

# Oral Health in Middlebury District Office and Vermont



Preventive and Access to Care, Risk Factors, and Outcomes

- Unless stated otherwise, all data are calculated for residents living within the area served by Middlebury District Office, including:
  - Addison, Bridport, Bristol, Buel's Gore, Cornwall, Ferrisburgh, Granville, Hancock, Leicester, Lincoln, Middlebury, Monkton, New Haven, Orwell, Panton, Ripton, Salisbury, Shoreham, Starksboro, Vergennes, Waltham, Weybridge, Whiting.

# Preventive and Access to Care: How many

Middlebury area residents are accessing oral health care? How many dentists are in the area? What percentage of the population on public water systems have fluoridated water?

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

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

# Preventive and Access to Care

Indicators	Data Sources
<ul> <li>Dental visits</li> <li>Number of dental providers</li> </ul>	<ul> <li>Behavioral Risk Factor</li> <li>Surveillance Survey</li> <li>(BRFSS)</li> </ul>
Dental insurance	Medicaid data
Community water	2013 Dentist Survey
fluoridation	<ul> <li>Water Fluoridation</li> <li>Reporting System (WFRS)</li> </ul>

# Behavioral Risk Factor Surveillance Survey (BRFSS)

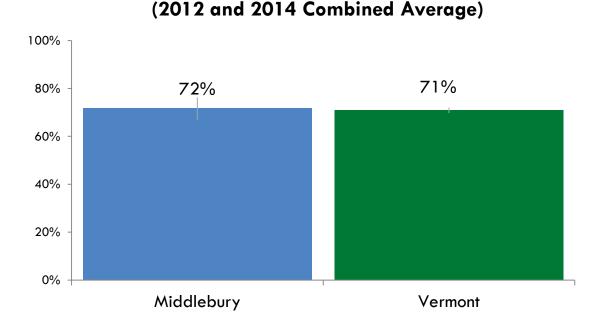
#### Telephone survey of adults

- 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 2012 and 2014 (combined average), 72% of Middlebury area adults saw their dentist for any reason during the previous year.

The Healthy Vermonters 2020 goal is 85%.



Percent of Adults Who Visited the Dentist in the Last Year

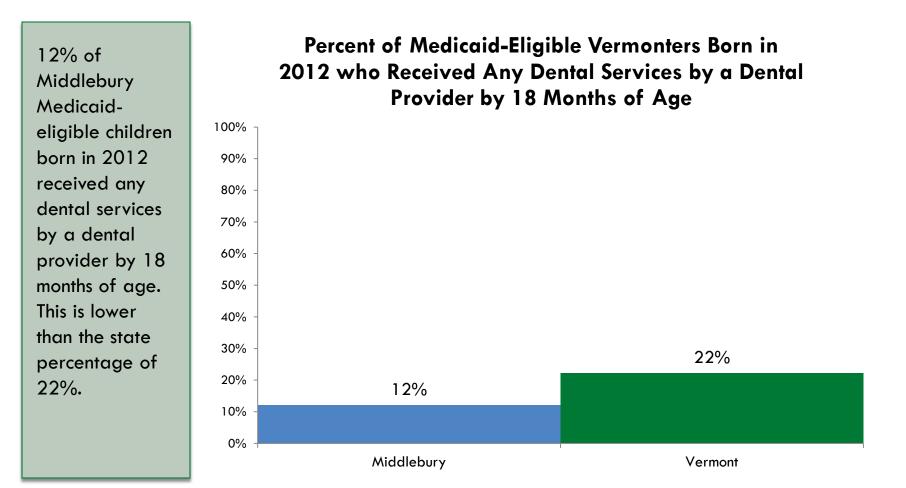
Data Source: Behavioral Risk Factor Surveillance System (BRFSS) Age-adjusted based on the proportional age breakdowns of the U.S. population in 2000.

