1305 SURVEILLANCE:

STATE PUBLIC HEALTH ACTIONS TO PREVENT AND CONTROL DIABETES, HEART DISEASE, OBESITY AND ASSOCIATED RISK FACTORS AND PROMOTE SCHOOL HEALTH

DATA PAGES

Division of Health Surveillance

VERMONT DEPARTMENT OF HEALTH

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Surveillance of Chronic Disease

1305 Grant Indicator

When this symbol is seen, there is a measure reportable to the CDC as part of the grant on the page.

Healthy Vermonters 2020 (HV2020)

When this symbol is seen, an HV2020 measure is reported on that page.

Chronic Disease Measure

When this symbol is seen, a recommended measure for the surveillance of chronic disease is on the page.

Footnote Legend†

Whenever the symbols to the right are seen it carries with it the associated meaning.

†	Refer to footnote legend.
^	Data had been age-adjusted to the 2000 U.S. population except for data that is broken down by age.
*	Statistically significant difference between compared groups.
~	Excludes those whose form of cancer is skin cancer.
•	Due to BRFSS methodology changes, caution should be taken when comparing data from prior to 2011 and after.
◊	Data with contributing causes of mortality are only available starting in 2009.
**	Value is too small to report.
••	Data not available
‡	Rate is limited to those who currently smoke.
¤	In 2009, the New Hampshire Department of Health and Human Services (DHHS), in partnership with the Department of Information Technology (DoIT), changed the process used to create their hospital discharge data set. This change may contribute to differences in New Hampshire data provided to Vermont and subsequently any Vermont VUHDDS data reported after 2009.
§	Data available only for grades 9-12; These questions were not asked of students grades 6-8.
Δ	All middle school students were not surveyed until 2011.
≈	Healthy Vermonters 2020 target applies only to high school students.
+	2007 & 2009 YRBS did not have questions for sugar-sweetened beverages, values are for soda only.

State Public Health Actions 1305

State Public Health Actions 1305

- State Public Health Actions 1305 is a grant funded by the CDC for states to work towards the prevention of select chronic disease in a coordinated fashion.
- Chronic diseases and conditions are the major drivers of sickness, disability, and health care costs in the nation.
  - Risk factors for chronic disease can be addressed at two levels: the individual level (healthcare interventions) and population level (including policies and environments that promote health).
- Decreasing cardiovascular disease, diabetes, and obesity and increasing physical activity, nutrition, and school health are the main goals of the Vermont 1305 program.
- The four domains of chronic disease prevention is the CDC's recommended strategy for coordinated chronic disease prevention.

Source: Centers for Disease Control and Prevention, The Four Domains of Chronic Disease Prevention.

The Four Domains of Chronic Disease Prevention

- Domain 1: Epidemiology and Surveillance/Evaluation
- Domain 2: Environmental Approaches
- Domain 3: Health Care System Interventions
- Domain 4: Community Programs Linked to Clinical Services

- Monitor disease/risk factor trends and tracks progress.
- Promote policy and physical/social environment changes to make healthy lifestyles easier.
- Improve delivery and use of clinical and preventive services across patient populations.
- Improve connections between clinical and community programs that support prevention and self-management of chronic conditions.

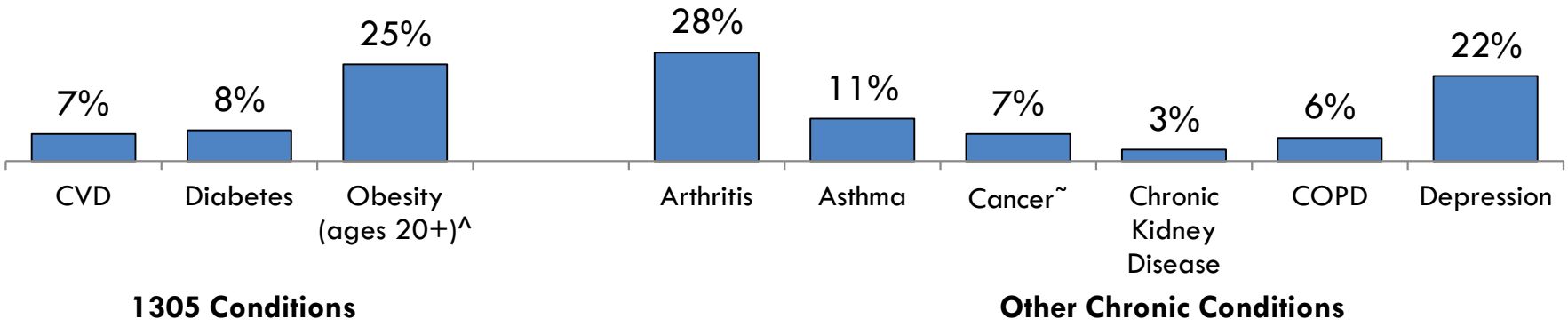
Source: Centers for Disease Control and Prevention, The Four Domains of Chronic Disease Prevention.

Vermont Chronic Disease Overview

Prevalence of Chronic Disease in Vermont

In 2014, over a quarter of Vermont adults had arthritis (28%), a quarter were obese (25%), and almost a quarter had a depressive disorder (22%). One in nine (11%) Vermont adults had asthma. Eight percent or less Vermont adults had: diabetes (8%), cancer (7%), cardiovascular disease (7%), chronic obstructive pulmonary disorder (6%), or chronic kidney disease (3%).

Prevalence of Chronic Disease in Vermont, 2014†

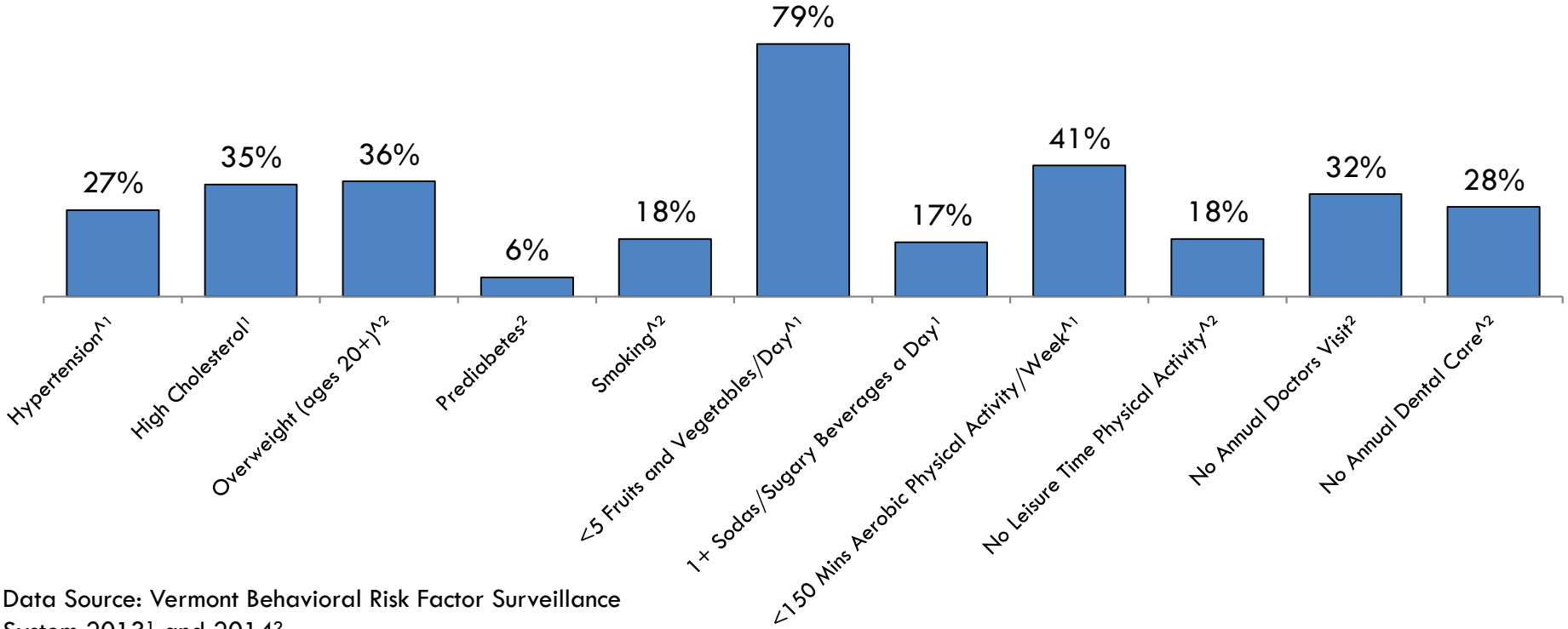


Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Adult Prevalence of Chronic Disease Risk Factors

Most chronic diseases are caused or made worse by one or more common risk factors. Four in five Vermont adults consumed less than five fruits or vegetables a day (79%). Half as many did not get the recommended amount of weekly physical activity (41%). Approximately a third of adult Vermonters were overweight (36%) or had high cholesterol (35%), a quarter had hypertension (27%). A third of adults did not seek annual medical care (32%) and over a quarter did not seek annual dental care (28%).

Prevalence of Common Chronic Disease Risk Factors among Vermont Adults†

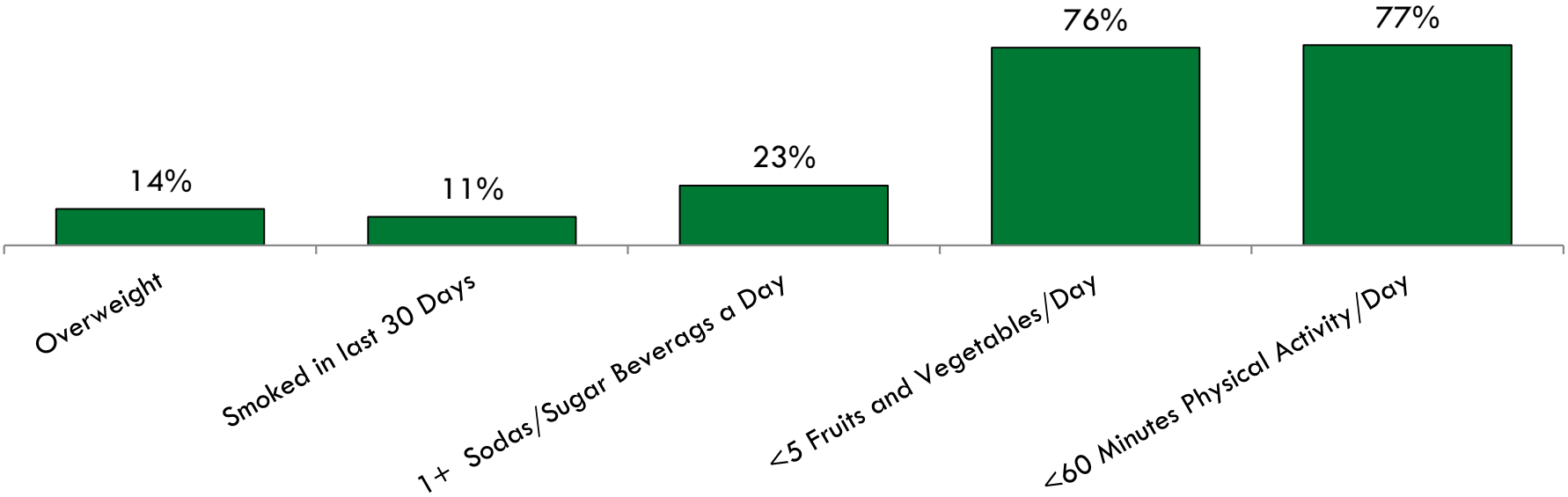


Data Source: Vermont Behavioral Risk Factor Surveillance System 2013[1] and 2014[2].

Chronic Disease-Related Risk Behaviors among Youth Grades 9-12

Several behaviors can lead to the eventual development of chronic diseases. Of these behaviors, over three quarters of youth (grades 9-12) did not meet daily physical activity recommendations (77%) or consumed fewer than 5 fruits or vegetables a day (76%). Almost a quarter of youth consumed one or more sodas/sugar-sweetened beverages a day (23%). Fourteen percent were overweight and 11% smoked cigarettes.

Prevalence of Risk Factors among Vermont Youth (grades 9-12) that Could Lead To Chronic Disease, 2015

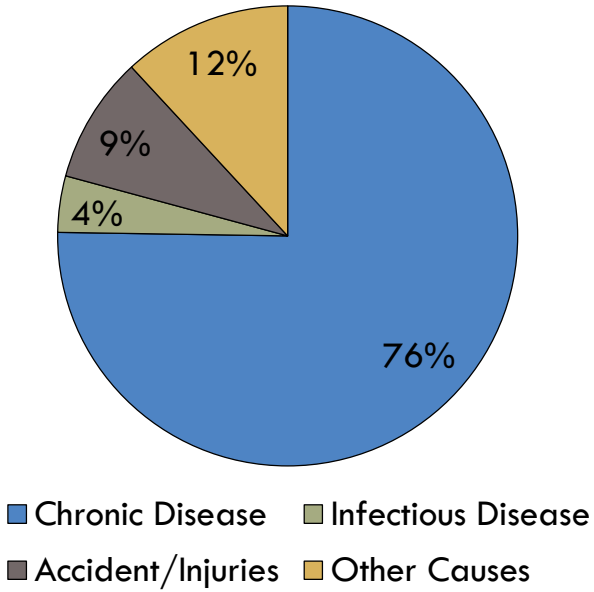


Source: the 2015 Vermont Youth Risk Behavior Survey.

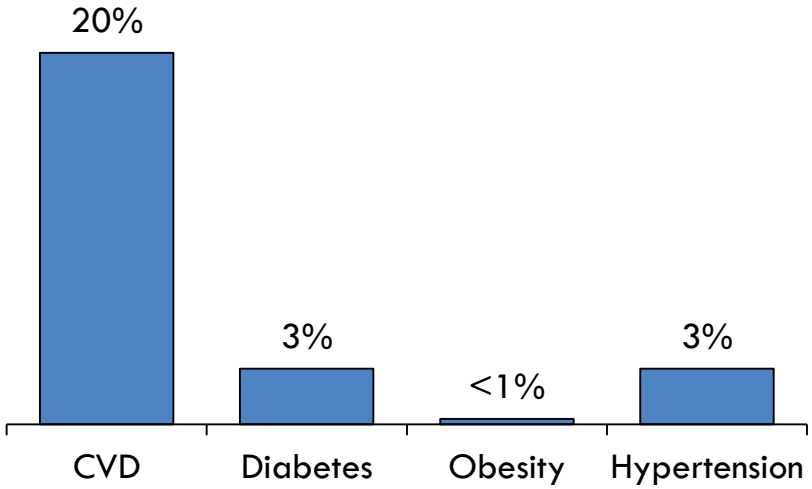
Chronic Disease-Related Mortality

Chronic diseases were the most common cause of death in Vermont, accounting for over three-quarters of all deaths (76%). Chronic diseases related to 1305 accounted for a quarter of all deaths among Vermont residents (25%).

Causes of Death, Vermont, 2012



Proportion of Deaths Related to 1305 Chronic Diseases among All Vermont Deaths, 2012



Source: Vermont Vital Statistics 2012.

Diabetes

Diabetes

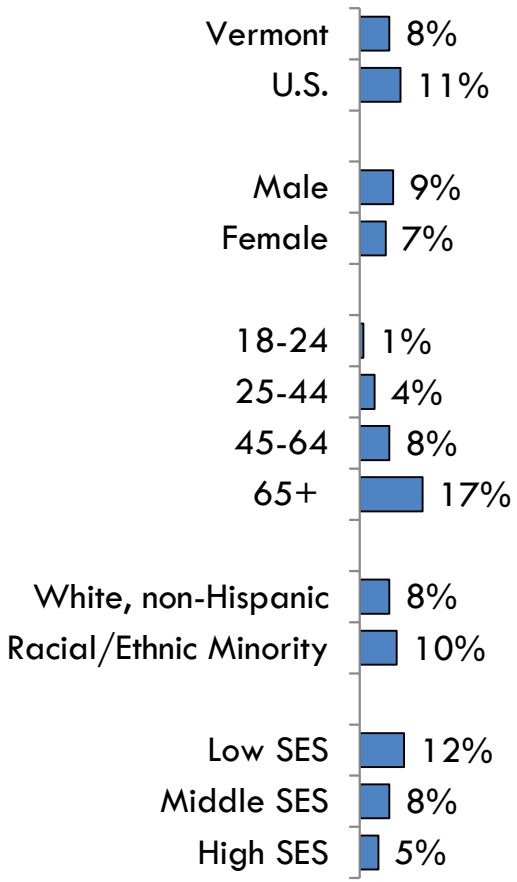
- Diabetes is a chronic disease in which the body does not make enough insulin or properly use insulin.
  - **Type 1** diabetes, the body is unable to produce insulin. **Type 2** diabetes is the most common form of diabetes, where the body does not use insulin properly. Type 2 diabetes can usually be prevented through lifestyle changes.
- Symptoms include: frequent urination, excessive thirst and appetite, fatigue, blurred vision, slow-healing wounds, weight loss (type 1), and numbness/tingling in hands/feet (type 2).
- Over time, build up of glucose in the blood can damage the eyes, kidneys, nerves, or heart leading to serious health complications.

Source: American Diabetes Association, Diabetes Basics, 2015.

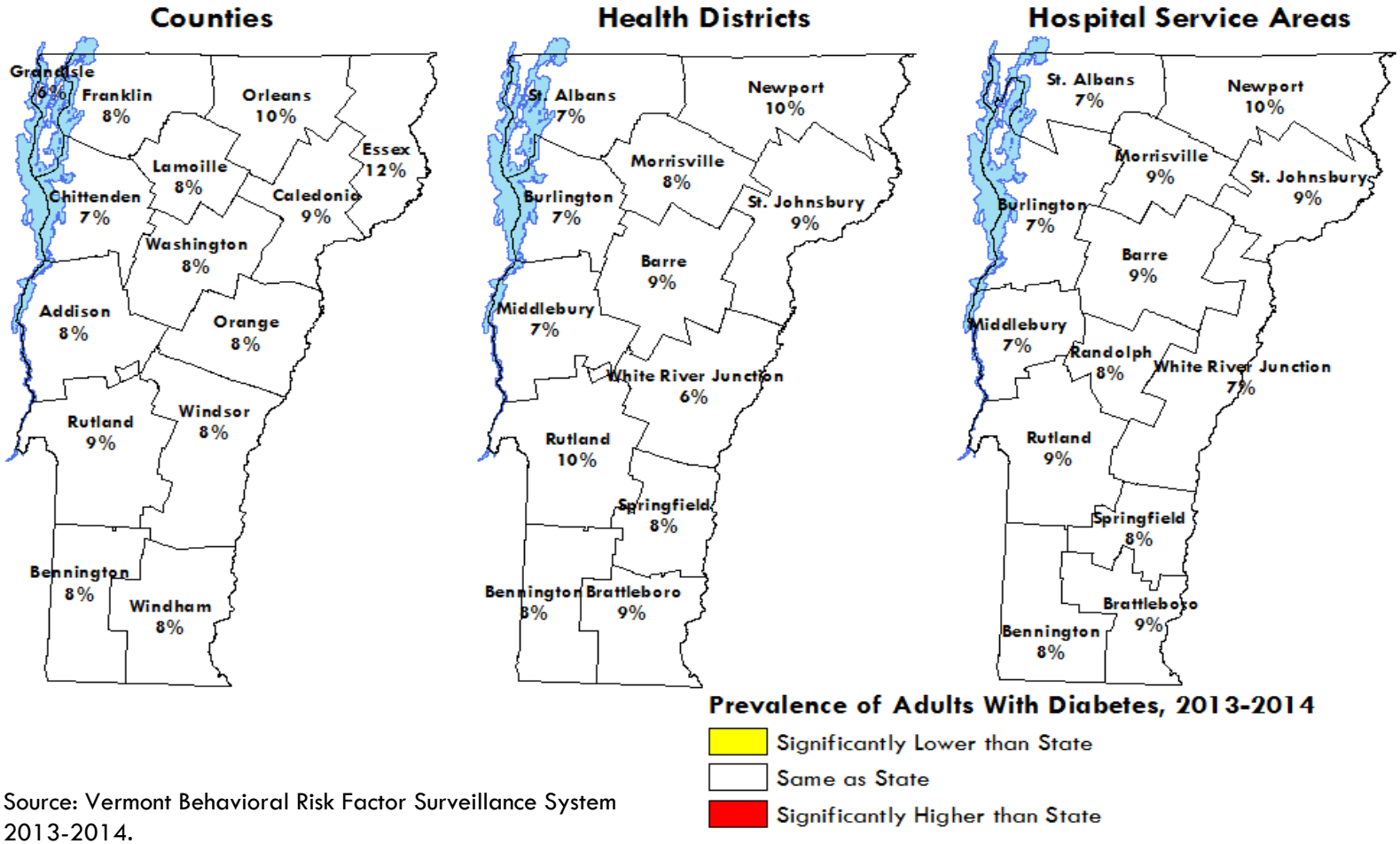
Adult Vermonters with Diabetes

- About one in twelve (8%) Vermont adults had diagnosed diabetes in 2014 (or approximately 40,000 adults).
  - Vermont adults were significantly less likely to have diabetes than U.S. adults overall.
  - Diabetes prevalence increases significantly with advancing age.
  - Adults living at a high socioeconomic status were significantly less likely to have diabetes than those living at a lower socioeconomic status.

Prevalence of Adults with Diabetes, 2014



Source: Vermont Behavioral Risk Factor Surveillance System 2014.



Source: Vermont Behavioral Risk Factor Surveillance System 2013-2014.

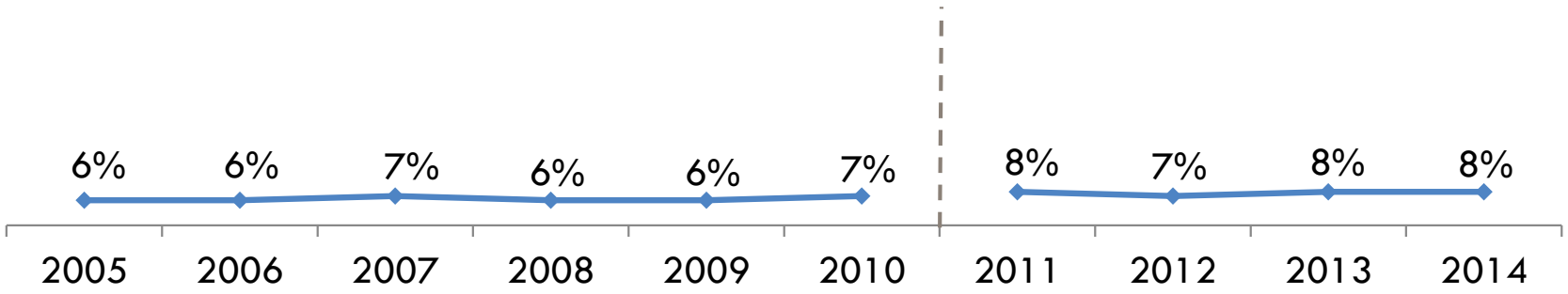
Adult Prevalence of Diabetes by Subgeography

All Vermont regions have similar rates of diabetes when compared to the state average, indicating that diabetes is of similar concern throughout the state.

Adult Prevalence of Diabetes†

The prevalence of diabetes in Vermont has not changed significantly from 2005 through 2014.

Prevalence of Adults with Diabetes•

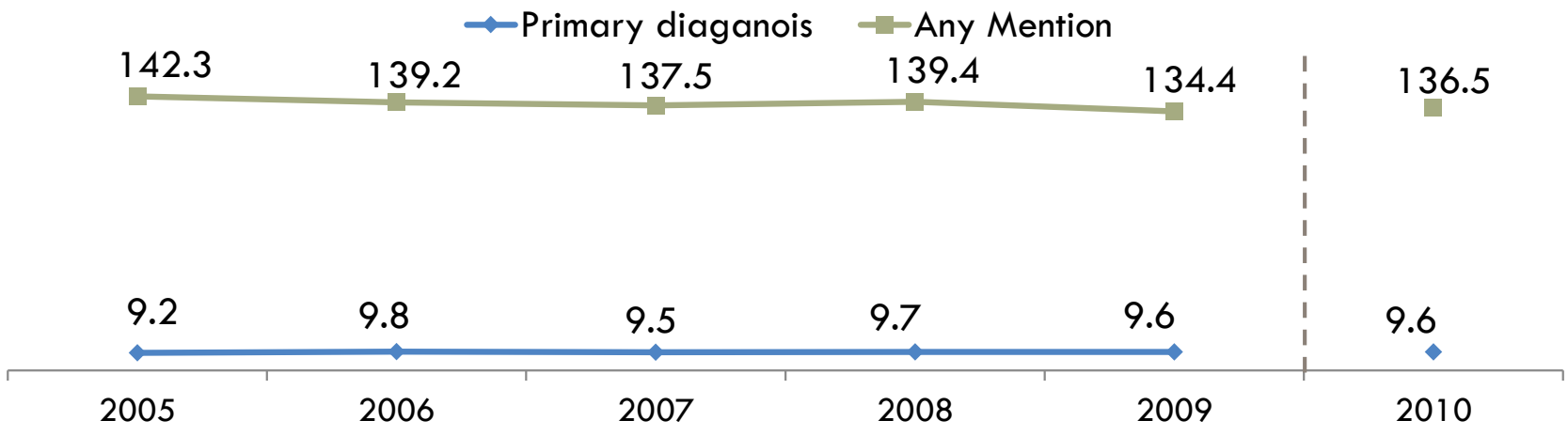


Source: Vermont Behavioral Risk Factor Surveillance System 2005-2014.

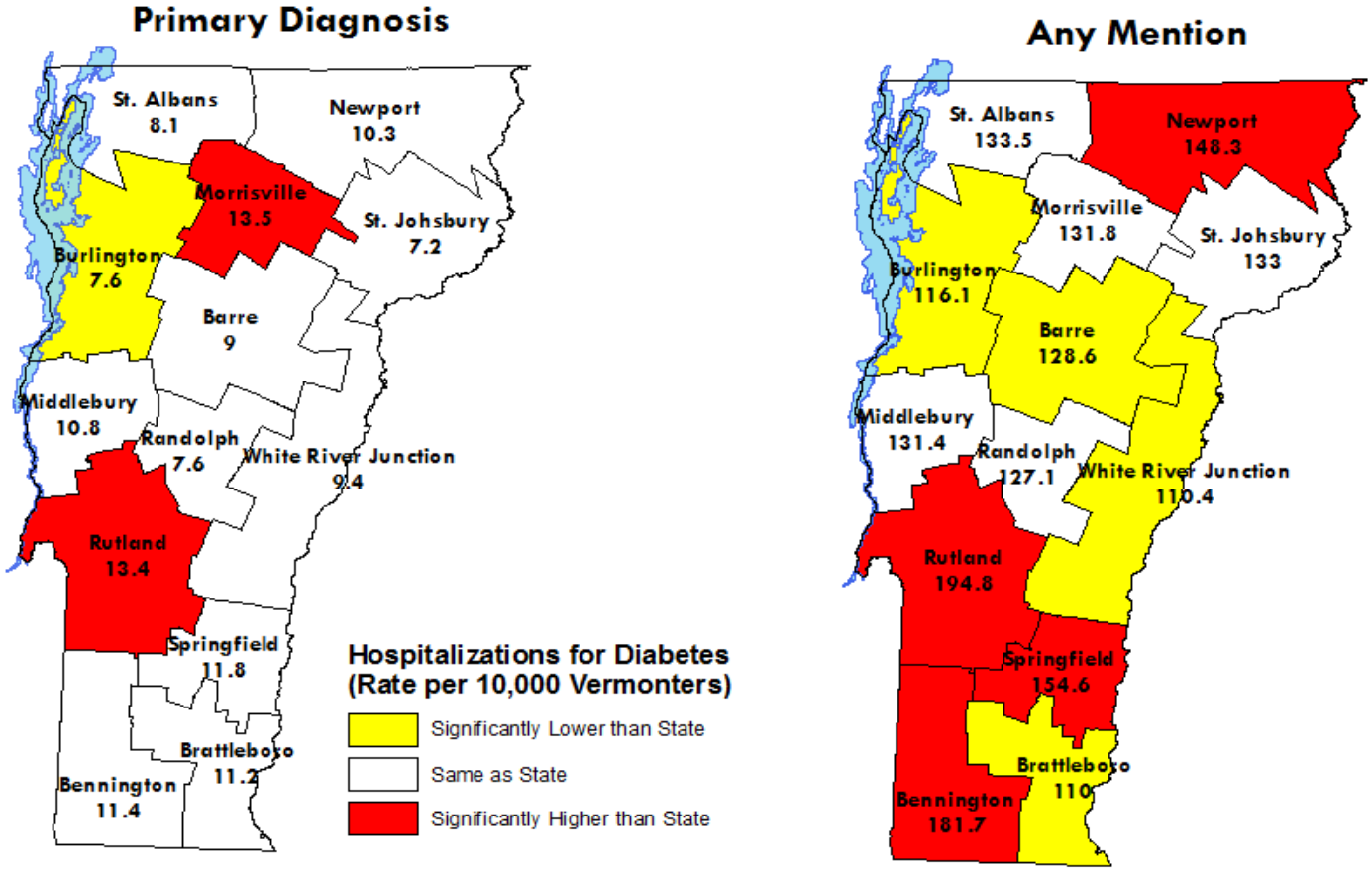
Diabetes-Related Hospital Discharges†

In 2010, there were 9.6 hospital discharges with a primary diagnosis of diabetes for every 10,000 Vermonters (633 discharges). Any mention of diabetes as a factor for hospitalization occurred in 136.5 hospital discharges for every 10,000 Vermonters (10,003 discharges) indicating a substantial number of discharges with diabetes as a contributing factor. The rates of diabetes as a primary diagnosis or any mention of diabetes were stable from 2005 through 2009.

Hospital Discharge with a Diabetes Diagnosis (per 10,000 Vermonters)^¤



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2005-2010.



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2008-2010.^¤

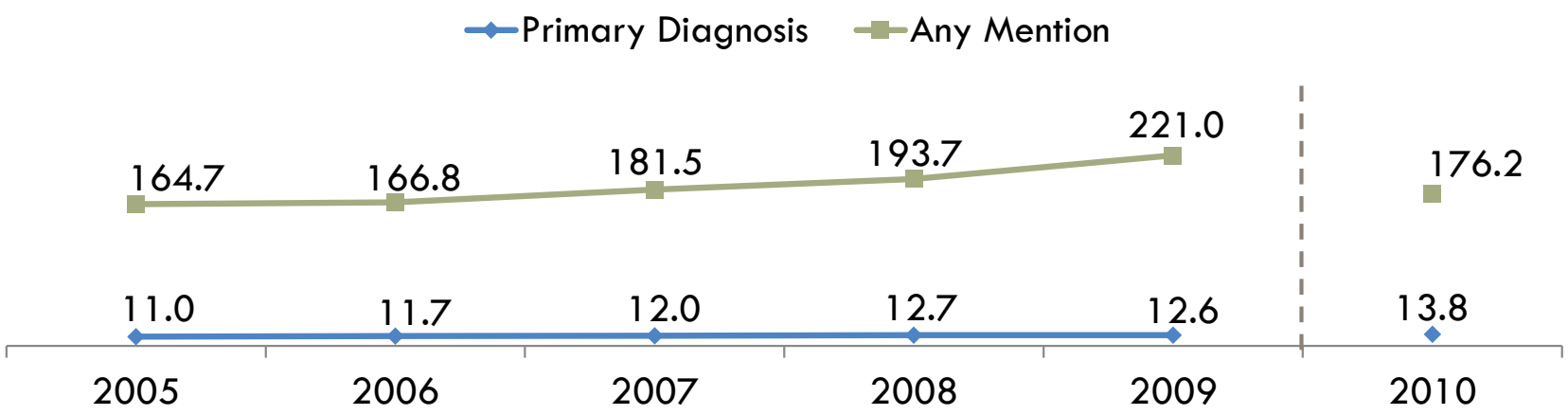
Diabetes-Related Hospital Discharges by Hospital Service Area (HSA)†

Hospital discharges with a primary diagnosis of diabetes were significantly higher than the state average in the Morrisville and Rutland Hospital Service Areas (HSAs). Any mention of diabetes diagnosis during hospitalization was significantly higher in Newport and the southwest of the state.

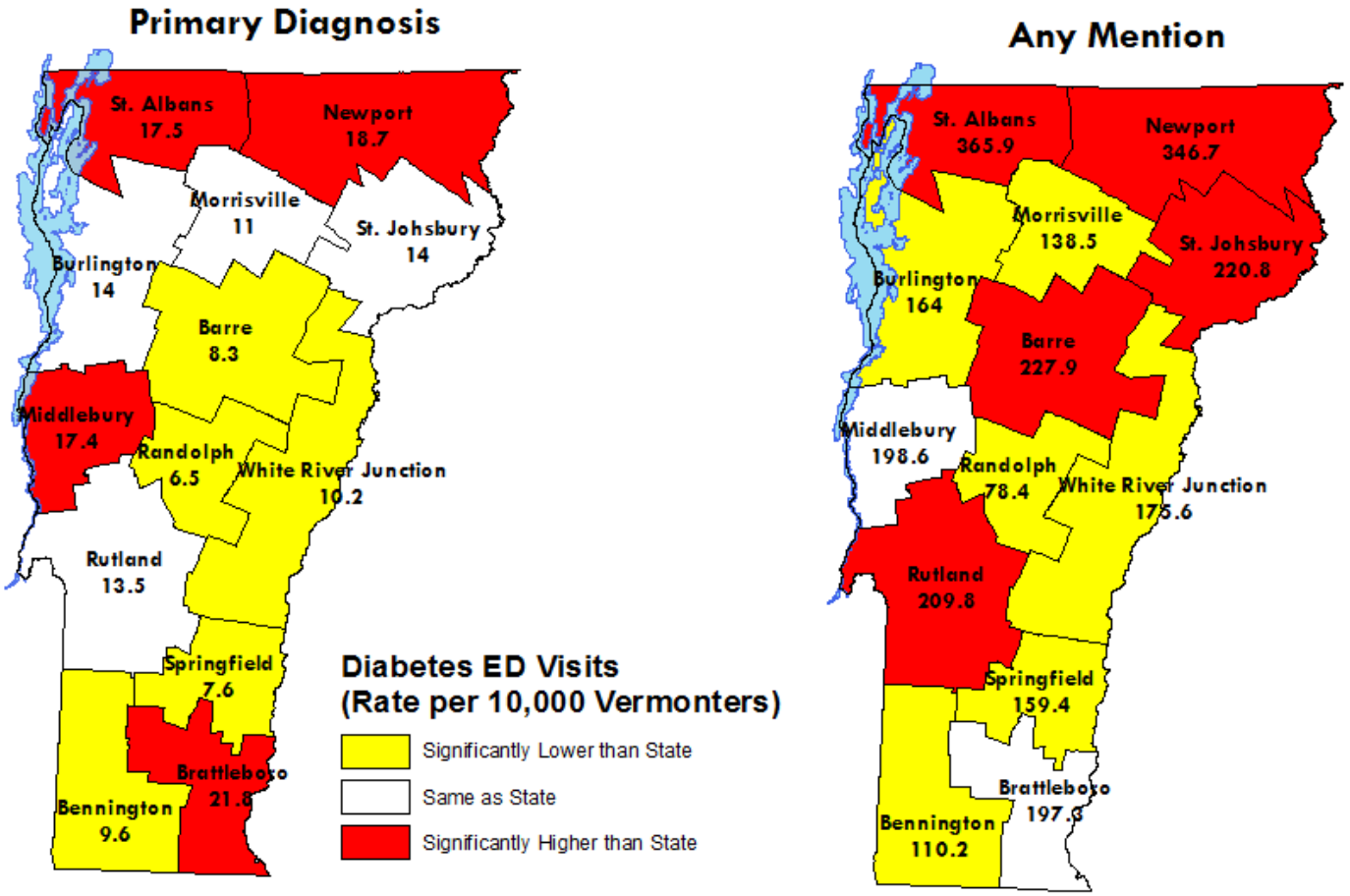
Diabetes-Related Emergency Department Visits†

In 2010, there were 13.8 ED visits with a primary diagnosis of diabetes for every 10,000 Vermonters (926 ED visits). For every 10,000 Vermonters, 176.2 had any mention of diabetes during an ED visit (12,588 ED visits). As a primary diagnosis, diabetes-related ED visits have remained stable over time. Any mention of diabetes rose from 2005 through 2009. There was a decrease in the rate of any mention of diabetes during an ED visit from 2009 to 2010.

ED Visits with a Diabetes Diagnosis (rate per 10,000 Vermonters)^¤



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2005-2010.



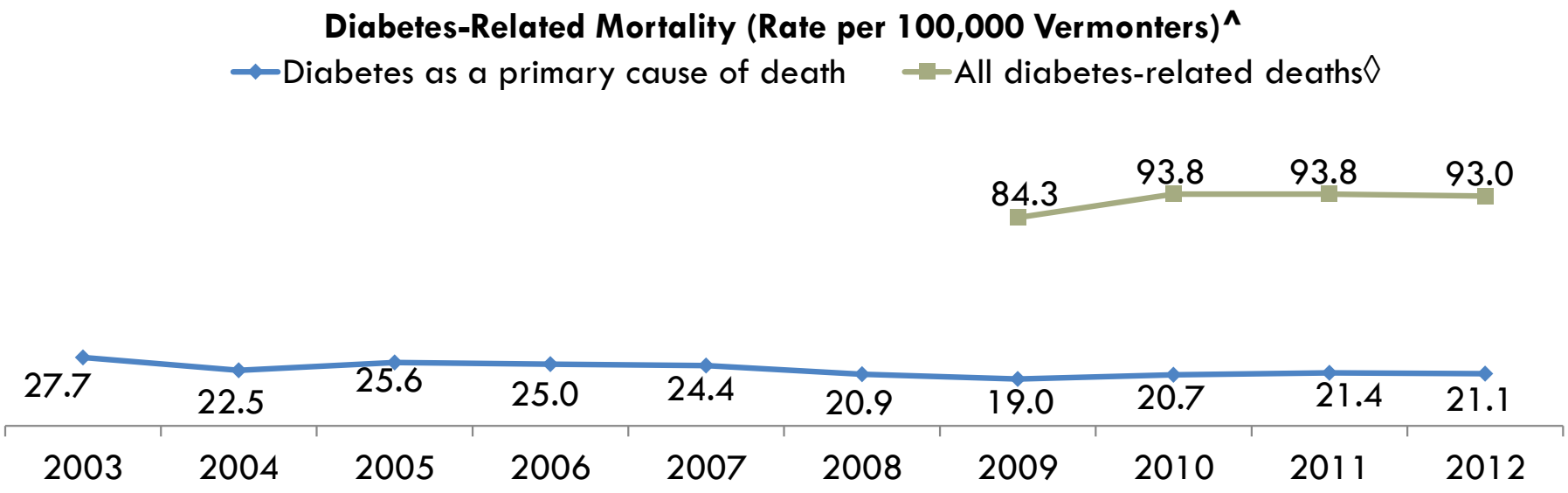
Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2008-2010.^¤

Diabetes-Related Emergency Department Visits by Hospital Service Area (HSA)†

Northern Vermont and the Middlebury and Brattleboro Hospital Service Areas (HSAs) were significantly higher than the state average for diabetes as a primary diagnosis for an ED visit. HSAs in Northern Vermont remained higher than the state average for any mention of diabetes during an ED visit. The St. Johnsbury, Barre, and Rutland HSAs were higher than the state average for any mention of a diabetes diagnosis where they were of a lesser significance for diabetes as a primary diagnosis.

