTE),
    - endodontics (2.6 FTE),
    - orthodontics (6.7 FTE),
    - periodontics (3.5 FTE),
    - prosthodontics (1.1 FTE), and
    - and other specialties (1.0 FTE).

## Full-Time Equivalent Dentists by Specialty and Age in Burlington (2017)



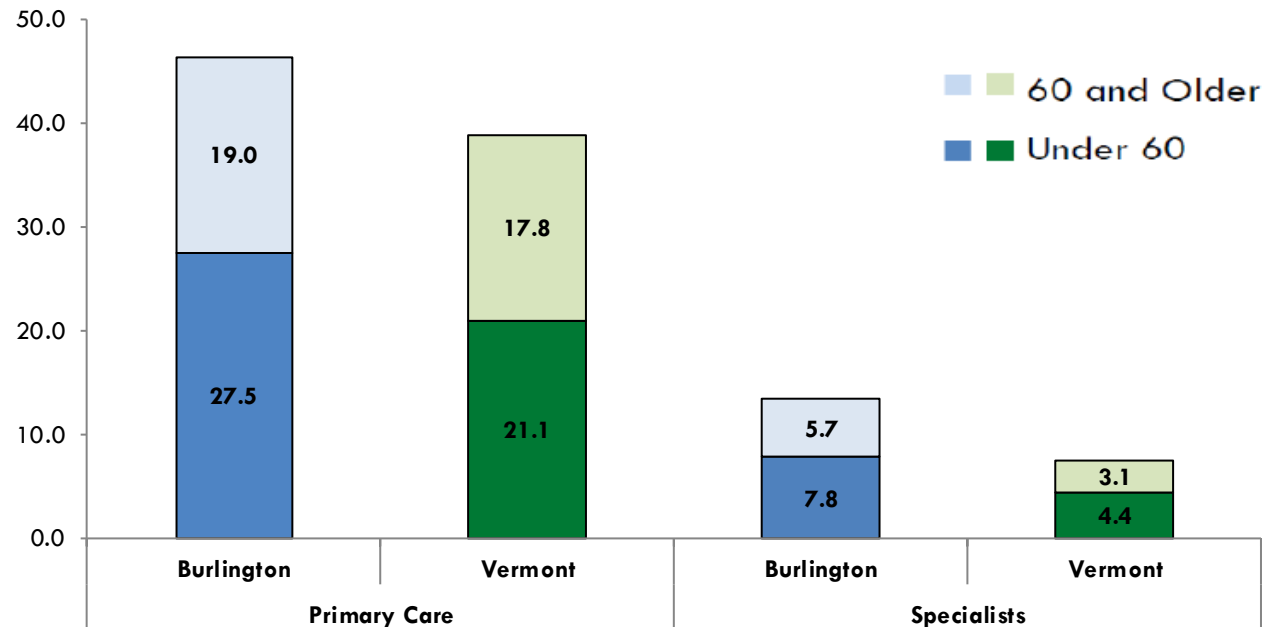
*Data Source: 2017 Dentist Census  
Percentages by specialty and age are rounded, but the overall total takes into account the full percentages.*

# Access to Care – Oral Health Care Providers

In 2017, Burlington had a higher ratio of:

- primary care dentists per residents (46.5) compared to the state (38.9).
- specialist dentists per residents (13.5) compared to the state (7.5).

**Primary Care Dentists and Specialists Full-Time Equivalency per 100,000 Residents by Age of Dentists (2017)**



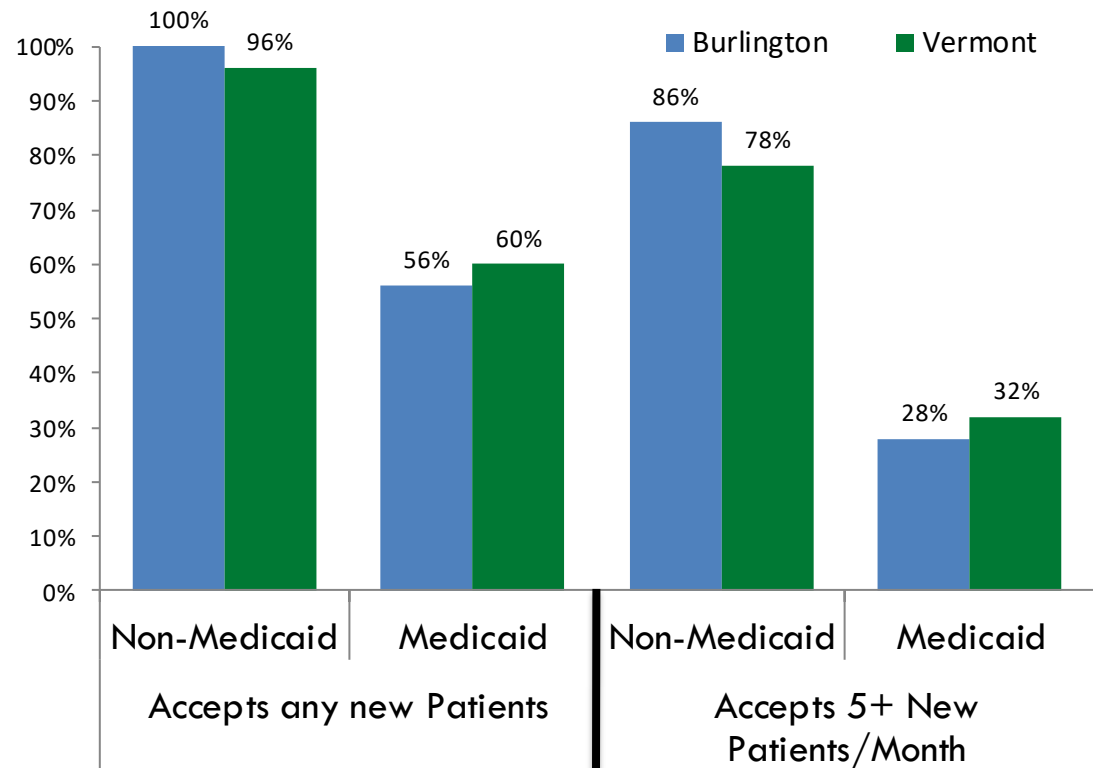
Data Source: 2017 Dentist Census

Ratios by specialty and age are rounded, but the overall total takes into account the full ratios.

# Access to Care – Primary Care Dentists Accepting New Patients

- In 2017, 100% of primary care dentists in Burlington were accepting new non-Medicaid patients and 56% were accepting new Medicaid patients.
- In 2017, 86% of primary care dentists in Burlington were accepting 5 or more new non-Medicaid patients a month, but only 28% were accepting 5 or more new Medicaid patients a month, which is lower than Vermont's percentage.
- The Community Health Centers of Burlington provides dental care.

**Percent of Primary Care Dentists Accepting New Patients in 2017**

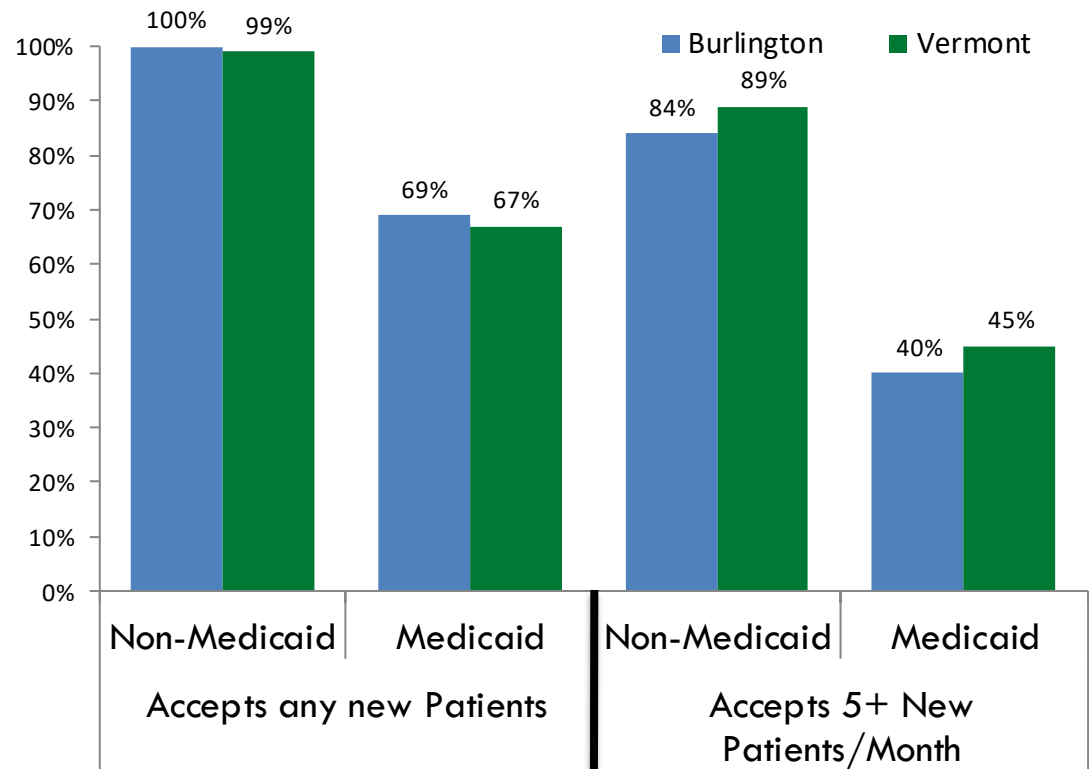


Data Source: 2017 Dentist Census

# Access to Care – Specialist Dentists Accepting New Patients

- In 2017, 100% of specialist dentists in Burlington were accepting new non-Medicaid patients and 69% were accepting new Medicaid patients.
- In 2017, 84% of specialist dentists in Burlington were accepting 5 or more new non-Medicaid patients a month, but only 40% were accepting 5 or more new Medicaid patients a month, which is lower than Vermont's percentage.

