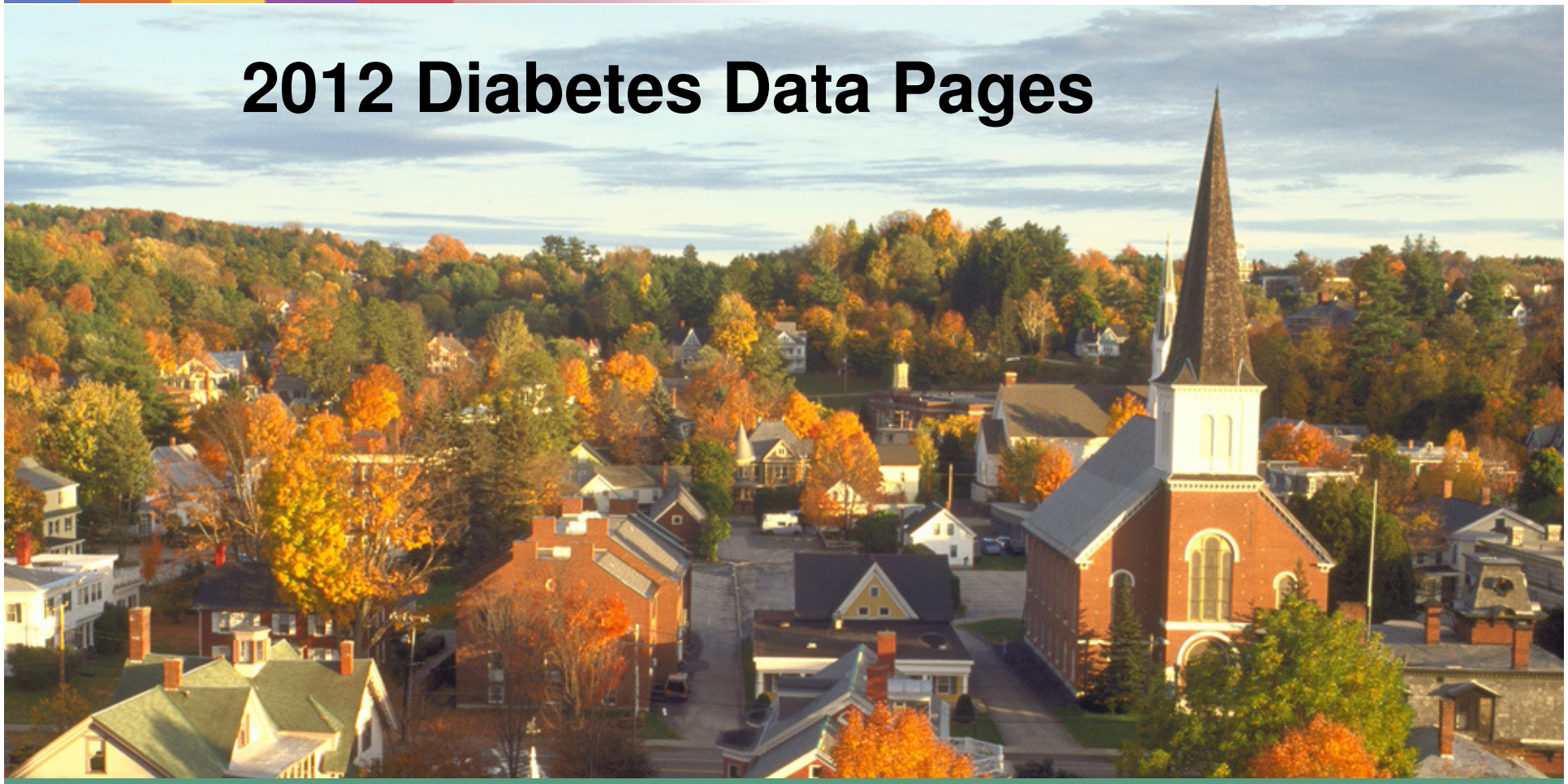
*Vermont Department of Health*

# 2012 Diabetes Data Pages



*Guidance • Support • Prevention • Protection*

Vermont Department of Health
September, 2013

VERMONT
DEPARTMENT OF HEALTH

# Diabetes in Vermont

Diabetes is caused by the body not making enough insulin or the body not using its own insulin effectively. This causes glucose to build up in the blood. Diabetes can lead to serious health complications including heart disease, stroke, blindness, kidney failure, and lower-extremity amputations.