Diabetes-Related Mortality†

The all diabetes-related mortality for Vermont in 2012 was 93.0 deaths per 100,000 Vermonters. Though diabetes as a primary cause of death steadily declined from 2002 to 2012, the difference was not significant. All diabetes-related deaths however have increased from 2009 to 2012 indicating that diabetes as a contributing cause of death has been increasing and potentially driving the all diabetes-related mortality.

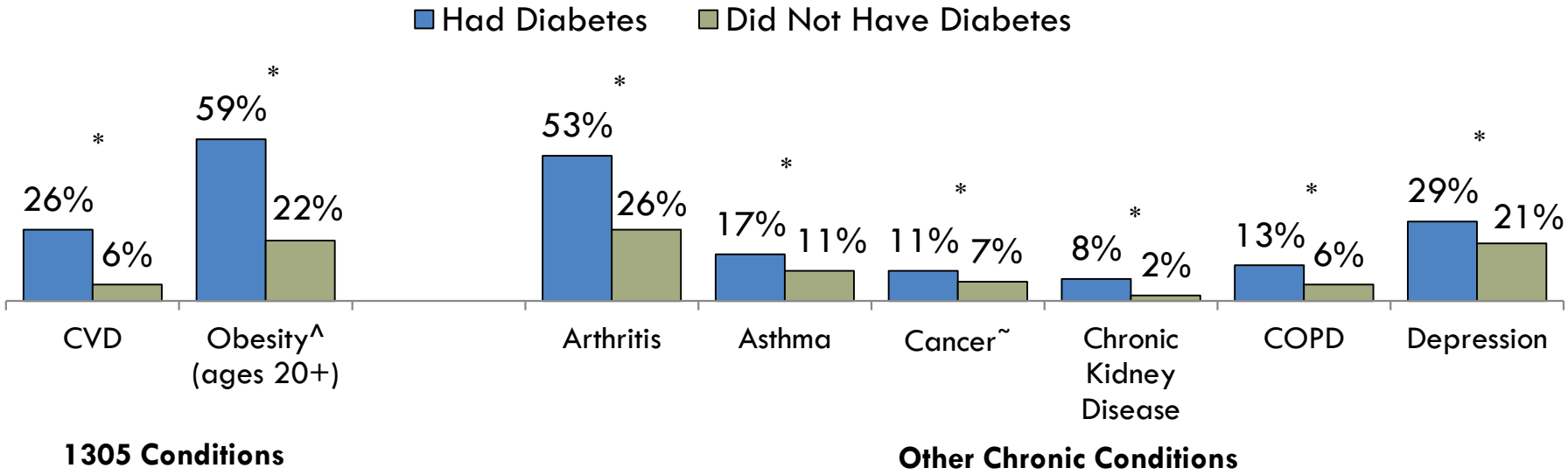


Source: Vermont Vital Statistics 2002-2012.

Chronic Disease Comorbidities for Adults with Diabetes†

Almost two-thirds of Vermont adults who had diabetes were also obese (59%) and over a quarter (26%) also had cardiovascular disease (CVD). Over half of Vermont adults who had diabetes also had arthritis (53%) and almost a third had a depressive disorder (29%). Vermont adults with diabetes were significantly more likely to have all of the comorbidities below when compared to adults who did not have diabetes.

Prevalence of Chronic Disease Comorbidities among Adults with Diabetes, 2014†

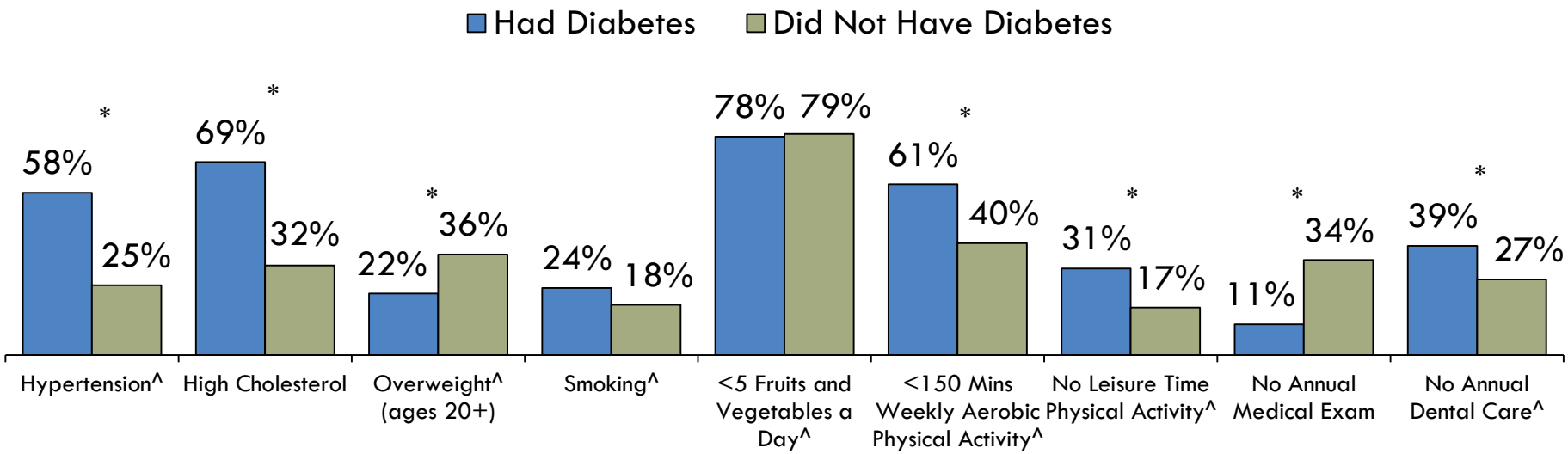


Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Chronic Disease Risk Factors among Adults with Diabetes†

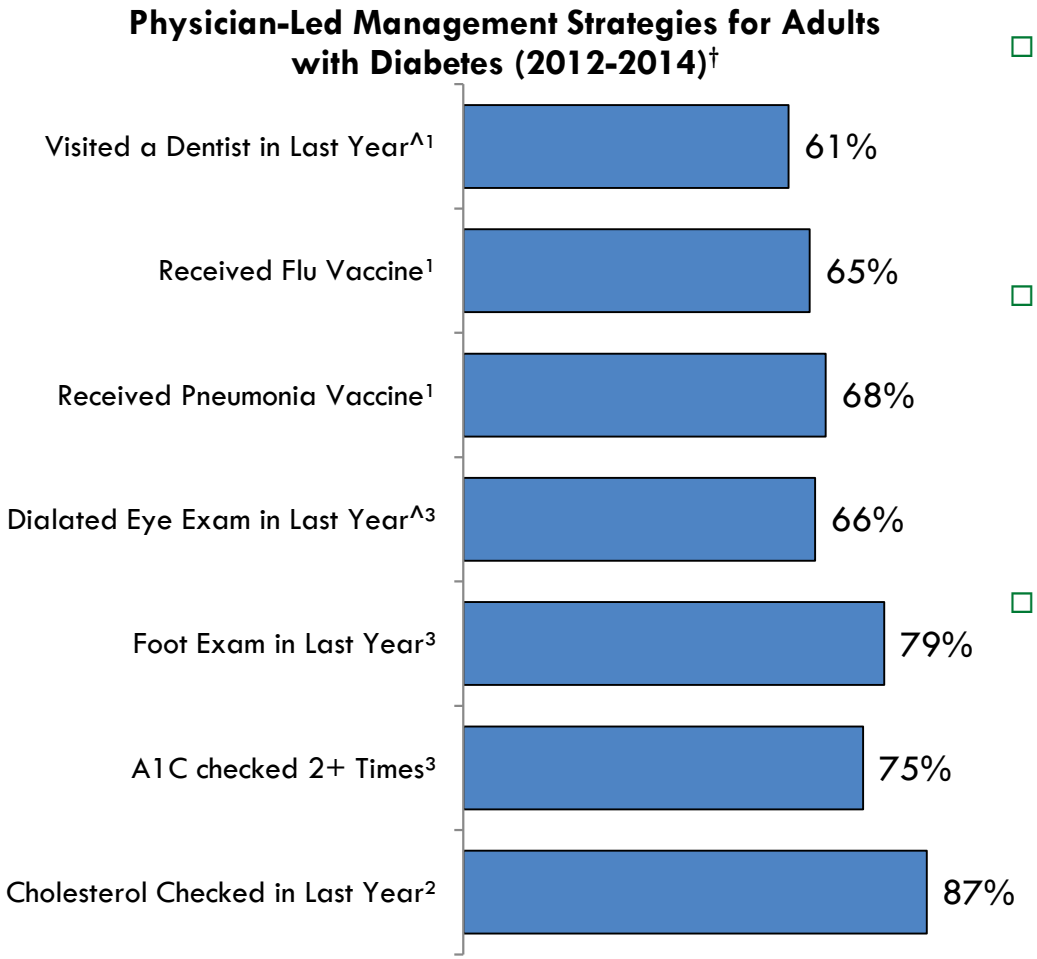
Adults with diabetes were significantly more likely to have hypertension, high cholesterol, participate in less than 150 minutes of aerobic physical activity, have no leisure time physical activity and not receive annual dental care when compared to adults who did not have diabetes. Adults who had diabetes were significantly less likely be overweight (though they were significantly more likely to be obese – see page 23) or to not have an annual medical exam than adults who did not have diabetes.

Prevalence of Chronic Disease Risk Factors among Adults with Diabetes†



Source: Vermont Behavioral Risk Factor Surveillance System 2013 (hypertension, cholesterol, nutrition, meeting physical activity recommendations) and 2014 (overweight, smoking, no leisure time physical activity, medical exam, dental care).

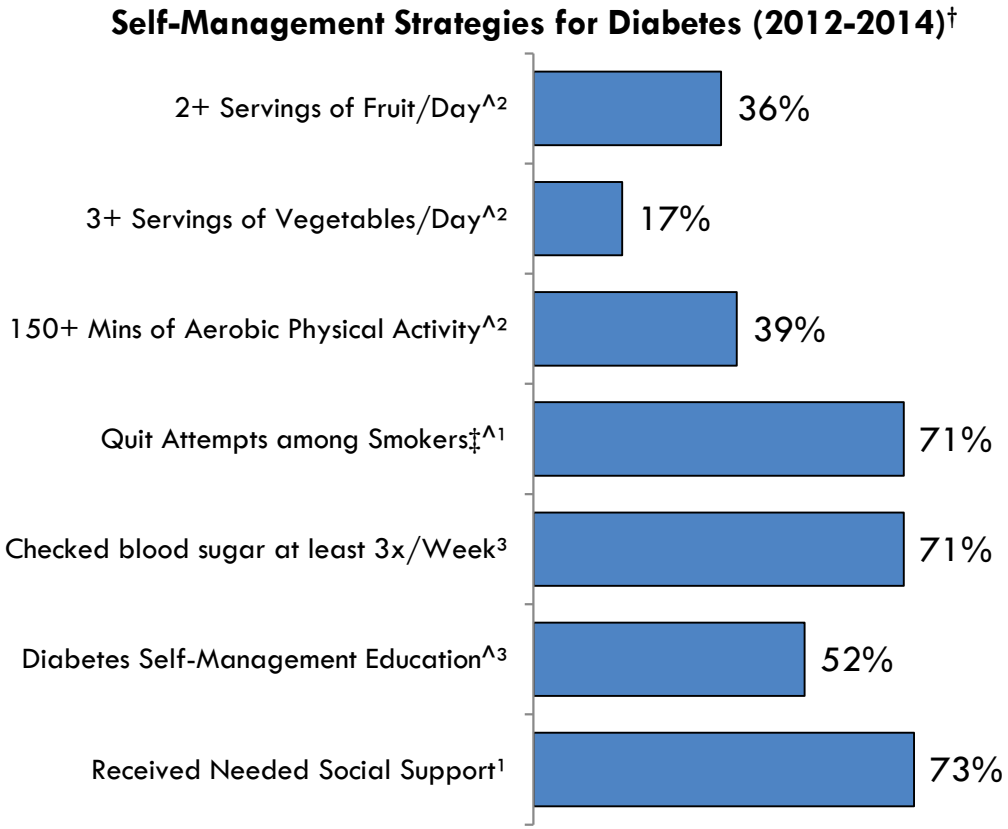
Adult Management of Diabetes



- Over half of adults with diabetes (61%) received oral healthcare from a dentist, dental hygienist, or dental clinic in 2012.
- Two-thirds of Vermont adults with diabetes in 2012 received an annual dilated eye exam (66%), above the Healthy Vermonters 2020 target of 60%.
- Over three-quarters of adult Vermonters with diabetes had their cholesterol checked in the last year (87%) as the most common physician-led management strategy.

Source:
[1]Vermont Behavioral Risk Factor Surveillance System 2014.
[2]Vermont Behavioral Risk Factor Surveillance System 2013.
[3]Vermont Behavioral Risk Factor Surveillance System 2012.

Adult Self-Management of Diabetes



Source:
[1]Vermont Behavioral Risk Factor Surveillance System 2014.
[2]Vermont Behavioral Risk Factor Surveillance System 2013.
[3]Vermont Behavioral Risk Factor Surveillance System 2012.

- Close to three in four adults (71%) with diabetes who smoked in 2014 attempted to quit.
- Over half (52%) of adults with diabetes in 2012 said they had attended diabetes self-management education. This is below the Healthy Vermonters 2020 target of 60%.
- Approximately three-quarters of adult Vermonters with diabetes had the social support they needed (73%) and checked their own blood sugar at least 3 times per week (71%) as self-management strategies for their diabetes.
  - 52% of all adults with diabetes had their blood sugar checked within the last 3 years.

Gestational Diabetes

Gestational Diabetes

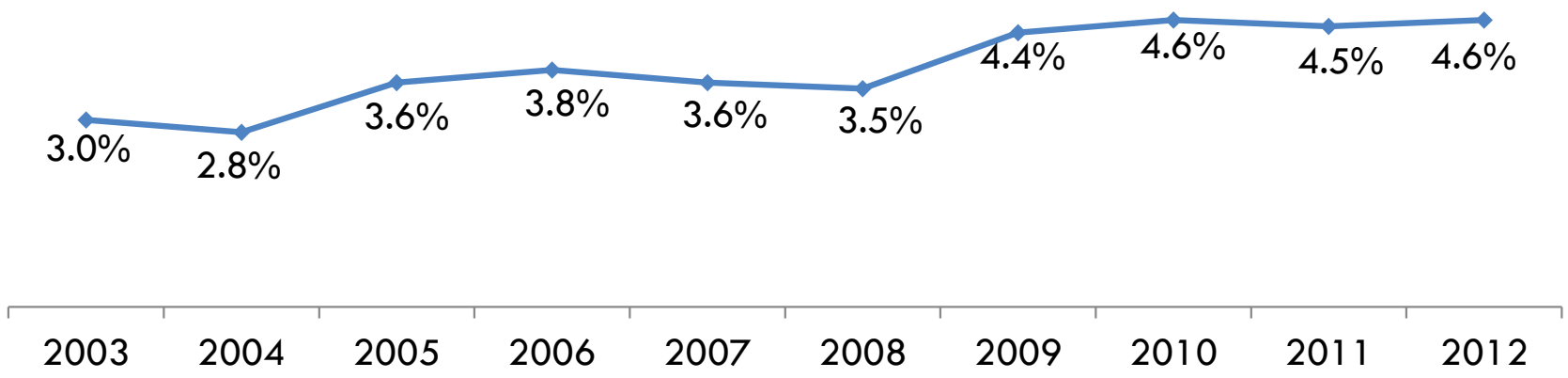
- Gestational diabetes can cause pregnancy complications, as well as increased risk of developing diabetes later in life for the mother.
- During pregnancy, usually around the 24th week, many women may develop high blood glucose (sugar) levels in their blood due to insulin resistance. This is known as gestational diabetes.
  - Little is known about the exact cause of gestational diabetes but it is believed that hormones that help the baby develop also block the action of insulin in the mother's body.
- Proper management of blood sugar levels during pregnancy is essential to the health of both mother and baby.
- Diagnosis of gestational diabetes does not mean that one had diabetes before conception or will have it after giving birth.

Source: American Diabetes Association, Gestational Diabetes, June 20, 2014.

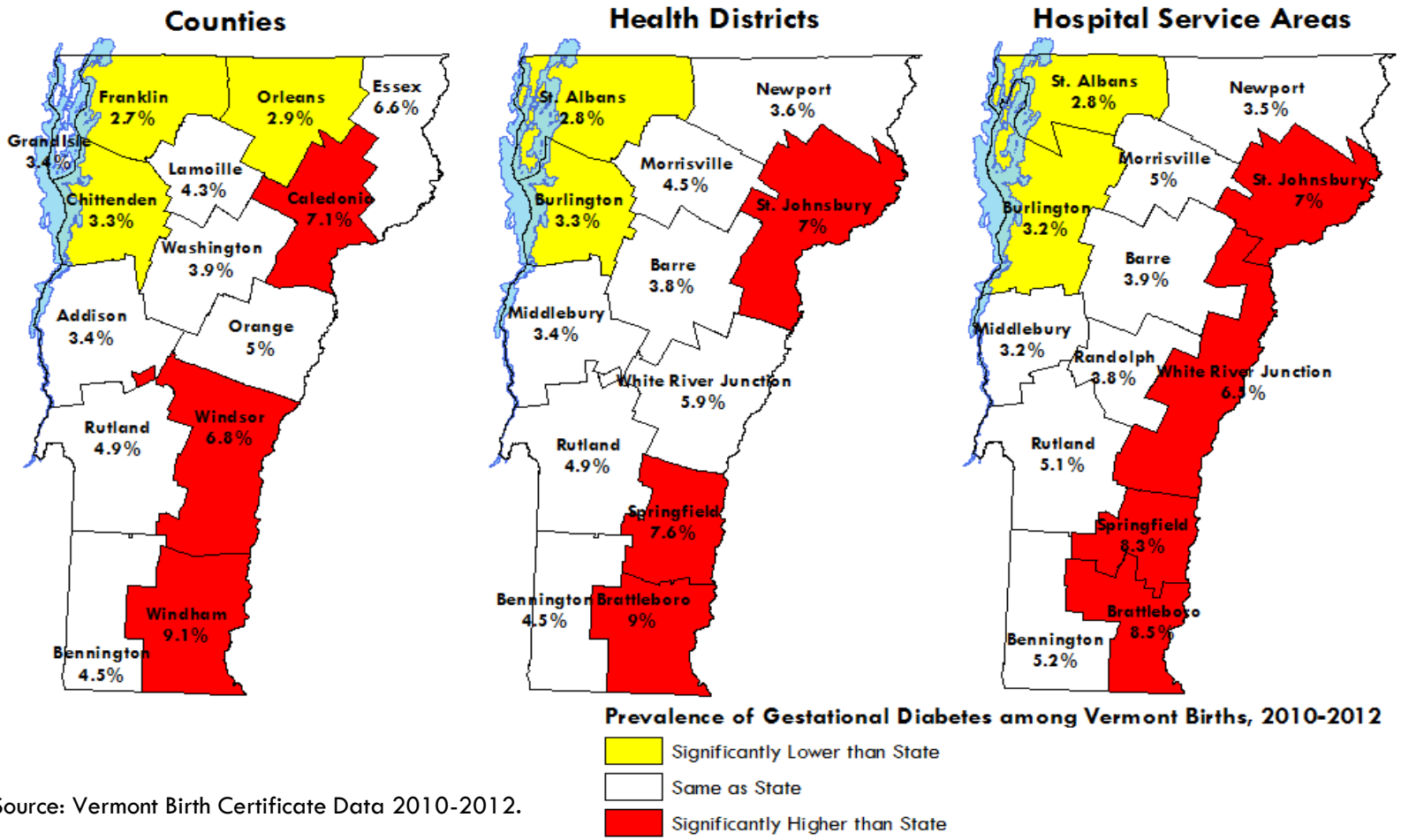
Prevalence of Gestational Diabetes among All Vermont Births

Since 2003, the rate of gestational diabetes among Vermont births has significantly increased (3.0% to 4.6%). That represents 274 births to mothers with gestational diabetes in 2012. There have been no significant changes in the rate of gestational diabetes since 2009. The steep increases in gestational diabetes seen in 2004 and again in 2008 are likely related to better capture of gestational diabetes due to enhanced electronic reporting.

Prevalence of Gestational Diabetes among All Vermont Births



Source: Vermont Birth Certificate Data 2002-2012.



Source: Vermont Birth Certificate Data 2010-2012.

Prevalence of Gestational Diabetes among Vermont Births by Subgeography

Most regions along the eastern border of the state are significantly higher than the state average for births to mothers with gestational diabetes except for Essex and Orange Counties and the Newport Health District and Hospital Service Area. The northwestern area of the state is significantly less likely to have births to mothers with gestational diabetes when compared to the state average.

End-Stage Renal Disease (ESRD)

End-Stage Renal Disease (ESRD)

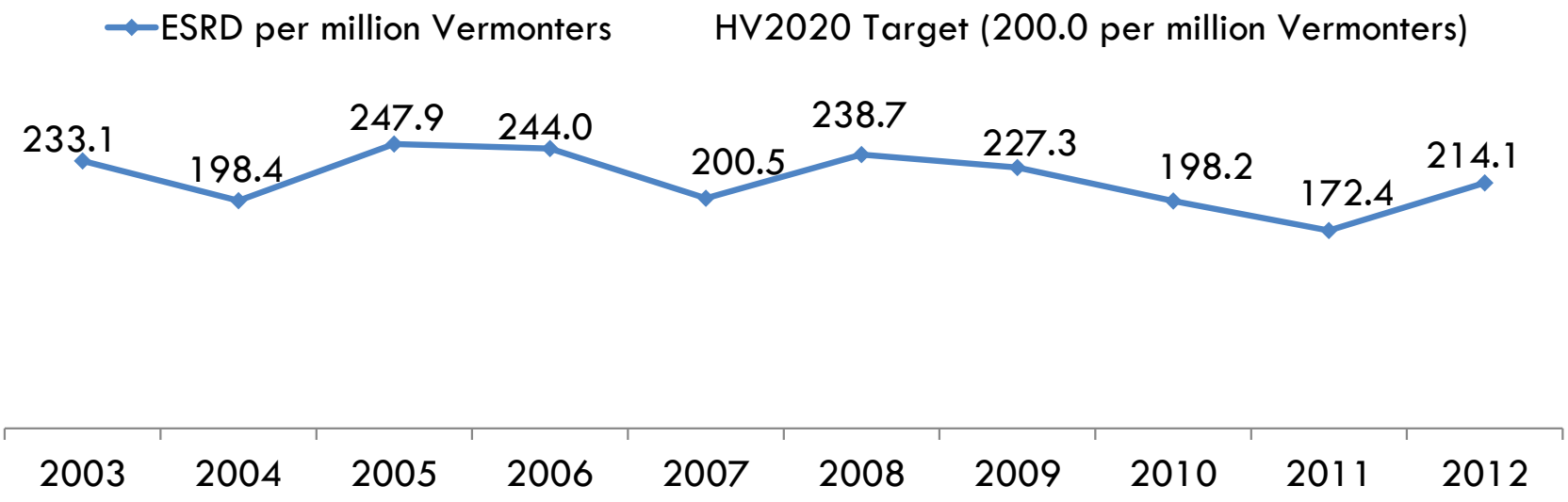
- ESRD is the final stage (Stage 5) of Chronic Kidney Disease and also known as end-stage renal failure or late chronic renal insufficiency.
  - Chronic Kidney Disease is caused by diabetic nephropathy (kidney damage from excess blood sugar), high blood pressure (hypertension), glomerular diseases (various types of kidney diseases), inherited/congenital kidney diseases, poisons, and trauma to the kidneys.
- Those experiencing ESRD will typically have 10-15% of normal kidney function.
- ESRD symptoms include: anemia, headache, fatigue, weakness, nausea, vomiting, thirst, muscle cramps/twitching/numbness in limbs, high blood pressure, poor digestion, decreased urinary output, and mental symptoms (lowered alertness, trouble concentrating, seizures).

Source: National Kidney Center, Chronic Kidney Disease.

New Cases of ESRD

The rate of new cases of ESRD among Vermonters as of 2012 was 214.1 cases for every 1 million Vermonters. This rate has increased from 172.4 cases for every 1 million Vermonters in 2012 and moved above the Healthy Vermonters 2020 target of 200.0 cases for every one million Vermonters. However, the current rate of new cases of ESRD is below the 2009 baseline of 227.3 cases per million Vermonters.

Rate of New Cases of End-Stage Renal Disease (ESRD), 2002-2012



Source: U.S. Renal Data System 2002-2013.

Prediabetes

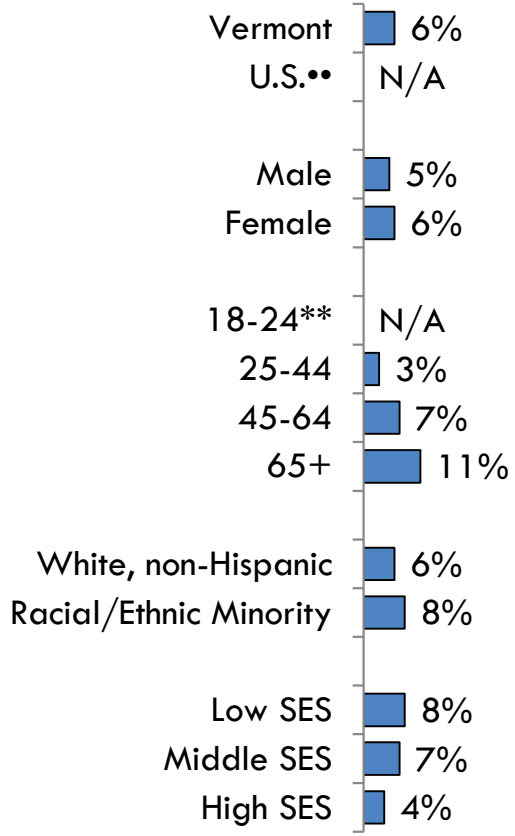
Prediabetes

- Prediabetes, sometimes referred to as impaired glucose (blood sugar) tolerance (IGT) or impaired fasting glucose (IFG), is classified by blood glucose (sugar) levels that are higher than normal but not high enough to be diagnosed as diabetes.
- Prediabetes has no clear symptoms; however, some people will have some of the same symptoms or health complications of diabetes.
- Prediabetes places you at increased risk for developing type 2 diabetes and cardiovascular disease.

Source: American Diabetes Association, Diagnosing and Learning About Prediabetes. September 22, 2014.

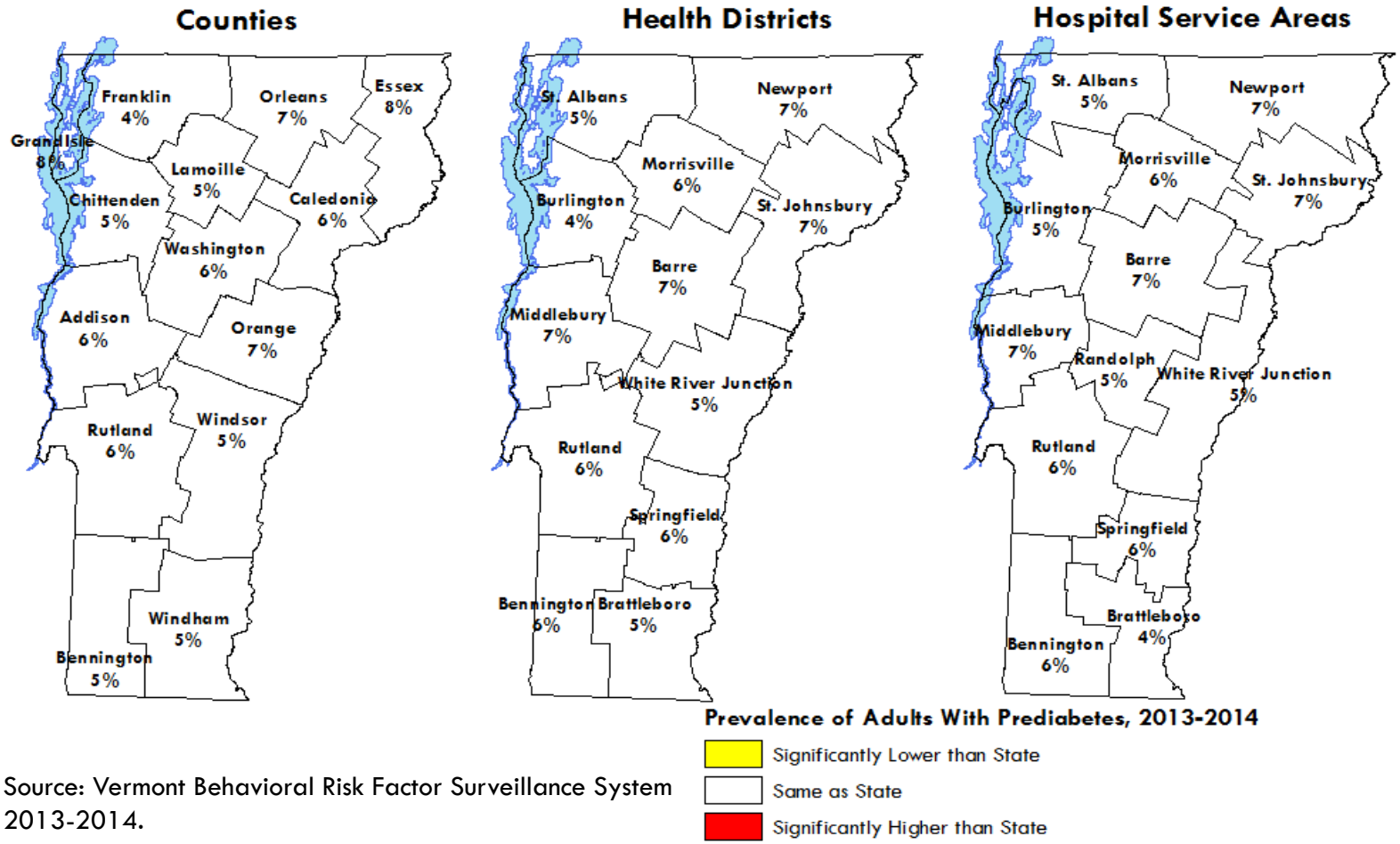
Adult Vermonters with Prediabetes†

Prevalence of Adults with Prediabetes, 2014[1]



- About one in sixteen (6%) Vermont adults had prediabetes in 2014 (or approximately 27,000 adults).[1]
  - As age increases the prevalence of prediabetes significantly increases.
  - Adults living at a high socioeconomic status were significantly less likely to have prediabetes than those living at a middle or low socioeconomic status.
- Most prediabetes goes undiagnosed, therefore the reported prevalence likely underestimates the true impact of prediabetes in Vermont.
  - Over a third (37%) of U.S. adults are estimated to have prediabetes.[2] This means an additional 157,000 Vermont adults may have prediabetes and not know it.

Source: [1]Vermont Behavioral Risk Factor Surveillance System 2014.
[2]CDC, National Center for Chronic Disease Prevention and Health Promotion, National Diabetes Statistics Report, 2014.



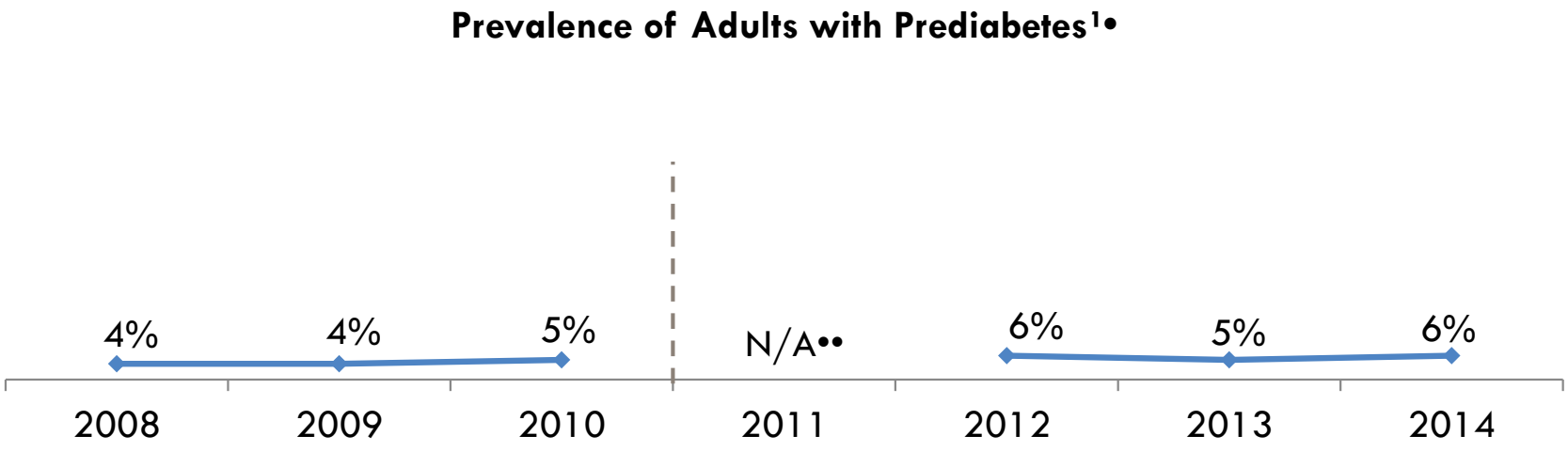
Source: Vermont Behavioral Risk Factor Surveillance System 2013-2014.

Prevalence of Adults with Prediabetes by Subgeography

All state subgeographies show similar rates of adults with prediabetes when compared to the state average. This indicates that, as with diabetes itself, prediabetes is of similar concern in all areas across the state.

Adult Prevalence of Prediabetes†

The prevalence of prediabetes in Vermont has not changed significantly from 2008 through 2014.

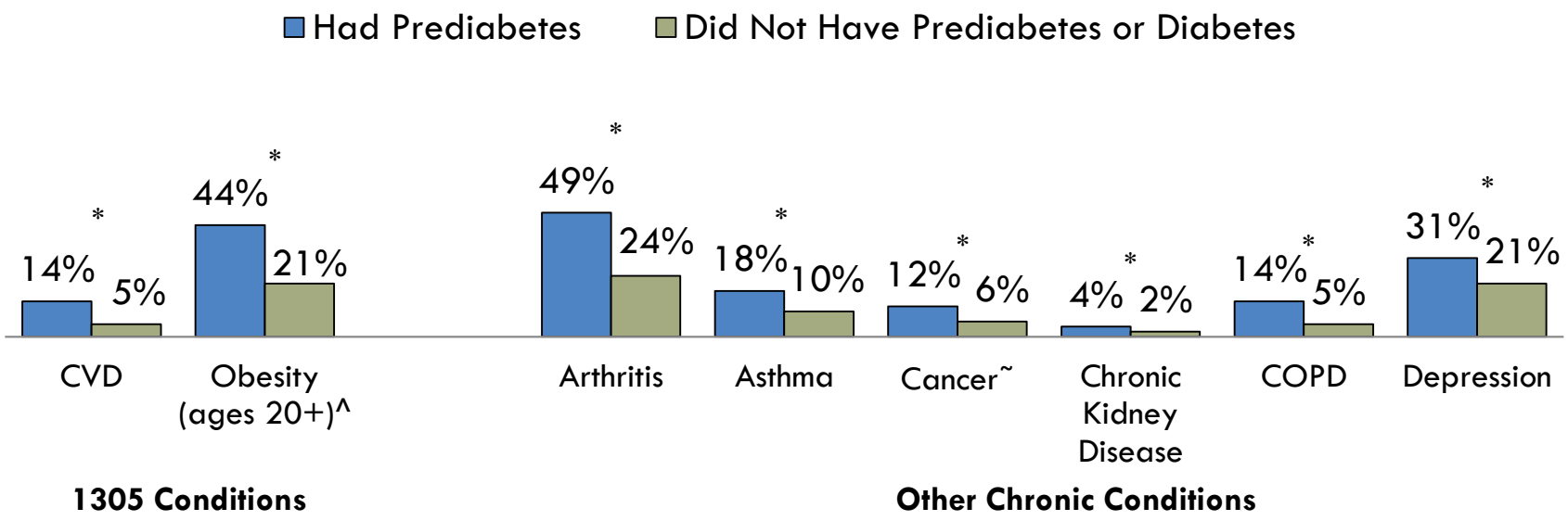


Source: Vermont Behavioral Risk Factor Surveillance System 2008-2014.

Prevalence of Chronic Disease among Adults with Prediabetes

Of Vermont adults who had prediabetes, close to half (44%) were also obese and 14% also had cardiovascular disease (CVD). Close to half of adult Vermonters with prediabetes also had arthritis (49%) and a third had a depressive disorder (31%). Vermont adults with prediabetes were significantly more likely to have all of the comorbid chronic conditions shown below than adults who did not have prediabetes or diabetes.