**Percent of Specialist Dentists Accepting New Patients in 2017**



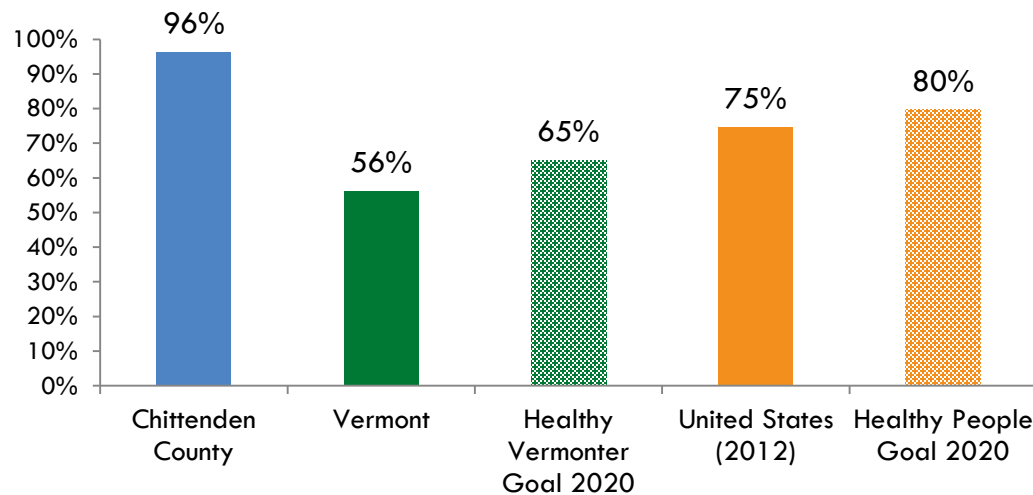
Data Source: 2017 Dentist Census

# Water Fluoridation Reporting System (WFRS)

- An online tool that helps states manage the quality of their water fluoridation programs.
- Helps describe the percentage of the U.S. population on community water systems who receive 0.70 ppm optimally fluoridated drinking water.
  - ▣ A community water system is a public water system that supplies water to the same population year-round.
- WFRS monitors the number and quality of water fluoridation systems, as well as the state population on public water supply systems.
- This system was developed by CDC in partnership with the Association of State and Territorial Dental Directors (ASTDD).

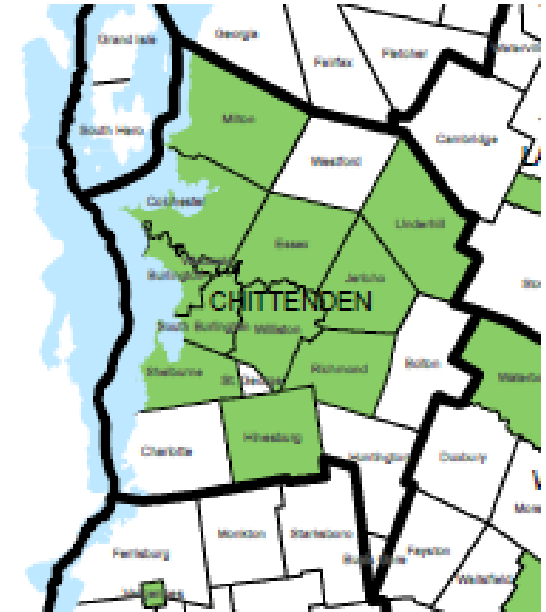
# Community Water Fluoridation

**Percent of the Population Served by Community Public Water Systems that Have Optimally Fluoridated Water (2015)**



Data source: Water Fluoridation Reporting System

96% of Chittenden County's population served by community public water systems have optimally fluoridated water. Chittenden exceeds Vermont's percentage and the Healthy Vermonters 2020 goal of 65%.



## Vermont Towns:

### Fluoridation Status (Jan. 2015)

- Community Water Fluoridation
- No Community Water Fluoridation

# Youth Risk Behavior Survey (YRBS)

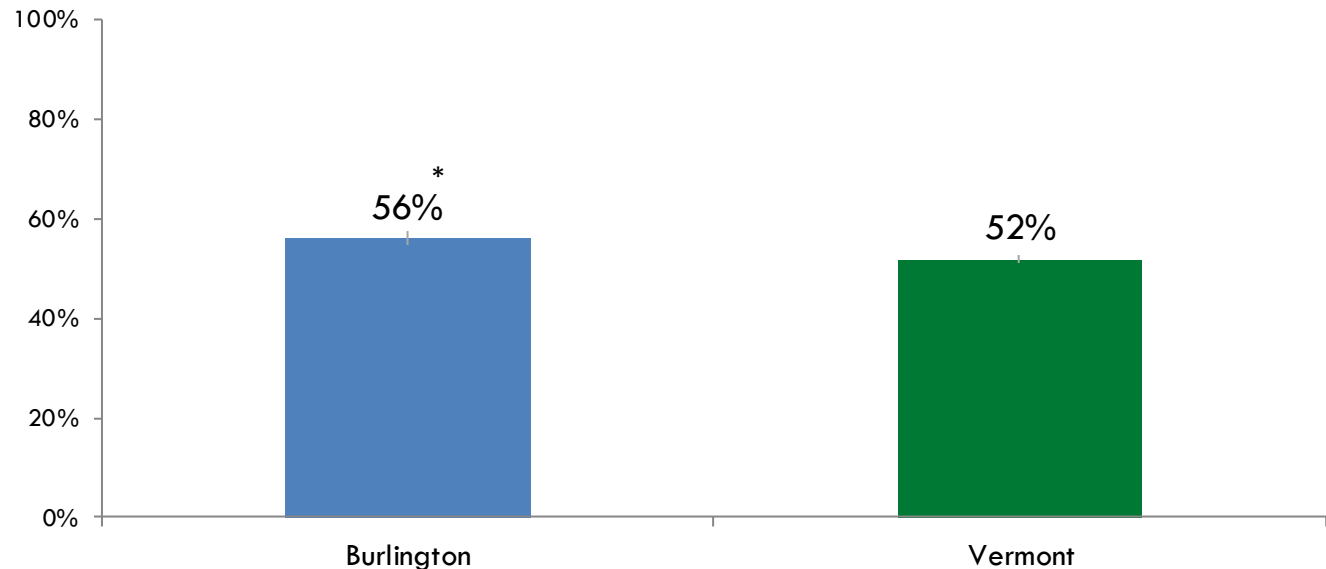
- A paper survey administered in Vermont middle and high schools every two years since 1993.
- The YRBS measures the prevalence of behaviors that contribute to the leading causes of death, disease, and injury among youth.
- Vermont surveys over 30,000 students at each administration.
- Weighted data is compiled to generate a representative state sample.



# Water Consumption Among High School Students (YRBS)

56% of Burlington area students in grades 9-12 reported drinking three or more bottles or glasses of water per day during the previous week. This is significantly higher than the percentage for Vermont.

**Percent of Students in Grades 9-12 who Drank Three or More Bottles or Glasses of Water Per Day in the Past Week (2017)**



Data Source: Youth Risk Behavior Survey (YRBS)  
\*Significantly different from the state of Vermont.