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

# Medicaid Claims Data

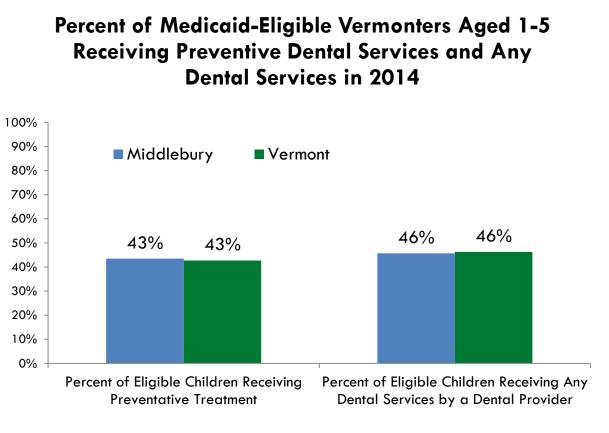
- These data are not representative of all Middlebury area residents.
  - These data only include those who sought care, and does not include those who needed care but did not seek care.
  - These data do not include those who have commercial insurance or do not have dental insurance.

### Access to Care: Dental Services Among Medicaid-Eligible Children by 18 Months of Age



# Access to Care: Dental Services Among Medicaid-Eligible Children Aged 1-5

46% of Middlebury Medicaideligible children aged 1-5 received any dental services by a dental provider in 2014.

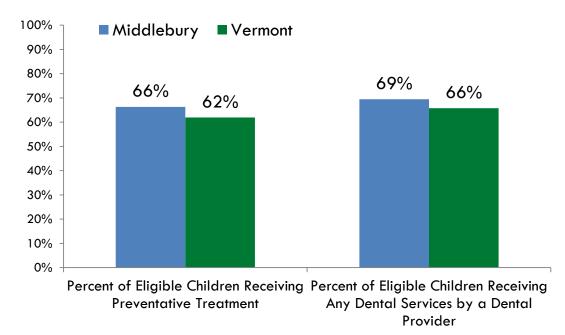


# Access to Care: Dental Services Among Medicaid-Eligible Children Aged 6-18

69% of Middlebury Medicaid-eligible children aged 6-18 received any dental services by a dental provider in 2014.

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-Eligible Vermonters Aged 6-18 Receiving Preventive Dental Services and Any Dental Services in 2014

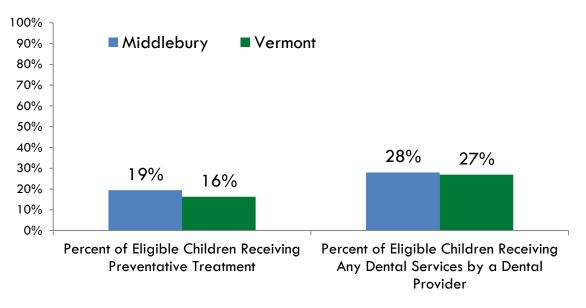


# Access to Care: Dental Services Among Medicaid-Eligible Adults Aged 19-64

28% of Middlebury Medicaid-eligible adults aged 19-64 received any dental services by a dental provider in 2014.

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



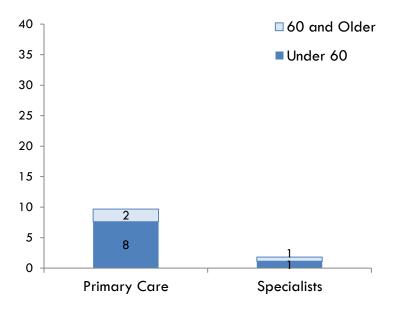


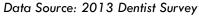
- Completed by most dentists online with the license renewal in late summer 2013.
- □ Self-reported data.
- □ Followed-up via mail and phone calls.
- $\square$  The final response rate was 99.5%.
- Included in this report are dentists who provide patient care in Vermont.
- Ten dentists who reported fewer than 2 patient care hours per week on the average were excluded.

In 2013 in Middlebury, there were 10 full-time equivalent primary care dentists and 2 full-time equivalent specialists.