Prevalence of Chronic Disease among Adults with Prediabetes, 2014†

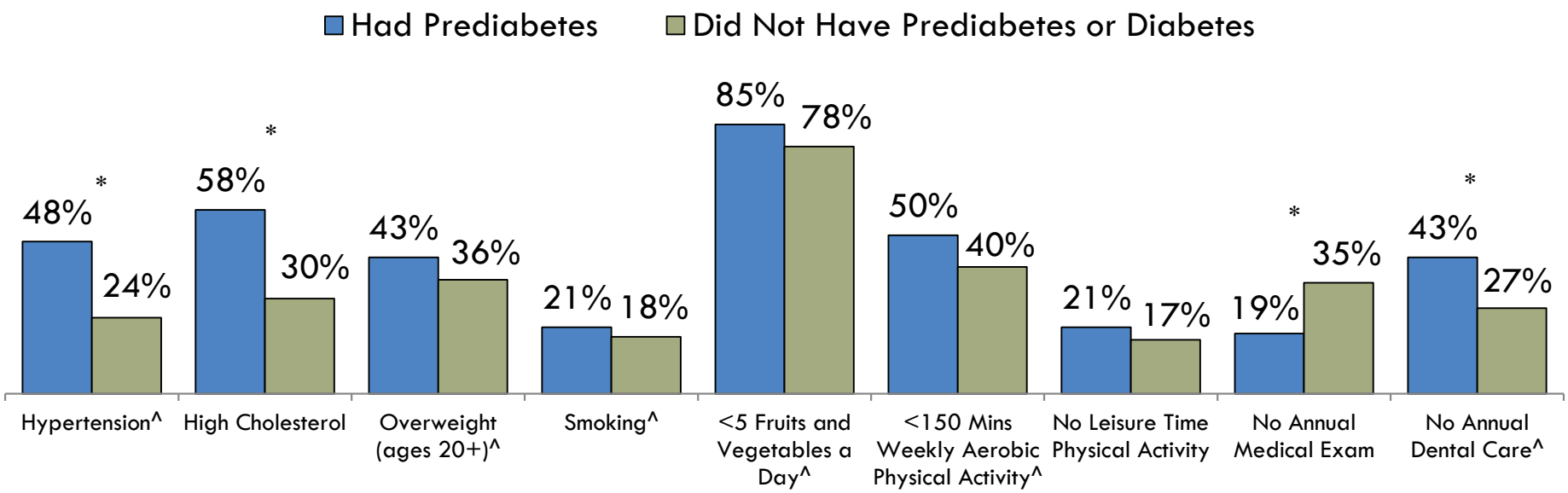


Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Chronic Disease Risk Factors among Adults with Prediabetes

Vermont adults with prediabetes were significantly more likely to have hypertension, high cholesterol, and receive no annual dental care when compared to adults who did not have prediabetes or diabetes. Adult Vermonters who had prediabetes were significantly less likely to not get an annual medical exam than adults who did not have prediabetes or diabetes.

Prevalence of Chronic Disease Risk Factors among Adults with Prediabetes†



Source: Vermont Behavioral Risk Factor Surveillance System 2013 (hypertension, cholesterol, nutrition, meeting physical activity recommendations) and 2014 (overweight, smoking, no leisure time physical activity, medical exam, dental care).

Cardiovascular Disease (CVD)

Coronary Heart Disease

Heart Attack

Stroke

Cardiovascular Disease (CVD)

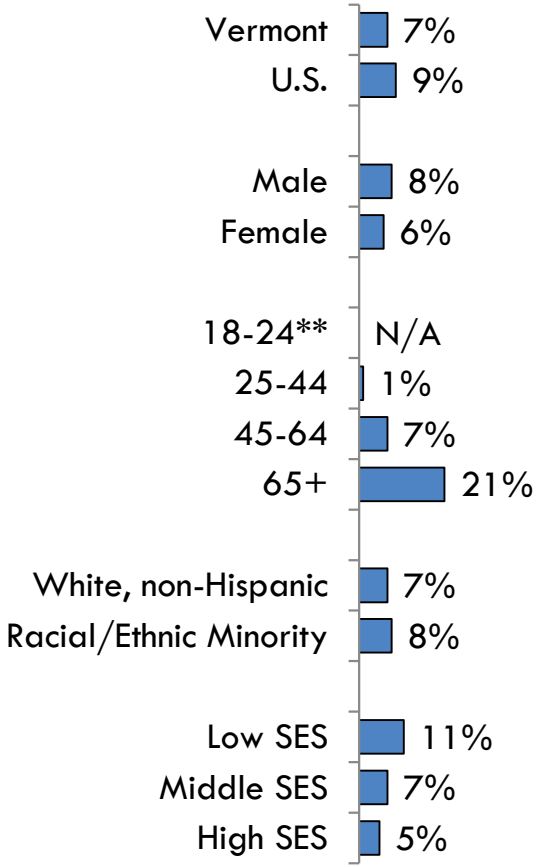
- CVD is a term that refers to several types of heart conditions, including coronary heart disease, heart attack, and stroke.[1]
- Certain things can increase the risk of CVD including: several health conditions, lifestyle, age, and family history.[1]
  - Almost half of Americans[1] and over half of Vermonters[2] have at least one of the key risk factors for CVD: high blood pressure (hypertension), high cholesterol, or smoking.
  - Other health conditions and behaviors that can lead to CVD are diabetes, overweight and obesity, poor diet, physical inactivity, and excessive alcohol use.[1]
- CVD is one of the leading causes of death in the U.S.[1] and in Vermont[3].

Source: [1]Centers for Disease Control and Prevention, Heart Disease, August 10, 2015.
[2]Vermont Behavioral Risk Factor Surveillance System 2013.
[3]Vermont Vital Statistics 2012.

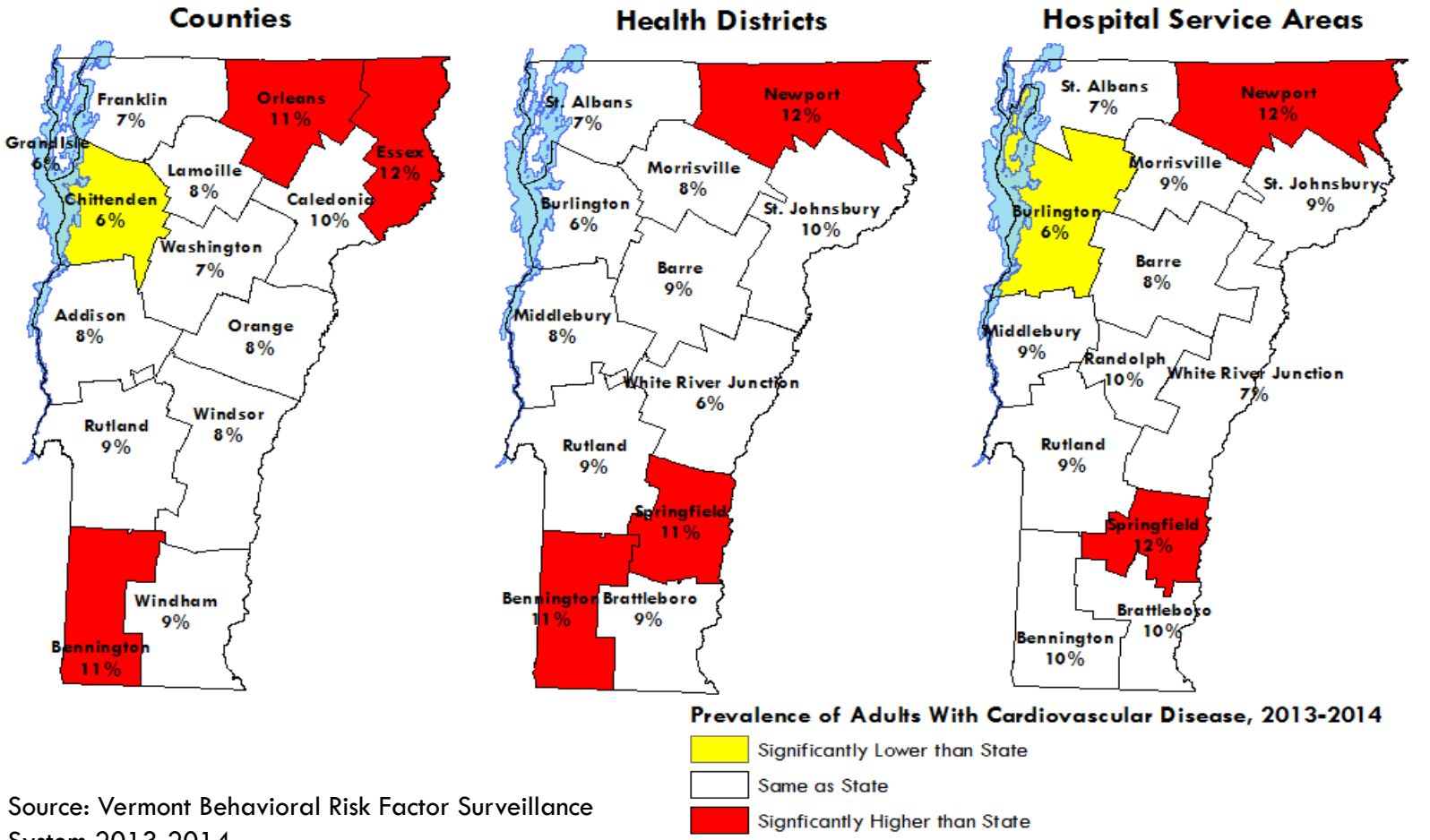
Adults with Cardiovascular Disease

- About 7% of Vermont adults have been diagnosed with cardiovascular disease (CVD) (or approximately (37,000 adults).
  - Vermont adults were significantly less likely to have CVD than the 9% of U.S. adults overall.
  - Males were significantly more likely to have CVD than females.
  - The prevalence of CVD significantly increased with advancing age.
  - Those with lower socioeconomic status are significantly more likely to have CVD.

Adult Prevalence of Cardiovascular Disease (CVD), 2014†



Source: Vermont Behavioral Risk Factor Surveillance System 2014.



Source: Vermont Behavioral Risk Factor Surveillance System 2013-2014.

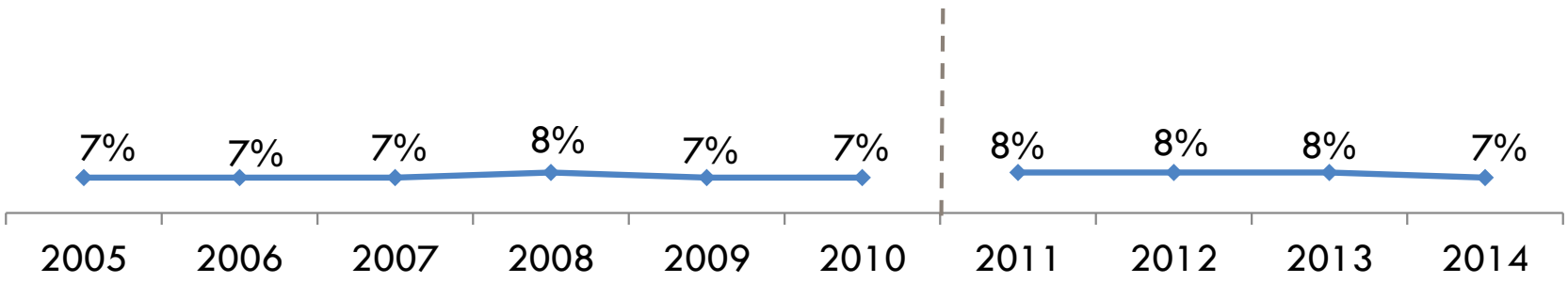
Adult Prevalence of Cardiovascular Disease by Subgeography

Regionally the northeastern and southern areas of the state have significantly higher rates of CVD when compared to the state average.

Adult Prevalence of Cardiovascular Disease†

The prevalence of CVD in Vermont has remained stable and statistically unchanged since 2005. This includes 4% who had been diagnosed with coronary heart disease (CHD), 4% who had a heart attack, and 2% who had a stroke in 2014. The rates of CHD, heart attack, and stroke are also similar to previous years.

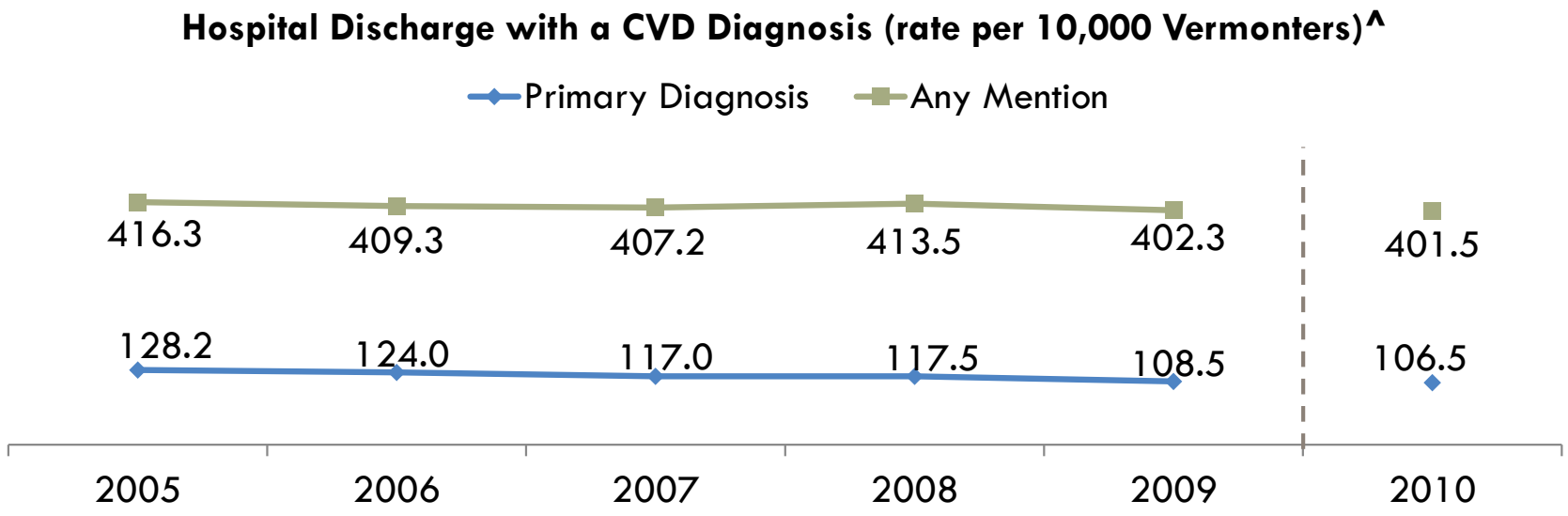
Prevalence of Adults with Cardiovascular Disease•



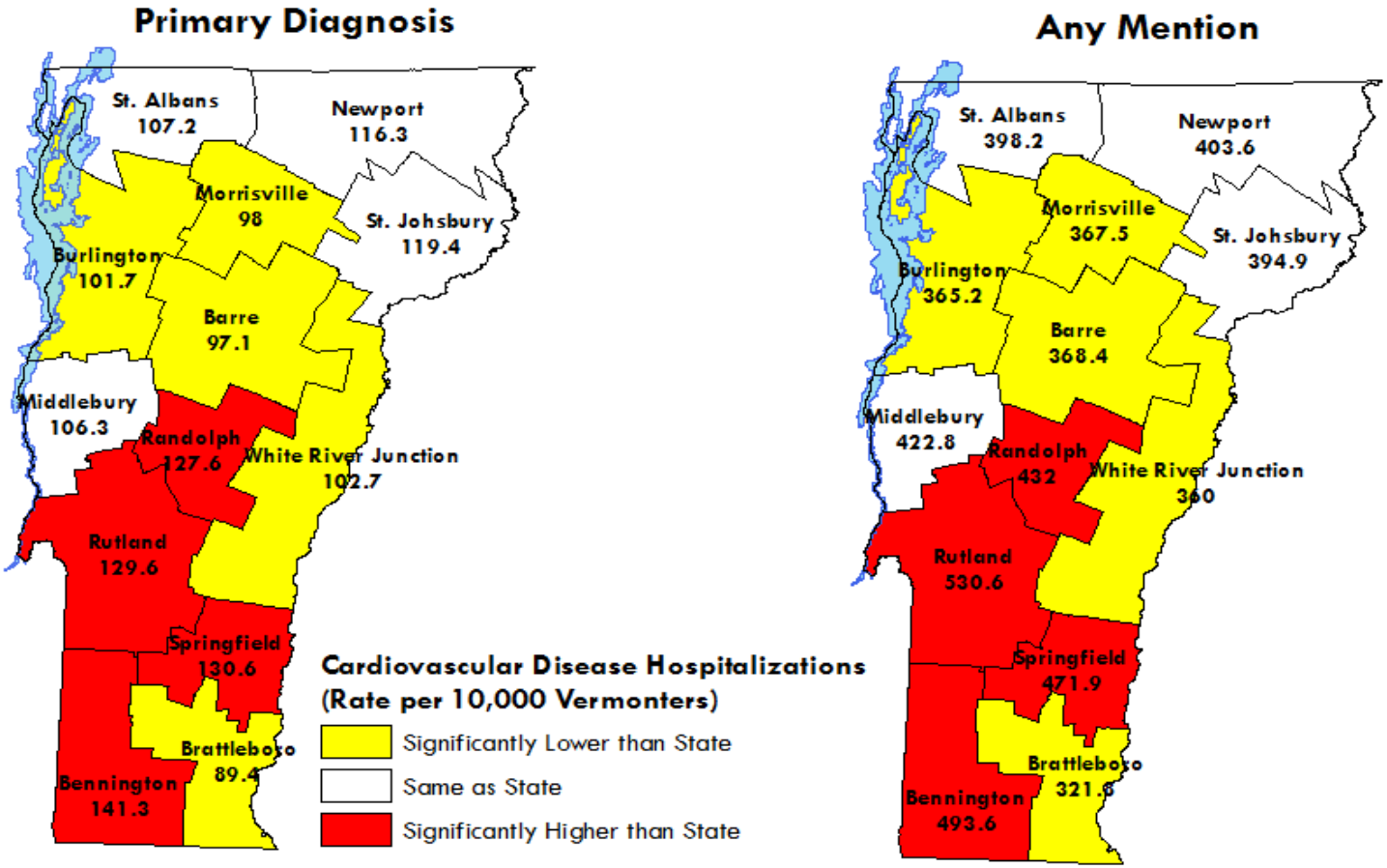
Source: Vermont Behavioral Risk Factor Surveillance System 2005-2014.

Cardiovascular Disease-Related Hospital Discharges†

In 2010, there were 106.5 hospital discharges with a primary diagnosis of CVD for every 10,000 Vermonters (7,845 discharges). Any mention of CVD as a factor for hospitalization occurred in 401.5 hospital discharges for every 10,000 Vermonters (28,735 discharges) indicating a substantial number of discharges with CVD as a contributing factor.



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2005-2010.¤



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2008-2010.^¤

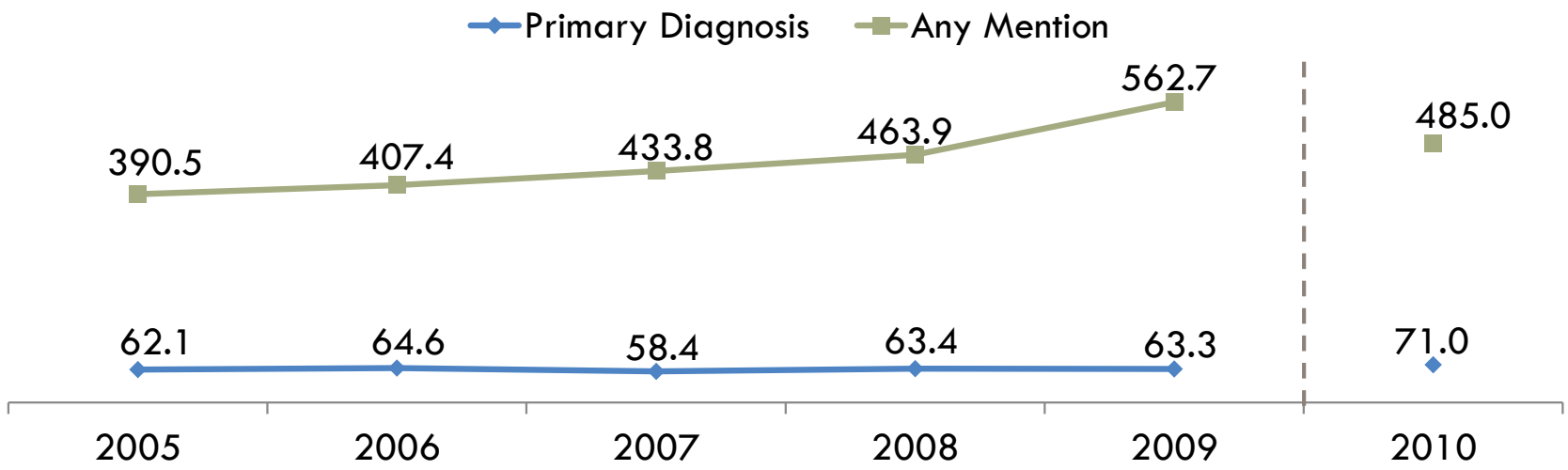
CVD-Related Hospital Discharges by Hospital Service Area (HSA)†

Hospital discharges with a primary diagnosis of CVD were significantly higher than the state average in central and southwestern Vermont, when compared to the state average. Any mention of CVD mirrored the rate of CVD as a primary diagnosis but was much higher throughout all HSAs.

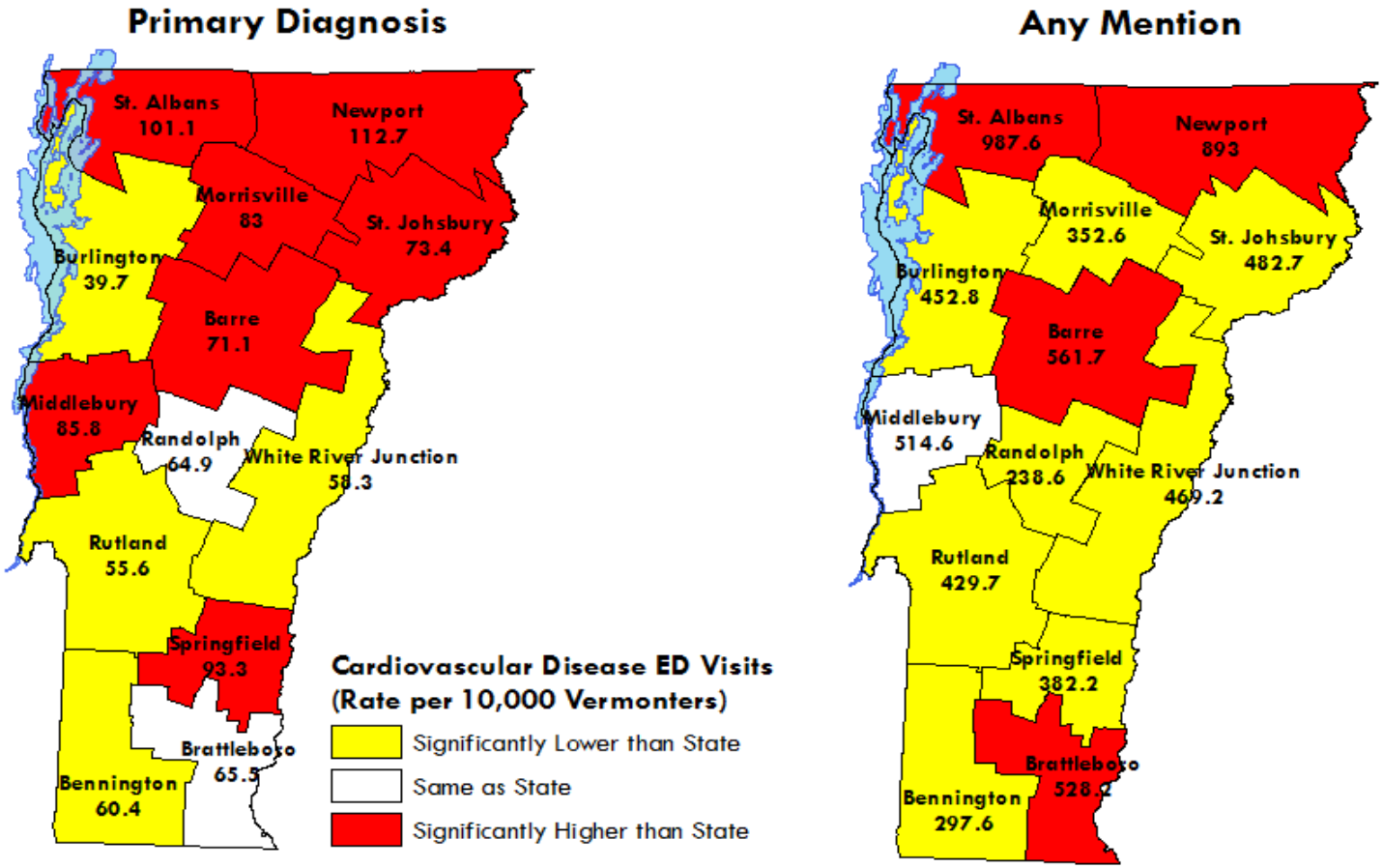
Cardiovascular Disease-Related Emergency Department Visits†

In 2010, there were 71.0 ED visits with a primary diagnosis of CVD for every 10,000 Vermonters (5,161 ED visits). For every 10,000 Vermonters, 485.0 had any mention of CVD during an ED visit (35,001 ED visits). As a primary diagnosis, CVD-related ED visits have remained stable over time, any mention of CVD however rose from 2007-2009. The higher rates for any mention of CVD indicates that it is an important contributing factor for ED visits.

ED Visits with a CVD Diagnosis (Rate per 10,000 Vermonters)^



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2005-2010.¤



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2008-2010.^¤

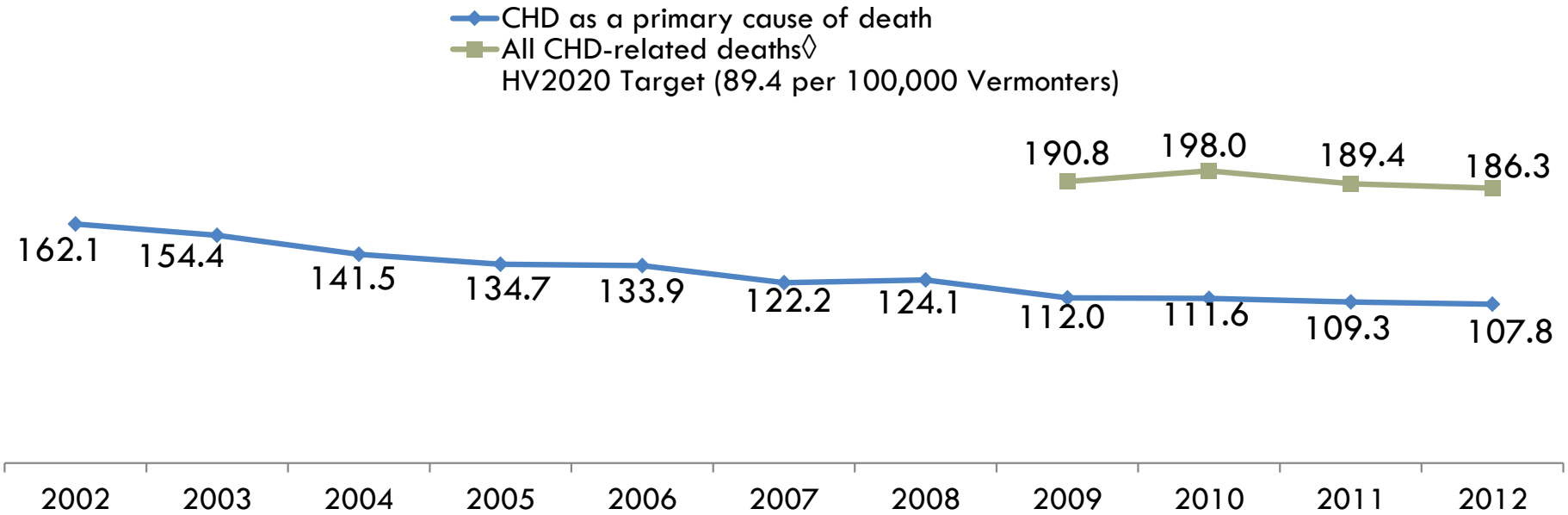
CVD-Related Emergency Department Visits by Hospital Service Area (HSA)†

St. Albans, Newport, and Barre HSAs had significantly higher rates of ED visits for CVD as a primary diagnosis when compared to the state and these rates remained higher than the state for any mention. Vermonters were more likely to be hospitalized for CVD in the south and be seen in an ED and not admitted in the north (see page 48 for hospital discharges).

Coronary Heart Disease Related Mortality†

The all coronary heart disease (CHD)-related mortality for Vermont in 2012 was 186.3 deaths per 100,000 Vermonters. CHD deaths as a primary cause of death steadily decreased from 2002 through 2012. In 2012 CHD as a primary cause of death (107.8 deaths for every 100,000 Vermonters) was well above the Healthy Vermonters 2020 target of 89.4 deaths for every 100,000 Vermonters but was below the 2009 baseline.

Coronary Heart Disease-Related Mortality (Rate per 100,000 Vermonters)^

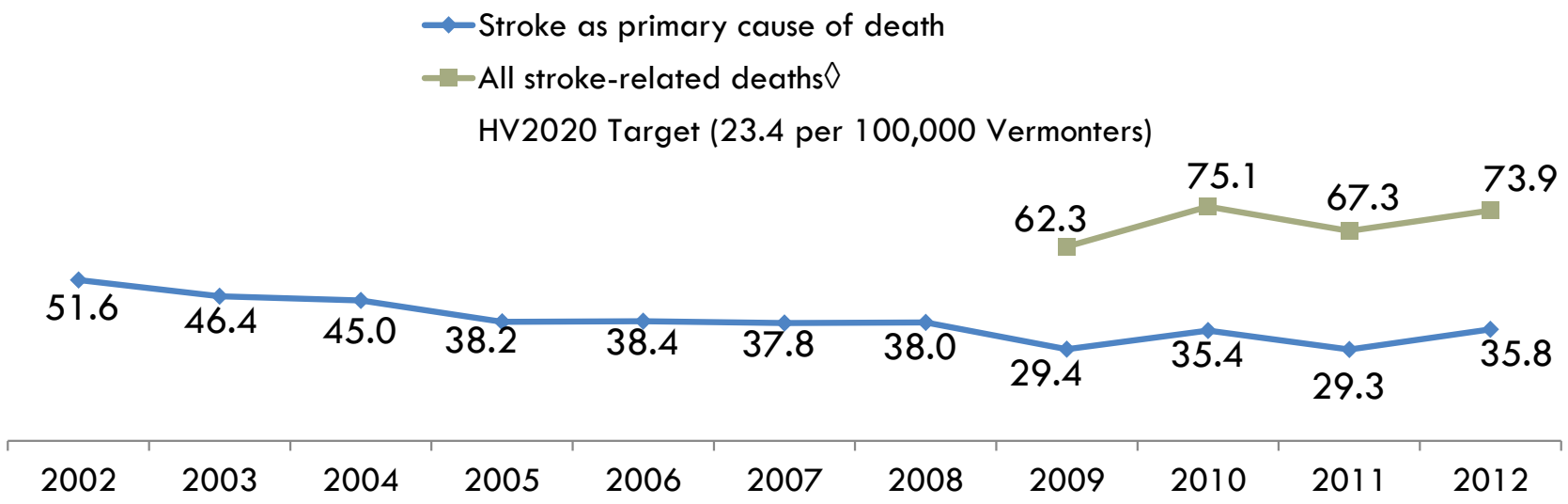


Source: Vermont Vital Statistics 2002-2012.

Stroke-Related Mortality†

In 2012, the stroke-related death rate was 73.9 deaths for every 100,000 Vermonters and stroke as a primary cause of death was 35.8 per 100,000 Vermonters. Overall, stroke as a primary cause of death has declined slightly from 2002 through 2012 with the last four years fluctuating slightly. All stroke-related deaths showed the same fluctuations from 2009-2012. As a primary cause of death, stroke is above the Healthy Vermonters 2020 target of 23.4 deaths for every 100,000 Vermonters and above the 2009 baseline.

Stroke-Related Mortality (Rate per 100,000 Vermonters)^

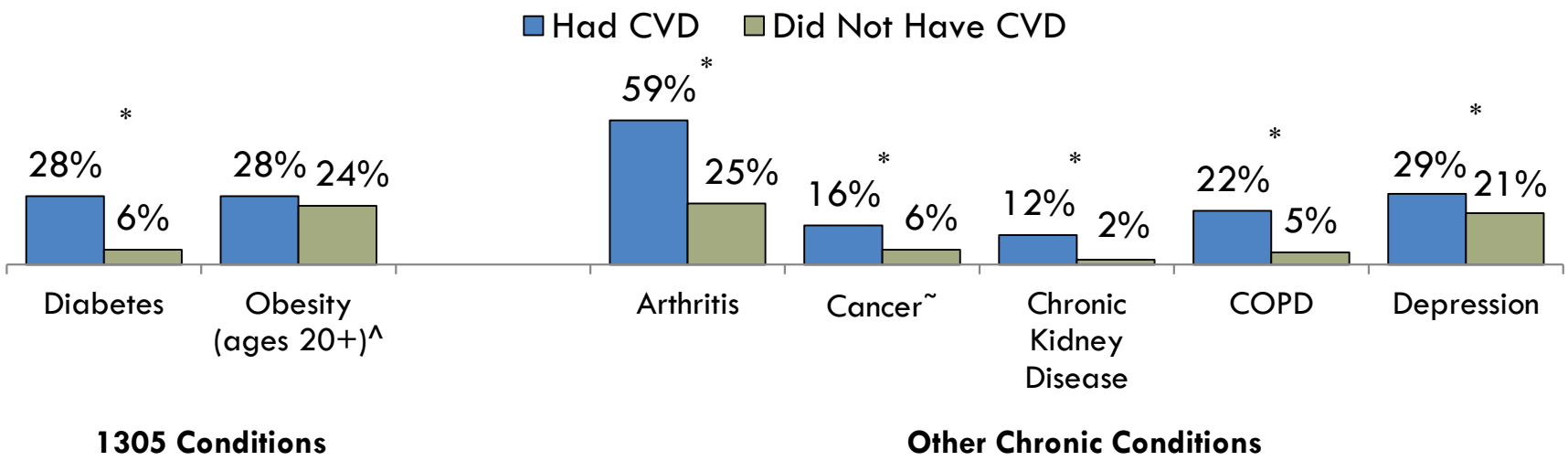


Source: Vermont Vital Statistics 2002-2012.

Chronic Disease Comorbidities for Adults with Cardiovascular Disease

Twenty-eight percent of adults with CVD also had diabetes or were obese. Close to two-thirds (59%) of adult Vermonters who had cardiovascular disease (CVD) in 2014 also had arthritis. Adult Vermonters with CVD were significantly more likely to have arthritis, cancer, chronic kidney disease, COPD, depression, and diabetes than adults who did not have CVD. There was no significant difference in the prevalence of asthma (data not shown) or obesity between adults who had CVD and did not have CVD.

Prevalence of Chronic Disease Comorbidities among Adults with Cardiovascular Disease, 2014†

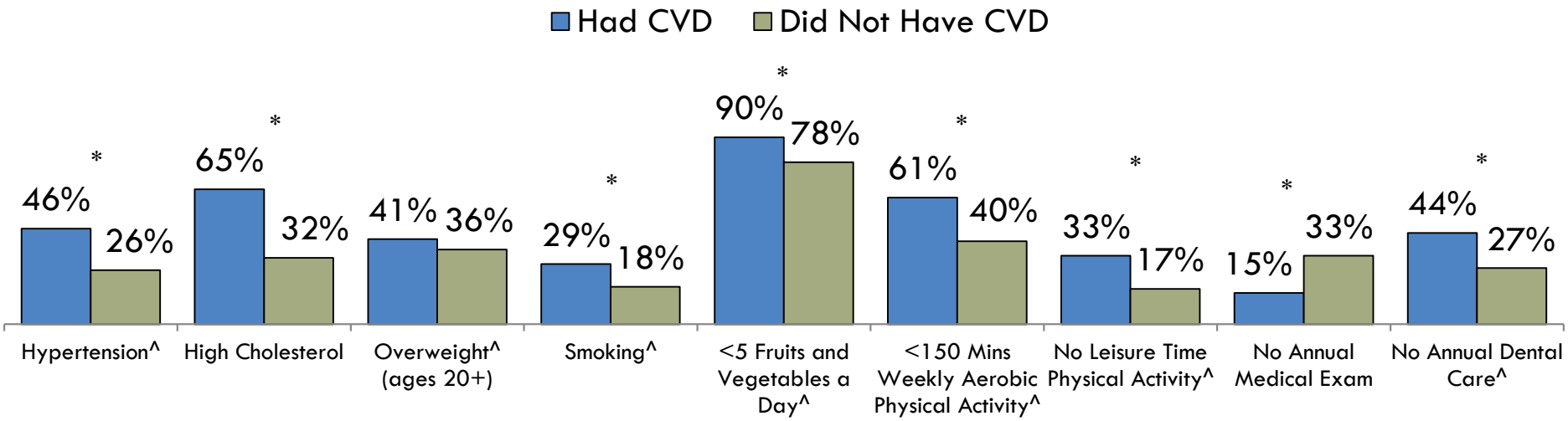


Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Adults with Cardiovascular Disease and Chronic Disease Risk Factors

Adults with CVD were significantly more likely to have hypertension, high cholesterol, smoke, consume less than 5 fruits or vegetables a day, not meet weekly physical activity recommendations, participate in no leisure time physical activity, and not receive annual dental care when compared to adults who did not have CVD. Adults who had CVD were significantly less likely to not get an annual medical exam when compared to adults who did not have CVD.

Prevalence of Chronic Disease Risk Factors among Adults with Cardiovascular Disease†



Source: Vermont Behavioral Risk Factor Surveillance System 2013 (hypertension, cholesterol, meeting physical activity recommendations, nutrition) and 2014 (overweight, smoking, no leisure time physical activity, medical exam, dental care).