# Risk Factors

## Indicators

- ❑ Sugar-sweetened beverages
- ❑ Use of snuff/dip

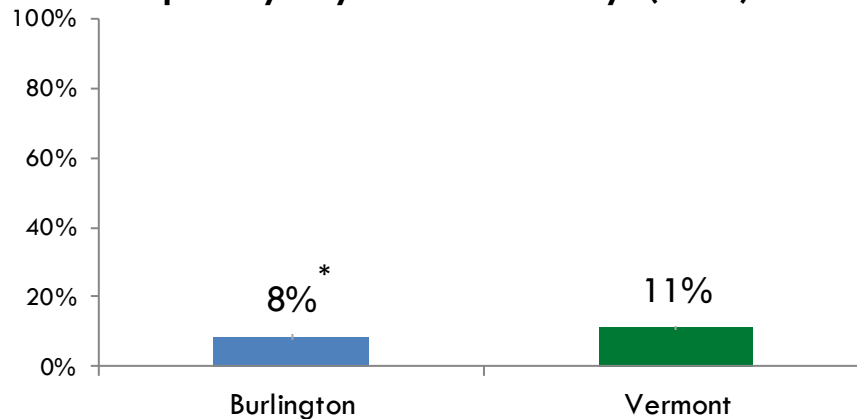
## Data Sources

- ❑ Youth Risk Behavior Survey (YRBS)

# Risk Factors – Sugar-sweetened Beverage Consumption Among High School Students (YRBS)

**8% of Burlington area students in grades 9-12 drank at least one soda daily. This is significantly lower than the percentage for Vermont.**

**Percent of Students in Grades 9-12 who Reported Drinking at Least One Can, Bottle, or Glass of Soda or Pop Every Day in the Past 7 days (2017)**



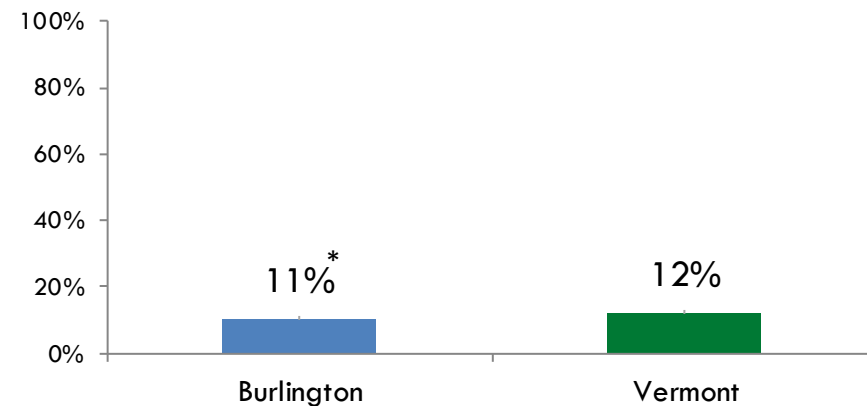
Data Source: Youth Risk Behavior Survey (YRBS)

\*Significantly different from Vermont.

NOTE: The question instructed students not to include diet soda or pop.

**11% of Burlington area students in grades 9-12 drank at least one sugar-sweetened beverage daily (not including soda). This is significantly lower than the percentage for Vermont.**

**Percent of Students in Grades 9-12 who Drank a Can, Bottle or Glass of a Sugar-sweetened Beverage (Not including Soda) Every Day in the past 7 Days (2017)**



Data Source: Youth Risk Behavior Survey (YRBS)

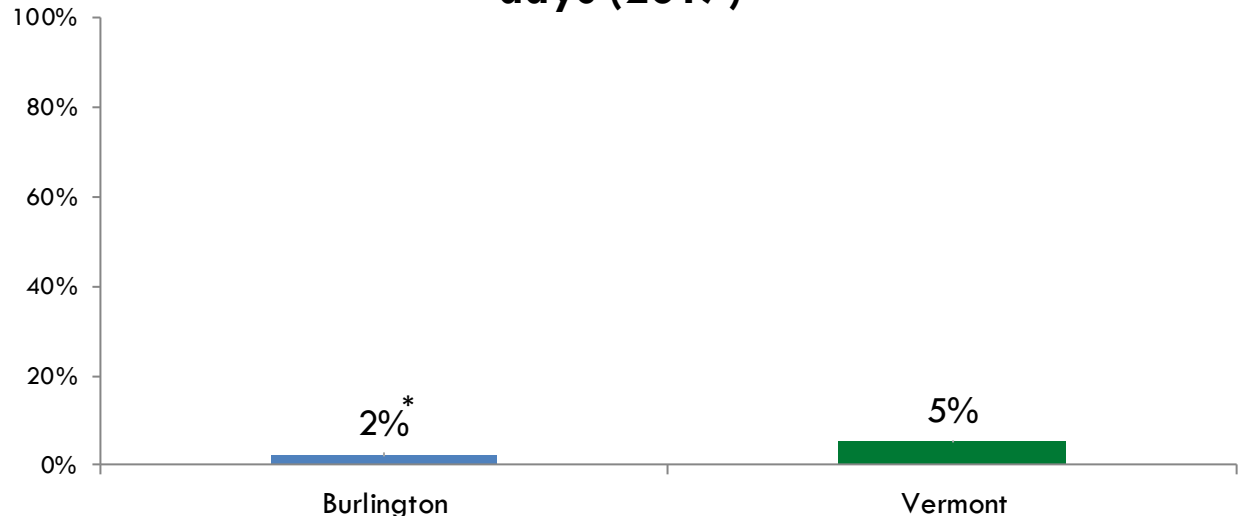
\*Significantly different from Vermont.

NOTE: The question instructed students not to include soda or pop, diet drinks, or 100% fruit juice.

# Risk Factors – Smokeless Tobacco Use Among High School Students (YRBS)

2% of Burlington area students in grades 9-12 reported using smokeless tobacco products during the past 30 days. This is significantly lower than the percentage for Vermont. Smokeless tobacco products include chewing tobacco, snuff, dip, snus, or dissolvable tobacco products.

**Percent of Students in Grades 9-12 who Used Smokeless Tobacco Products During the Past 30 days (2017)**



Data Source: Youth Risk Behavior Survey (YRBS)

\*Significantly different from the state of Vermont.

# Oral Health Outcomes

## Indicators

- ❑ Tooth loss
- ❑ Treated for extractions, endodontics or restorations
- ❑ Emergency Department visits

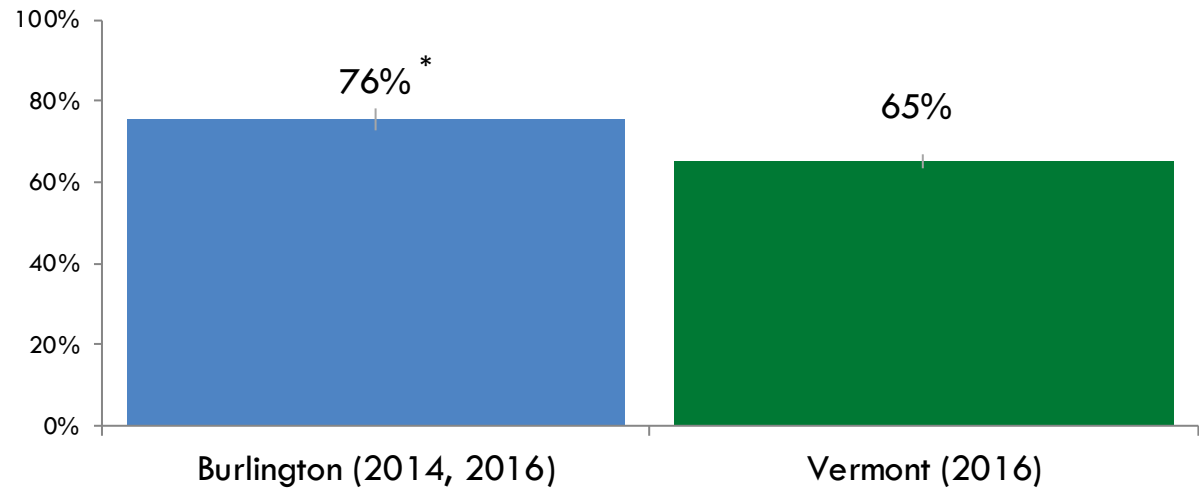
## Data Sources

- ❑ Behavioral Risk Factor Surveillance Survey (BRFSS)
- ❑ Medicaid claims
- ❑ Vermont Uniform Hospital Discharge Data Set (VUHDDS)

# Oral Health Outcomes: No Teeth Lost Among Adults Aged 18-64 (BRFSS)

76% of Burlington area adults aged 18-64 did not have any tooth loss due to tooth decay or gum disease, in 2014 and 2016. This is significantly better than the state percentage.