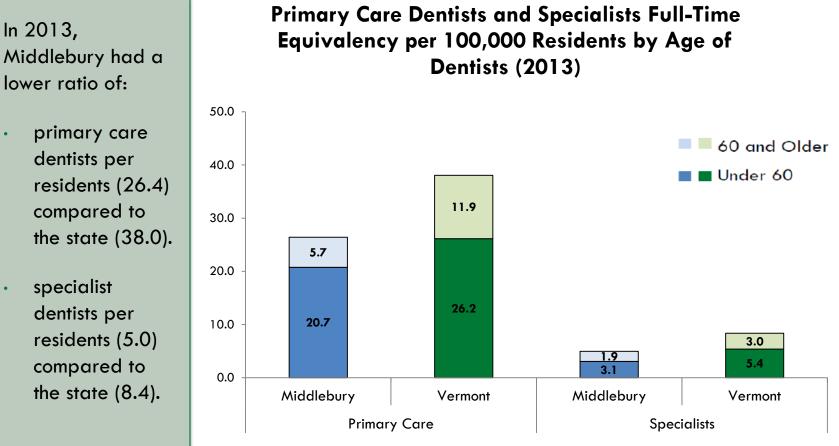
- Primary care dentists include general practice and pediatric dentistry.
- Specialist dentists include oral surgery, endodontics, orthodontics, periodontics, prosthodontics, and other specialties.

Full-Time Equivalent Dentists by Specialty and Age in Middlebury (2013)





### Access to Care – Oral Health Care Providers

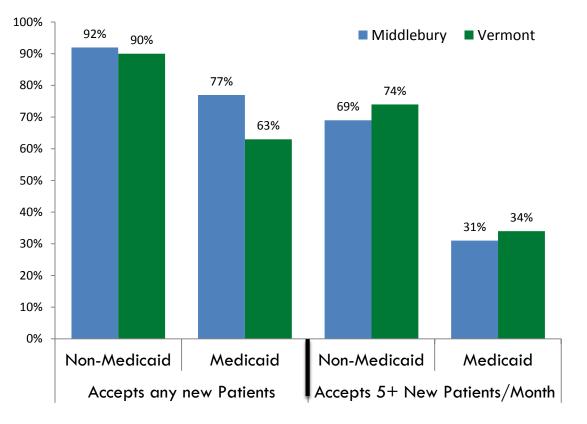


Data Source: 2013 Dentist Survey

# Access to Care – Primary Care Dentists Accepting New Patients

- In 2013, 92% of primary care dentists in Middlebury were accepting new non-Medicaid patients and 77% were accepting new Medicaid patients (both are higher percentages than Vermont).
- In 2013, 69% of primary care dentists in Middlebury were accepting 5 or more new non-Medicaid patients a month, but only 31% were accepting 5 or more new Medicaid patients a month.

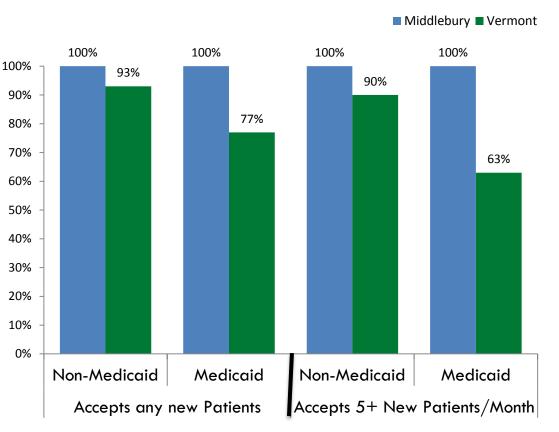




Data Source: 2013 Dentist Survey

# Access to Care – Specialist Dentists Accepting New Patients

- In 2013, 100% of specialist dentists in Middlebury were accepting new non-Medicaid patients and new Medicaid patients, including 5 or more new patients a month.
  - All percentages are higher than Vermont.