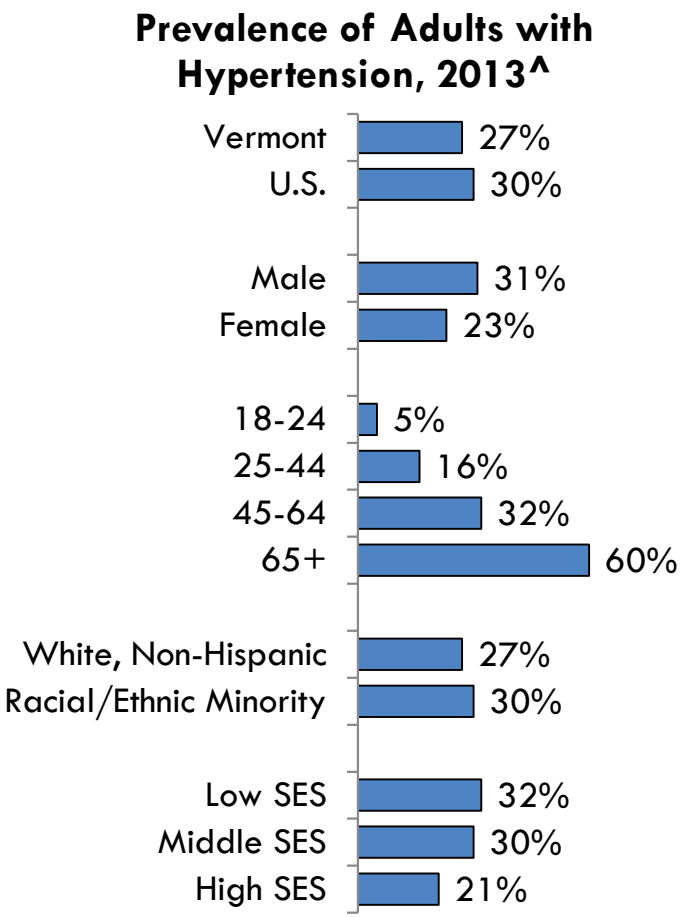
Hypertension

Hypertension

- Blood pressure normally rises and falls throughout the day. If it remains high for a long time, it can cause damage to the heart.[1]
- Having high blood pressure (hypertension) raises the risk for heart disease and stroke, which are some of the leading causes of death in the U.S.[1] and in Vermont[2].
  - With age blood vessels become less flexible and increase the pressure throughout the circulatory system. This increases the risk of hypertension with advancing age.[3]
  - Hypertension can further harden the arteries which decreases blood flow, and increasing the risk for health issues at any.[1]
- There are no warning signs or symptoms for hypertension and many people do not know they have it.[1]

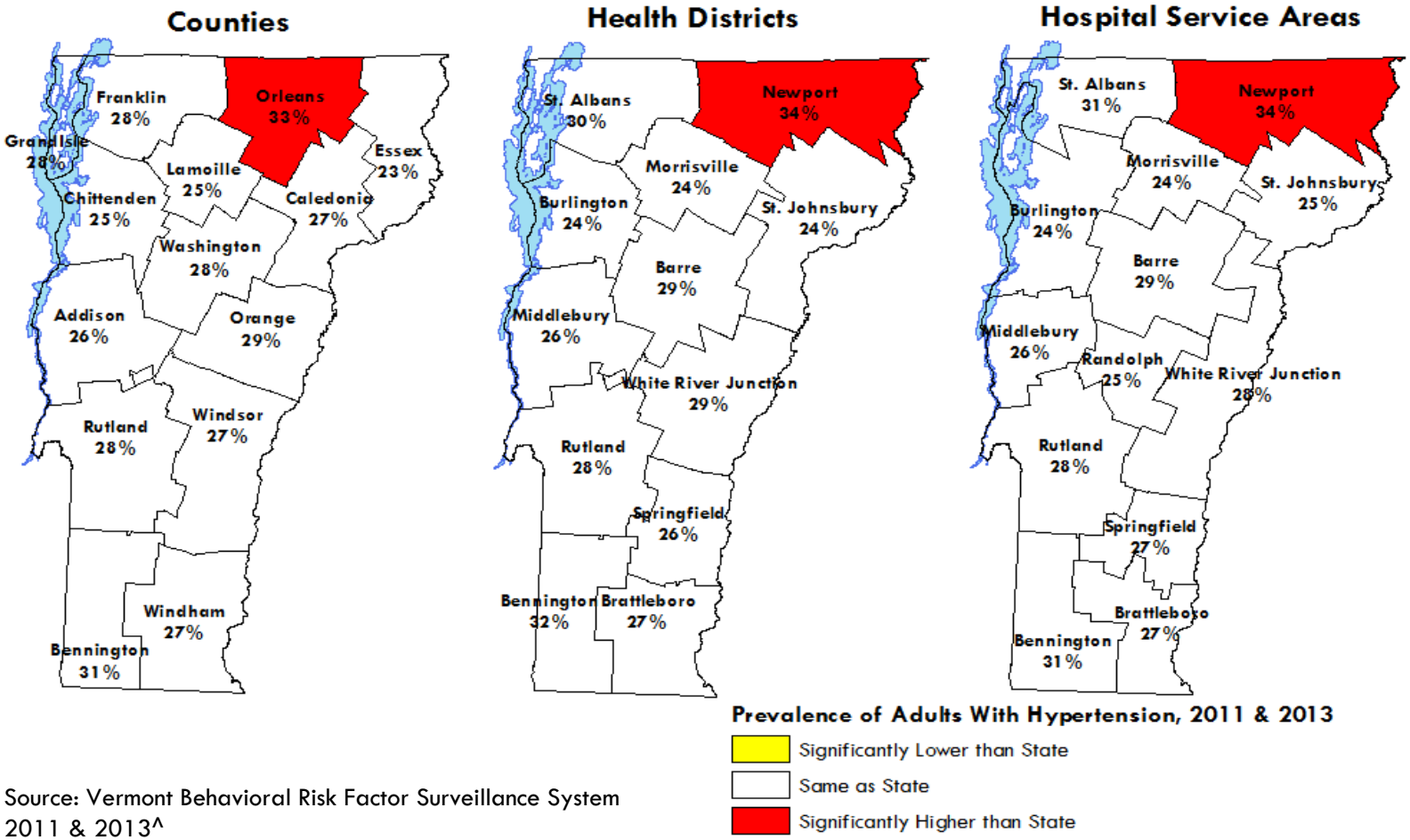
Source: [1]Centers for Disease Control and Prevention, High Blood Pressure, July 7, 2014.
[2]Vermont Vital Statistics, 2012.
[3]American Heart Association, Understand Your Risk for High Blood Pressure, September 4, 2014.

Adult Vermonters with Hypertension†



- In 2013 one-quarter (27%) of Vermont adults had been diagnosed with hypertension (or approximately 154,000 adults).[1]
  - Vermont adults were significantly less likely to have hypertension than U.S. adults overall.
  - Males were significantly more likely than females to have hypertension.
  - The likelihood of hypertension increases significantly with advancing age.
  - Those living at a Middle or Low socioeconomic status were significantly more likely to have hypertension than those at a High socioeconomic status.
- Up to 1 in 5 adults may have hypertension and not know it.[2] Meaning, approximately 72,000 additional Vermont adults may have hypertension.

Source: [1]Vermont Behavioral Risk Factor Surveillance System 2013.
[2] Centers for Disease Control and Prevention. 2012. *MMWR*; 61(35):703-709.



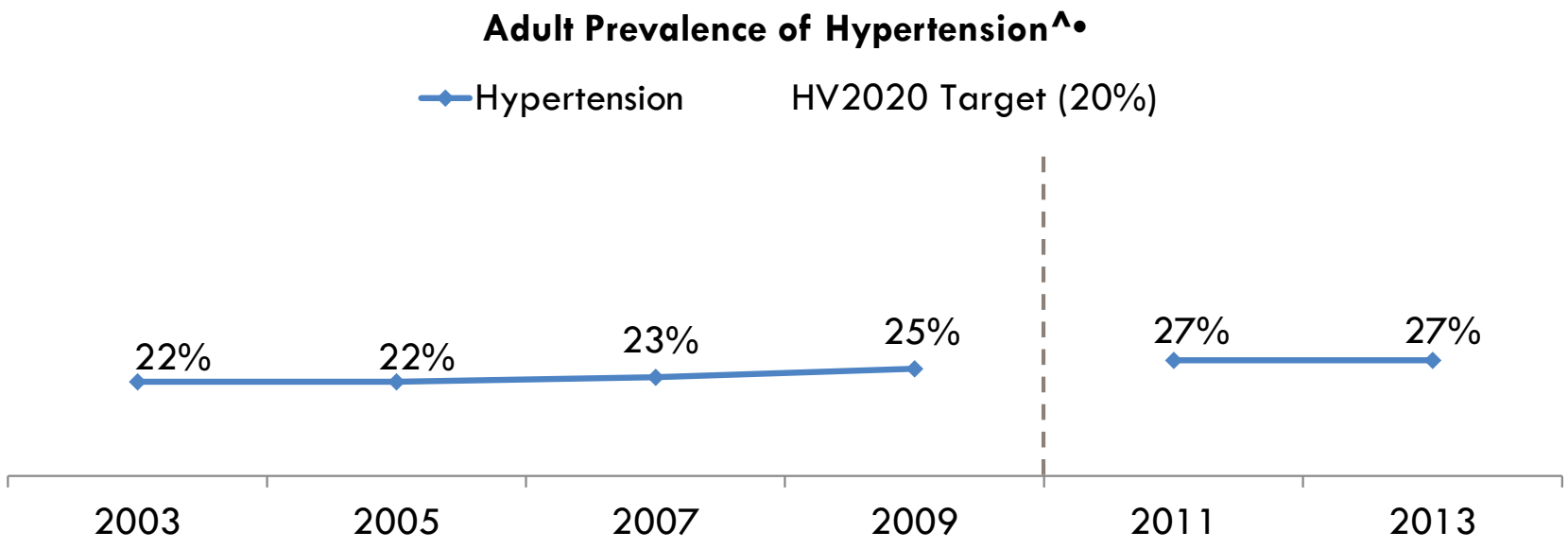
Source: Vermont Behavioral Risk Factor Surveillance System 2011 & 2013^

Adult Rates of Hypertension by Subgeography†

Regionally, northeastern Vermont: Orleans County, Newport Health District, and the Newport Hospital Service Area (HSA), were higher than the state average for the prevalence of hypertension (27%).

Adult Prevalence of Hypertension†

The prevalence of hypertension in Vermont has remained statistically unchanged since 2003. The prevalence of hypertension is above the Healthy Vermonters 2020 target of 20%.

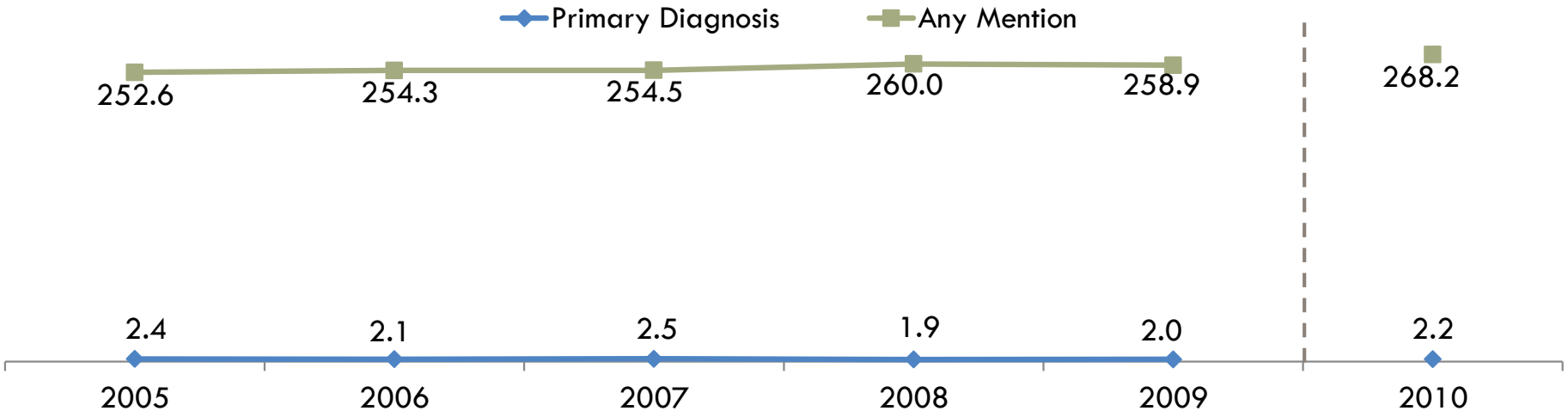


Source: Vermont Behavioral Risk Factor Surveillance System 2003-2013.

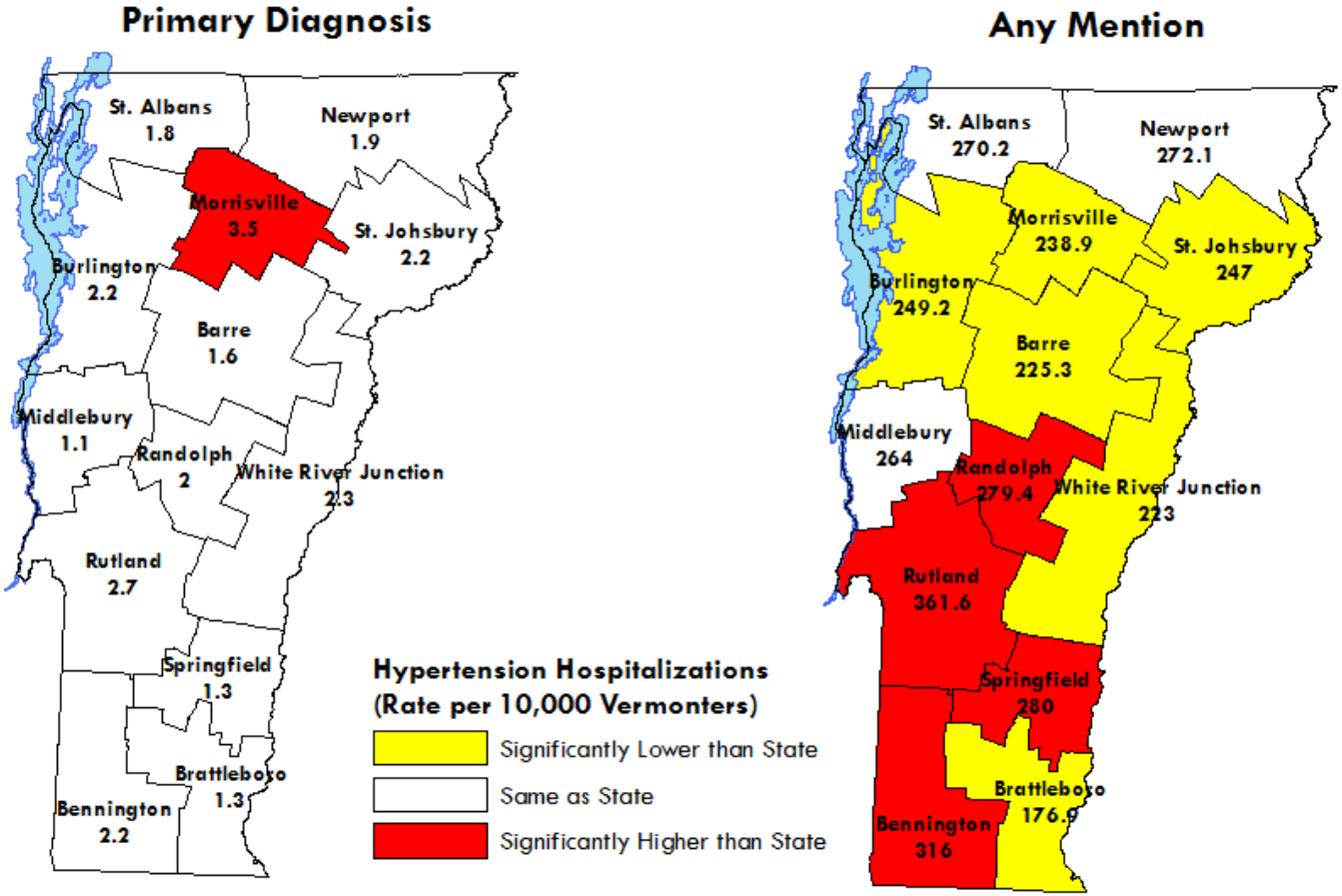
Hypertension-Related Hospital Discharges†

In 2010, there were 2.2 hospital discharges with a primary diagnosis of hypertension for every 10,000 Vermonters (160 discharges). Any mention of hypertension as a factor for hospitalization occurred in 268.2 hospital discharges for every 10,000 Vermonters (29,361 discharges), indicating hypertension is a common contributing factor for hospitalization. The trends for hypertension both as a primary diagnosis and any mention during hospitalization were stable from 2005-2010.

Hospital Discharges with a Diagnosis of Hypertension (rate per 10,000 Vermonters)^



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2005-2010.¤



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2008-2010.^¤

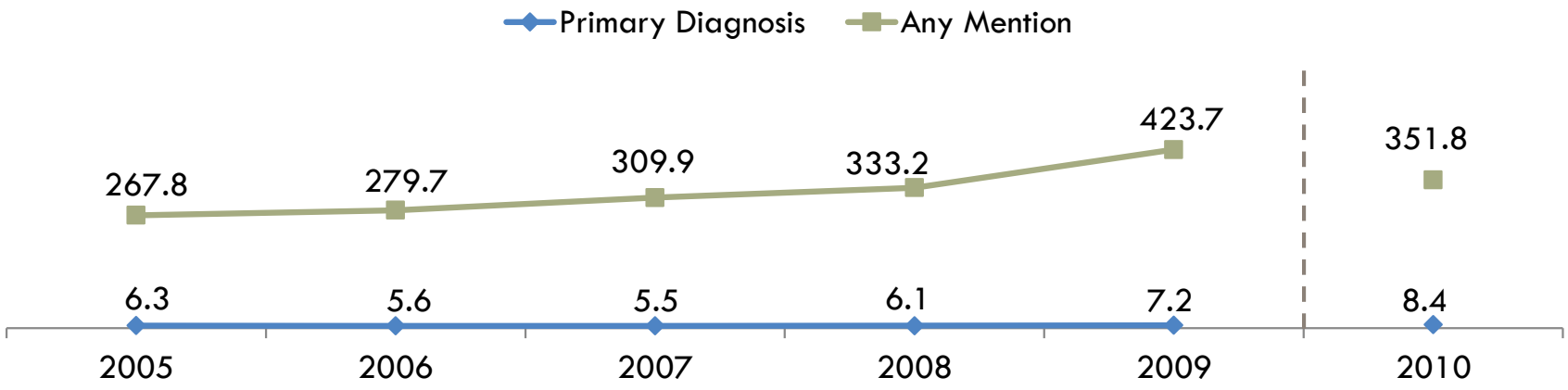
Hypertension-Related Hospital Discharges by Hospital Service Area (HSA)†

The Morrisville Hospital Service Area (HSA) had higher hospital discharges with a primary diagnosis of hypertension when compared to the state average. For any mention of hypertension, HSAs in the southwestern region of the state, are higher than the state average.

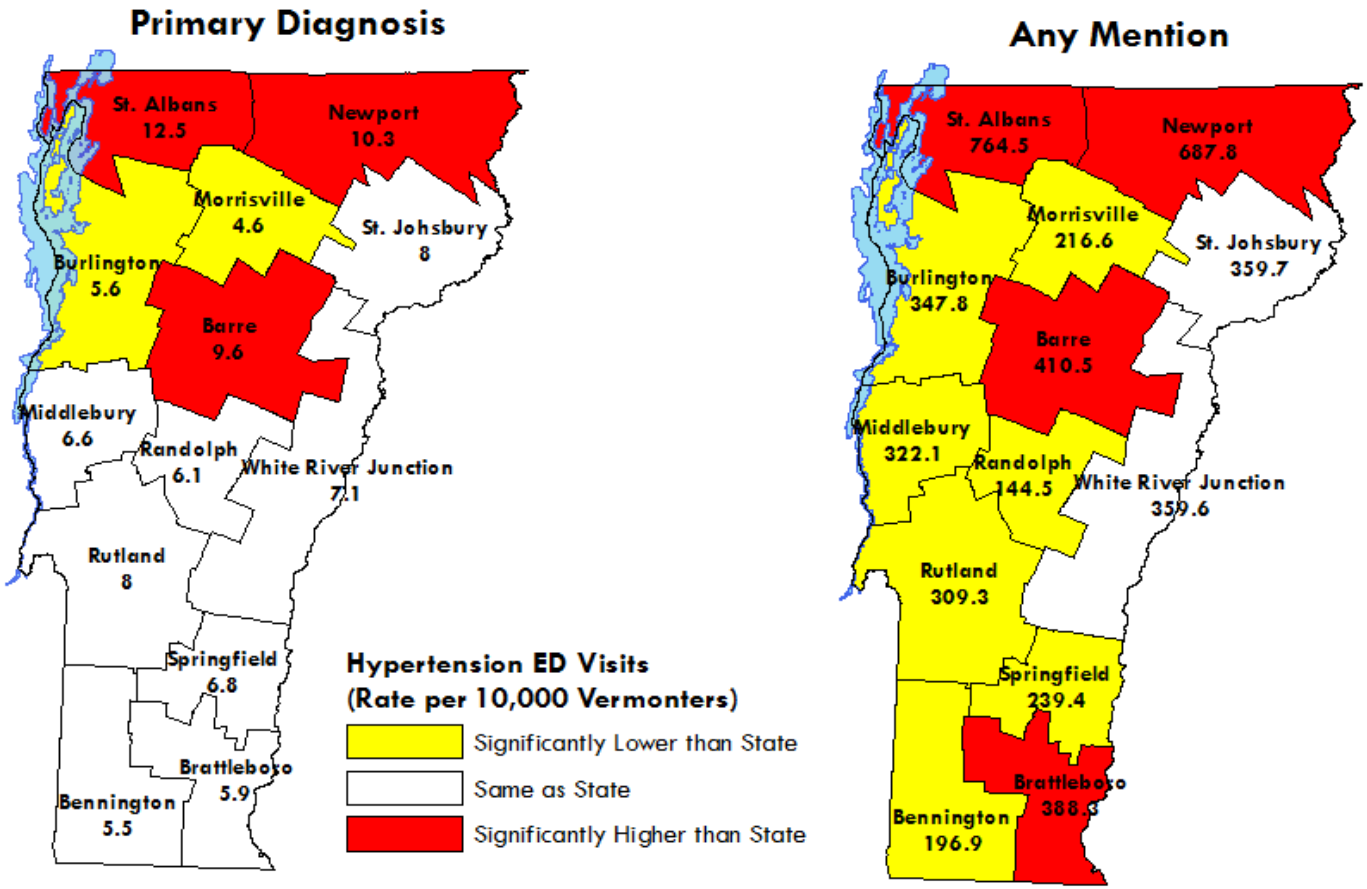
Hypertension-Related Emergency Department Visits†

In 2010, there were 8.4 ED visits with a primary diagnosis of hypertension for every 10,000 Vermonters (594 ED visits). For every 10,000 Vermonters, 351.8 had any mention of hypertension during an ED Visit (25,536 ED visits), indicating hypertension is a common underlying factor ED visits among Vermont residents. As a primary diagnosis for ED visits, hypertension has remained stable from 2005-2010. Any mention of hypertension during an ED visit steadily increased from 2005-2009.

ED Visits with a Diagnosis of Hypertension (rate per 10,000 Vermonters)^



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2005-2010.¤



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2008-2010.^¤

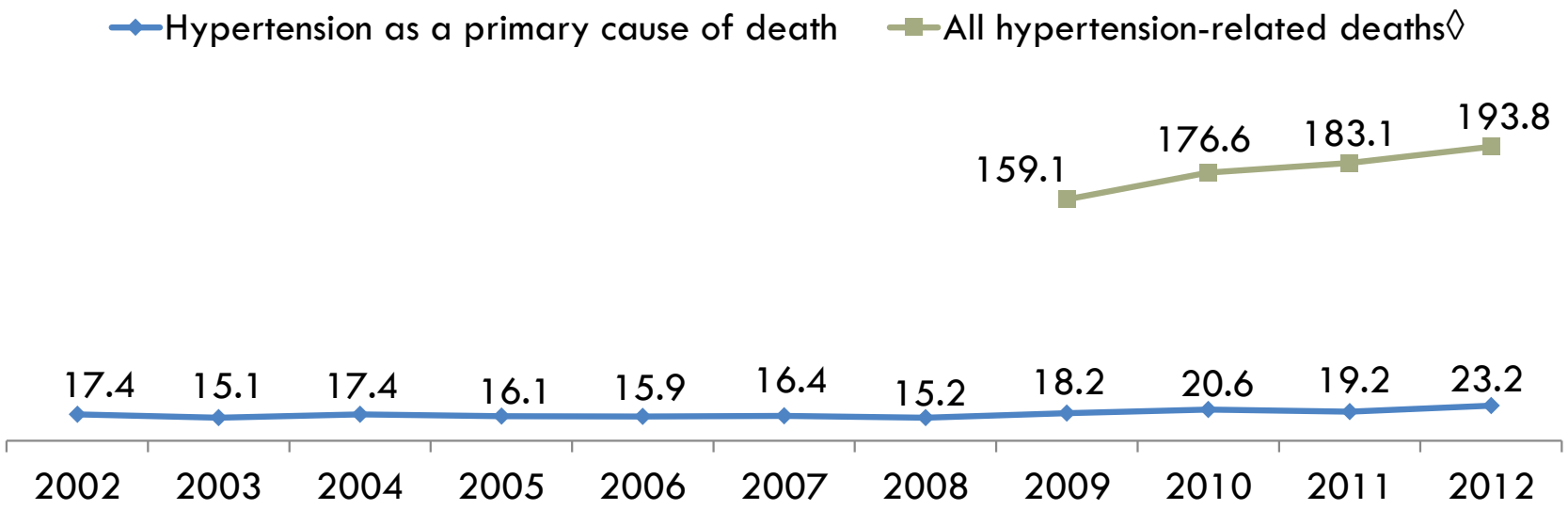
Hypertension-Related Emergency Department Visits by Hospital Service Area (HSA)†

Regionally, St. Albans, Newport, and Barre HSAs had significantly higher rates of ED visits for both primary diagnosis and any mention of hypertension during an ED visit while Burlington and Morrisville were consistently lower than the state average. Brattleboro was also significantly higher than the state for any mention of hypertension during an ED visit.

Hypertension-Related Mortality†

Hypertension as a primary cause of death remains relatively low and stable in Vermont compared to any mention of hypertension which is much higher. Any mention of hypertension increased 2009-2012 indicating hypertension as a contributing factor for mortality is increasing, potentially driving an increase in all hypertension-related deaths. In 2012 hypertension as a primary cause was 23.2 per hundred thousand Vermonters. All-hypertension-related deaths in 2012 accounted for 193.8 deaths per 100,000.

Hypertension-Related Mortality (Rate per 100,000 Vermonters)

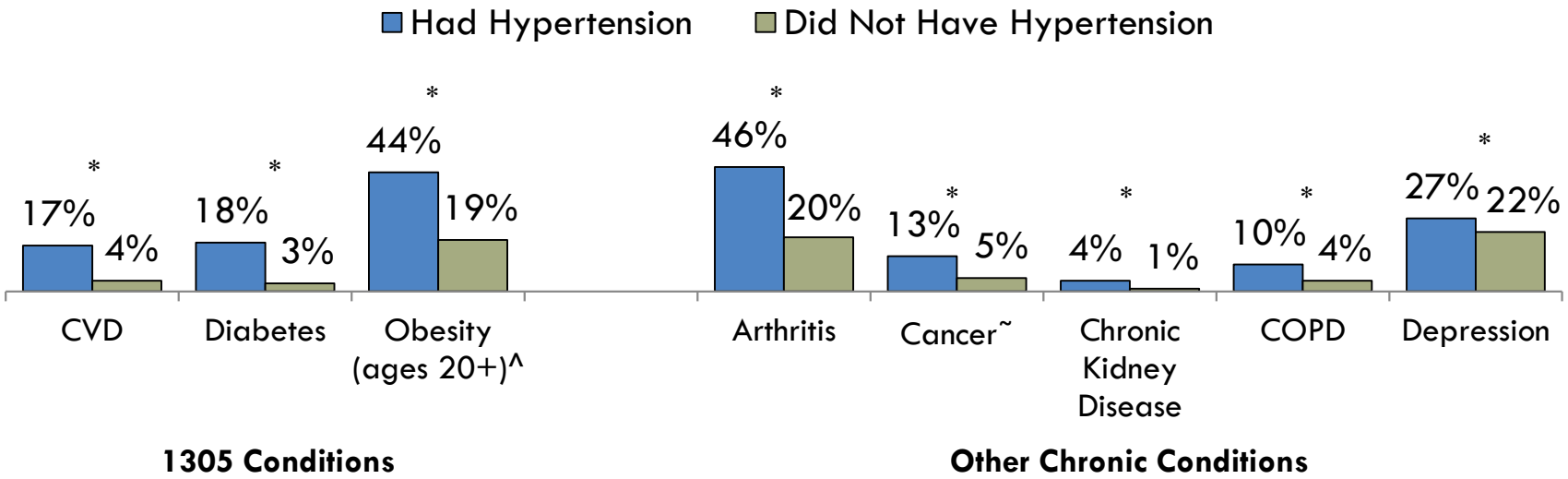


•Data with underlying causes of mortality are only available starting in 2009.
Source: Vermont Vital Statistics 2002-2012.

Chronic Disease Comorbidities for Adults with Hypertension†

Close to half of Vermont adults who had hypertension were also obese (44%); less than half as many also had diabetes (18%) or CVD (17%). Close to half of all Vermont adults also had arthritis (46%). Adults with hypertension were significantly more likely to have arthritis, cancer, chronic kidney disease, CVD, depression, diabetes, or obesity than adults who did not have hypertension. There was no significant difference in the prevalence of asthma (data not shown) between adults who had hypertension and did not have hypertension.

Prevalence of Comorbid Chronic Diseases among Adults with Hypertension, 2013

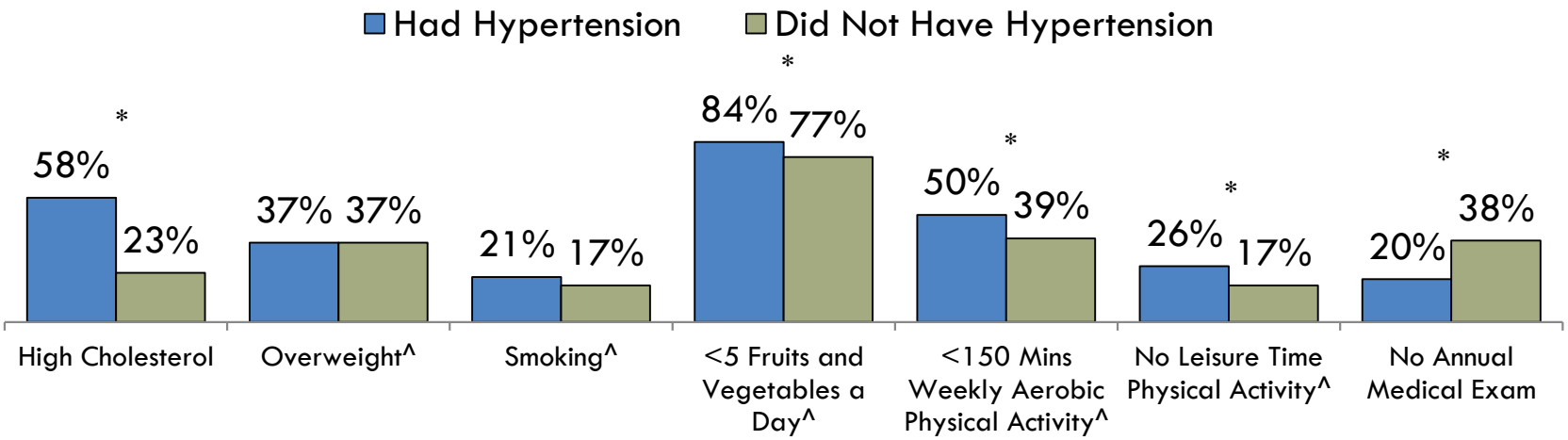


Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Adults with Hypertension and Other Chronic Disease Risk Factors†

Vermont adults with hypertension were significantly more likely to have high cholesterol, consume less than 5 fruits or vegetables a day, not meet weekly physical activity recommendations, participate in no leisure time physical activity, and not receive an annual medical exam when compared to adults who did not have hypertension. Adults with hypertension were significantly less likely to not get an annual medical exam than adults who did not have hypertension.

Chronic Disease Risk Factors among Adults with Hypertension, 2013



Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Obesity

Obesity

- A body weight that is **excessively high** in relation to height is known as obesity.
- Obesity is a complex health issue resulting from several behavioral and genetic factors.
  - Behaviors such as dietary patterns, level of physical activity, use of medications can increase the risk of obesity.
  - Contributing societal factors include the nutrition and physical activity environment, education and skills, and food marketing/promotion.
- Obesity is associated with poorer mental health outcomes, reduced quality of life, and numerous chronic health conditions that are the leading causes of death in the U.S. and worldwide including diabetes, heart disease, stroke, and some cancers.
- Obesity is a leading cause of preventable death in the U.S.

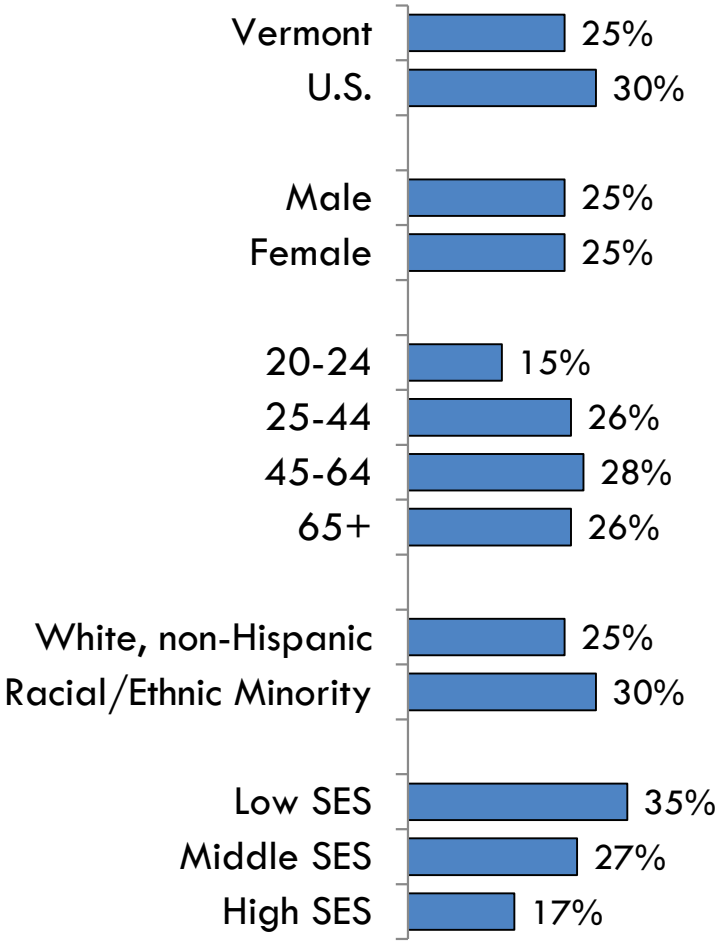
Source: Centers for Disease Control and Prevention, Overweight and Obesity, April 27, 2012.

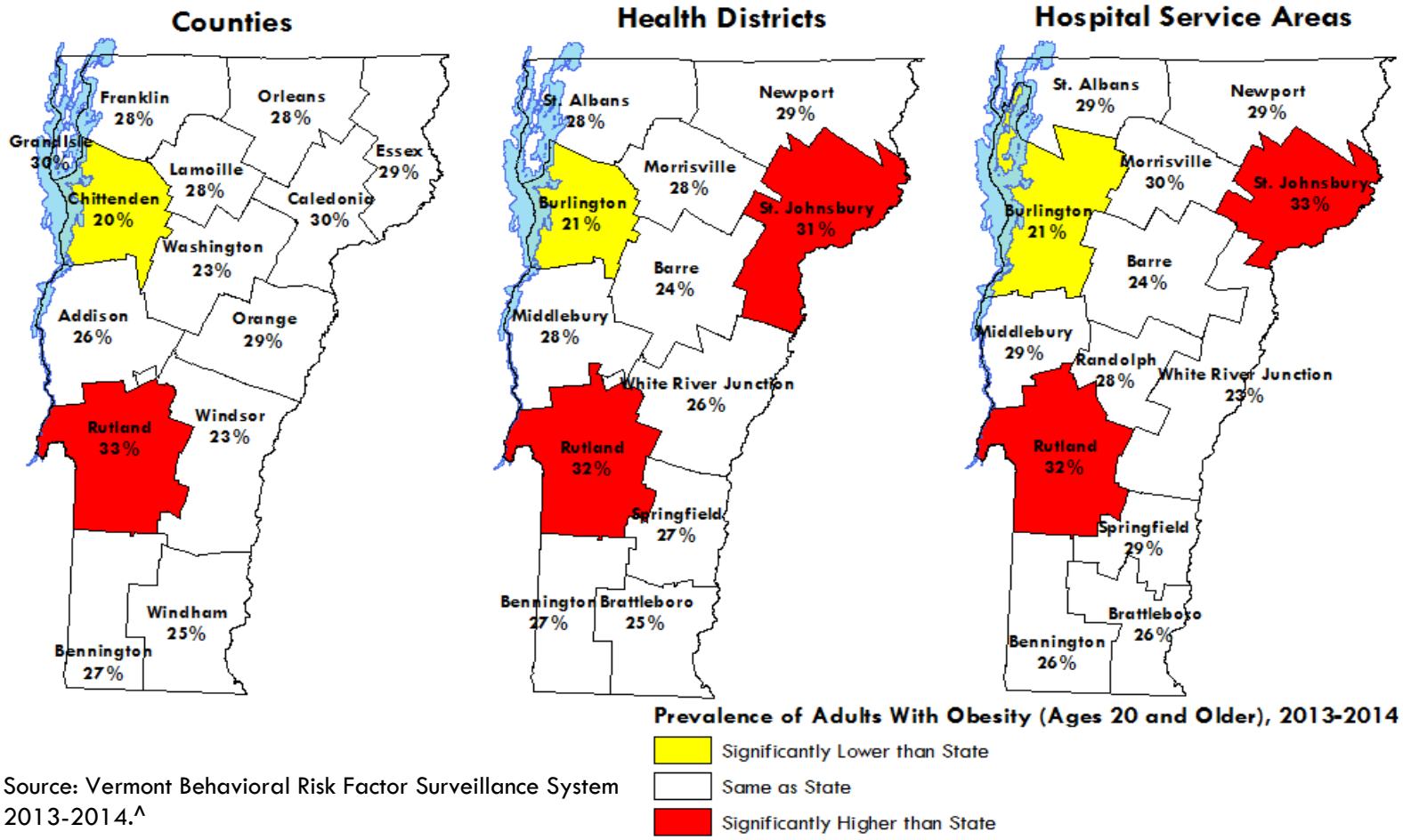
Obesity among Adults 20 Years and Older†

- A quarter (25%) of Vermont adults (ages 20+) were obese in 2014 (or approximately 114,900 adults).
  - Vermont adults were significantly less likely to be obese than U.S. adults overall.
  - 20-24 year olds were significantly less likely to be obese than adults 25 and older.
  - The prevalence of obesity increases significantly with decreasing socioeconomic status.