**Percent of Adults Aged 18-64 With No Teeth Lost**

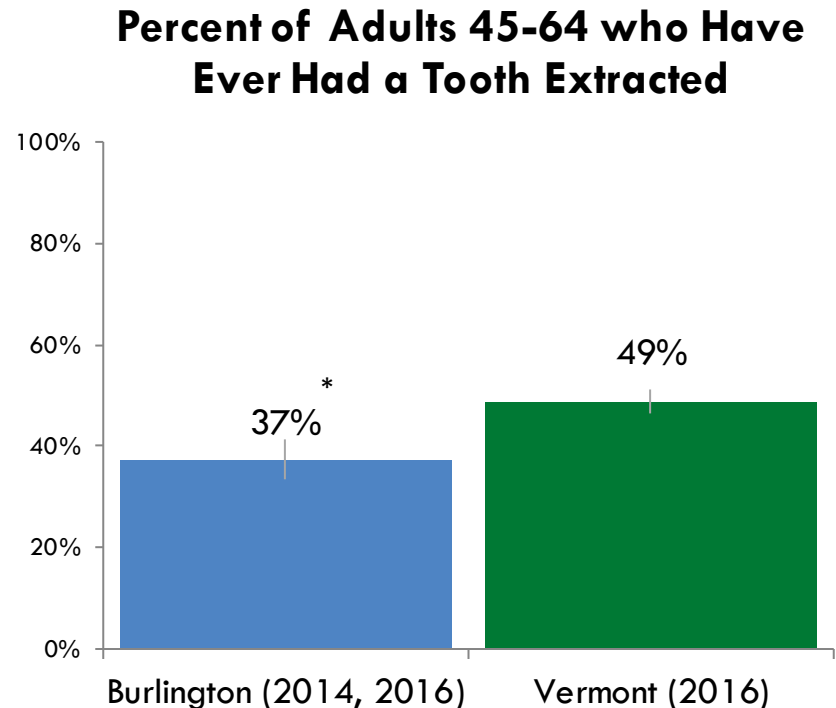


Data Source: Behavioral Risk Factor Surveillance System (BRFSS)

\*Significantly different from Vermont.

# Healthy Vermonters 2020 Goal: Tooth Loss Among Adults Aged 45-64 (BRFSS)

- 37% of Burlington area adults aged 45-64 have had a tooth extracted due to tooth decay or gum disease, in 2014 and 2016.
  - ▣ Burlington is significantly better than Vermont.
- *The Healthy Vermonters 2020 goal for the percent of adults age 45-64 who have ever had a tooth extracted because of dental caries or periodontal disease is 45%.*

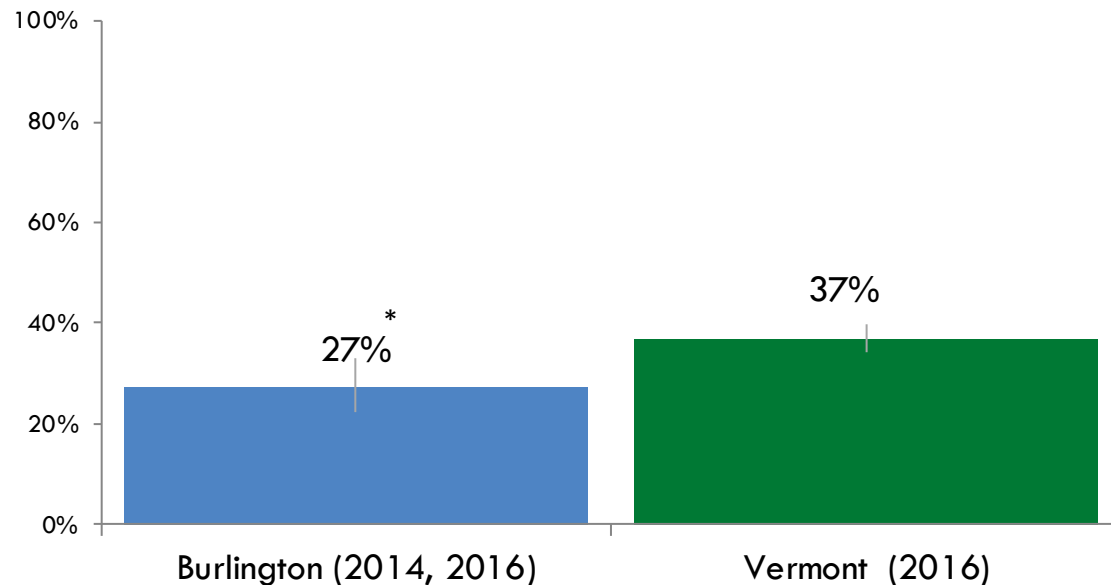


Data Source: Behavioral Risk Factor Surveillance System (BRFSS)  
\*Significantly different from Vermont.

# Oral Health Outcomes: Six or More Teeth Lost Among Adults Aged 65+ years (BRFSS)

27% of Burlington area adults 65 and older have lost six or more teeth due to tooth decay or gum disease. This is significantly better than the state percentage.

### Adults 65 and Older who Have Lost Six or More Teeth



Data Source: Behavioral Risk Factor Surveillance System (BRFSS)

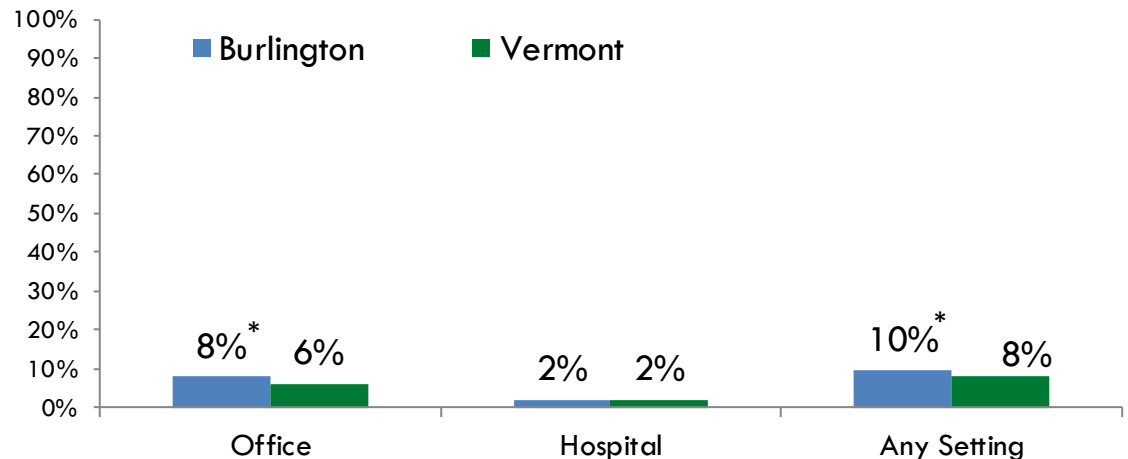
\*Significantly different from the state of Vermont.



# Oral Health Outcomes: Medicaid-Enrolled Children Aged 1-5 Treated for Extractions, Endodontics or Restorations

For Burlington area children, in 2017, 353 (10%) Medicaid-enrolled children aged 1-5 years were treated for extractions, endodontics or restorations. Of those children, 22% were treated in a hospital setting. The percentage of children receiving treatment is significantly higher than the rest of Vermont.

**Percent of Medicaid-Enrolled Vermonters Aged 1-5 Treated for Extractions, Endodontics or Restorations by Setting in 2017**



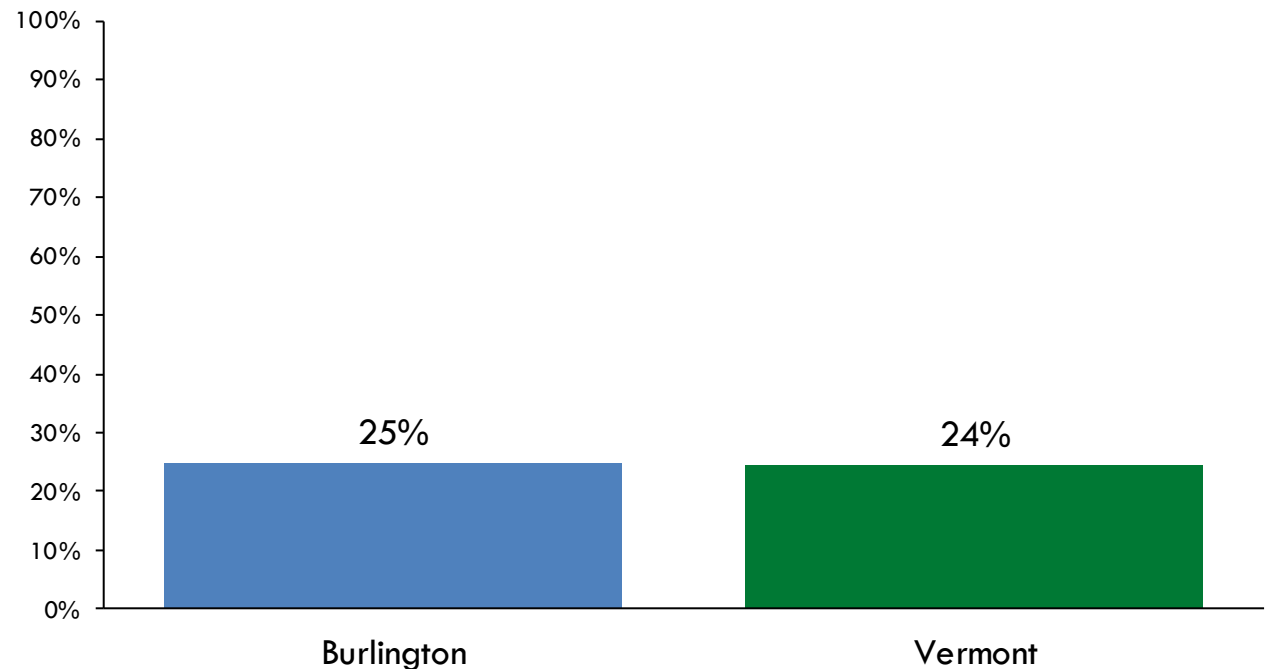
Data Source: Medicaid Claims Data

\*Significantly different from the rest of Vermont.