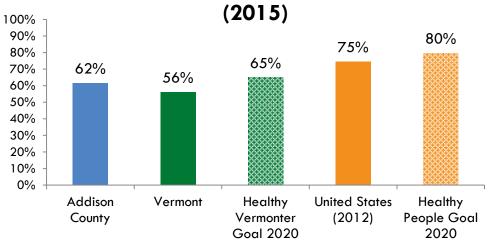
#### Percent of Specialist Dentists Accepting New Patients in 2013

# 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 Population Served by Community Public Water Systems that have Optimally Fluoridated Water



Data source: Water Fluoridation Reporting System

Sixty-two percent of Addison County's population served by community public water systems have optimally fluoridated water. Addison County's percentage is higher than Vermont, but lower than the Healthy Vermonters 2020 goal of 65%.



#### Vermont Towns:

#### Fluoridation Status (Jan. 2015)



Community Water Fluoridation

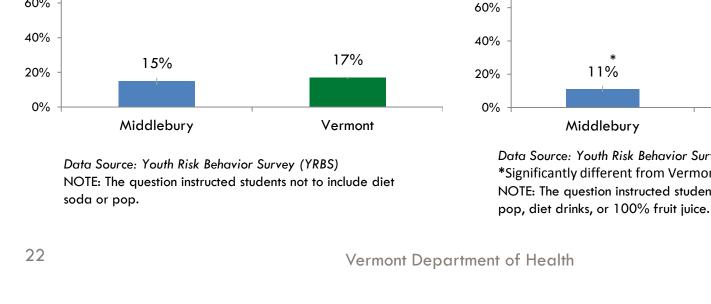


No Community Water Fluoridation

<b>Risk Factors</b>	
Indicators	Data Sources
Sugar-sweetened beverages	<ul> <li>Youth Risk Behavior</li> <li>Survey (YRBS)</li> </ul>
Use of snuff/dip	

# 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.



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

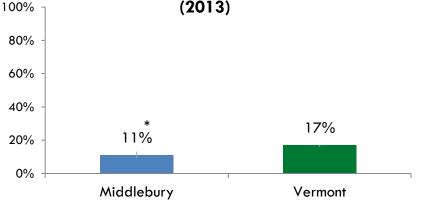
15% of Middlebury area students in grades 9-12 drank at least one soda daily.

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 (2013) 100% 80% 60%

11% of Middlebury 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 Sugarsweetened Beverage (Not including Soda) Every Day in the past 7 Days



Data Source: Youth Risk Behavior Survey (YRBS) \*Significantly different from Vermont. NOTE: The question instructed students not to include soda or

March 2016

# Risk Factors – Snuff/dip Use Among High School Students (YRBS)

Percent of Students in Grades 9-12 who Used 9% of Snuff/dip During the Past 30 days (2013) Middlebury area students 100% in grades 9-80% 12 reported using chewing 60% tobacco, snuff, or dip during 40% the past 30 20% days. 9% 8% 0% Middlebury Vermont

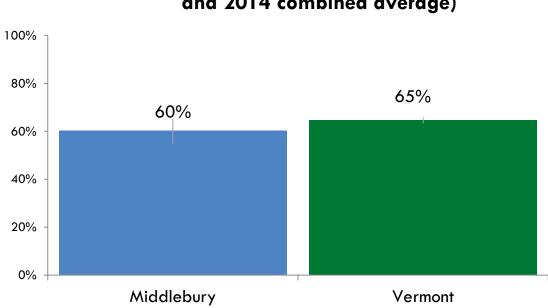
Data Source: Youth Risk Behavior Survey (YRBS)

# Oral Health Outcomes

Indicators	Data Sources
Tooth loss	Behavioral Risk Factor
Treated for	Surveillance Survey
extractions,	(BRFSS)
endodontics or	Medicaid claims
restorations	Vermont Uniform
Emergency Department	Hospital Discharge
visits	Data Set (VUHDDS)

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

60% of Middlebury area adults aged 18-64 did not have any tooth loss due to tooth decay or gum disease, in 2012 and 2014 (combined average).