Source: Vermont Behavioral Risk Factor Surveillance System 2014

Adults (ages 20+) Who Are Obese, 2014^





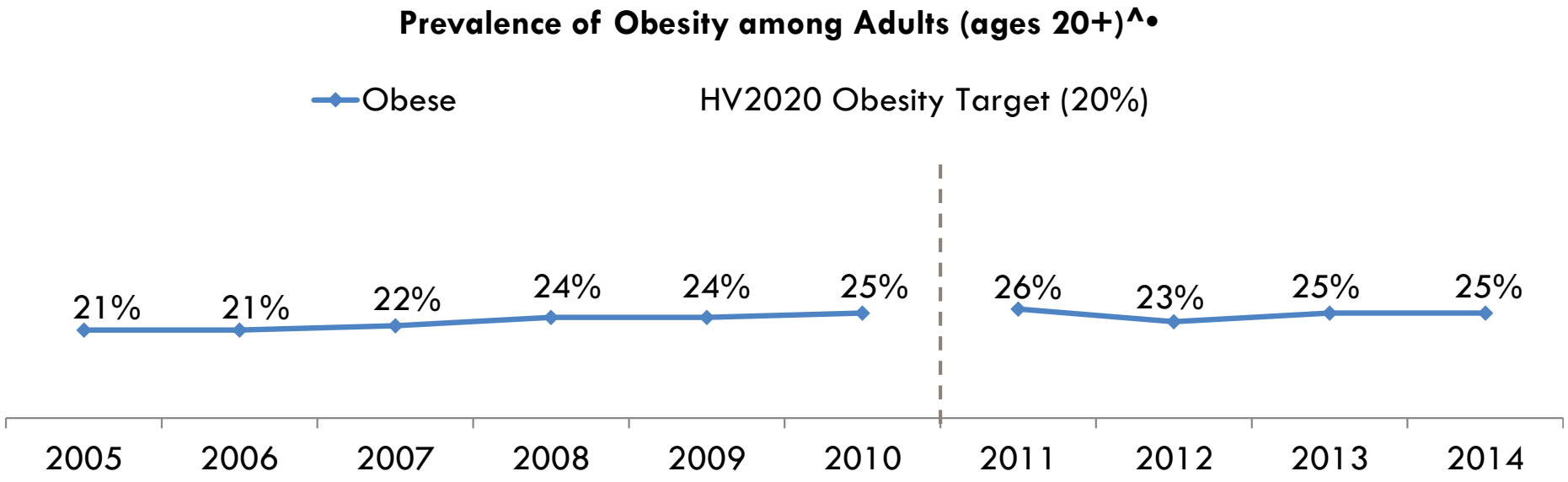
Source: Vermont Behavioral Risk Factor Surveillance System 2013-2014.^

Adult Prevalence of Obesity by Subgeography†

Regionally, areas near Rutland County and the St. Johnsbury Health District and Hospital Service Area (HSA) tended to have obesity rates higher than the average state prevalence of obesity among Vermont adults ages 20+ (25%).

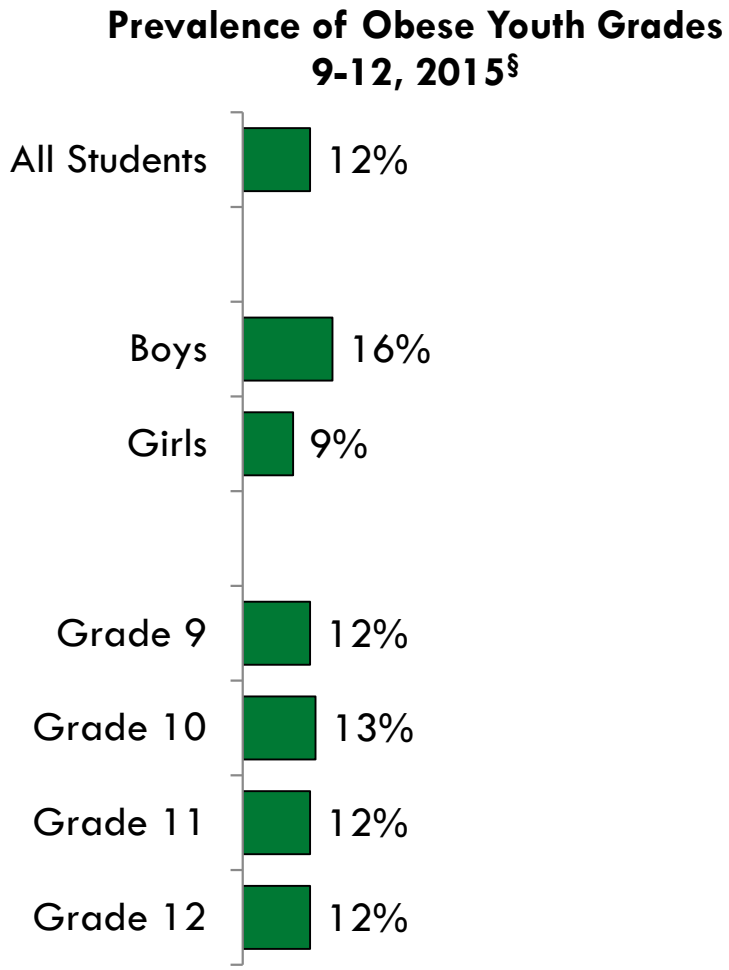
Adult Prevalence of Obesity†

The prevalence of obesity among Vermont adults ages 20 and older has not changed significantly from 2005 through 2014. The rate of obesity remains above the HV2020 target of 20%.



Source: Vermont Behavioral Risk Factor Surveillance System 2005-2014.

Obesity Among Youth Grades 9-12†

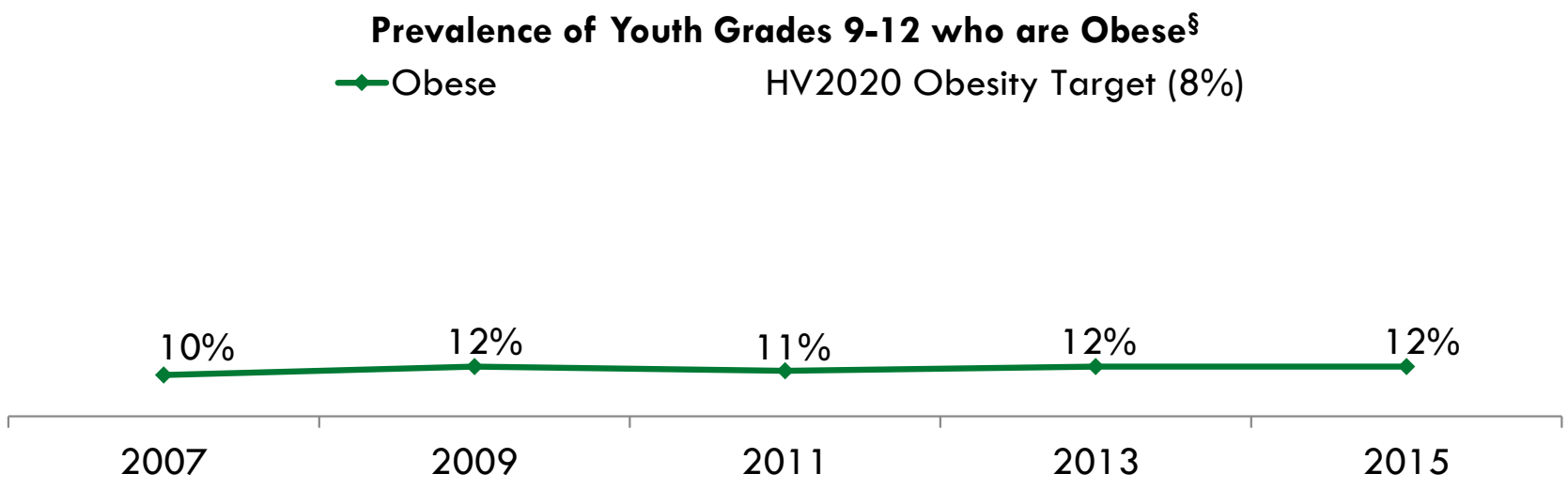


Source: the 2015 Vermont Youth Risk Behavior Survey.

- In 2015, one in eight (12%) Vermont youth grades 9-12 were obese (or approximately 2,900 students).
  - Boys were significantly more likely than girls to be obese.
  - Prevalence of obesity among Vermont youth did not vary by grade.

Prevalence of Obesity among Youth Grades 9-12†

The prevalence of obesity among Vermont youth grades 9-12 has not changed significantly from 2007 to 2015. The prevalence of obesity among Vermont youth remains above the Healthy Vermonters 2020 target of 8%.

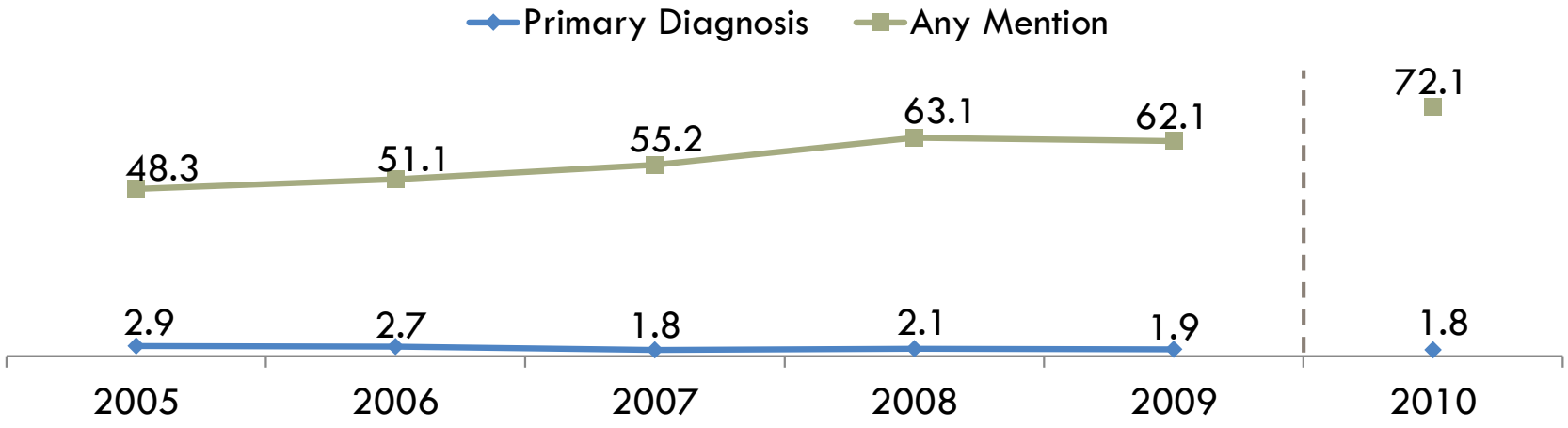


Source: the Vermont Youth Risk Behavior Survey 2007-2015.

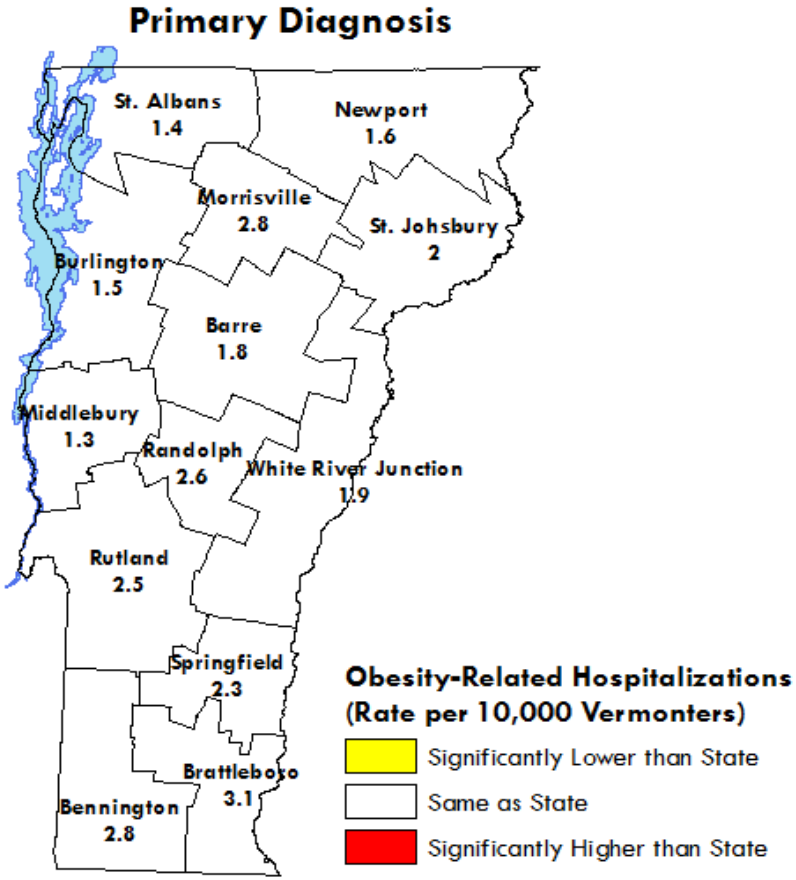
Obesity-Related Hospital Discharges†

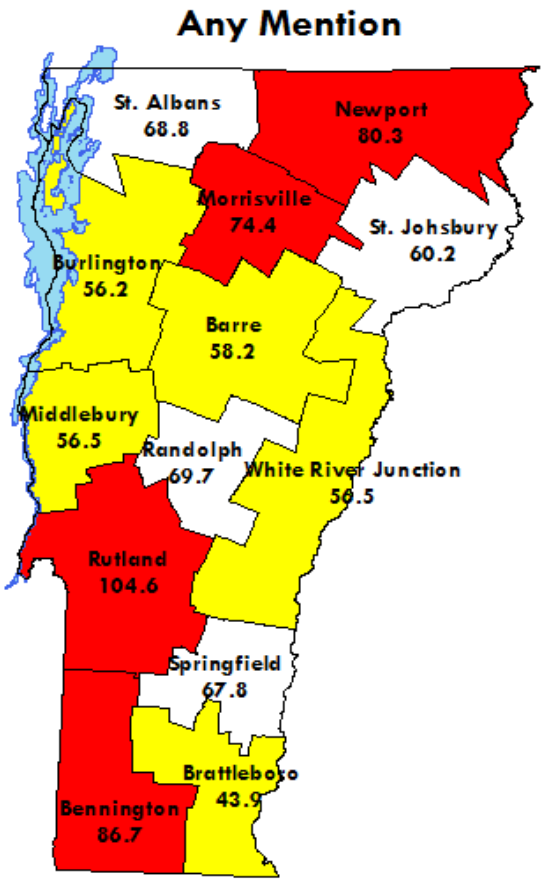
In 2010, there were 1.8 hospital discharges with a primary diagnosis of obesity for every 10,000 Vermonters (115 discharges). Any mention of obesity as a factor for hospitalization occurred in 72.1 hospital discharges for every 10,000 Vermonters (5,154 discharges). The trend for obesity as a primary cause of hospitalization has remained stable from 2005 through 2009. Any mention of obesity during a hospital admission has been on the rise since 2005.

Hospital Discharges with an Obesity Diagnosis (per 10,000 Vermonters)^



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2005-2010.¤





Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2008-2010.^¤

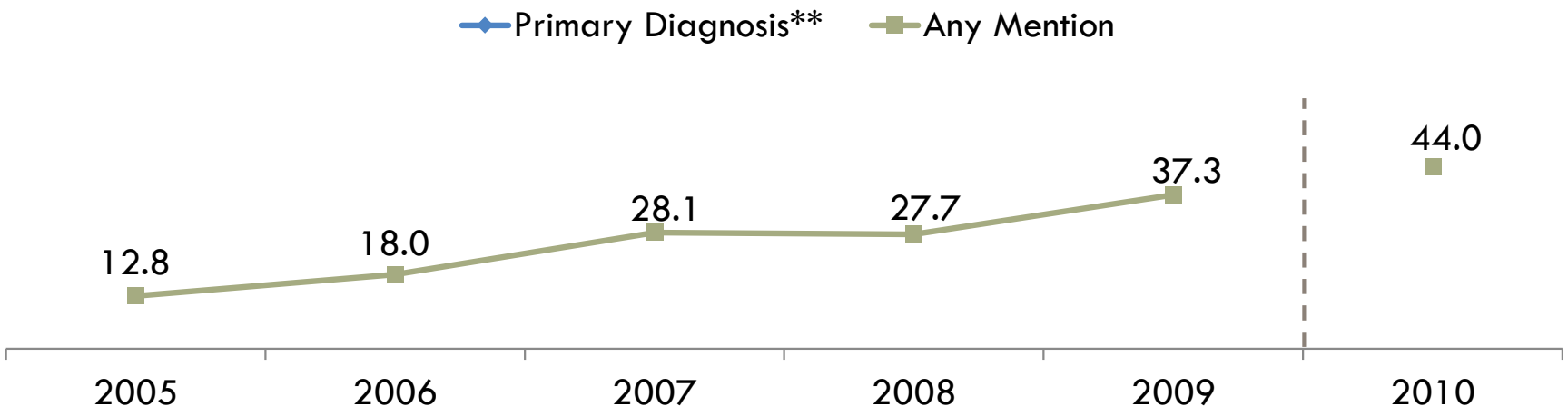
Obesity-Related Hospital Discharges by Hospital Service Area (HSA)†

All Hospital Service Areas (HSAs) had a similar rate of hospital discharges with obesity as a primary diagnosis when compared to the state average. Any mention of obesity was significantly higher in the Newport, Morrisville, Rutland and Bennington Hospital Service Areas (HSAs) when compared to the state average.

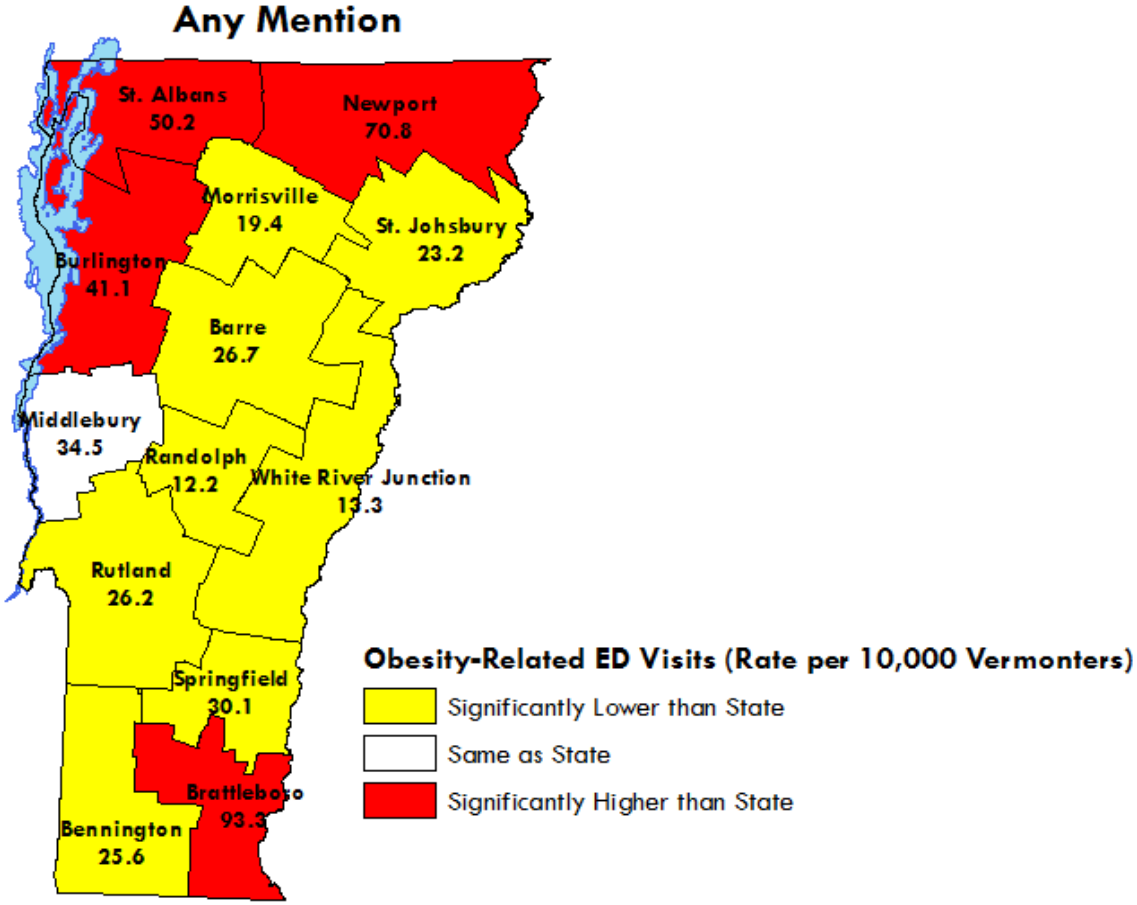
Obesity-Related Emergency Department Visits†

In 2010, 44 out of every 10,000 Vermont residents visited an ED with a health condition where obesity was mentioned (2,920 ED visits). ED visits with any mention of obesity have risen steadily from 2005 to 2009. Obesity was very rarely diagnosed as a primary cause for ED visits and total number of visits did not meet the reporting threshold.

ED Visits with Any Mention of Obesity (Rate per 10,000 Vermonters)^



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS) 2005-2010.¤



Source: Vermont Uniform Hospital Discharge Data Set (VUHDDS), 2008-2010.^¤

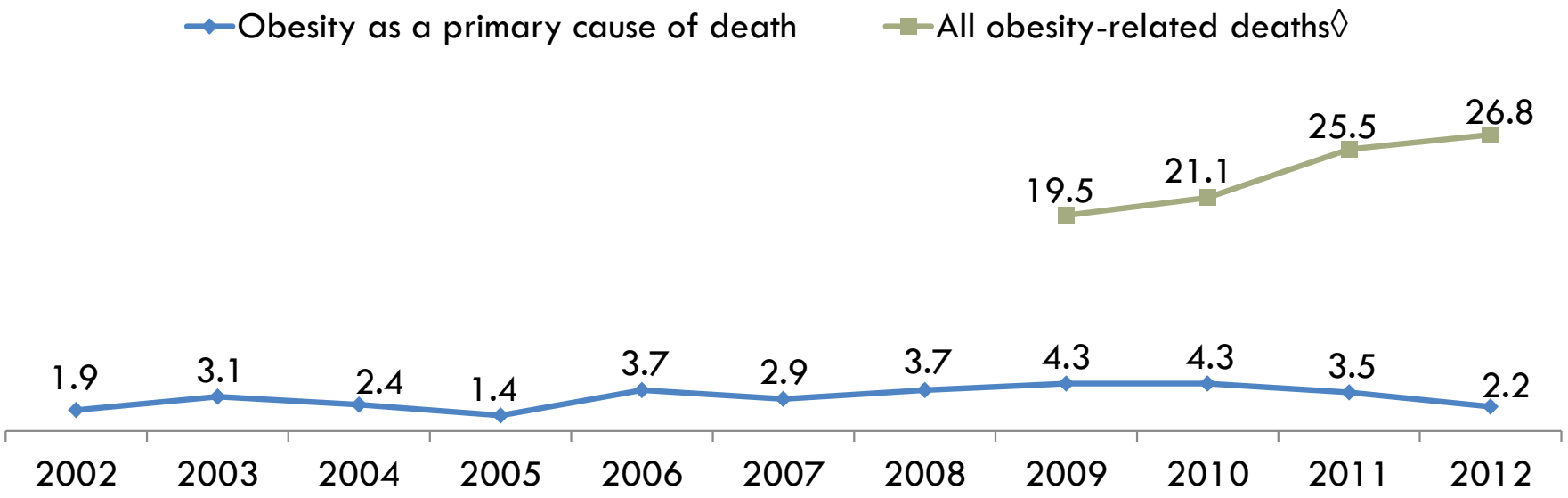
Obesity-Related Emergency Department Visits by Hospital Service Area (HSA)†

Obesity as a primary diagnosis for ED visits was too small to be reported. However, rates for any mention of obesity was significantly higher in the Newport, St. Albans, Burlington and Brattleboro Hospital Service Areas (HSAs) with Brattleboro being significantly higher than any other HSA.

Obesity-Related Mortality

Obesity as a primary cause of death was low and stable from 2002 to 2012 compared to all obesity-related deaths which are significantly higher. Obesity as a primary cause of death decreased from 2010 through 2012, though this was not significant. Conversely, all obesity-related deaths rose from 2009 through 2012 indicating that obesity as a contributing factor of death is increasing, potentially driving an increase in all obesity-related deaths.

Obesity-Related Mortality (Rate per 100,000 Vermonters)†

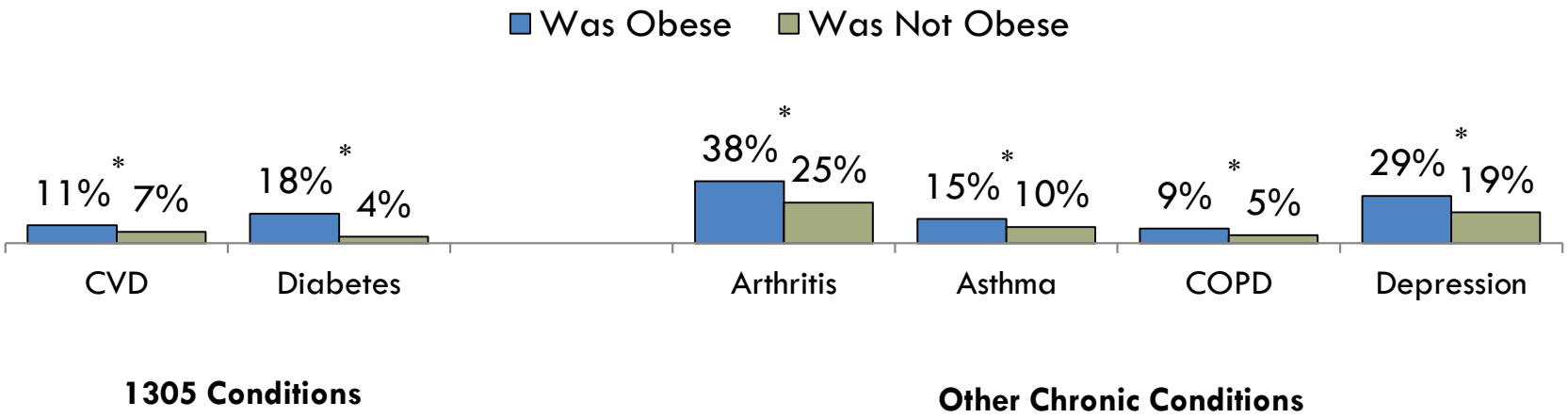


Source: Vermont Vital Statistics 2002-2012.

Obese Adults and Chronic Disease

Less than one in five Vermont adults who was obese also had diabetes (18%) and one in nine also had cardiovascular disease (CVD). Over a third (38%) of obese Vermont adults also had arthritis. Obese Vermont adults were significantly more likely to have CVD, diabetes, arthritis, asthma, COPD, or a depressive disorder than those who were not obese. There was no significant difference in the prevalence of cancer and chronic kidney disease (data not shown) between adults who were and were not obese.

Comorbid Chronic Conditions among Obese Vermont Adults, 2014†

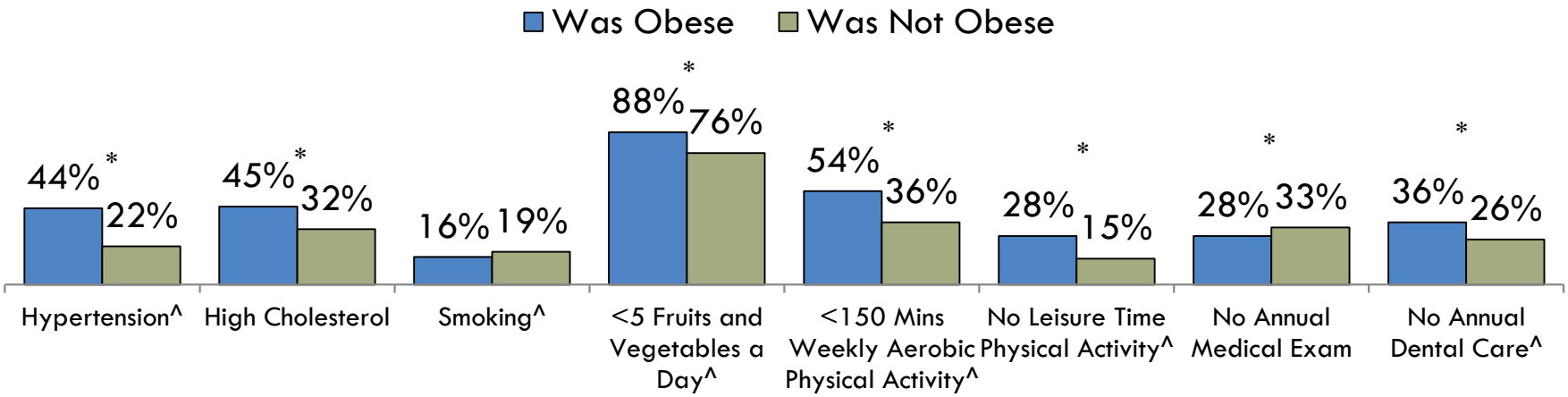


Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Risk Factors for Chronic Disease among Obese Adults

Vermont adults who were obese were significantly more likely to have hypertension, high cholesterol, consume less than 5 fruits or vegetables a day, participate in less than 150 minutes of physical activity a week, participate in no leisure time physical activity, and not receive dental care compared to adults who were not obese. Vermont adults who were obese were significantly less likely to not receive an annual medical exam when compared to adults who were not obese.

Prevalence of Chronic Disease Risk Factors among Obese Vermont Adults†



Source: Vermont Behavioral Risk Factor Surveillance System 2013 (hypertension, cholesterol, nutrition, meeting physical activity recommendations) and 2014 (smoking, no leisure time physical activity, medical exam, dental care).

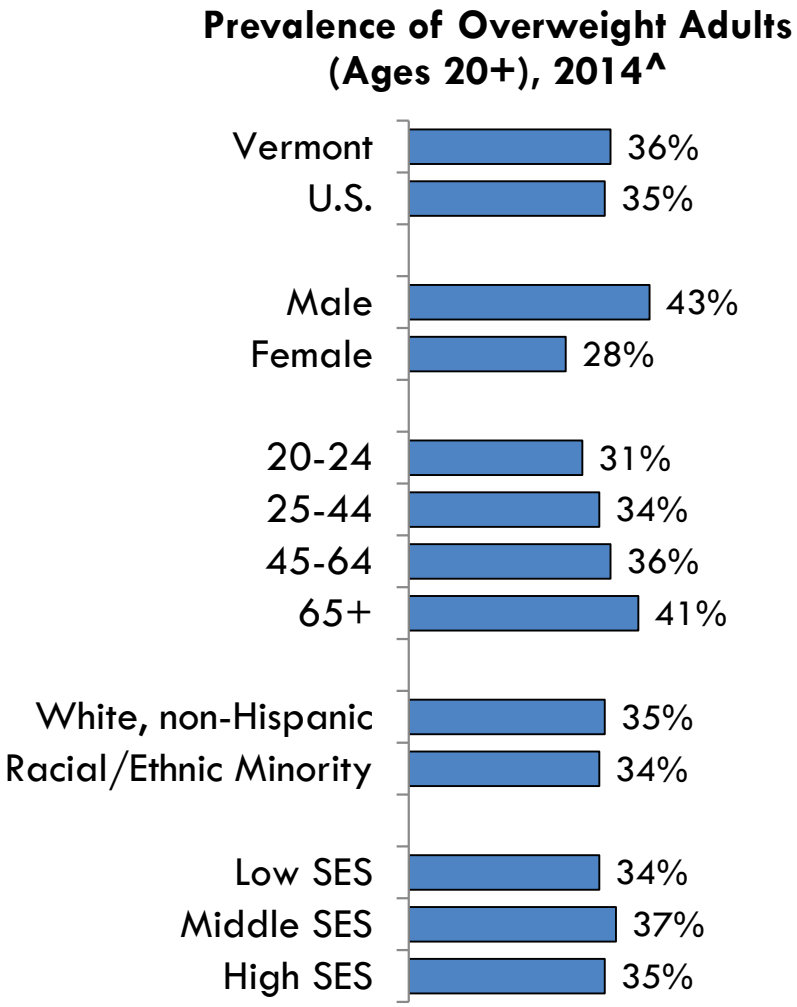
Overweight

Overweight

- A weight that is higher than what is considered healthy for a given height is described as overweight.
- Excess weight gain leading to overweight is a complex health issue resulting from several behavioral and genetic factors.
  - Behaviors can include dietary patterns, level of physical activity, and use of medications.
  - Contributing societal factors include food and physical activity environment, education and skills, and food marketing/promotion.
- Being overweight leads to a greater risk of obesity and is associated with numerous chronic health conditions and poorer health outcomes.

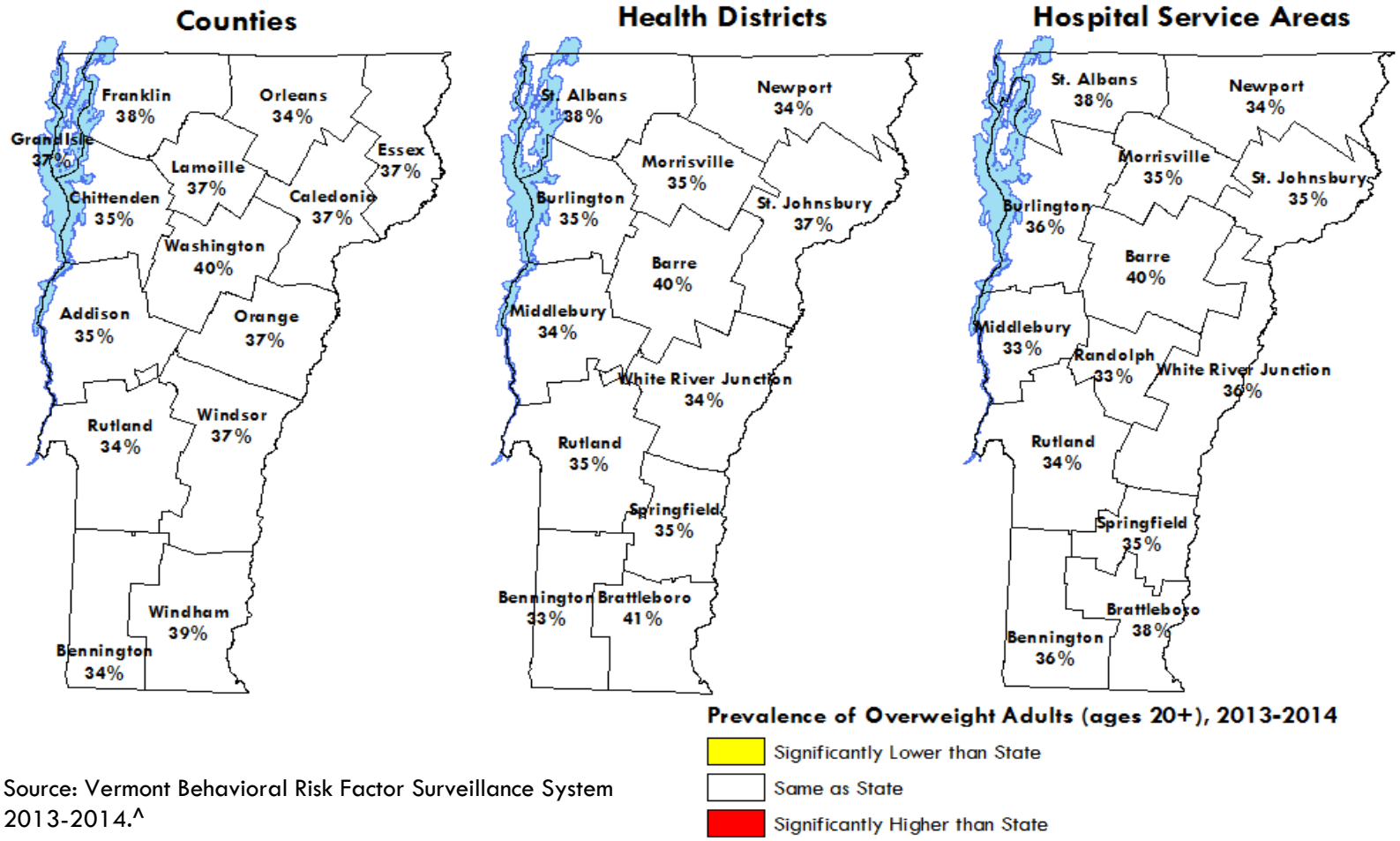
Source: Centers for Disease Control and Prevention, Overweight and Obesity, April 27, 2012.

Prevalence of Overweight Adults (ages 20+)†



- In 2014, over a third (36%) of Vermont adults (20 and older) were overweight (or approximately 161,900 adults).
  - The prevalence of overweight among Vermont adults was similar to that of U.S. adults overall.
  - Men were significantly more likely to be overweight than women.
  - Vermont adults 65 and older were significantly more likely to be overweight than those 20-44 years old.

Source: Vermont Behavioral Risk Factor Surveillance System 2014.



Source: Vermont Behavioral Risk Factor Surveillance System 2013-2014.^

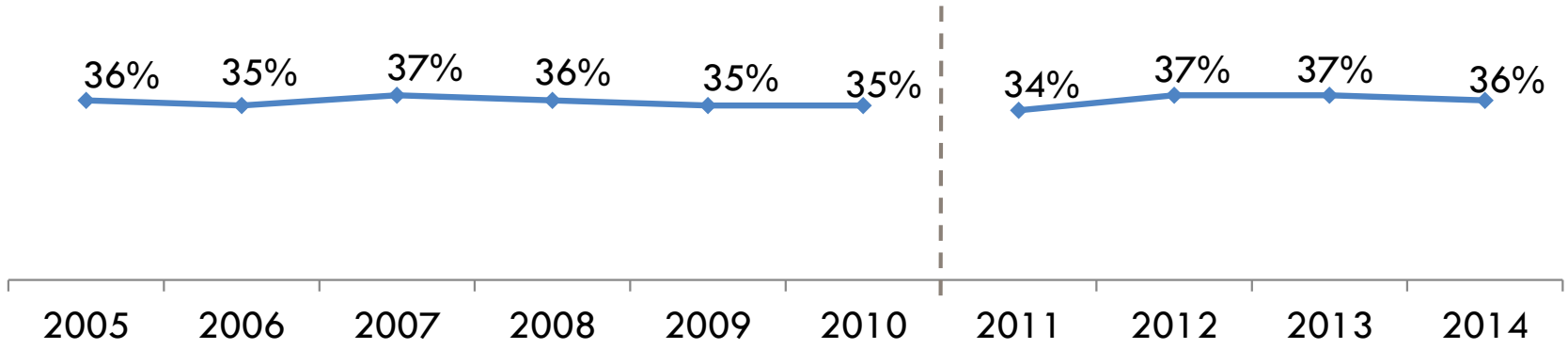
Adult Overweight Prevalence by Subgeography†

The prevalence of overweight adults was similar across all state regions when compared to the state average, indicating that the chronic disease risk factor of overweight is of equal concern throughout all regions of the state.