Almost one in ten Vermont adults (7%) have diagnosed diabetes; it is the seventh leading cause of death in Vermont.

This report looks at diabetes in Vermont, including prevalence, morbidity and mortality, self-care and clinical care measures.

The data sources for this report include the Vermont Behavioral Risk Factor Surveillance System (VT BRFSS), Birth and Death Certificates, ED visits and Hospital Discharges and the US Renal Data System.

For the VT BRFSS, 2011 and 2012 are not comparable to previous years due to methodological changes in data collection. When looking at sub populations for diabetes prevalence from the BRFSS (e.g. gender), we use combined 2011-2012 to provide enough data for a reliable estimate. When looking at diabetes care measures, we use combined 2008-2010, as 2011 does not provide enough data for sub population analyses and the 2012 BRFSS did not ask these questions.

The Vermont Diabetes Prevention and Control Program chooses to target the following populations due to their high rates of diabetes: Vermonters age 65 and older, Vermonters with low income and/or educational status and Vermonters who are obese (BMI greater than 30).

# Healthy Vermonters 2020

There are several Healthy Vermonters 2020 (HV 2020) goals for diabetes and chronic kidney disease. These include:

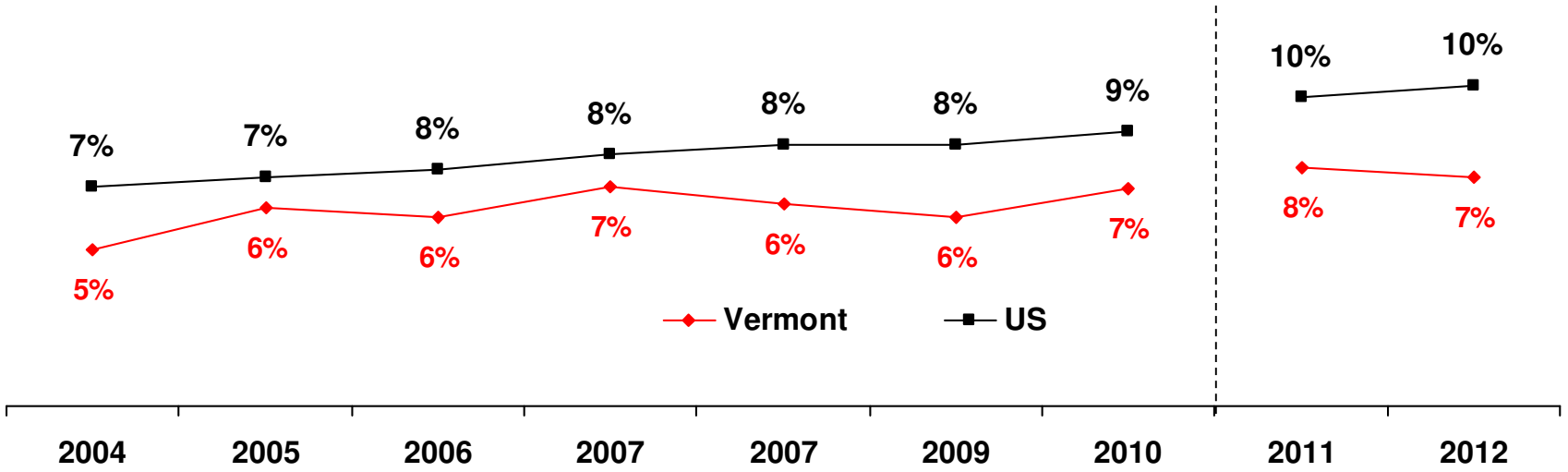
| Healthy People 2020 | HV2020 Objective (Population goal) | HV 2020 Goal | Vermont Baseline |
|---|---|---|---|
| CKD-4.2 | % of persons with CKD and diabetes who receive recommended medical evaluation | 28.3% | 25.7% |
| CKD-8 | Rate of new cases of end-stage renal disease (ESRD) per million population | 199.8 | 222.0 |
| D-5.2 | % of adults with diagnosed diabetes with A1C < 7%* | -- | -- |
| D-7 | % of adults with diagnosed diabetes with controlled blood pressure* | -- | -- |
| D-10 | % of adults with diagnosed diabetes who had an annual dilated eye exam (2008-2010)** | 57.1% | 51.4% |
| D-14 | % of adults with diagnosed diabetes who had diabetes education (2008-2010)** | 56.1% | 51.1% |