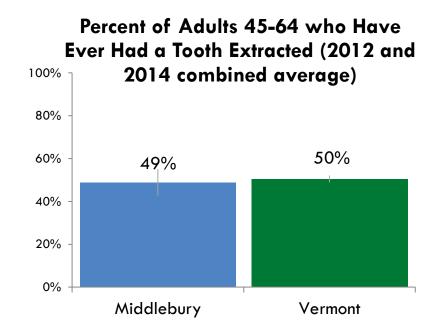


Percent of Adults Aged 18-64 With No Teeth Lost (2012 and 2014 combined average)

Data Source: Behavioral Risk Factor Surveillance System (BRFSS)

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

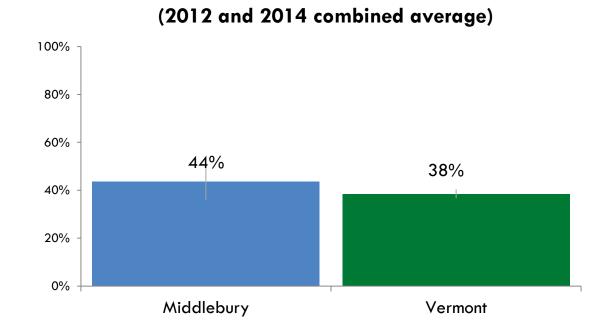
- 49% of Middlebury area adults aged 45-64 have had a tooth extracted due to tooth decay or gum disease, in 2012 and 2014 (combined average).
- The Healthy Vermonters 2020 goal for the percent of adults age 45-64 who have ever had a tooth extracted because of dental caries or periodontal disease is 45%.



Data Source: Behavioral Risk Factor Surveillance System (BRFSS)

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

44% of Middlebury area adults 65 and older have lost six or more teeth due to tooth decay or gum disease.



Adults 65 and older who have lost six or more teeth

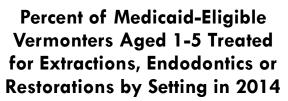
Data Source: Behavioral Risk Factor Surveillance System (BRFSS)

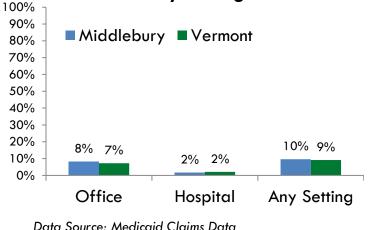
### Oral Health Outcomes: Medicaid-Eligible Children Aged 1-5 Treated for Extractions, Endodontics or Restorations

For Middlebury area children, in 2014, 87 (10%) Medicaid-eligible children aged 1-5 years were treated for extractions, endodontics or restorations. Of those children, 17% were treated in a hospital setting for a total of \$80,460 paid claims and an average of \$5,364 per visit.

Number and Percent of Medicaid-Eligible Middlebury-Area Children Aged 1-5 Treated for Extractions, Endodontics or Restorations by Setting, including Amount Paid, in 2014

Setting	# of Children	% of Medicaid- Eligible Children	Total Amount Paid	Average Paid per Child
Office	74	8%	\$39,297	\$531
Hospital	15	2%	\$80,460	\$5,364
Any	87	10%	\$119,757	\$1,377





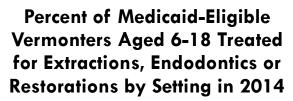
### Oral Health Outcomes: Medicaid-Eligible Children Aged 6-18 Treated for Extractions, Endodontics or Restorations

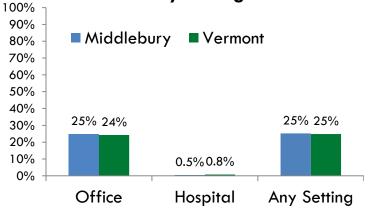
For Middlebury area children, in 2014, 628 (25%) Medicaid-eligible children aged

6-18 years were treated for extractions, endodontics or restorations.