Adult Prevalence of Overweight†

The prevalence of overweight Vermont adults was 36% in 2014 and has remained stable from 2005-2014. The prevalence of overweight among Vermont adults was significantly higher than the prevalence of obesity (36% vs. 25%). Being overweight increases the risk of obesity; over a third of Vermont adults 20 and older are at risk of becoming obese.

Prevalence of Adults (ages 20+) who are Overweight^•



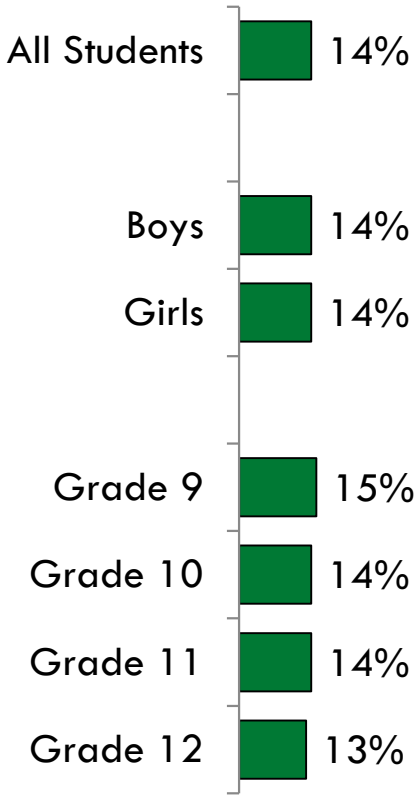
Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Prevalence of Overweight Youth Grades 9-12†

- In 2015, one in seven (14%) Vermont youth grades 9-12 were overweight (or approximately 3,300 students).
  - Boys and girls were equally likely to be overweight.
  - The prevalence of overweight did not vary by grade.

Source: the 2015 Vermont Youth Risk Behavior Survey.

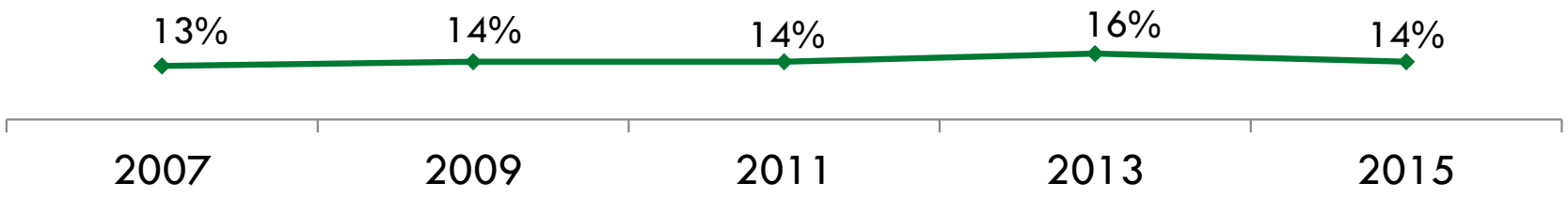
Prevalence of Overweight Youth Grades 9-12, 2015§



Prevalence of Overweight Youth Grades 9-12†

The prevalence of overweight among Vermont youth decreased significantly from 2013 to 2015 but was similar to previous years. Since 2011 the prevalence of overweight youth has been significantly higher than the prevalence of obese youth (14%-16% vs. 11%-12%). As overweight is a risk factor for obesity, approximately 14% of Vermont youth are at risk of becoming obese.

Prevalence of Overweight Youth Grades 9-12§

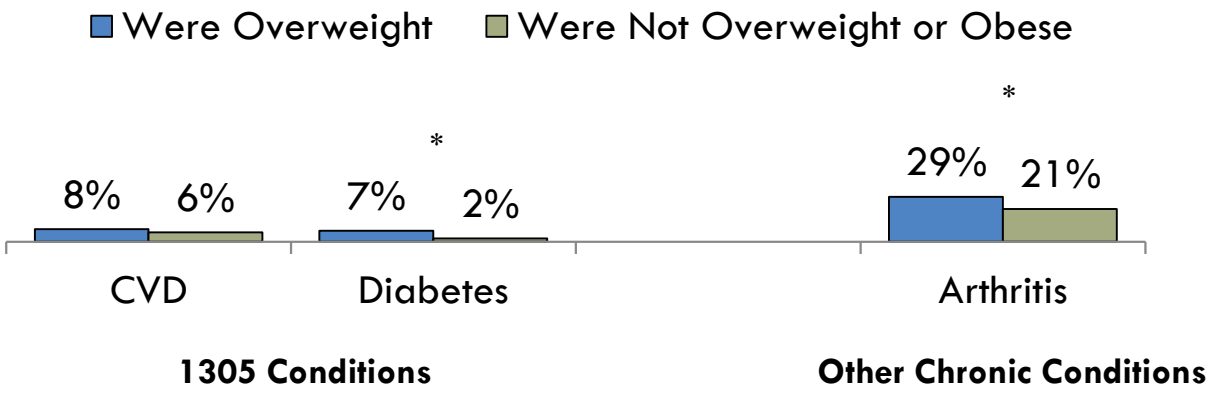


Source: the Vermont Youth Risk Behavior Survey 2007-2015.

Overweight Adults and Chronic Disease

Eight percent of Vermont adults who were overweight also had cardiovascular disease (CVD); a similar proportion also had diabetes (7%). Close to a third of Vermont adults who were overweight also had arthritis (29%). Overweight adult Vermonters were significantly more likely to have diabetes and arthritis than adults who were not overweight or obese. There was no significant differences in the prevalence of chronic kidney disease, chronic obstructive pulmonary disorder (COPD), depression (data not shown), or CVD between adults who were overweight and those who were not overweight or obese.

Comorbid Chronic Conditions among Overweight Adult Vermonters, 2014†

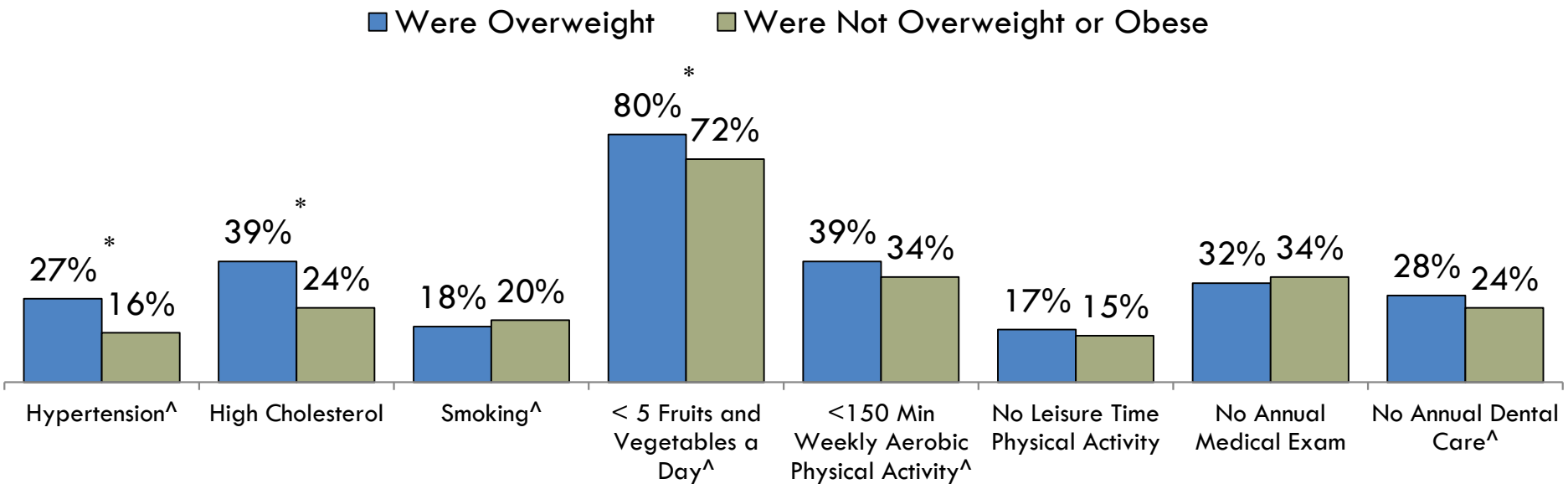


Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Overweight Adults and Risk Factors for Chronic Disease

Vermont adults who were overweight were significantly more likely to have hypertension, high cholesterol, and consume less than 5 fruits or vegetables a day than adults who were not overweight or obese.

Prevalence of Chronic Disease Risk Factors among Overweight Vermont Adults†



Source: Vermont Behavioral Risk Factor Surveillance System 2013 (meeting physical activity recommendations, nutrition, hypertension, cholesterol) and 2014 (smoking, no leisure time physical activity, medical exam, dental care).

Physical Activity

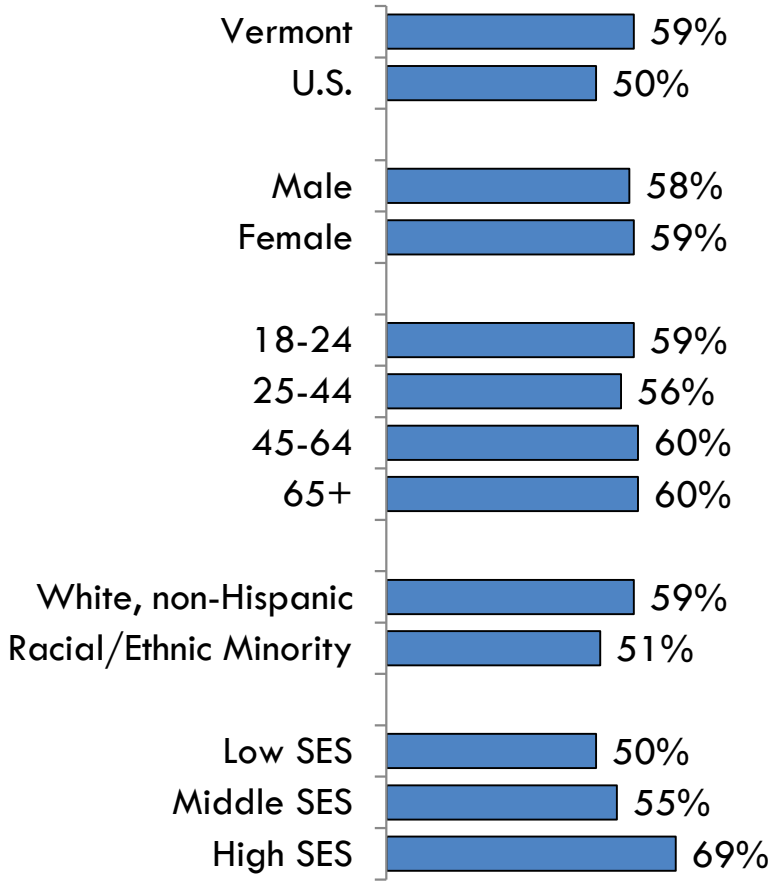
CDC Recommendations for Physical Activity

- Recommendations for **Adults**[1]
  - Average of 150 minutes of moderate intensity aerobic physical activity each week or 75 minutes of vigorous activity.
  - Muscle strengthening exercises at least twice a week.
- Recommendations for **Children and Teens**[1]
  - Each day's total activity should add up to 60 minutes.
  - Participate in vigorous activity at least 3 times a week.
  - Engage in at least 3 days of muscle and bone-strengthening exercises.
- Limit Screen Time[2]
  - No more than 2 hours a day for youth over the age of 2 years.

Source: [1]U.S. Department of Health & Human Services Office of Disease Prevention and Health Promotion
[2]American Academy of Pediatrics. Children, adolescents, and television. Pediatrics. 2001; 107(2):423-426.

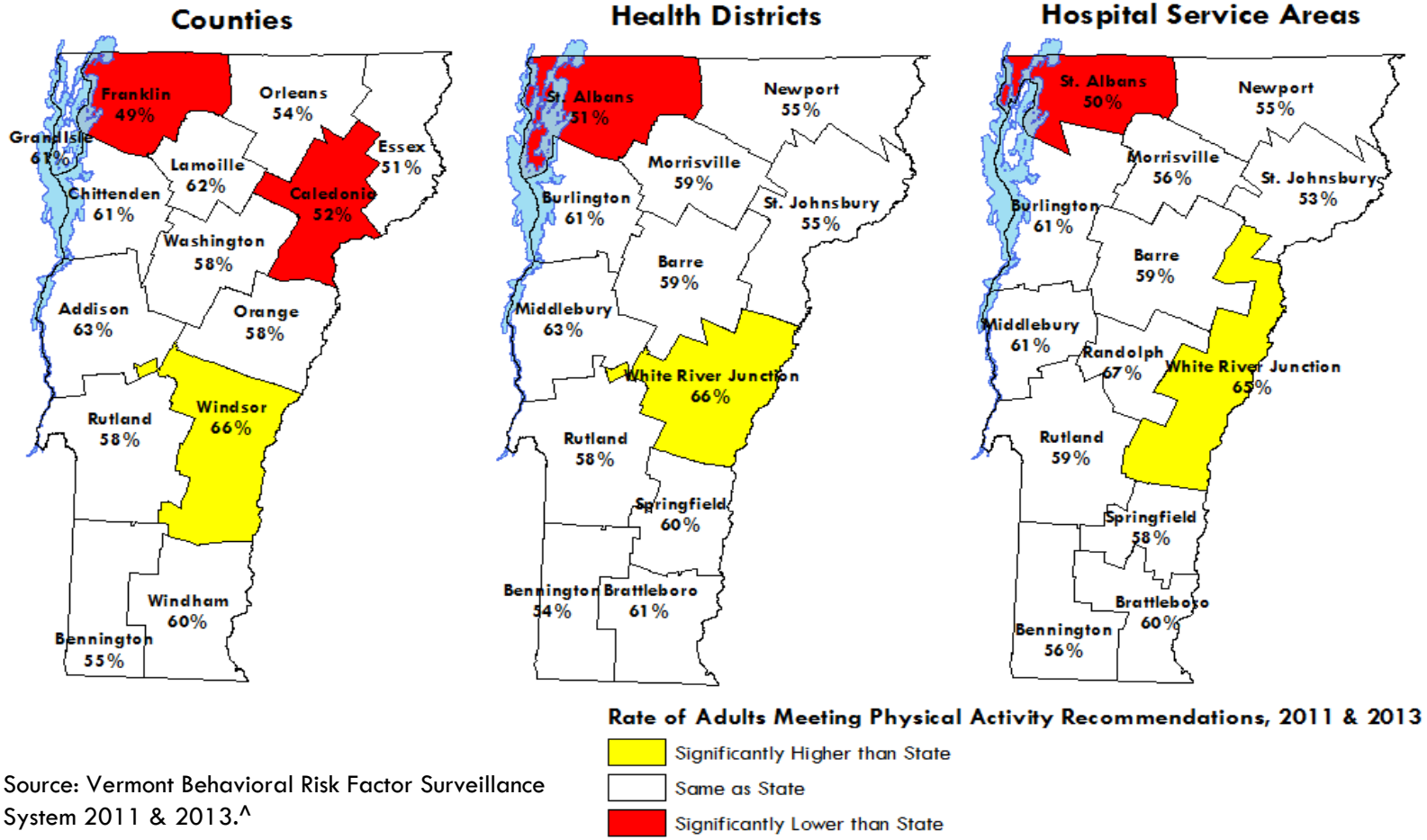
Adults Meeting Aerobic Physical Activity Recommendations†

Adults Participating in 150 Minutes or More of Aerobic Physical Activity a Week, 2013^



- Over half of Vermont adults (59%) got at least 150 minutes of aerobic physical activity in 2013 (or approximately 263,400 adults).
  - Vermont adults were significantly more likely to participate in 150 minutes or more of aerobic physical activity than the U.S. adults overall.
  - Vermont adults living at a high socioeconomic status were significantly more likely to participate in 150 minutes or more of aerobic physical activity than those living at a lower socioeconomic status.

Source: Vermont Behavioral Risk Factor Surveillance System 2013.



Source: Vermont Behavioral Risk Factor Surveillance System 2011 & 2013.^

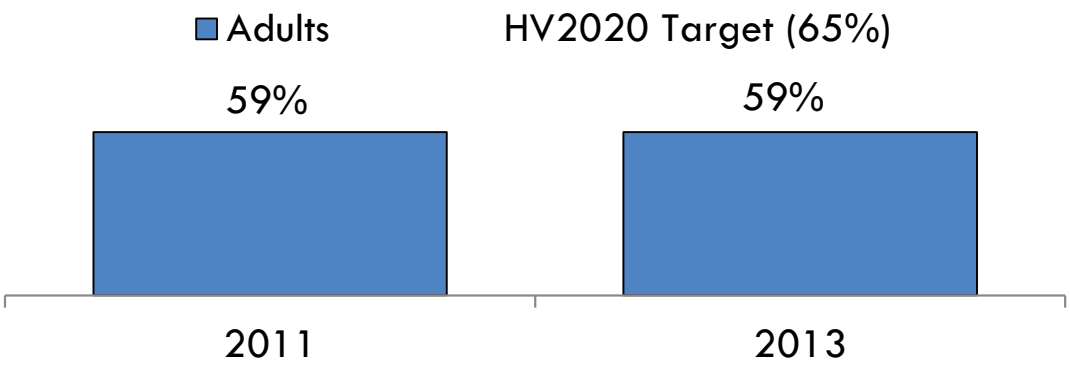
Adults Meeting Aerobic Physical Activity Recommendations by Subgeography†

Regionally, Franklin and Caledonia Counties were significantly lower than the state average for adults participating in 150 or more minutes of weekly aerobic physical activity. The St. Albans Health District and Hospital Service Area (HSA) were also lower than the state average.

Adults Meeting Aerobic Physical Activity Recommendations†

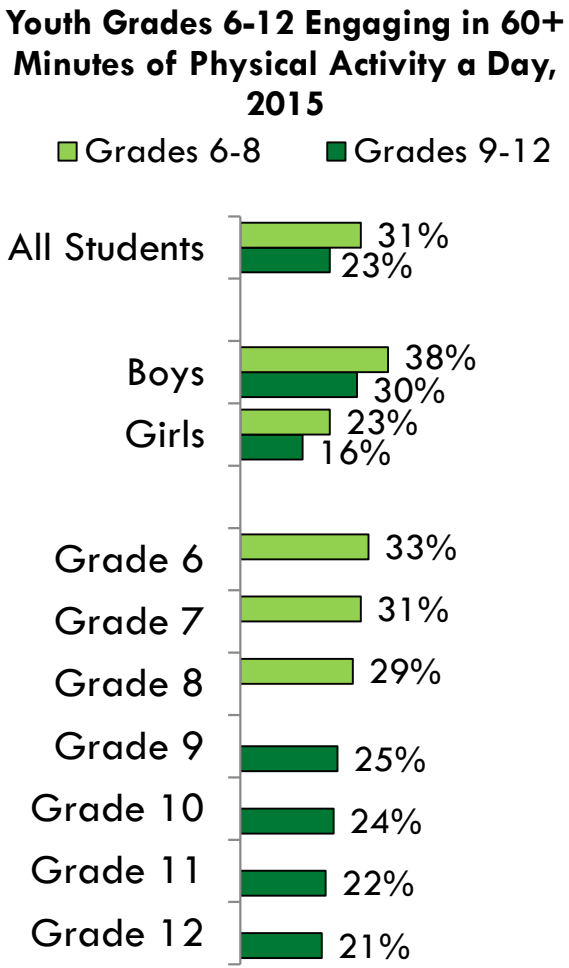
Adult Vermonters participating in 150 minutes or more of aerobic physical activity a week remains similar to 2011. Prevalence remains below the Healthy Vermonters 2020 target of 65%. Eighteen percent of Vermont adults in 2014 did not participate in any leisure time physical activity, similar to previous years.

Adults Who Participated in at least 150 minutes of Physical Activity a Week, 2011-2013^•



Source: Vermont Behavioral Risk Factor Surveillance System 2011-2013.

Youth Meeting Aerobic Physical Activity Guidelines



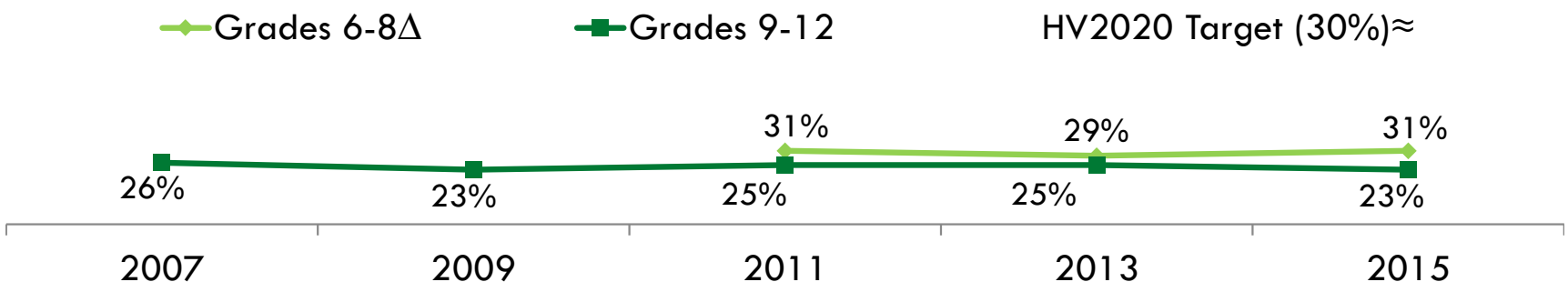
Source: the 2015 Vermont Youth Risk Behavior Survey.

- In 2015, about a third of youth grades 6-8 (31%) and a quarter of youth grades 9-12 (23%) participated in at least 60 minutes of daily physical activity (or approximately 5,000 and 6,100 students, respectively).
  - Youth in grades 6-8 were significantly more likely than those in grades 9-12 to meet physical activity recommendations.
  - Girls were significantly less likely to participate in 60+ minutes of daily physical activity than boys.
  - Participation in at least 60 minutes of physical activity decreased as grade in school increases.

Youth Meeting Aerobic Physical Activity Recommendations†

The prevalence of middle school students participating in at least 60 minutes of aerobic physical activity a day significantly increased from 2013 to 2015; while for high school students it significantly decreased. The proportion of high school students participating in at least 60 minutes of aerobic physical activity a day remains below the HV2020 target of 30%. Of all students in 2015, 14% of high schoolers and 8% of middle schoolers reported no days of physical activity.

Prevalence of Youth, Grades 6-12, Participating in at least 60 Minutes of Physical Activity a Day



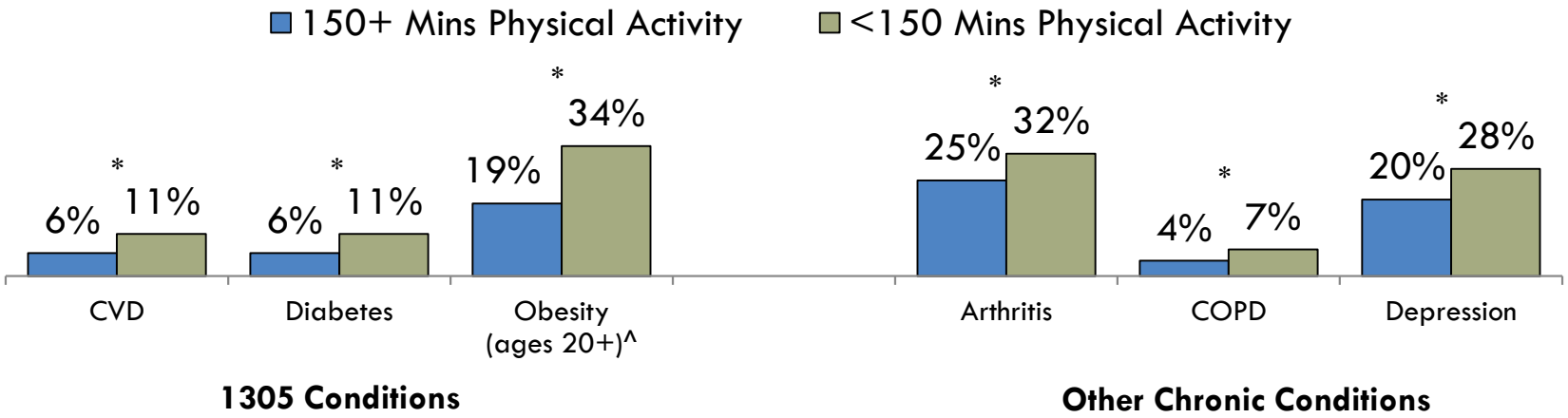
Source: the Vermont Youth Risk Behavior Survey 2007-2015.

Prevalence of Chronic Diseases among Adults who Participated in 150 Minutes or More of Aerobic Physical Activity

Adult Vermonters who participated in 150 minutes or more of weekly aerobic physical activity were significantly less likely to be obese, have CVD, diabetes, arthritis, COPD or a depressive disorder when compared to Vermont adults who participated in less than 150 minutes of weekly aerobic physical activity.

There was no significant difference in the prevalence of asthma, cancer, and chronic kidney disease among Vermont adults who participated in 150 minutes or more and those who participated in less than 150 minutes of weekly aerobic physical activity.

Prevalence of Chronic Disease among Adults Getting 150+ Minutes of Weekly Aerobic Physical Activity†

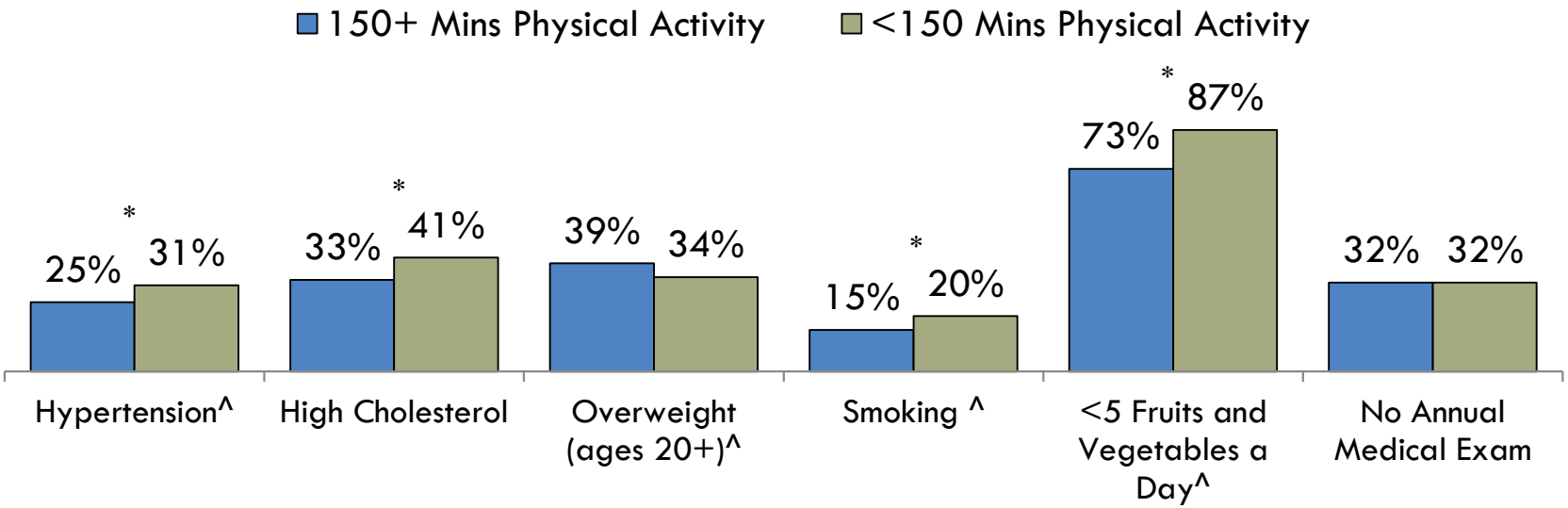


Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Chronic Disease Risk Factors among Adults Who Participated in 150 Minutes or More of Weekly Aerobic Physical Activity

Adults who participated in 150 minutes or more of weekly aerobic physical activity were significantly less likely to have hypertension, high cholesterol, smoke, or consume less than five fruits or vegetables a day when compared to adults who participated in less than 150 minutes of aerobic physical activity a week.

Prevalence of Chronic Disease Risk Factors among Adults Meeting the Recommended Weekly Hours of Physical Activity, 2013†

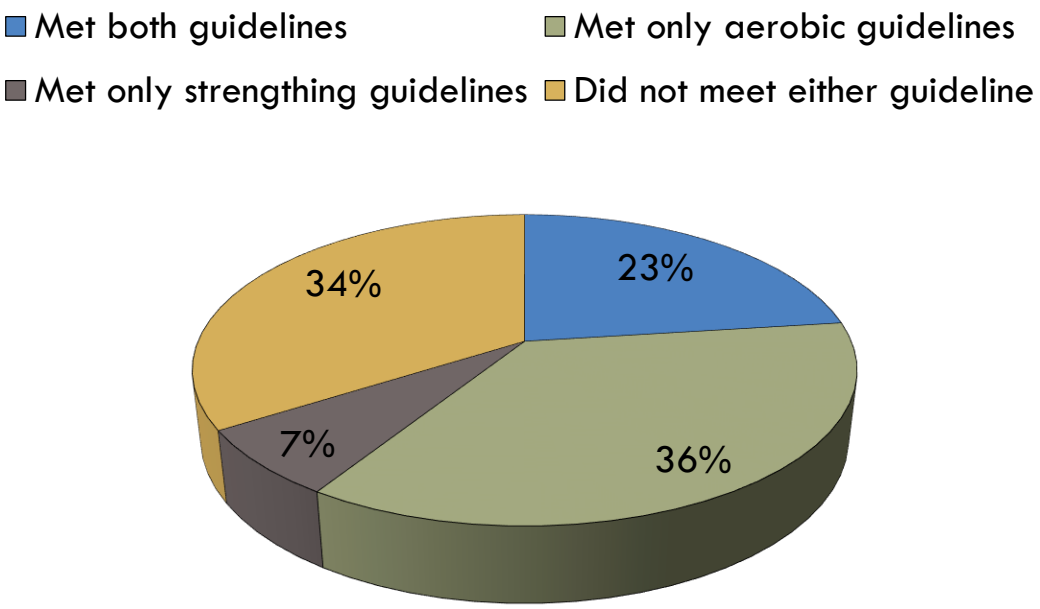


Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Adult Aerobic and Muscle Strengthening Physical Activity

- The majority of adult Vermonters either met only aerobic physical activity guidelines (36%) or did not meet any physical activity guidelines (34%).
- Only about 1 in 4 (23%) Vermont adults met both sets of physical activity guidelines.

Rate of Adults Engaging in Aerobic and Muscle Strengthening Exercises, 2013



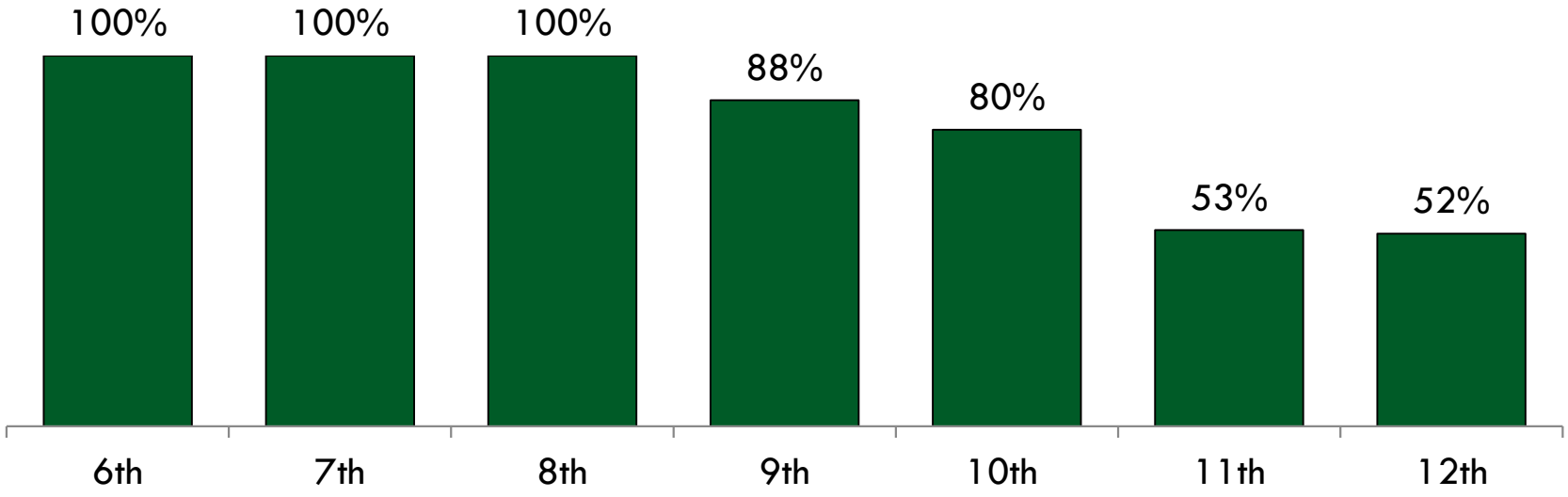
Source: Vermont Behavioral Risk Factor Surveillance System 2013

Physical Activity in Secondary Schools

Physical Activity in Secondary Schools – Required Physical Education

The proportion of students required to take physical education courses decreases as students move up in grade level. All secondary schools require physical education courses to be taught in grades 6 through 8. This began to decrease in grade 9. Just over half of schools required 11th and 12th graders to take physical education. As part of required physical education courses, 85% of schools taught students about balancing food intake and physical activity.

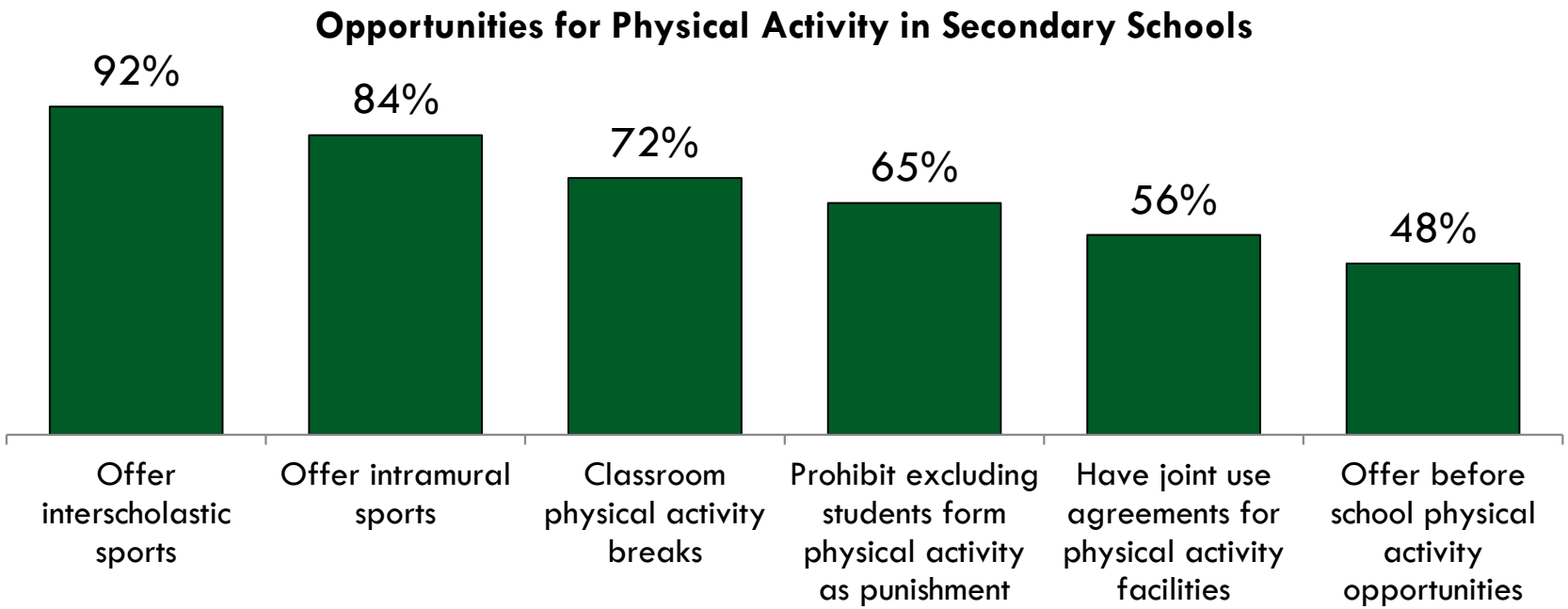
Secondary Schools Requiring Physical Education Classes



Source: 2014 Vermont School Health Profiles.

Physical Activity in Secondary Schools – Opportunities

Vermont secondary schools provide students with a variety of different opportunities for physical activity during and outside of school hours. The majority of secondary schools offered interscholastic sports (92%) while less than half (48%) offered before school physical activity opportunities.



Source: 2014 Vermont School Health Profiles.

Nutrition

Nutrition Recommendations

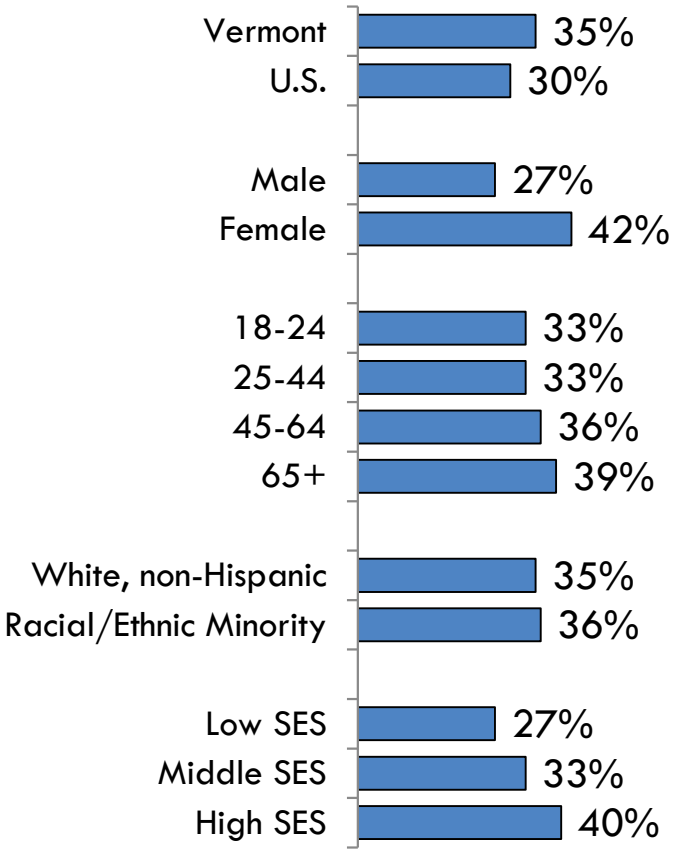
- Fruits and vegetables are essential to a healthy diet. They are generally low in fat and calories, and high in nutrients. These foods are a major source of important vitamins and nutrients that can help reduce the risk of some types of cancer, heart disease, and stroke.
- To get the nutrients needed for a healthy diet the CDC recommends that each day a person should consume:
  - At least **2 Servings of Fruit**.
  - At least **3 Servings of Vegetables**.
- Consumption of sugary drinks (e.g. soda, energy/fruit/sports drinks) should be limited. They have little to no vitamins or nutrients.