# Oral Health Outcomes: Medicaid-Enrolled Vermonters Aged 6-20 Treated for Extractions, Endodontics or Restorations

In 2017, 25% of Burlington Medicaid-enrolled Vermonters aged 6-20 years were treated for extractions, endodontics or restorations.

**Percent of Medicaid-Enrolled Vermonters Aged 6-20 Treated for Extractions, Endodontics or Restorations in 2017**

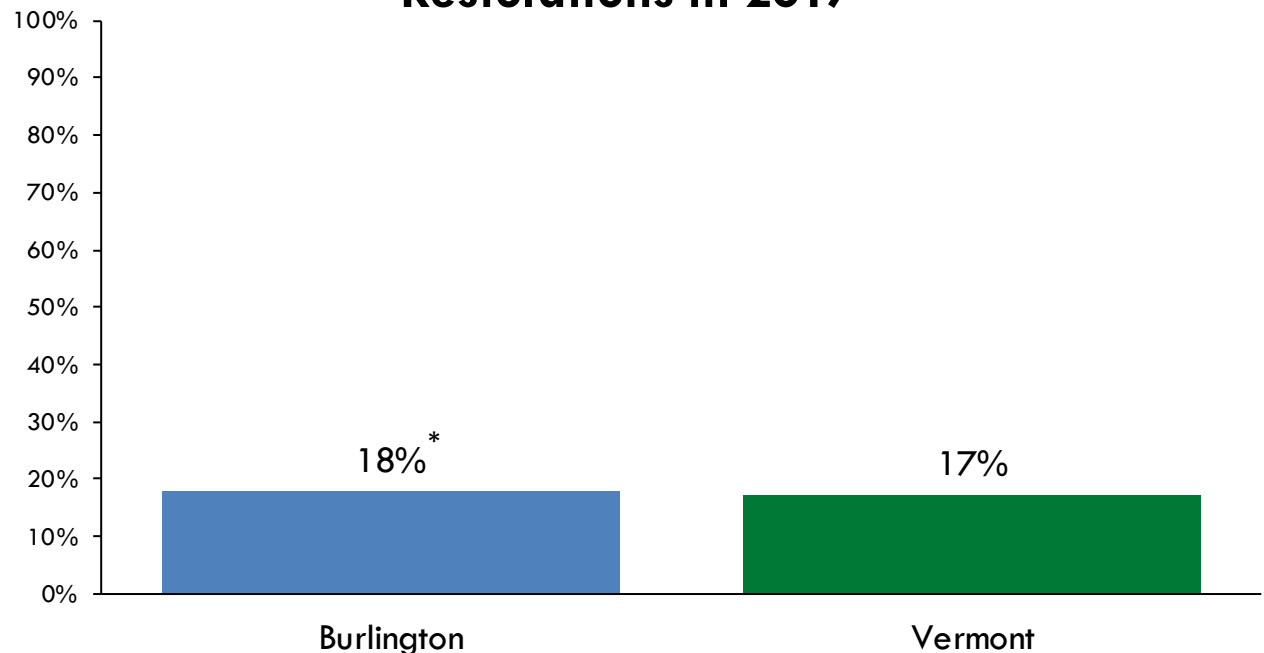


Data Source: Medicaid Claims Data

# Oral Health Outcomes: Medicaid-Enrolled Adults Aged 21-64 Treated for Extractions, Endodontics or Restorations

For Burlington area Vermonters, in 2017, 18% of adults aged 21-64 years were treated for extractions, endodontics or restorations. This is significantly higher than the rest of Vermont.

## Percent of Medicaid-Enrolled Vermonters Aged 21-64 Treated for Extractions, Endodontics or Restorations in 2017



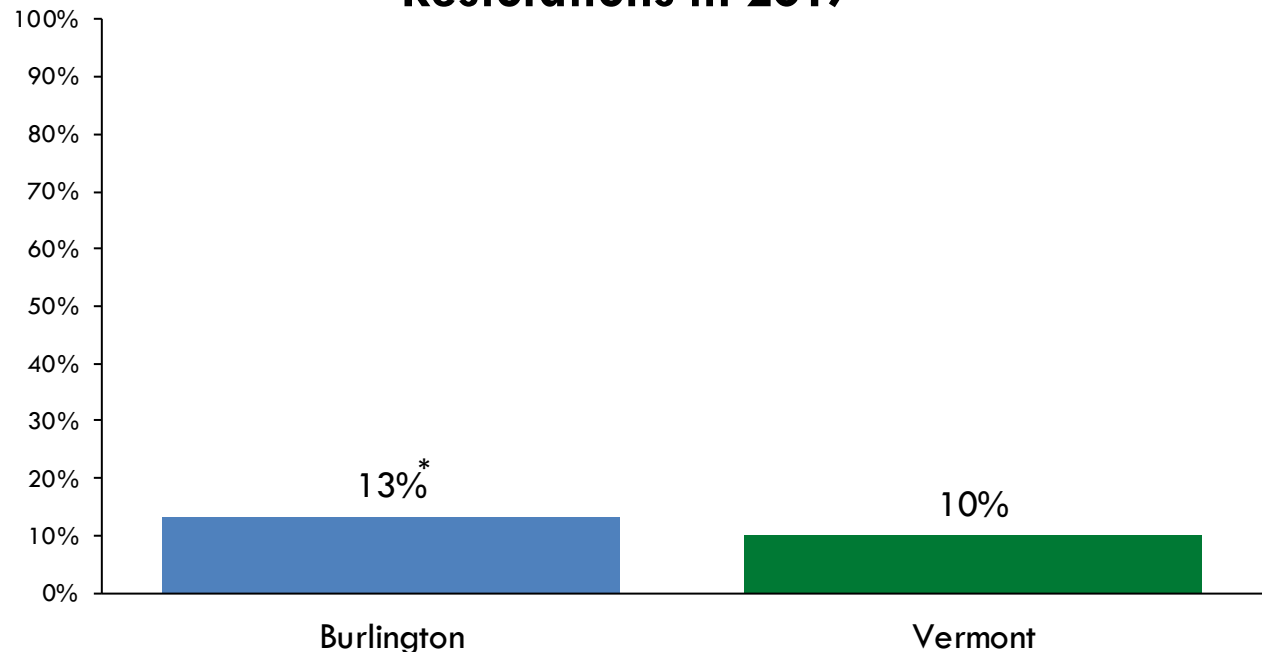
Data Source: Medicaid Claims Data

\* Significantly different from the rest of Vermont.

# Oral Health Outcomes: Medicaid-Enrolled Adults Aged 65+ Treated for Extractions, Endodontics or Restorations

For Burlington area Vermonters, in 2017, 13% of Medicaid-enrolled adults aged 65+ years were treated for extractions, endodontics or restorations. This is significantly higher than the rest of Vermont.

## Percent of Medicaid-Enrolled Vermonters Aged 65+ Treated for Extractions, Endodontics or Restorations in 2017



Data Source: Medicaid Claims Data

\*Significantly different from the rest of Vermont.

# Oral Health Outcomes: General Assistance Vouchers

In State Fiscal Year 2018, 190 Burlington area residents utilized General Assistance Vouchers for dental services, for a total of \$114,672.