Number and Percent of Medicaid-Eligible Middlebury-Area Children Aged 6-18 Treated for Extractions, Endodontics or Restorations by Setting, including Amount Paid, in 2014

Setting	# of Children	% of Medicaid- Eligible Children	Total Amount Paid	Average Paid per Child
Office	618	25%	\$317,709	\$514
Hospital	12	0.5%	\$ 52,550	\$4,379
Any	628	25%	\$370,258	\$590





Data Source: Medicaid Claims Data

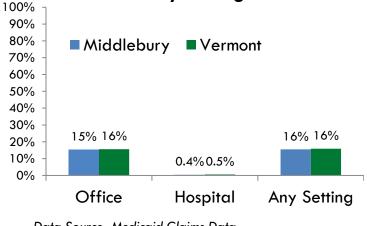
### Oral Health Outcomes: Medicaid-Eligible Adults Aged 19-64 Treated for Extractions, Endodontics or Restorations

For Middlebury area adults, in 2014, 683 (16%) Medicaid-eligible adults aged 19-64 years were treated for extractions, endodontics or restorations.

Number and Percent of Medicaid-Eligible Middlebury Area Children Aged 19-64 Treated for Extractions, Endodontics or Restorations by Setting, including Amount Paid, in 2014

Setting	# of Adults	% of Medicaid- Eligible Adults	Total Amount Paid	Average Paid per Adult
Office	678	15%	\$256,295	\$378
Hospital	18	0.4%	\$17,633	\$980
Any	683	16%	\$273,928	\$401

Percent of Medicaid-Eligible Vermonters Aged 19-64 Treated for Extractions, Endodontics or Restorations by Setting in 2014



Data Source: Medicaid Claims Data

### Oral Health Outcomes: General Assistance Vouchers

 In State Fiscal Year 2015, 48 Middlebury area residents utilized General Assistance Vouchers for dental services, for a total of \$27,899.

> Number of Individuals who Utilized General Assistance (GA) Vouchers for Dental Services, including Amount Paid, in State Fiscal Year 2015

	Number of Individuals	Total Amount Paid	Average Paid per Individual
Middlebury	48	\$27,899	\$581
Vermont	1,392	\$933,695	\$671

# 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 1% for Middlebury 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.

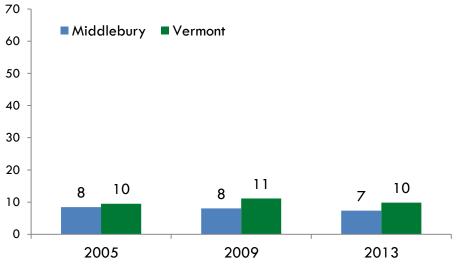
# Oral Health Outcomes: Emergency Department Visits

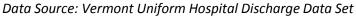
# For Emergency Department Visits for Disorders of Teeth and Jaw:

- the rate of visits has remained fairly steady for Middlebury area residents and all Vermonters.
- Middlebury had a lower rate (7 visits per 1,000 residents) than
   Vermont (10 visits per 1,000 residents) in 2013.

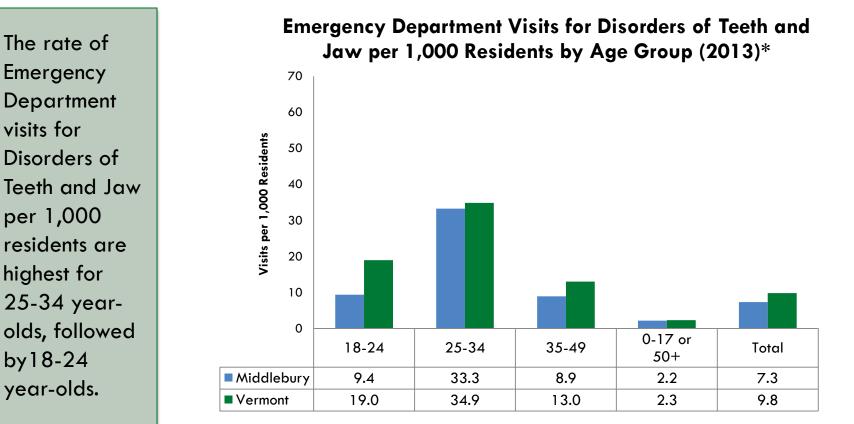
	Number of Visits				
	2005 2009 2013				
Middlebury	307	296	269		
Vermont	5,903	6,944	6,155		