Consumption of 2 or More Fruits a Day

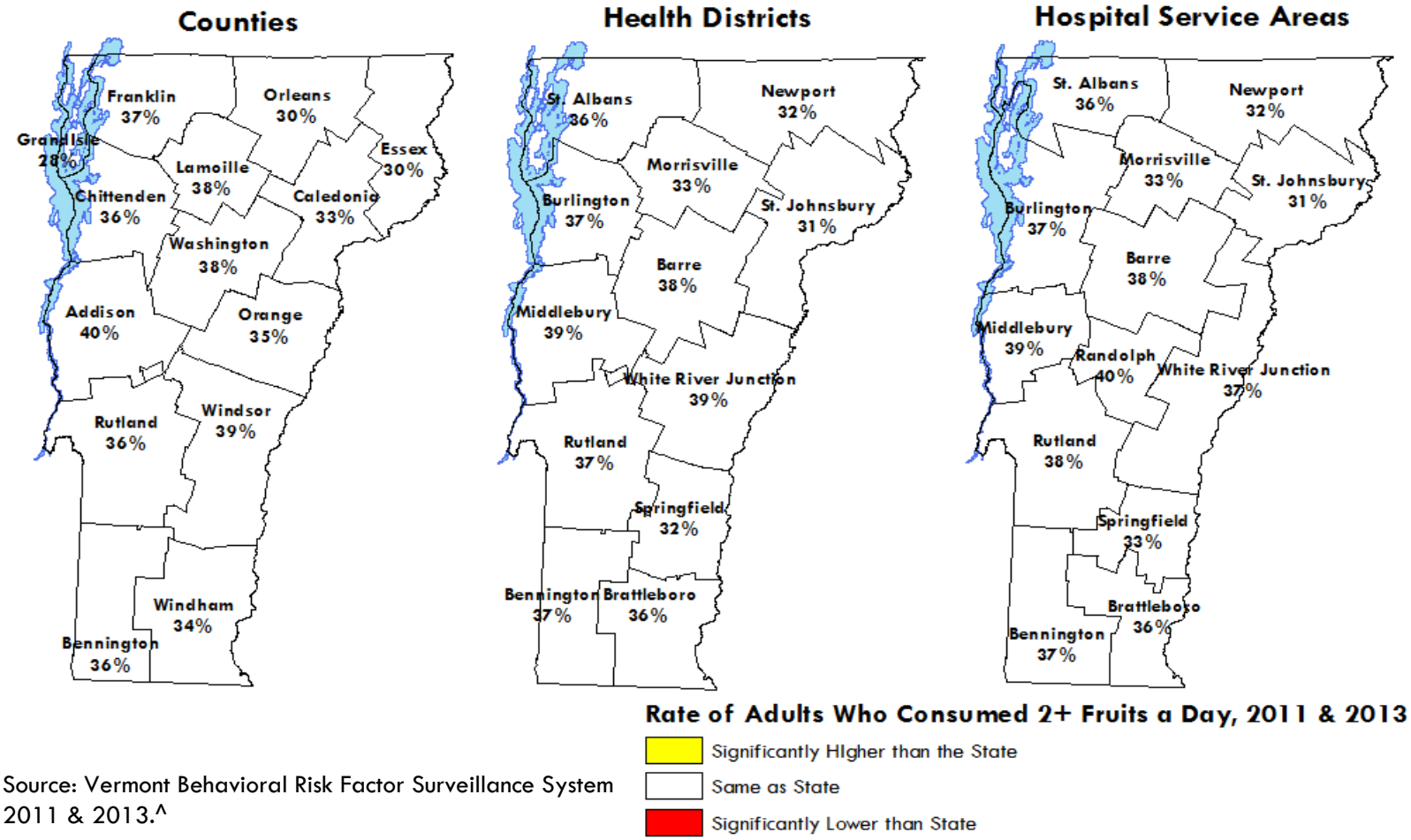
Adults Who Consumed 2 or More Fruits a Day†

- 35% of adult Vermonters (or approximately 162,500 adults) consumed two or more fruits a day in 2013.
  - Vermont adults were significantly more likely to consume two or more fruits a day than U.S. adults overall.
  - Males were significantly less likely than females to consume two or more fruits a day.
  - Adult Vermonters who were living at a middle or low SES were significantly less likely to consume two or more fruits a day.
  - Adults were significantly more likely to consume two or more fruits a day than three or more vegetables a day (see page 114 for adult vegetable consumption).

Prevalence of Adults Who Consumed 2 or More Fruits a Day, 2013^



Source: Vermont Behavioral Risk Factor Surveillance System 2013.



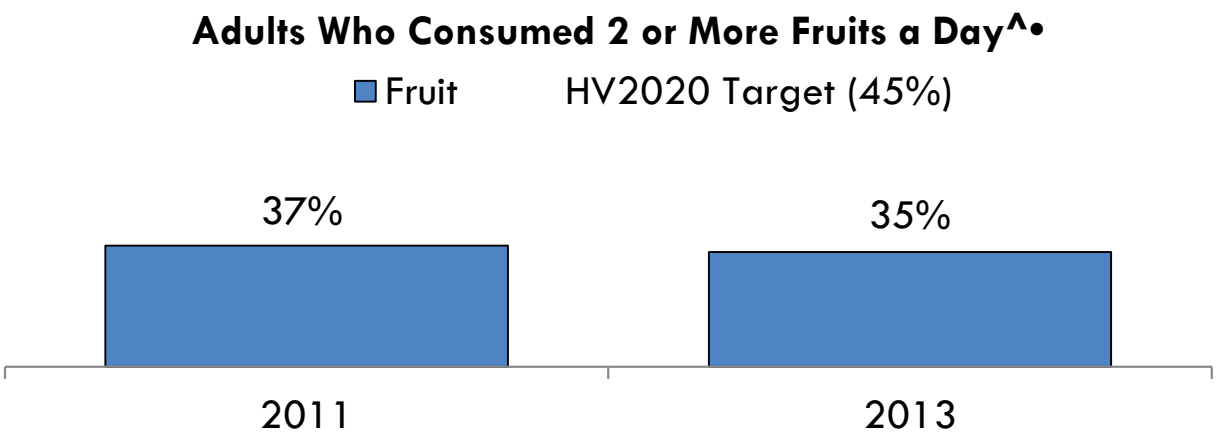
Source: Vermont Behavioral Risk Factor Surveillance System 2011 & 2013.^

Adults Who Consumed 2 or More Fruits a Day by Subgeography†

All state regions had similar rates of adults who consumed two or more fruits a day when compared to the statewide average.

Adults Who Consumed 2 or More Fruits a Day†

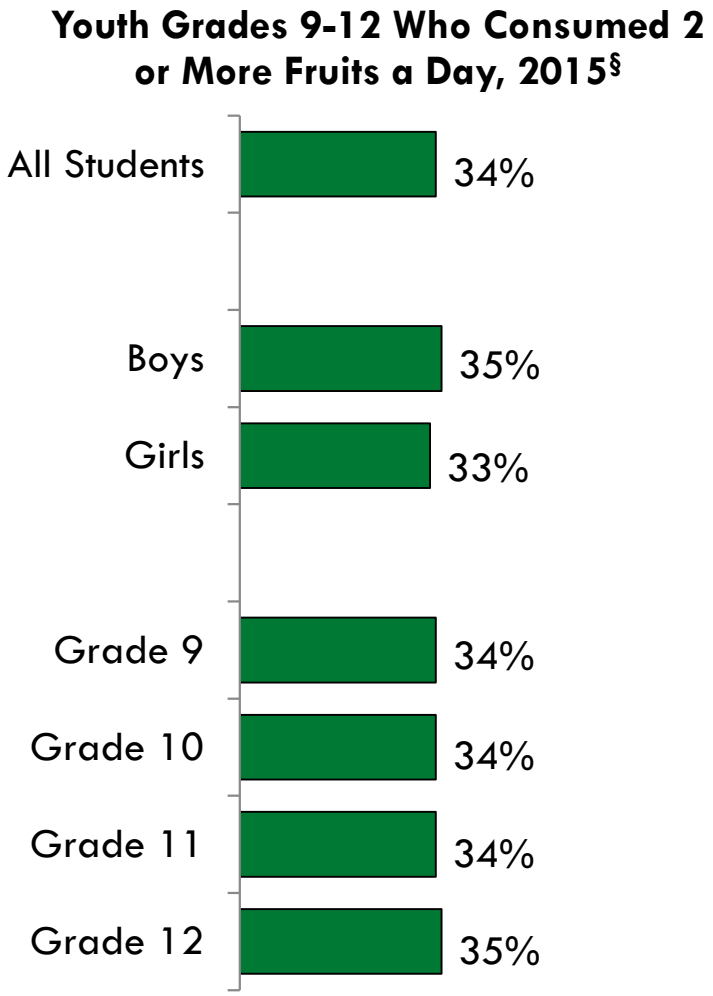
The proportion of Vermont adults who consumed two or more fruits a day is similar to 2011. The proportion of Vermont adults who consumed two or more fruits a day is well below the Healthy Vermonters 2020 target of 45%.



Source: Vermont Behavioral Risk Factor Surveillance System 2011-2013.

Youth Grades 9-12 Who Consumed 2 or More Fruits a Day, 2015†

- 34% of Vermont youth grades 9-12 (or approximately 9,100 students) consumed two or more fruits a day in 2015.
  - There were no differences in the consumption of two or more fruits a day by gender or grade.
  - Vermont youth were significantly more likely to consume two fruits a day than three vegetables (see page 117 for youth vegetable consumption).

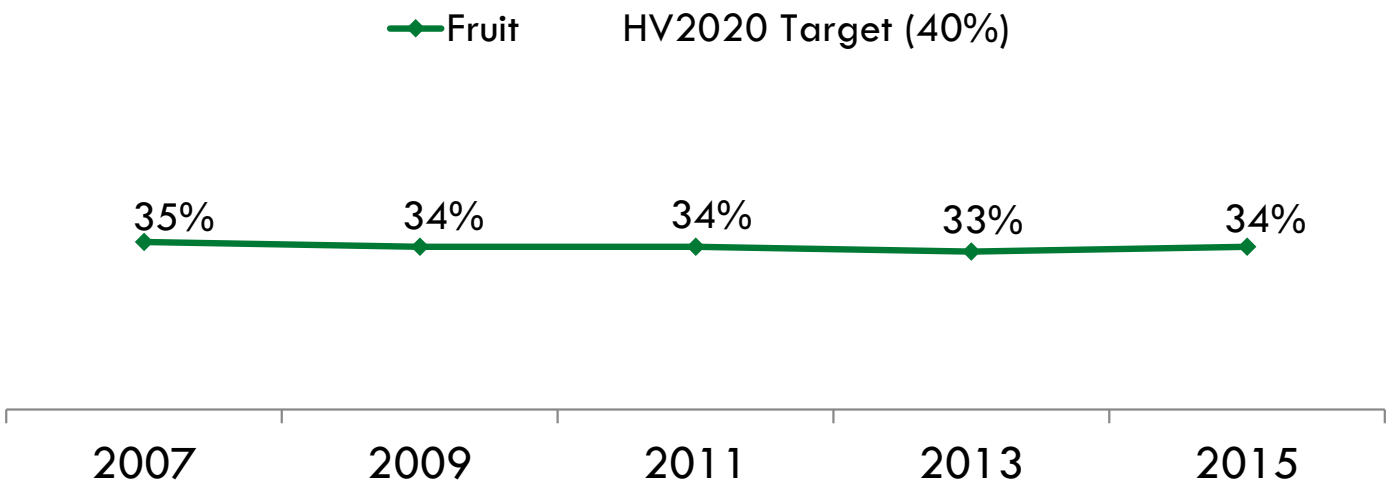


Source: the 2015 Vermont Youth Risk Behavior Survey.

Youth Grades 9-12 Who Consumed 2 or More Fruits a Day†

Vermont youth grades 9-12 who consumed two or more fruits a day has remained stable for about the past decade. The proportion of Vermont youth who consumed two or more fruits a day is well below the Healthy Vermonters 2020 target of 40%.

Youth (Grades 9-12) Who Consumed 2 or More Fruits a Day§



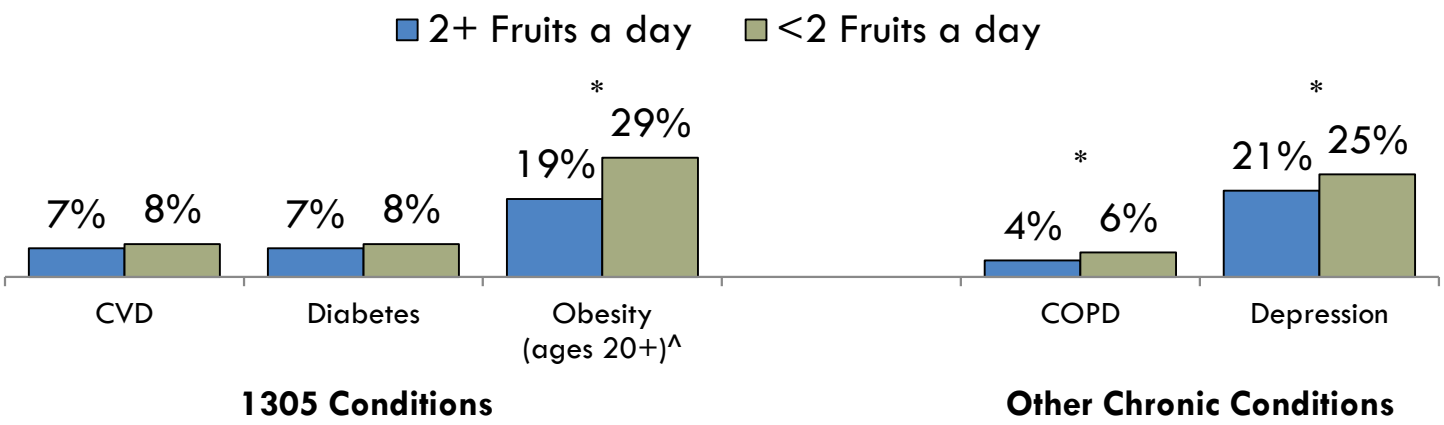
Source: the Vermont Youth Risk Behavior Survey 2007-2015.

Prevalence of Chronic Diseases among Adults Who Consumed 2 or More Fruits a Day

Vermont adults who consumed two or more fruits a day were significantly less likely to be obese, have COPD, or a depressive disorder than adults who consumed less than two fruits a day.

There were no significant differences in the prevalence of arthritis, asthma, cancer, chronic kidney disease (data note shown), CVD, or diabetes between adults who consume two or more fruits a day and those who consumed less than two day.

Chronic Disease among Adults Who Consumed Two or more Fruits a Day, 2013†

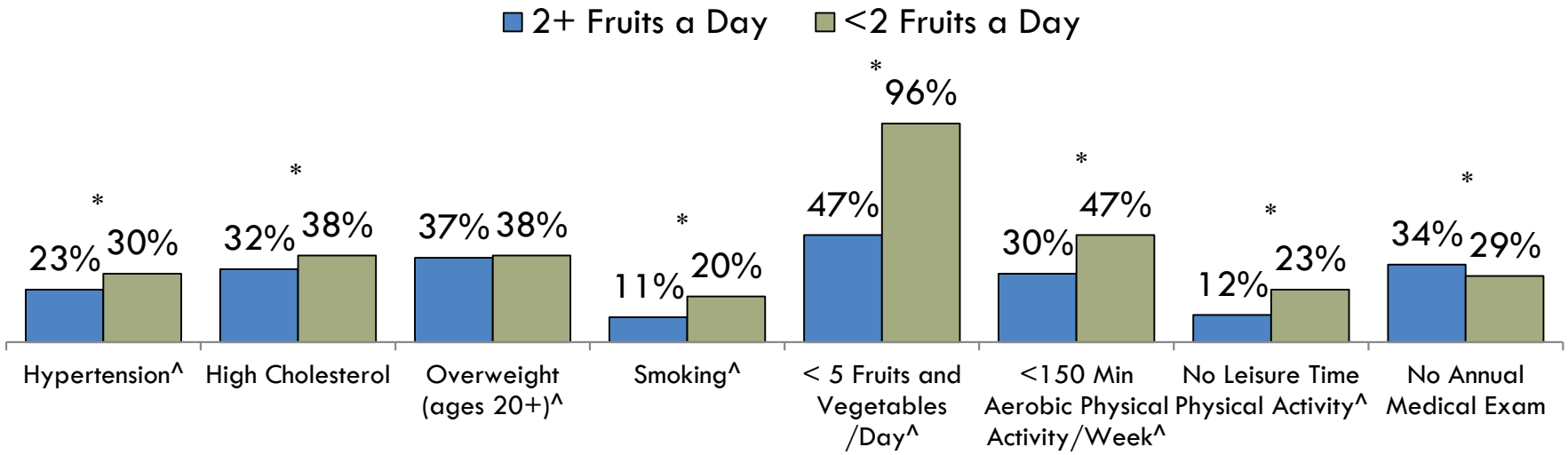


Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Prevalence of Chronic Disease Risk Factors among Adults Who Consumed 2 or More Fruits a Day

Adults who consumed two or more fruits a day were significantly less likely to have hypertension, high cholesterol, smoke, consume less than five fruits or vegetables a day, participate in less than 150 minutes of weekly aerobic physical activity, and participate in no leisure time physical activity. Adults who consumed two or more fruits a day were significantly more likely to not seek annual medical care than adults who consumed less than two fruits a day.

Prevalence of Chronic Disease Risk Factors among Adults Who Consumed Two or More Fruits a Day, 2013†



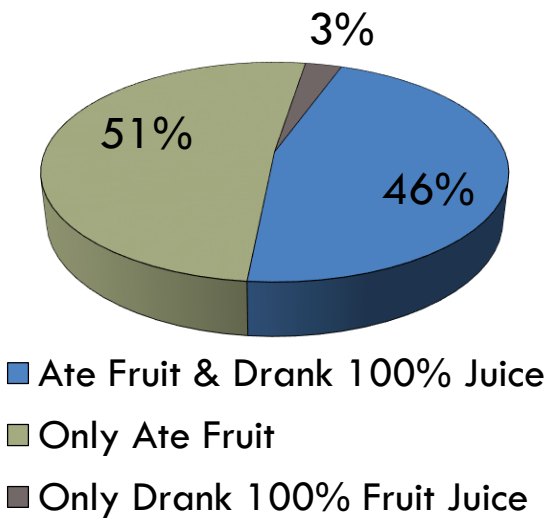
Source: Vermont Behavioral Risk Factor Surveillance System 2013.

How Adults and Youth Met 2 or More Fruits a Day†

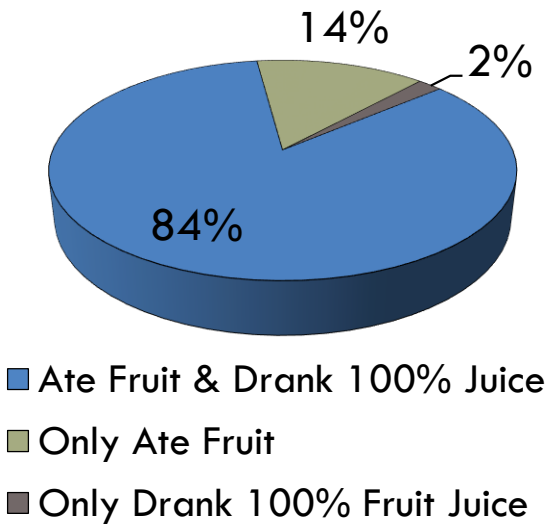
Adults most frequently met their daily fruits by eating fruit alone (51%). A similar proportion ate fruit and drank100% juice (46%). Significantly more adults ate fruit alone in 2013 than did in 2011 (51% vs. 44%).

Youth (grades 9-12) most frequently met their daily recommended fruits by eating fruit and drinking 100% fruit juice (84%). Significantly fewer youth ate fruit & drank 100% juice in 2015 than did in 2013 and significantly more ate only fruit in 2015 than did in 2013 (14% vs. 10%).

Adults who consumed 2+ Fruits a Day, 2013^



Youth (grades 9-12) who consumed 2+ Fruits, 2015 §

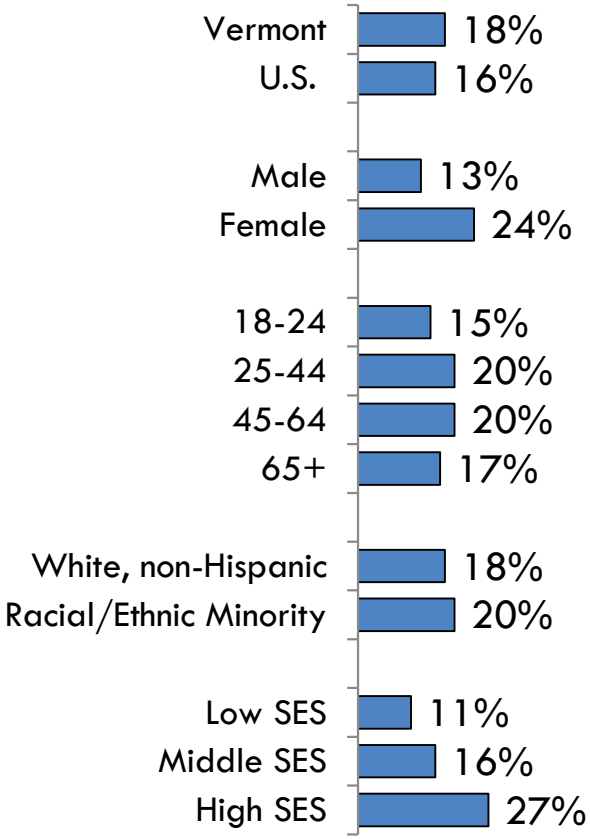


Source: Vermont Behavioral Risk Factor Surveillance System 2013, the 2015 Vermont Youth Risk Behavior Survey.

Consumption of 3 or More Vegetables a Day

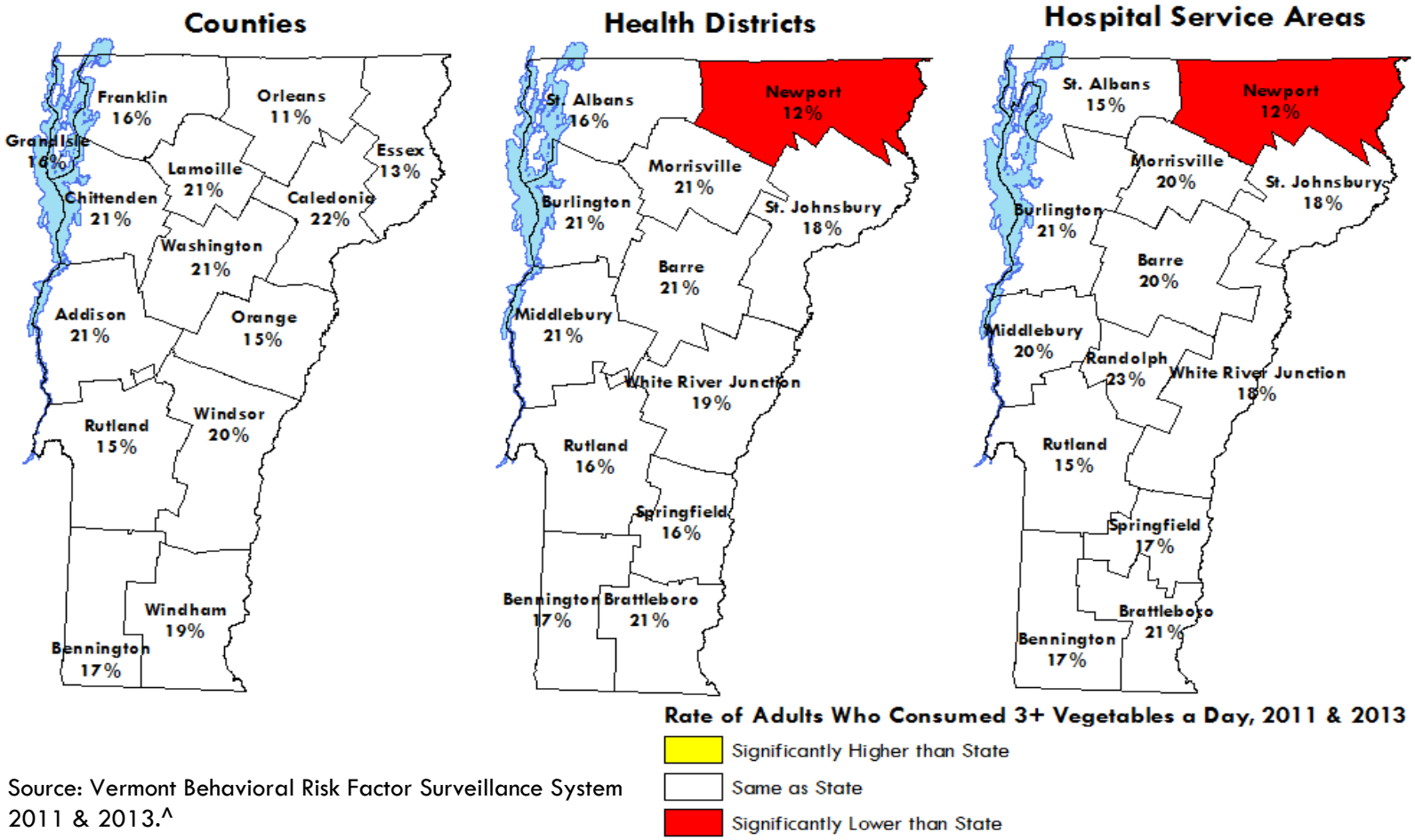
Adults Who Consumed 3 or More Vegetables a Day†

Prevalence of Adults Who Consumed 3 or More Vegetables a Day, 2013^



Source: Vermont Behavioral Risk Factor Surveillance System 2013.

- 18% of Vermont adults (or approximately 83,300 adults) consumed three or more vegetables a day in 2013.
  - Vermont adults were significantly more likely than U.S. adults overall to consume three or more vegetables a day.
  - Males were significantly less likely than females to have consumed three or more vegetables a day.
  - Adults who consumed three or more vegetables a day increased significantly with increasing SES.
  - Adults were significantly more likely to consume two or more fruits a day than three or more vegetables a day (see page 105 for adult fruit consumption).



Source: Vermont Behavioral Risk Factor Surveillance System 2011 & 2013.^

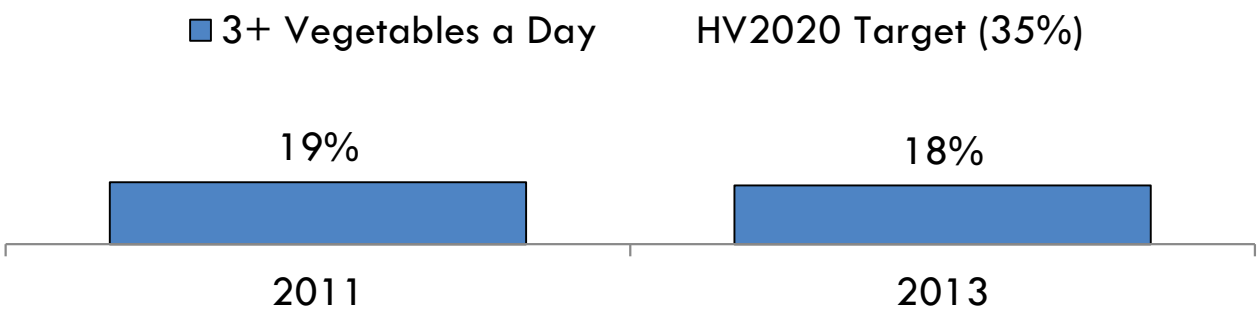
Adults Who Consumed 3 or More Vegetables a Day by Subgeography†

Regionally, the Newport Health District and Newport Hospital Service Area were significantly lower than the state average for adults who consumed three or more vegetables a day.

Adults Who Consumed 3 or More Vegetables a Day†

The rate of Vermont adults who consumed three or more vegetables a day was similar to 2011. The proportion of Vermont adults who consumed three or more vegetables a day is well below the Healthy Vermonters 2020 target of 35%.

Adults Who Consumed Three or More Vegetables a Day^•

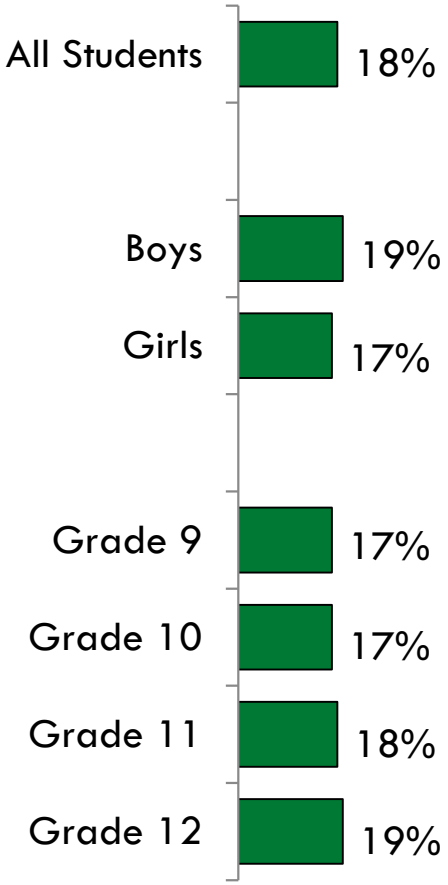


Source: Vermont Behavioral Risk Factor Surveillance System 2011-2013.

Youth Grades 9-12 Who Consumed 3 or More Vegetables a Day, 2015†

- 18% of Vermont youth grades 9-12 (or approximately 4,800 students) consumed three or more vegetables a day in 2015.
  - There were no differences in the consumption of three or more vegetables a day by gender or grade.
  - Vermont youth were significantly more likely to consume two fruits a day than three vegetables (see page 108 for youth fruit consumption).

Youth Grades 9-12 Who Consumed 3 or More Vegetables a Day, 2015§

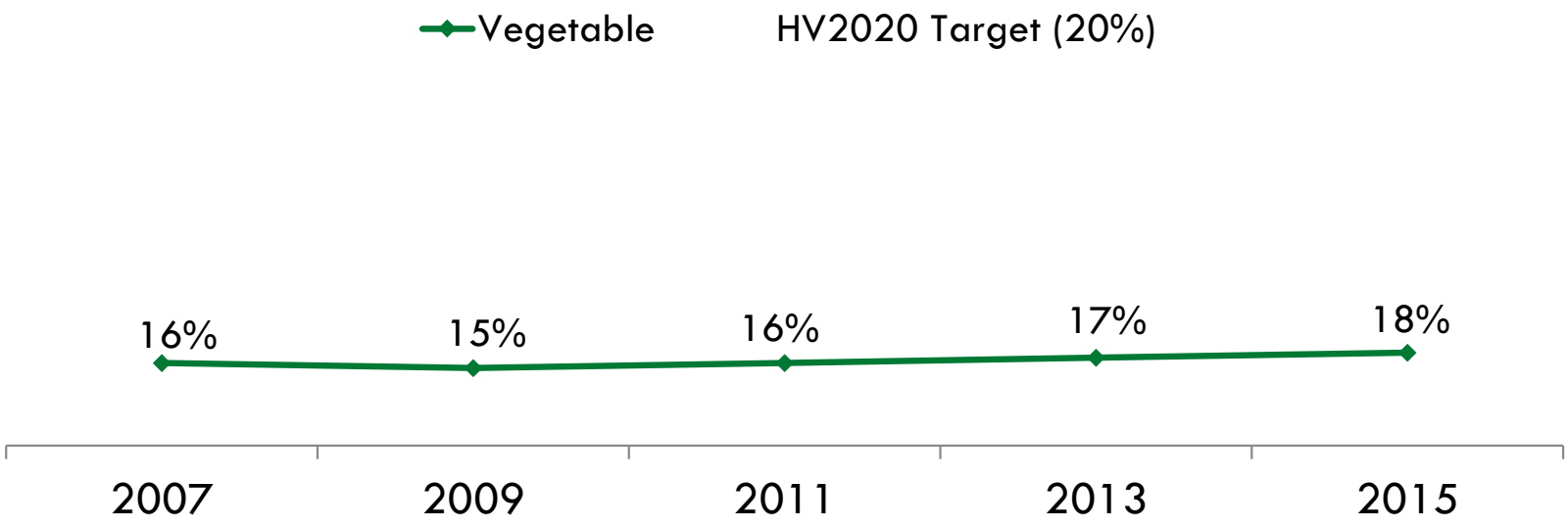


Source: the 2015 Vermont Youth Risk Behavior Survey.

Youth Grades 9-12 Who Consumed 3 or More Vegetables a Day†

Vermont youth grades 9-12 who consumed three or more vegetables a day has remained stable for about the past decade. Youth who consumed three or more vegetables a day is well below the Healthy Vermonters 2020 target of 20%.

Youth Grades 9-12 Who Consumed 3 or More Vegetables a Day§



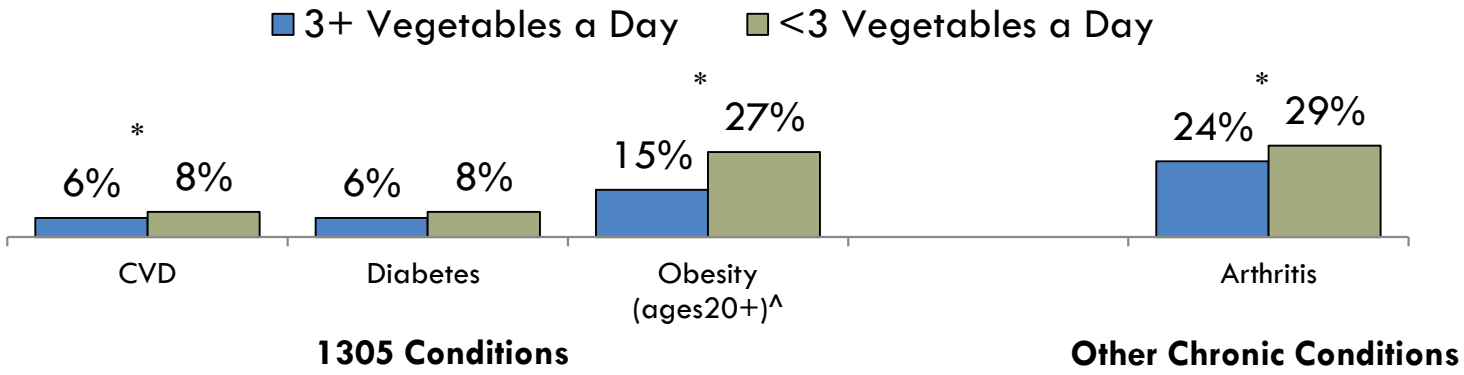
Source: the Vermont Youth Risk Behavior Survey 2007-2015.

Prevalence of Chronic Disease among Adults Who Consumed 3 or More Vegetables a Day

Adults who consumed three or more vegetables a day were significantly less likely to have CVD, be obese, or have arthritis when compared to adults who consumed less than three vegetables a day.

There were no significant differences in the prevalence of asthma, cancer, chronic kidney disease, COPD, depression (data not shown), or diabetes between adults who consumed three or more vegetables a day and those who consumed less than three a day.

Chronic Disease among Adults Who Consumed 3 or More Vegetables a Day, 2013†

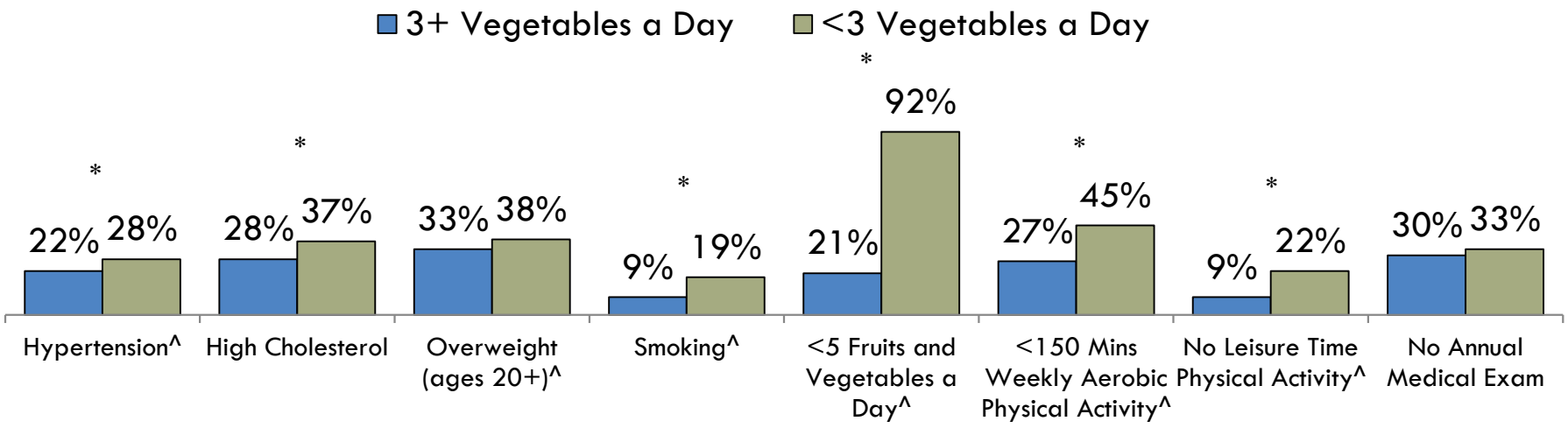


Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Prevalence of Chronic Disease Risk Factors among Adults Who Consumed 3 or More Vegetables a Day

Adults who consumed less than three vegetables a day were significantly less likely to have hypertension, high cholesterol, smoke, consume less than five fruits and vegetables a day, participate in less than 150 minutes of weekly aerobic physical activity, or participate in no leisure time physical activity when compared to adults who consumed less than three vegetables a day.