	<b>Number of Individuals</b>	<b>Total Amount Paid</b>	<b>Average Paid per Individual</b>
Burlington	190	\$114,672	\$604
Vermont	1,450	\$1,057,717	\$729

*Data Source: Medicaid Claims Data*

# Vermont Uniform Hospital Discharge Data Set (VUHDDS)

- VUHDDS includes hospital discharge data from hospitals in Vermont, New Hampshire, Massachusetts, and New York. However, New Hampshire data for 2010-2013 were not available at the time of this report.
  - Historically, the percent of CCS 136 Emergency Department visits that occurred in New Hampshire hospitals was 10% for all Vermonters and 0% for Burlington area residents (based on the average percentage from 2005-2009).
- VUHDDS data are based on visits and not people. A person who is seen in the emergency department for disorders of teeth and jaw more than once in a year will be counted each time as a separate visit.
- These data only include those who sought care, and does not include those who needed care but did not seek care.

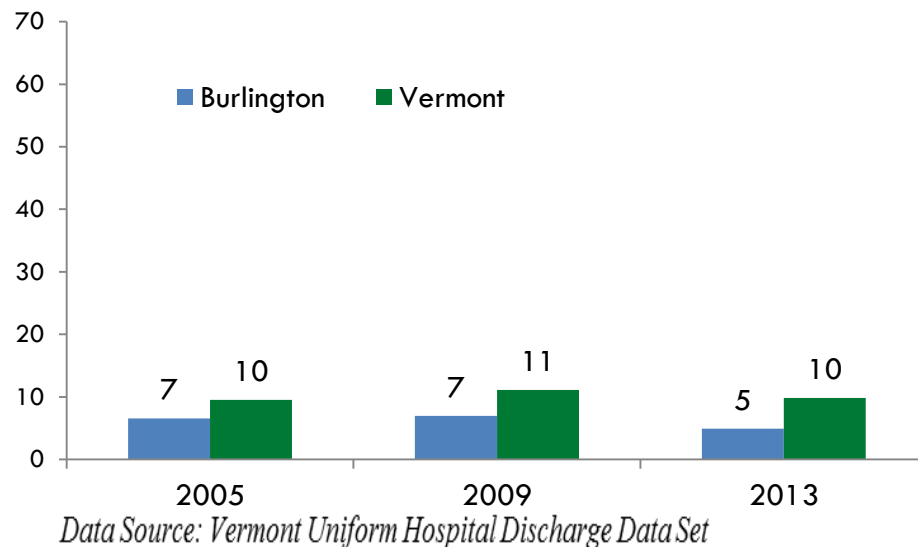
# Oral Health Outcomes: Emergency Department Visits

For Emergency Department Visits for Disorders of Teeth and Jaw:

- The rate of visits has remained fairly steady for all Vermonters, including Burlington-area residents.
- Burlington had a lower rate (5 visits per 1,000 residents) than Vermont (10 visits per 1,000 residents) in 2013.

	Number of Visits		
	2005	2009	2013
<b>Burlington</b>	1,001	1,086	786
<b>Vermont</b>	5,903	6,944	6,155

**Rate of Emergency Department Visits for Disorders of Teeth and Jaw per 1,000 Residents (2005, 2009, 2013)\***

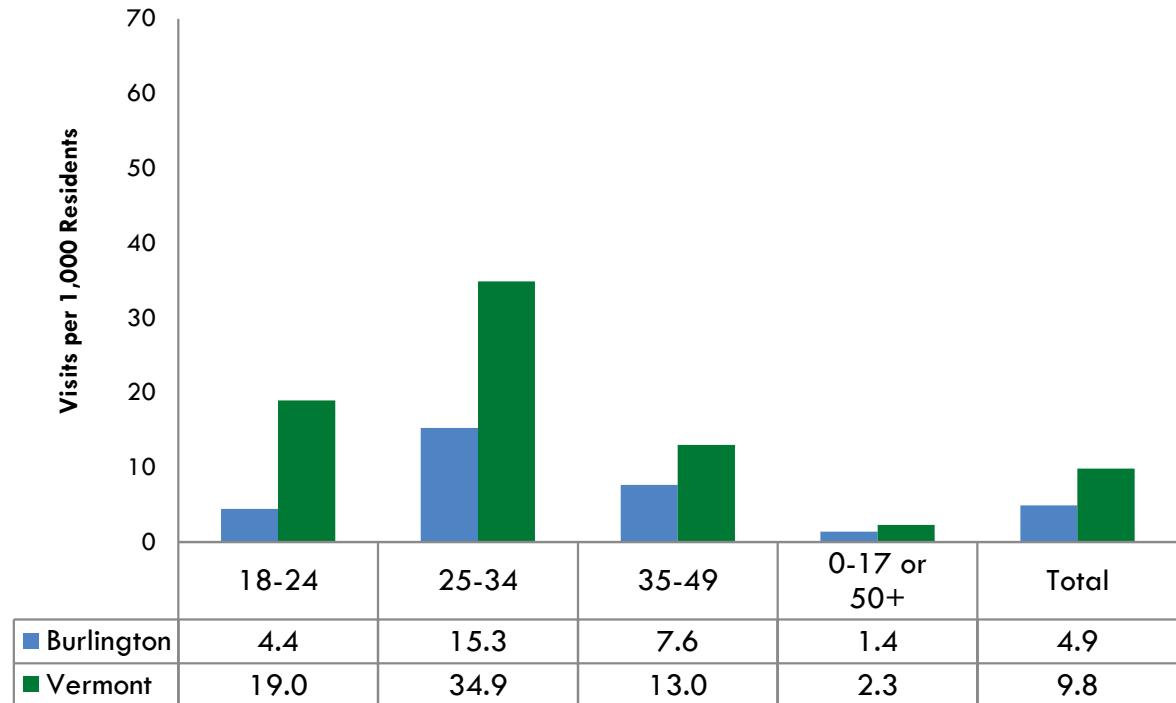


\* New Hampshire data for 2010-2013 are not available at the time of this report.

# Oral Health Outcomes: Emergency Department Visits

The rate of Emergency Department visits for Disorders of Teeth and Jaw per 1,000 residents are highest for 25-34 year-olds. The second highest rate for Burlington residents is 35-49 year olds, while the second highest rate for Vermonters is 18-24 year-olds.

**Emergency Department Visits for Disorders of Teeth and Jaw per 1,000 Residents by Age Group (2013)\***



Data Source: Vermont Uniform Hospital Discharge Data Set

\* New Hampshire data for 2010-2013 are not available at the time of this report.



# Oral Health Outcomes: Emergency Department Visits

Visits by 25-34 year-olds comprised 42% of all ED visits for disorders of Teeth and Jaw for Burlington area residents, but this age group represents only 14% of Burlington's population.

## Number and Percent of Emergency Department Visits for Disorders of Teeth and Jaw by Age Group for Burlington Area Residents (2013)\*

<b>Age Group</b>	<b># of Emergency Department Visits for Disorders of Teeth and Jaw for Burlington Area Residents</b>	<b>% of Total Emergency Department Visits for Disorders of Teeth and Jaw for Burlington Area Residents</b>	<b>% of Burlington area population in this age group</b>
<b>18-24</b>	113	14%	16%
<b>25-34</b>	332	42%	14%
<b>35-49</b>	226	29%	19%
<b>0-17 or 50+</b>	115	15%	52%
<b>Total</b>	786	100%	100%

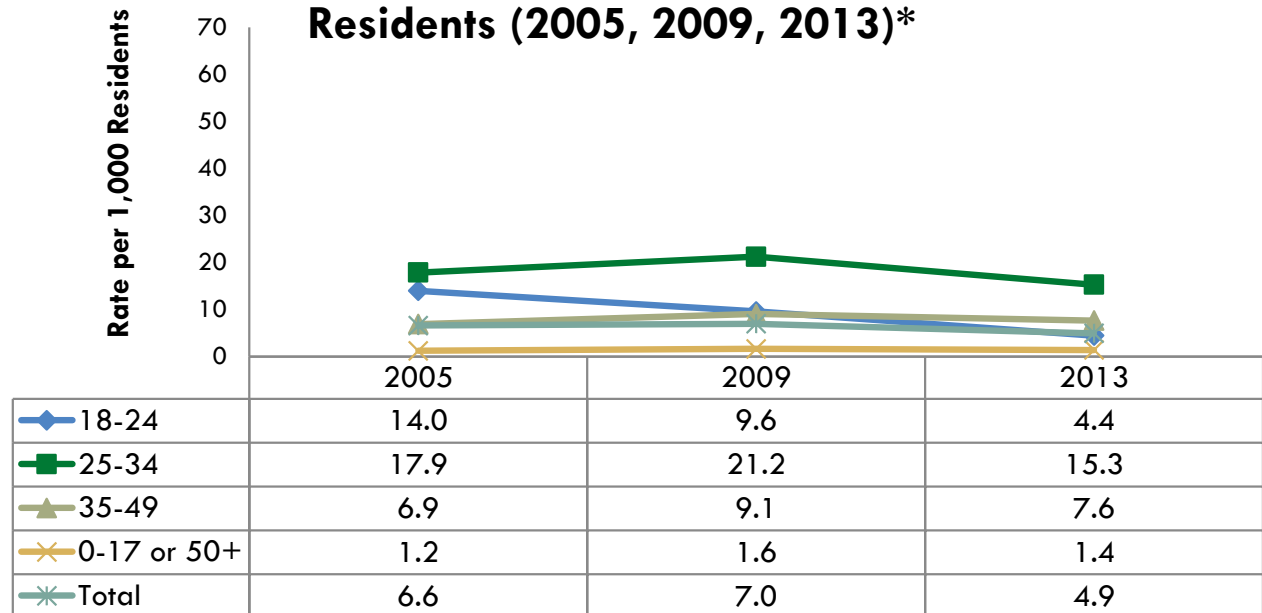
*Data Source: Vermont Uniform Hospital Discharge Data Set*

\* New Hampshire data for 2010-2013 are not available at the time of this report.