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





# Oral Health Outcomes: Emergency Department Visits



Data Source: Vermont Uniform Hospital Discharge Data Set

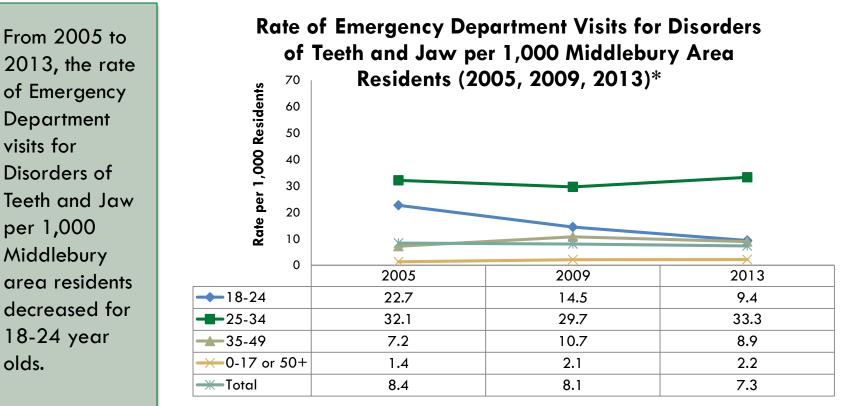
Visits by 25-34 year-olds comprised 42% of all ED visits for disorders of Teeth and law for Middlebury area residents, but this age group represents only 9% of Middlebury's population.

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

Age Group	# of Emergency Department Visits for Disorders of Teeth and Jaw for Middlebury Area Residents	% of Total Emergency Department Visits for Disorders of Teeth and Jaw for Middlebury Area Residents	% of Middlebury area population in this age group
18-24	47	17%	14%
25-34	114	42%	9%
35-49	61	23%	19%
0-17 or 50+	47	17%	58%
Total	269	100%	100%

Data Source: Vermont Uniform Hospital Discharge Data Set

# Oral Health Outcomes: Emergency Department Visits

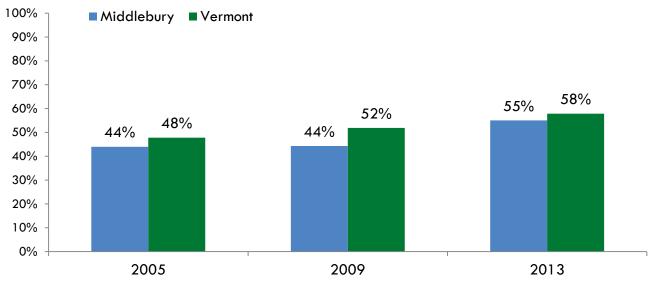


Data Source: Vermont Uniform Hospital Discharge Data Set

#### 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 both Middlebury and Vermont.

#### 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.



# **Preventive and Access to Care**

- A low percentage of Medicaid-eligible Middlebury area residents received dental care in 2014, especially those under 19 months, under 6, and adults.
- In 2013, Middlebury had a lower ratio of primary care dentists and specialists per residents, compared to the state ratio.
- A higher percentage of Middlebury primary care dentists were accepting new non-Medicaid than Medicaid patients, following a similar pattern as the state's percentages.
- A high percentage of Middlebury specialist dentists were accepting new non-Medicaid and Medicaid patients, including 5 or more new patients a month, compared to the state.