Prevalence of Chronic Disease Risk Factors among Adults Who Consumed 3 or More Vegetables a Day, 2013†



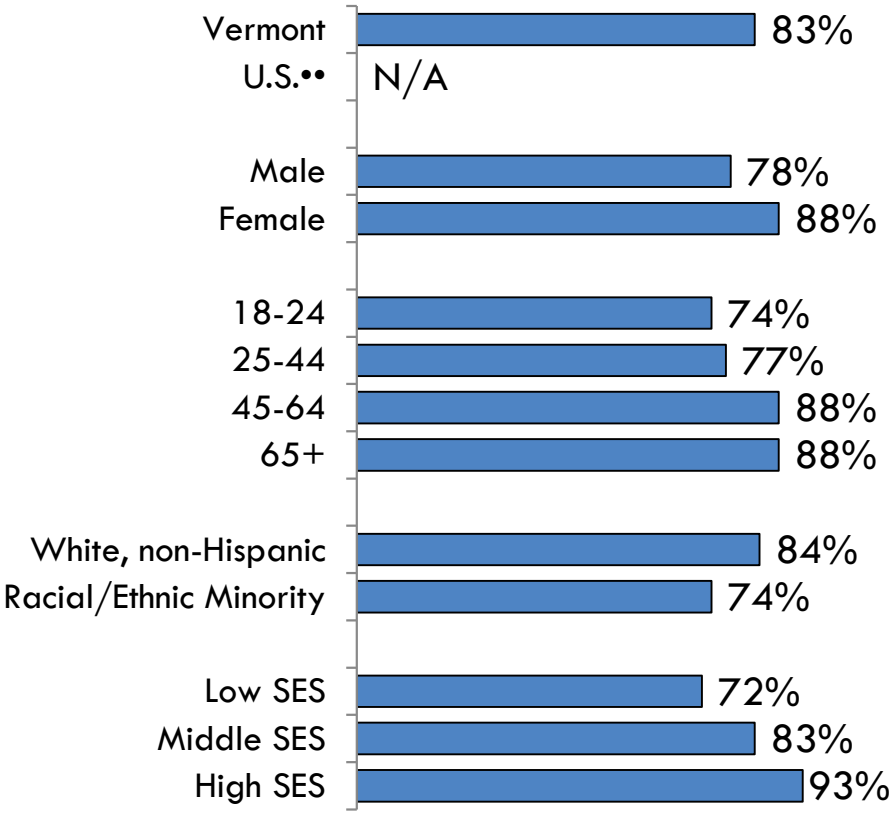
Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Consumption of Less Than 1 Soda/Sugar Sweetened Beverage a Day

Adults Who Consumed Less Than 1 Soda/ Sugar-Sweetened Beverage a Day

- 83% of Vermont adults (or approximately 369,700 adults) consumed less than one soda/sugar-sweetened beverage a day in 2013.
  - Women were significantly more likely to have consumed less than one soda/sugar-sweetened beverage a day than men.
  - Adults 18-44 were significantly less likely than adults 45 or older to have consumed less than one soda/sugar-sweetened beverage a day.
  - Vermont adults of a racial/ethnic minority were significantly less likely to have consumed less than one soda/sugar-sweetened beverage a day.
  - Consumption of less than one soda/sugar-sweetened beverage a day decreased significantly with decreasing SES.
  - Vermont adults were significantly less likely to have consumed less than one soda a day than one sugar-sweetened beverage (90% vs. 93%).

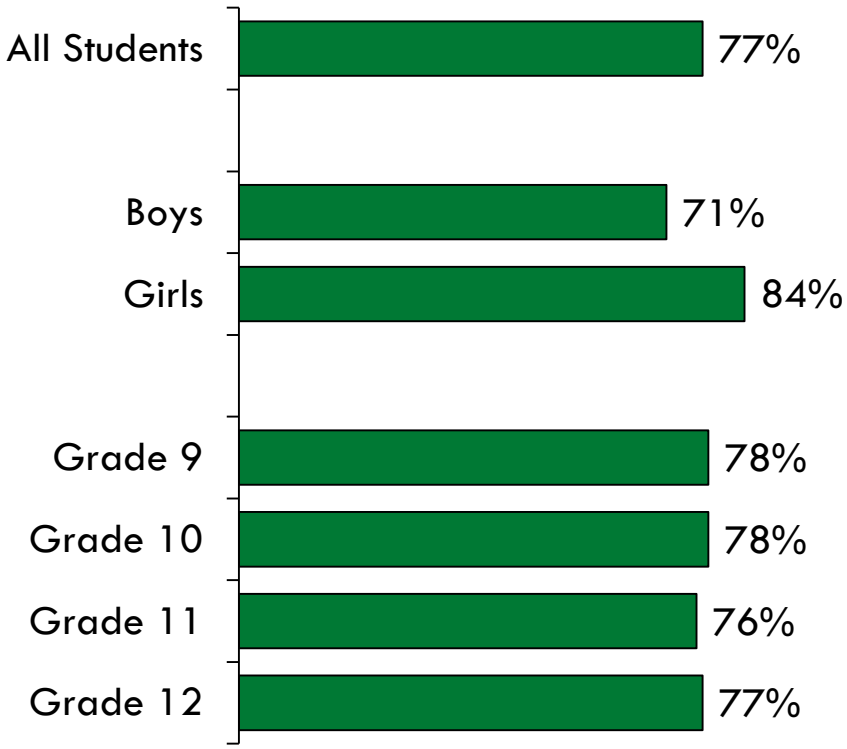
Prevalence of Adults Who Consumed Less Than One Soda/Sugar-Sweetened Beverage a Day, 2013†



Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Youth Grades 9-12 Who Consumed Less Than 1 Soda/Sugar-Sweetened Beverage a Day

Prevalence of Youth Grades 9-12 Who Consumed Less Than One Soda/Sugar-Sweetened Beverage a Day, 2015



Source: the 2015 Vermont Youth Risk Behavior Survey.

- 77% of Vermont youth grades 9-12 (or approximately 20,500 students) drank less than one soda/sugar-sweetened beverage a day in 2015.
  - Boys were significantly less likely than girls to have consumed less than one soda/sugar-sweetened beverage a day.
  - There were no differences in soda/sugar-sweetened beverage consumption by grade.

Youth Grades 9-12 Who Consumed Less Than 1 Soda/Sugar-Sweetened Beverage a Day†

The prevalence of Vermont youth grades 9-12 who consumed less than one soda/sugar-sweetened beverage a day increased significantly from 2013 to 2015.

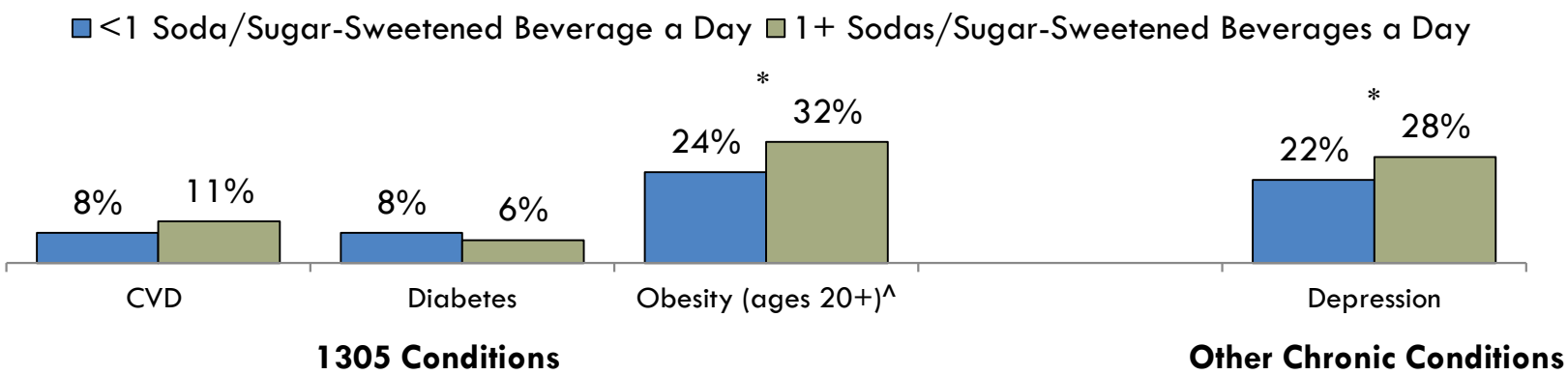
Prevalence of Youth Who Consumed Less Than One Soda/Sugar-Sweetened Beverage a Day.+

Prevalence of Chronic Diseases among Adults Who Consumed Less Than 1 Soda or One Sugar-Sweetened Beverage

Adult Vermonters who consumed less than one soda/sugar-sweetened beverage a day were significantly less likely to be obese or have a depressive disorder when compared to those who consumed one or more a day.

There was no significant difference in the prevalence of arthritis, asthma, cancer, chronic kidney disease, COPD (data not shown), CVD, or diabetes between adults who consumed less than one soda/sugar-sweetened beverage a day and those that consumed one or more a day.

Prevalence of Chronic Disease among Adults who Consumed Less Than One Soda/Sugar-Sweetened Beverage a Day, 2013†

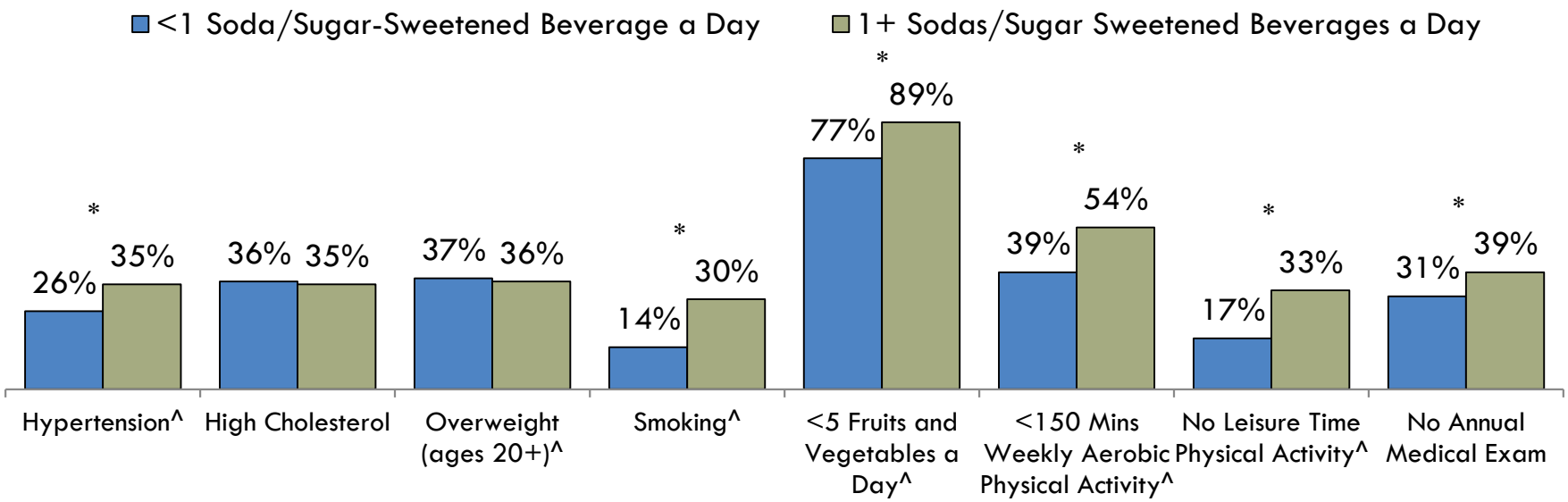


Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Prevalence of Chronic Disease Risk Factors among Adults Who Consumed Less Than 1 Soda/Sugar-Sweetened Beverage a Day

Vermont adults who consumed less than one soda/sugar-sweetened beverage a day were significantly less likely to have hypertension, smoke, consume less than five fruits and vegetables a day, participate in less than 150 minutes of aerobic physical activity a week, participate in no leisure time physical activity, and not receive an annual medical exam when compared to adults who consumed one or more sodas/sugar-sweetened beverages a day.

Chronic Disease Risk Factors among Adults Who Consumed Less Than One Soda/Sugar-Sweetened Beverage a Day, 2013†



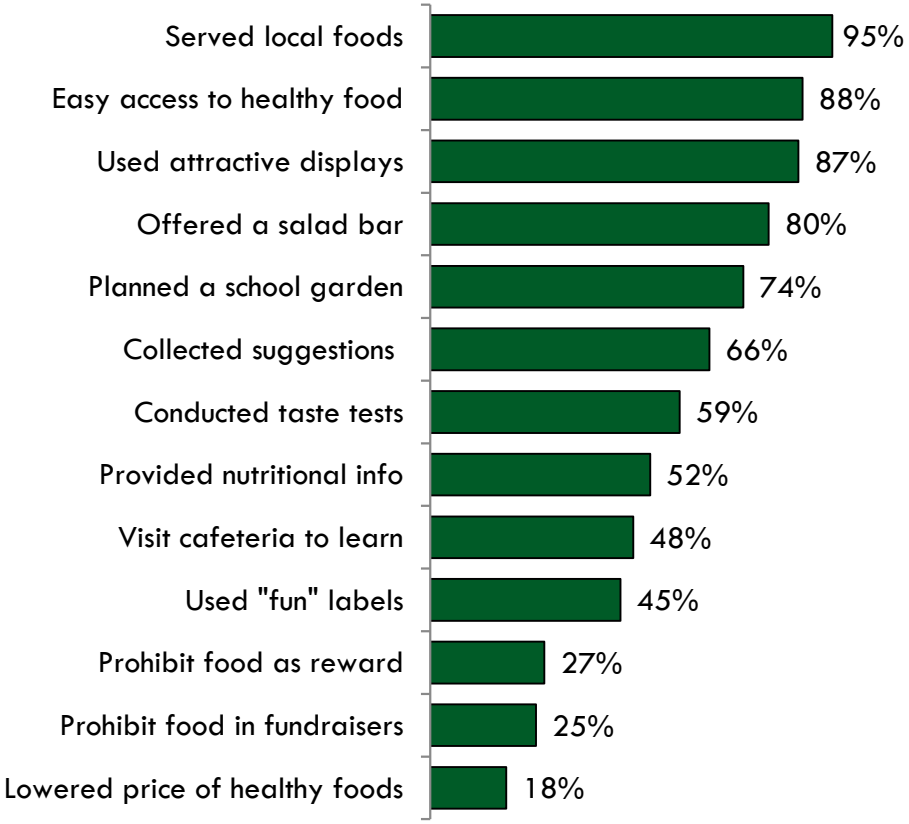
Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Nutrition in Schools

Nutrition in Secondary Schools – Promoting Healthy Eating

- 60% of Vermont secondary schools did not sell less healthy foods and beverages.
- To promote healthy eating, the majority of Vermont schools served local foods (95%). They also frequently located foods near the cashier where they were easy to access (88%) or used attractive displays (87%).
- 52% of schools provided nutrition or caloric information in the cafeteria.
- Only 18% of schools lowered the price of nutritious items and increased the price of less nutritious foods.

Efforts Used in Secondary Schools to Promote Healthy Eating, 2014

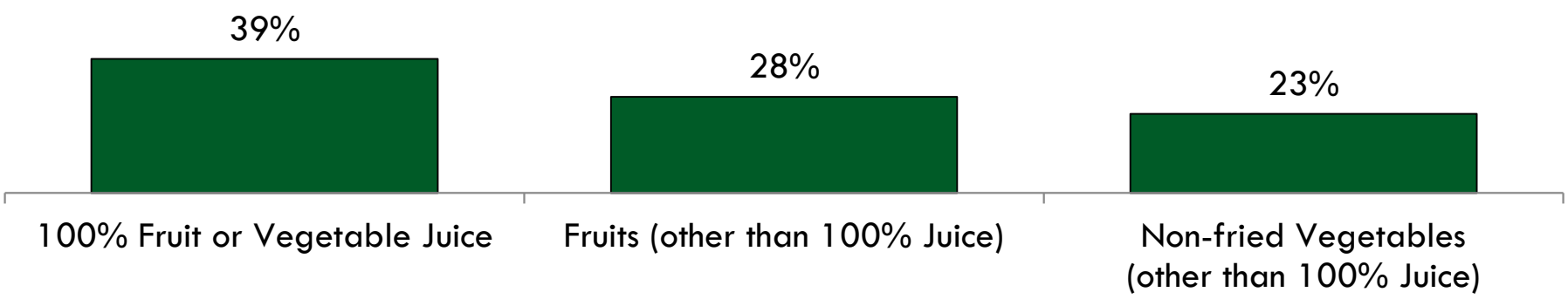


Source: 2014 Vermont School Health Profiles.

Nutrition in Secondary Schools – Vending Machines

In 2014, 55% of secondary schools allowed students to purchase foods and beverages from vending machines or snack bars. This number has decreased significantly since 2008 when it was 80%. Secondary schools most commonly have 100% fruit or vegetable juice (39%) available in their vending machine and least commonly had non-fried vegetables (23%) available. One-quarter (23%) of secondary schools offered both fruits and vegetables for purchase from their vending machines.

Secondary Schools with Fruit and Vegetable Options in their Vending Machines, 2014

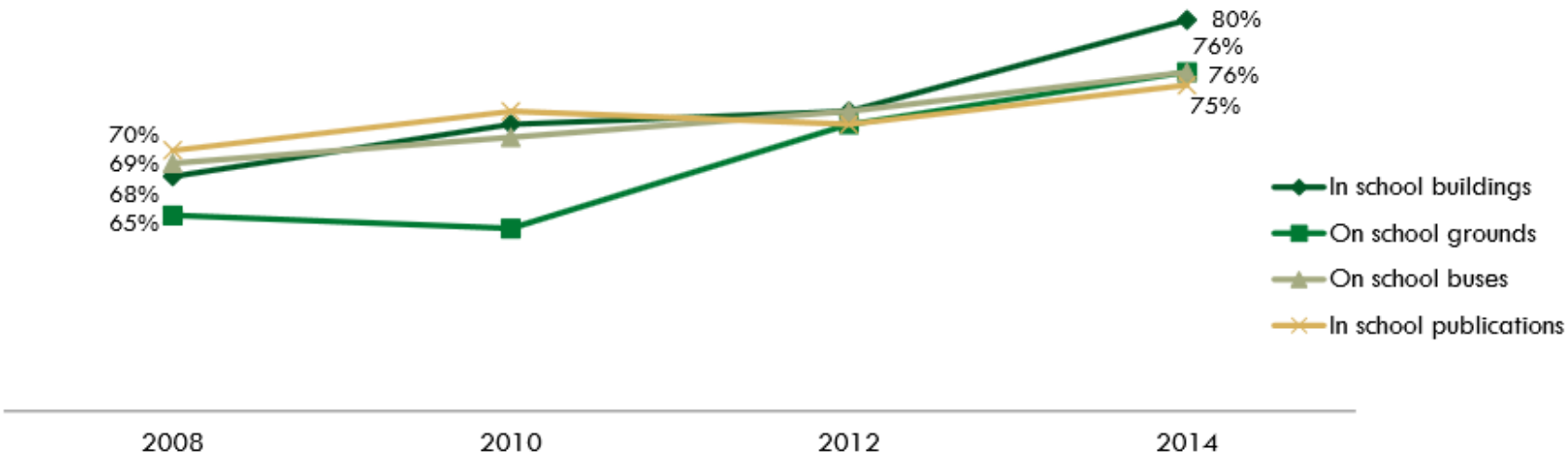


Source: 2014 Vermont School Health Profiles.

Nutrition in Secondary Schools – Junk-Food Advertising

Currently, 66% of schools prohibit all forms of advertising for candy, fast food, and soft drinks in all four possible locations where advertisements could be posted. Schools most commonly ban all forms of advertisement within the school buildings (80%). The trend of prohibiting junk-food advertisement by schools has significantly increased since 2008 in all areas.

Trend of Junk-Food Advertising in Vermont Secondary Schools, 2008-2014

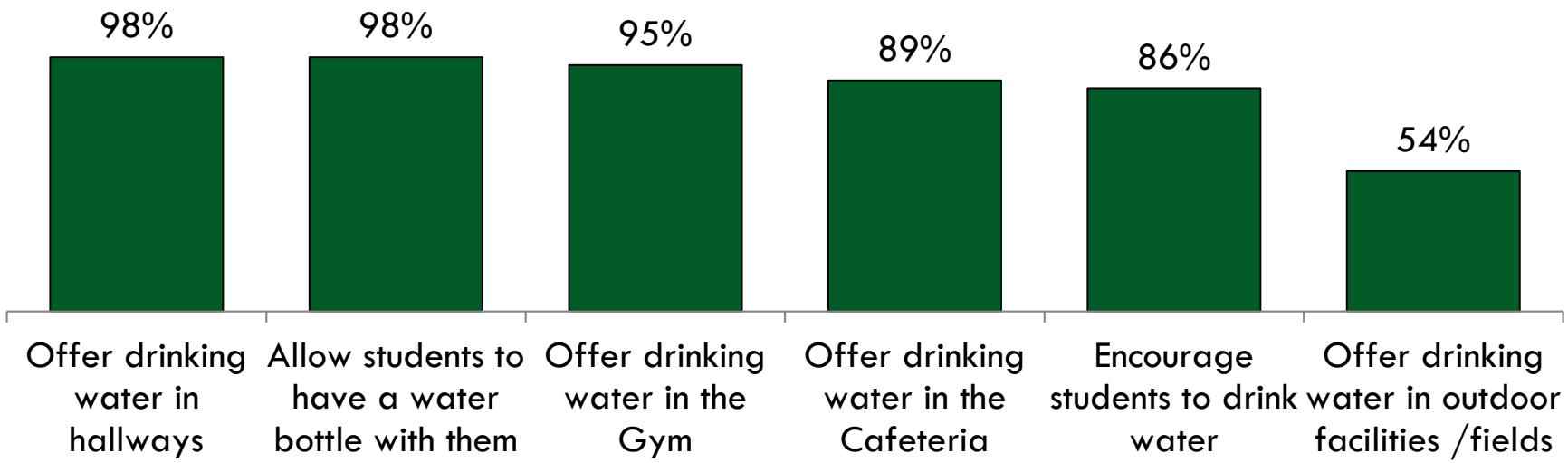


Source: 2014 Vermont School Health Profiles.

Nutrition in Secondary Schools – Free Access to Drinking Water

The majority of Vermont secondary schools encourage students to drink plain water (86%). Forty-six percent of schools allow students access to drinking water and provide or allow for it in a variety of locations throughout the school and grounds. Offering drinking water in hallways (98%) or allowing students to have a water bottle (98%) were the most common approaches. However, only roughly half of schools (54%) offered free drinking water in outdoor physical activity facilities and sport fields.

Secondary Schools Providing Students with Free Access to Drinking Water



Source: 2014 Vermont School Health Profiles.

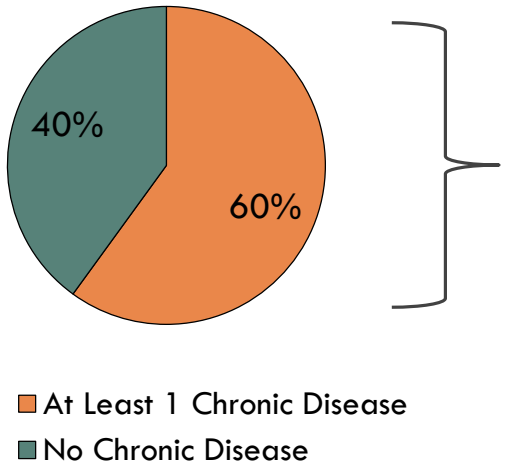
Multiple Chronic Conditions

Adult Prevalence of Multiple Chronic Conditions

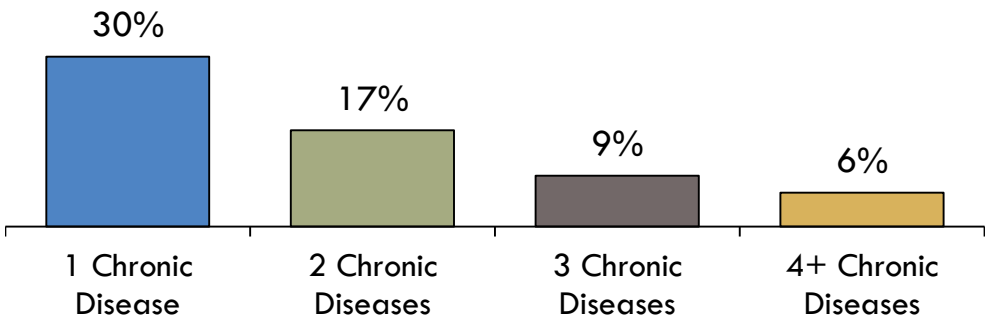
Overall, 60% of all Vermont adults had a chronic disease in 2014. Chronic diseases assessed included arthritis, asthma, cancer, cardiovascular disease, chronic kidney disease, chronic obstructive pulmonary disorder, depressive disorder, diabetes, and obesity. Those with a chronic condition were significantly more likely to have two or fewer chronic diseases rather than three or more.

Of adult Vermonters living with at least one chronic disease, 31% had at least one 1305-related chronic disease (these include: cardiovascular disease, diabetes, and obesity).

Vermont Adults With At Least One Chronic Condition, 2014



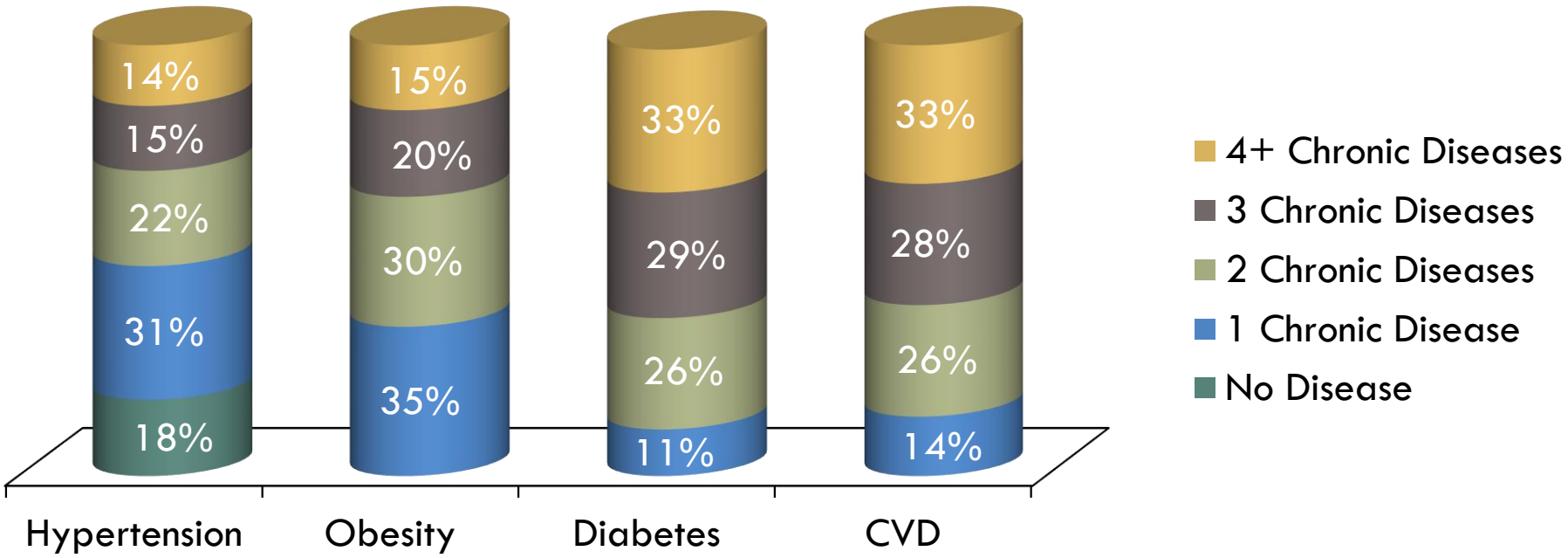
Adult Prevalence of the Number of Chronic Diseases They Have, 2014



Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Adult Prevalence of Multiple Chronic Conditions among 1305 Chronic Conditions

Adults with diabetes and cardiovascular disease (CVD) were significantly more likely to have 3 or 4 or more chronic conditions than those with hypertension or who were obese. Both hypertension and obesity are conditions that precede and increase the risk of diabetes and CVD, thus making it more likely for those with diabetes or CVD to have multiple chronic conditions. Eighteen percent of adults had only hypertension, which increases the risk of CVD.



Source: Vermont Behavioral Risk Factor Surveillance System, 2013 (hypertension) and 2014 (diabetes, obesity, CVD).

Conclusion

Conclusion

- Chronic disease is responsible for the majority of deaths in Vermont and leads to increased healthcare encounters as well as decreased quality of life as a result of largely preventable medical conditions.
- High levels of chronic disease and certain behaviors are related. Three behaviors (poor nutrition, tobacco use, and physical inactivity), lead to 4 chronic diseases (diabetes, cardiovascular disease, lung disease, and cancer) that result in more than 50% of deaths in Vermont.
- With greater access to healthy food options and opportunities for physical activity, the prevalence of risk factors for chronic disease in Vermont decreased. As these risk factors are reduced the impact of chronic disease can be diminished.
- Changing the environment to promote healthy behaviors in communities, workplaces, and schools through policies that make the healthy option the easiest one will help reduce the negative impact of chronic disease including the financial burden on individuals and communities.

Data Sources

Data Sources and Notes

Behavioral Risk Factor Surveillance System (BRFSS): Vermont tracks risk behaviors using this telephone survey of adults. The results are used to plan, support, and evaluate health promotion and disease prevention programs. Since 1990, Vermont, along with the 49 other states and three territories, has participated in the BRFSS with the Centers for Disease Control and Prevention (CDC). Approximately 7,000 Vermonters are randomly and anonymously selected annually. An adult (18 or older) in the household is asked a uniform set of questions. The results are weighted to represent the adult population of the state.

> ***Federal poverty level (FPL):*** is a measure calculated from annual household income and family size. FPL is used to determine eligibility for government assistance programs.
>
> ***Socioeconomic Status (SES):*** is a measure calculated from FPL and level of education. People living below 250% FPL and having a high school or less education, for example, are considered low income, often unable to meet basic needs.

Youth Risk Behavior Survey (YRBS): Every two years since 1993, the Department of Health's Division of Alcohol and Drug Abuse Program, and the Department of Education's Coordinated School Health Programs have sponsored the YRBS. The YRBS measures the prevalence of behaviors that contribute to the leading causes of death, disease, and injury among youth. The YRBS is part of a larger effort to help communities increase the "resiliency" of young people by reducing high risk behaviors and promoting healthy behaviors.

School Health Profiles (SHP): Every two years since 2002 the Vermont Agency and Education and Department of Health have worked together to collect data from secondary schools containing any grades from six through twelve. School principals and lead health educators answer questions about current health policies and health education practices in their schools. It is designed to be useful to administrators, school board members, school health coordinators, school nurses, health educators, physical educators, parents, and community members.

Data Sources and Notes

Vermont Vital Statistics: The Vermont Department of Health vital statistics system tracks Vermont births and deaths. The Department of Health also receives abstracts for Vermont resident births and deaths that occur in other states which allows the Department to do statistical analyses of vital events involving Vermont residents, including those events which occurred outside of the state. Primary cause of death refers to when a condition is listed as the first mortality code. All deaths related to a condition refers to when it is listed as any of the twenty possible mortality codes.

Vermont Uniform Hospital Discharge Data Set (VUHDDS): Hospital and emergency department discharge data are collected from in-state hospitals and from hospitals in bordering states. Only Vermont residents were included in this analysis. A primary diagnosis of a condition refers to when that condition is listed as the first diagnosis code. Any mention of the condition refers to when the condition in question is listed as any of the twenty available diagnosis codes. Patients admitted to the hospital from the emergency department are included in the hospital discharge data set and are not included in the emergency department data set.

United States Renal Data System (USRDS): The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) funds the USRDS which is a national data system collecting, analyzing, and distributing information about chronic kidney disease (CKD) and end-stage renal disease (ESRD) in the United States. Data is received by USRDS through collaboration with the Centers for Medicare & Medicaid Services (CMS), United Network for Organ Sharing (UNOS), and ESRD networks. Data is made available publically through the USRDS.

Data Sources and Notes

Confidence Intervals Used For Statistical Comparisons: A confidence interval represents the range in which a parameter estimate could fall which is calculated based on the observed data. For this analysis, a 95% confidence interval was used, meaning that one can be 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 do not overlap, the estimate is considered to be significantly different from the another.

Age Adjustment: Measures are adjusted for age for all data sources if they are Healthy Vermonters 2020 measures or if Healthy People 2020 indicates a measure should be age-adjusted. Age-adjustment groupings come from those determine by Healthy People 2020. To ensure consistency, whenever the prevalence of an age-adjusted measure is reported, it is always age-adjusted.

For additional information

Vermont Diabetes Prevention Program:
http://healthvermont.gov/prevent/diabetes/diabetes.aspx
http://myhealthyvt.org/

Vermont Cardiovascular Disease Prevention:
http://millionhearts.hhs.gov/
http://ladiesfirstproviders.vermont.gov/

Vermont Physical Activity and Nutrition and Obesity Prevention:
http://healthvermont.gov/mymoment/

School Health
http://healthvermont.gov/local/school/

Worksite Wellness
http://healthvermont.gov/family/fit/worksitewellness.aspx

3-4-50 Vermont: Drive Down Chronic Disease
http://healthvermont.gov/prevent/3-4-50/index.aspx

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Appendix

Prevalence of Chronic Disease by Income and Level of Education†

Socioeconomic Factor		CVD	Diabetes	Obesity (ages 20+)^
Income	Low (<$25K)	13%	13%	32%
	Middle ($25K-<$50K)	7%	8%	28%
	High ($50K-<$75K)	7%	8%	25%
	Highest ($75K+)	4%	4%	17%
Level of Education	High School or Less	10%	10%	32%
	Some College	7%	8%	26%
	College+	5%	5%	16%

Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Chronic Disease Comorbidities for Adults by Cardiovascular Disease Status†

Chronic Disease	Had CVD	Did Not Have CVD
Arthritis*	59%	25%
Asthma	15%	11%
Cancer~*	16%	6%
Chronic Kidney Disease*	12%	2%
COPD*	22%	5%
Depression*	29%	21%
Diabetes*	28%	6%
Obesity (ages 20+)^	28%	24%

Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Chronic Disease Comorbidities by Adult Obesity Status†

Chronic Disease	Was Obese	Was Not Obese
Arthritis*	38%	25%
Asthma*	15%	10%
Cancer~	7%	7%
Cardiovascular Disease (CVD)*	11%	7%
Chronic Kidney Disease	3%	3%
COPD*	9%	5%
Depression*	29%	19%
Diabetes*	18%	4%

Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Prevalence of Risk Factors by Income and Level of Education†

Socioeconomic Factor		Hypertension^	Prediabetes	Overweight (ages 20+)^
Income	Low (<$25K)	35%	8%	32%
	Middle ($25K-<$50K)	28%	6%	34%
	High ($50K-<$75K)	26%	7%	38%
	Highest ($75K+)	22%	4%	38%
Level of Education	High School or Less	30%	7%	37%
	Some College	31%	6%	35%
	College+	21%	4%	34%

Source: Vermont Behavioral Risk Factor Surveillance System 2013 (Hypertension) and 2014 (prediabetes and overweight).

Prevalence of Protective Factors by Income and Level of Education†

Socioeconomic Factor		150+ Mins Weekly Aerobic Physical Activity^	2+ Fruits a Day^	3+ Vegetables a Day^	<1 Soda/Sugar-Sweetened Beverage a Day
Income	Low (<$25K)	48%	27%	14%	73%
	Middle ($25K-<$50K)	57%	34%	17%	82%
	High ($50K-<$75K)	62%	39%	19%	88%
	Highest ($75K+)	64%	36%	23%	90%
Level of Education	High School or Less	51%	30%	12%	76%
	Some College	57%	34%	18%	83%
	College+	69%	41%	27%	92%

Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Chronic Disease Comorbidities for Adults by Hypertension Status†

Chronic Disease	Had Hypertension	Did Not Have Hypertension
Arthritis*	46%	20%
Asthma	13%	10%
Cancer~*	13%	5%
Cardiovascular Disease*	17%	4%
Chronic Kidney Disease*	4%	1%
COPD*	10%	4%
Depression*	27%	22%
Diabetes*	18%	3%
Obesity (ages 20+)^*	44%	19%

Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Chronic Disease Comorbidities for Adults by Overweight Status†

Chronic Disease	Were Overweight	Were Not Overweight or Obese
Arthritis*	29%	21%
Asthma	10%	10%
Cancer~	8%	7%
Cardiovascular Disease	8%	6%
Chronic Kidney Disease	3%	3%
COPD	5%	5%
Depression	20%	19%
Diabetes*	7%	2%

Source: Vermont Behavioral Risk Factor Surveillance System 2014.

Chronic Disease Comorbidities for Adults by Amount of Weekly Physical Activity†

Chronic Disease	150+ Mins Weekly Aerobic Physical Activity	<150 Mins Weekly Aerobic Physical Activity
Arthritis*	25%	32%
Asthma	10%	13%
Cancer~	7%	8%
Cardiovascular Disease*	6%	11%
Chronic Kidney Disease	1%	3%
COPD*	4%	7%
Depression*	20%	28%
Diabetes*	6%	11%
Obesity (ages 20+)^*	19%	34%

Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Chronic Disease Comorbidities for Adults by Amount of Fruit Consumed per Day†

Chronic Disease	2+ Fruits a Day	<2 Fruits a Day
Arthritis	28%	28%
Asthma	10%	12%
Cancer~	8%	7%
Cardiovascular Disease	7%	8%
Chronic Kidney Disease	2%	2%
COPD*	4%	6%
Depression*	21%	25%
Diabetes	7%	8%
Obesity (ages 20+)^*	19%	29%

Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Chronic Disease Comorbidities for Adults by Amount of Vegetables Consumed per Day†

Chronic Disease	3+ Vegetables a Day	<3 Vegetables a Day
Arthritis*	24%	29%
Asthma	11%	11%
Cancer~	7%	8%
Cardiovascular Disease*	6%	8%
Chronic Kidney Disease	2%	2%
COPD	4%	6%
Depression	21%	24%
Diabetes	6%	8%
Obesity (ages 20+)^*	15%	28%

Source: Vermont Behavioral Risk Factor Surveillance System 2013.

Chronic Disease Comorbidities for Adults by Amount of Soda/Sugar Sweetened Beverage Consumed per Day†

Chronic Disease	<1 Soda/Sugar-Sweetened Beverage a Day	1+ Sodas/Sugar-Sweetened Beverages a Day
Arthritis	29%	26%
Asthma	11%	15%
Cancer~	8%	8%
Cardiovascular Disease	8%	11%
Chronic Kidney Disease	2%	3%
COPD	5%	8%
Depression*	22%	28%
Diabetes	8%	6%
Obesity (ages 20+)^*	24%	32%

Source: Vermont Behavioral Risk Factor Surveillance System 2013.