# Oral Health Outcomes: Emergency Department Visits

From 2005 to 2013, the rate of Emergency Department visits for Disorders of Teeth and Jaw per 1,000 Burlington area residents decreased for 18-24 year-olds.

**Rate of Emergency Department Visits for Disorders of Teeth and Jaw per 1,000 Burlington Area Residents (2005, 2009, 2013)\***



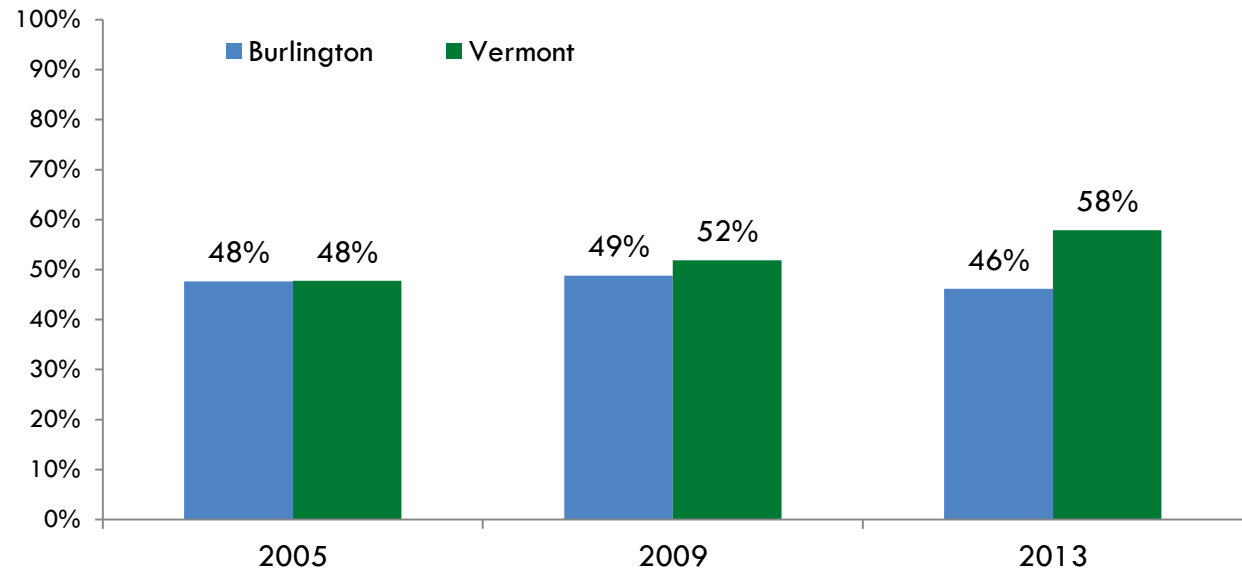
Data Source: Vermont Uniform Hospital Discharge Data Set

\* New Hampshire data for 2010-2013 are not available at the time of this report.

# Oral Health Outcomes: Emergency Department Visits

For Emergency Department Visits for Disorders of Teeth and Jaw, the percent of visits where Medicaid was listed as their primary payer has increased from 2005 to 2013 in Vermont, but has remained below 50% for Burlington area residents.

**Percent of Emergency Department Visits for Disorders of Teeth and Jaw with Primary Payer listed as Medicaid (2005, 2009, 2013)**



*Data Source: Vermont Uniform Hospital Discharge Data Set*

\* New Hampshire data for 2010-2013 are not available at the time of this report.

# Summary

# Preventive and Access to Care

- Compared to the rest of Medicaid-enrolled Vermonters:
  - ▣ a higher percentage of Medicaid-enrolled Burlington area residents aged 0-5 and 21+ received dental care.
  - ▣ a similar percentage of Medicaid-enrolled Burlington area residents aged 6-20 received dental care.
- Less than a third of Medicaid-enrolled Burlington area adults 21+ received dental care.
- A higher percentage of Medicaid-enrolled Burlington area residents received dental sealants by their 9<sup>th</sup> birthdays, compared to the rest of Medicaid-enrolled Vermonters.

# Preventive and Access to Care

- In 2017, Burlington had a higher ratio of primary care dentists and specialists per residents, compared to the state ratio.
- A higher percentage of Burlington dentists were accepting new non-Medicaid than Medicaid patients, following a similar pattern as the state's percentages. The same pattern holds for accepting 5 or more new patients a month.

# Preventive and Access to Care

- The percent of Burlington Office of Local Health's population served by community public water systems who have optimally fluoridated water is higher than Vermont and the Healthy Vermonters 2020 goal.

# Risk Factors

- The percent of Burlington area high school students participating in the following risky behaviors is significantly lower than all Vermont high school students:
  1. consuming at least one soda daily
  2. consuming at least one other type of sugar-sweetened beverage daily
  3. using snuff/dip



# Oral Health Outcomes

- Medicaid-enrolled Burlington area residents are receiving treatment for extractions, endodontics, or restorations, including:
  - ▣ 10% of children aged 1-5 (22% of these in the hospital).
  - ▣ 25% of children aged 6-20.
  - ▣ 18% of adults aged 21-64.
  - ▣ 13% of adults aged 65+.
- In State Fiscal Year 2018, 190 Burlington area residents utilized General Assistance Vouchers for dental services, for a total of \$114,672.

# Oral Health Outcomes

- The percent of Burlington area adults who have not lost teeth is significantly better than the percent of all Vermonters.
- The rate of Emergency Department visits for disorders of teeth and jaw per 1,000 residents is lower for Burlington area residents than all Vermonters.
- Visits by 25-34 year-olds comprised 42% of all ED visits for disorders of Teeth and Jaw for Burlington area residents.

# Questions?

- For more information about the Oral Health Program at the Vermont Department of Health,
  - please go to: <http://healthvermont.gov/family/dental/services.aspx>,
  - or contact Robin Miller, RDH, MPH at [Robin.N.Miller@vermont.gov](mailto:Robin.N.Miller@vermont.gov).
- For more information about Oral Health data in Vermont, please contact:
  - Denise Kall, PhD at [Denise.Kall@vermont.gov](mailto:Denise.Kall@vermont.gov).

# Data Notes - BRFSS

- Behavioral Risk Factor Surveillance System (BRFSS) Survey Questions used in the above analyses included:
- "How long has it been since you last visited a dentist or a dental clinic for any reason? Include visits to dental specialists, such as orthodontics. [Responses: Within the past year (anytime less than 12 months), Within the past 2 years (1 year but less than 2 years), Within the past 5 years (2 years but less than 5 years ago), 5 or more years ago, and Never]"
- "How many of your teeth have been removed because of tooth decay or gum disease? Include teeth lost to infection, but do not include teeth lost for other reasons, such as injury or orthodontics. [Responses: 1 to 5, 6 or more but not all, All, and None]"
- For more information on the Behavioral Risk Factor Survey (BRFSS), please see: <http://www.healthvermont.gov/health-statistics-vital-records/population-health-surveys-data/brfss>.

# Data Notes - BRFSS

- Percentages that are significantly different are noted. If a difference is not noted, it is not significantly different.
- The 2014 and 2016 combined data for Offices of Local Health are compared to the 2016 state data.
- Confidence Intervals were used for statistical comparisons between the state and the various sub-geographies. A confidence interval represents the range in which a parameter estimate would fall, which is calculated based on the observed data. For this analysis, we used a 95% confidence interval, meaning that we are 95% confident that the true value of the parameter being examined falls within the specified confidence interval. Statistical significance is assessed by comparing the confidence intervals of different groups. If the confidence intervals from two groups, such as that for the state and a specific county, do not overlap we consider the estimates to be significantly different from one another.