# **Preventive and Access to Care**

The percent of Addison County's population served by community public water systems who have optimally fluoridated water is lower than the Healthy Vermonters 2020 goal.

- The percent of Middlebury area high school students consuming at least one soda daily is similar to all Vermont high school students.
- The percent of Middlebury area high school students consuming at least one other type of sugarsweetened beverage is significantly lower than the percent of all Vermont high school students.
- Middlebury area high school students are using snuff/dip at a rate similar to that of all Vermont high school students.

### **Oral Health Outcomes**

- Similar to all Vermonters, Medicaid-eligible Middlebury area residents are receiving treatment for extractions, endodontics, or restorations, including:
  - 10% of children aged 1-5 (17% of these in the hospital).
  - 25% of children aged 6-18.
  - 16% of adults aged 19-64.
  - a total amount paid for all of these visits for all ages of \$763,944.
- In State Fiscal Year 2015, 48 Middlebury area residents utilized General Assistance Vouchers for dental services, for a total of \$27,899.

#### **Oral Health Outcomes**

- The percent of Middlebury area adults who have lost teeth is similar to all Vermonters.
- The rate of Emergency Department visits for disorders of teeth and jaw per 1,000 residents is lower for Middlebury area residents than all Vermonters.
  - Over half of these visits are by those aged 18-34.

### Questions?

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

#### 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: <u>http://healthvermont.gov/research/brfss/brfss.aspx</u>.

#### Data Notes - BRFSS

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 <u>http://www.cdc.gov/nchs/data/statnt/statnt20.pdf</u>.
- 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 data, accessed through
   Vermont Healthcare Claims Uniform Reporting and Evaluating System (VHCURES).
- District office is based on the recipient's county of residence as of their last month of Medicaid eligibility within the timeframe
- For the analysis of those born in 2012 who received any dental services by a dental provider by 18 months of age:
  - This included only Vermonters who were Medicaid-eligible (including Medicaid Managed Care and Traditional Medicaid aid categories) and were enrolled in Medicaid for 95% or more of their lifetimes.
  - age was calculated as of date of service.
- □ For all other analyses using Medicaid Claims Data:
  - Vermonters who were Medicaid-eligible (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, 2014.

#### Data Notes – Medicaid Claims Data

Vermonters can appear in more than one of these numbers.			
% of Medicaid-eligible Vermonters who had a preventive visit	This includes Vermonters who had paid claims for any one of the following preventive procedure codes (CPT between D1000 and D1999). If a Vermonter received one of these procedures more than once in this timeframe, he/she only appears in the number once.		
% of Medicaid-eligible Vermonters who received any dental services by a dental provider	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.		
% of Medicaid-eligible Vermonters treated for extractions, endodontics or restorations	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.		
Number of Individuals who Utilized General Assistance (GA) Vouchers for Dental Services	This includes Vermonters who had claims for a State Category of		

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		2013*
520: Diseases of tooth development and eruption		ø	67
521: Diseases of hard tissue of teeth		labl	1,138
522: Diseases of pulp and periapical tissues		available	2,026
523: Gingival and periodontal diseases		not e	126
524: Dentofacial anomalies, including malocclusion		are	133
525: Other diseases and conditions of the teeth and supporting structures		2013	2,529
526: Diseases of the jaw		ı for	38
78492: Jaw pain		H data	99
Total	6,944	НZ	6,156
Data Source: Vermont Uniform Hospital Discharge Data Set			

\* 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 Dental Provider Survey, see: <u>http://healthvermont.gov/research/HlthCarePrvSrvys/HealthCareProviderSurveys.aspx</u>
- For more information on the Youth Risk Behavior Survey, see: <u>http://healthvermont.gov/research/yrbs.aspx</u>
- For more information on the Vermont Uniform Hospital Discharge Data Set, see: <u>http://healthvermont.gov/research/hospital-utilization/</u>