# Data Notes - BRFSS

- In U.S. data, age adjustment is used for comparison of regions with varying age breakdowns. In order to remain consistent with the methods of comparison at a national level, statistics in Vermont were age adjusted. The estimates were adjusted based on the proportional age breakdowns of the standard U.S. population in 2000. For more detailed information on age adjustment visit <http://www.cdc.gov/nchs/data/statnt/statnt20.pdf>.
- Note that beginning in 2011 the CDC implemented changes to the BRFSS weighting methodology in order to more accurately represent the adult population. In 2011 and later, weights are calculated using an iterative proportional fitting (or "raking") methodology. This allows the weights to be calculated using a smaller sample size, adjusts for more demographic variables, and incorporates cell phone interview data into estimates. While these adjustments make the calculations more representative of the population, the changes in methodology also limit the ability to compare results from 2011 forward with those from previous years. The Vermont Department of Health recommends that comparisons between BRFSS data from 2011 forward and earlier years be made with caution. Statistical differences may be due to methodological changes, rather than changes in opinion or behavior.

# Data Notes – Medicaid Claims Data

- This analysis was conducted using Vermont’s Medicaid Claims data.
- The Office of Local Health is based on the recipient’s most recent residence while Medicaid-enrolled, approximated based on zip codes.
- Significant differences between Offices of Local Health and the rest of Vermont are considered significant at the .05 level using a Chi-Square test.
- For the analyses that include more than one year of data (sealants and dental services by age 2):
  - These include only Vermonters who were Medicaid-enrolled (including Medicaid Managed Care and Traditional Medicaid aid categories) for 95% of the analysis timeframe.
  - Age was calculated as of the time of their birthday in 2017.
- For all other analyses using Medicaid Claims Data (except for GA vouchers):
  - Vermonters who were Medicaid-enrolled (including Medicaid Managed Care and Traditional Medicaid aid categories) and have been continuously enrolled in Medicaid for three consecutive months were included in the analysis.
  - Age was calculated as of December 31, 2017.
- GA vouchers included any Vermonters who had paid claims within the FY.

# Data Notes – Medicaid Claims Data

## Vermonters can appear in more than one of these numbers.

<p>% of Medicaid-enrolled Vermonters who had a preventive visit</p>	<p>This includes Vermonters who had paid claims for any one of the following preventive procedure codes (CPT D0145, between D1000 and D1999, and 99188). If a Vermonter received one of these procedures more than once in this timeframe, he/she only appears in the number once.</p>
<p>% of Medicaid-enrolled Vermonters who received any dental services by a dental provider</p>	<p>This includes Vermonters who had paid dental claims for any one of the following dental procedure codes (CPT between D0120 and D9999) filed on a dental claim form (claim type L). If a Vermonter received one of these procedures more than once in this timeframe, he/she only appears in the number once.</p>
<p>% of Medicaid-Enrolled Children who Received a Permanent Sealant in the Last 3 years</p>	<p>This includes Vermonters who had a claim for a sealant on a permanent molar tooth in the last 3 years before their 9<sup>th</sup> or 14<sup>th</sup> birthday. Permanent molars are teeth numbered 2, 3, 14, 15, 18, 19, 30, 31, 1, 16, 17, 32. If a Vermonter received one of these procedures more than once in this timeframe, he/she only appears in the number once.</p>
<p>% of Medicaid-enrolled Vermonters treated for extractions, Endodontics or Restorations</p>	<p>This includes Vermonters who had paid claims for any one of the following procedures: dental restorations (CPT between D2000 and D2999), endodontic procedures (CPT between D3000 and D3999), or dental extractions (CPT between D7111 and D7250). Preventative visits are not included. If a Vermonter received one of these procedures more than once in this timeframe, he/she only appears in the number once. A Vermonter can appear in both the office percentage and the hospital percentage for dental treatment. Each visit is counted as hospital or office visit, but never both for the same date of service.</p>
<p>Number of Individuals who Utilized General Assistance (GA) Vouchers for Dental Services</p>	<p>This includes Vermonters who had paid claims within the FY for a State Category of Service Code for Dental between '0801' and '0899' and a funding source code C (General Assistance (GA) OVHA).</p>



# Data Notes - YRBS

- Youth Risk Behavior Survey (YRBS) questions used in the above analyses included:
  - "During the past 7 days, how many times did you drink a bottle or glass of plain water? (Count tap, bottled, and unflavored sparkling water.) [Responses: I did not drink water during the past 7 days; 1 to 3 times during the past 7 days; 4 to 6 times during the past 7 days; 1 time per day; E. 2 times per day; 3 times per day; 4 or more times per day]"
  - "During the past 7 days, how many times did you drink a can, bottle, or glass of soda or pop, such as Coke, Pepsi, or Sprite? (Do not count diet soda or diet pop.) [Responses: I did not drink soda or pop during the past 7 days; 1 to 3 times during the past 7 days; 4 to 6 times during the past 7 days; 1 time per day; 2 times per day; 3 times per day; 4 or more times per day]"
  - "During the past 7 days, how many times did you drink a can, bottle, or glass of a sugar-sweetened beverage such as sports drinks (for example, Gatorade or PowerAde), energy drinks (for example, Red Bull or Jolt), lemonade, sweetened tea or coffee drinks, flavored milk, Snapple, or Sunny Delight? (Do not count soda or pop or 100% fruit juice.) [Responses: I did not drink these sugars-sweetened beverages during the past 7 days; B. 1 to 3 times during the past 7 days; 4 to 6 times during the past 7 days; 1 time per day; 2 times per day; 3 times per day; 4 or more times per day]"

# Data Notes - YRBS

- Youth Risk Behavior Survey (YRBS) Questions used in the above analyses included (continued):
  - “During the past 30 days, on how many days did you use chewing tobacco snuff, dip, snus, or dissolvable tobacco products, such as Redman, Levi Garrett, Beechnut, Skoal, Skoal Bandits, Copenhagen, Camel Snus, Marlboro Snus, General Snus, Ariva, Stonewall, or Camel Orbs? (Do not count any electronic vapor products.) [Responses: 0 days; 1 or 2 days; 3 to 5 days; 6 to 9 days; 10 to 19 days; 20 to 29 days; All 30 days]”
    - NOTE: In 2017, the number of smokeless tobacco products and examples used in the question were revised to include dissolvable tobacco products and included products such as Redman, Levi Garrett, Beechnut, Skoal, Skoal Bandits, Copenhagen, Camel Snus, Marlboro Snus, General Snus, Ariva, Stonewall, or Camel Orbs. This change interrupts the smokeless tobacco use trend line. Caution should be used when comparing data from previous years.

# Data Notes - YRBS

- Confidence Intervals were used for statistical comparisons between the state and the various sub-geographies. A confidence interval represents the range in which a parameter estimate would fall, which is calculated based on the observed data. For this analysis, we used a 95% confidence interval, meaning that we are 95% confident that the true value of the parameter being examined falls within the specified confidence interval. Statistical significance is assessed by comparing the confidence intervals of different groups. If the confidence intervals from two groups, such as that for the state and a specific county, do not overlap we consider the estimates to be significantly different from one another.
- For more information on the Youth Risk Behavior Survey (YRBS) please see, [www.healthvermont.gov/yrbs](http://www.healthvermont.gov/yrbs)

# Data Notes – Dentist Census

- 100% of Vermont dentists responded to this survey. Statistical tests for significant differences were not conducted. All differences are actual differences at the time of this survey. Differences that are plus or minus 10% of the Vermont percentage are noted in the text.
- For more information on the Dentist Census, see:  
<http://healthvermont.gov/research/HlthCarePrvSrvys/HealthCareProviderSurveys.aspx>

# Data Notes - Emergency Department Visits for Disorders of Teeth and Jaw for Vermont Residents from 2009 and 2013, by Principal Diagnosis

The Primary Diagnosis Clinical Classification Software (CCS) Category 136, Disorders of Teeth and Jaw, includes the following diagnoses:

Principal Diagnosis	2009	NH data for 2013 are not available.	2013*
520: Diseases of tooth development and eruption	99		67
521: Diseases of hard tissue of teeth	1,074		1,138
522: Diseases of pulp and periapical tissues	1,616		2,026
523: Gingival and periodontal diseases	161		126
524: Dentofacial anomalies, including malocclusion	200		133
525: Other diseases and conditions of the teeth and supporting structures	3,613		2,529
526: Diseases of the jaw	181		38
78492: Jaw pain			99
<b>Total</b>	<b>6,944</b>		<b>6,156</b>
<i>Data Source: Vermont Uniform Hospital Discharge Data Set</i>			

\* New Hampshire data for 2010-2013 are not available at the time of this report. Historically, the percent of CCS 136 Emergency Department visits that occurred in New Hampshire hospitals was 10% for all Vermonters (based on the average percentage from 2005-2009), but varied by District Office.

# Data Notes - Additional Information

- For more information on the Vermont Uniform Hospital Discharge Data Set, see: <http://healthvermont.gov/research/hospital-utilization/>