** Age-adjusted

# Diabetes Prevalence and Incidence

# Diabetes Prevalence Among Vermont Adults

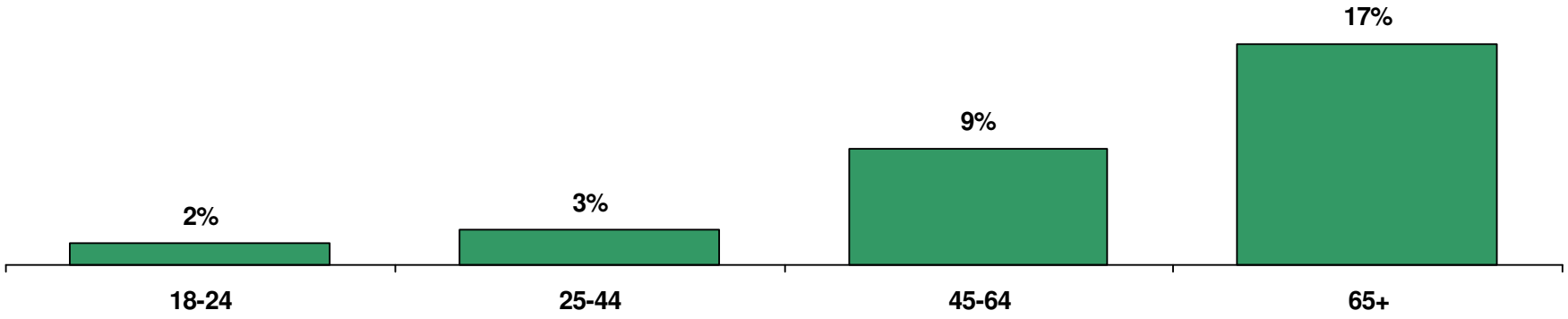
In 2012, 7% or 36,400 Vermont adults were living with diagnosed diabetes. The prevalence of diabetes diagnoses significantly increased from 2002 to 2010, though it remains significantly less than the U.S. prevalence.




Source: Vermont Behavioral Risk Factor Surveillance System

# Diabetes Prevalence by Age Group Among Adults

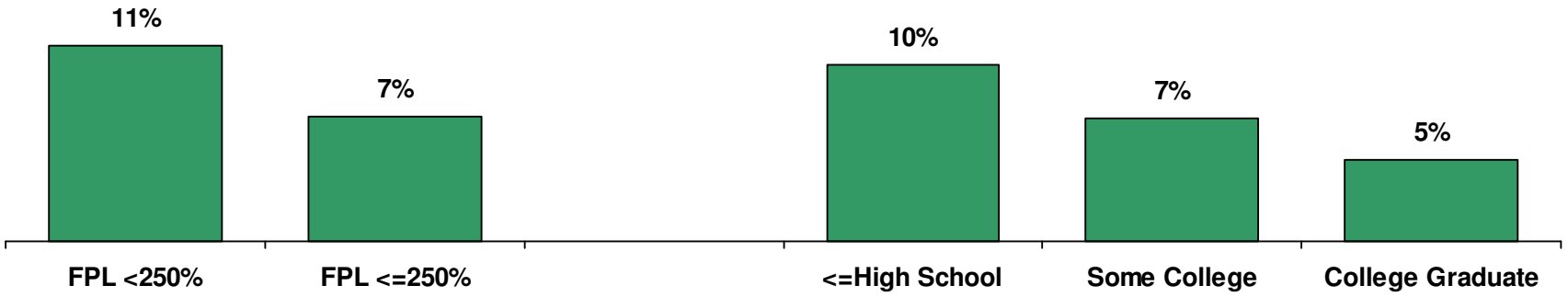
Diabetes prevalence increases dramatically with age, with adults age 65 and older more likely to be diagnosed with diabetes than younger age groups. Prevalence does not vary by gender (males 7%, females 6%) or race/ethnicity (white non-hispanic 7%, racial and ethnic minorities 8%).




Source: Vermont Behavioral Risk Factor Surveillance System, 2011-2012

# Diabetes Prevalence by Education and Income

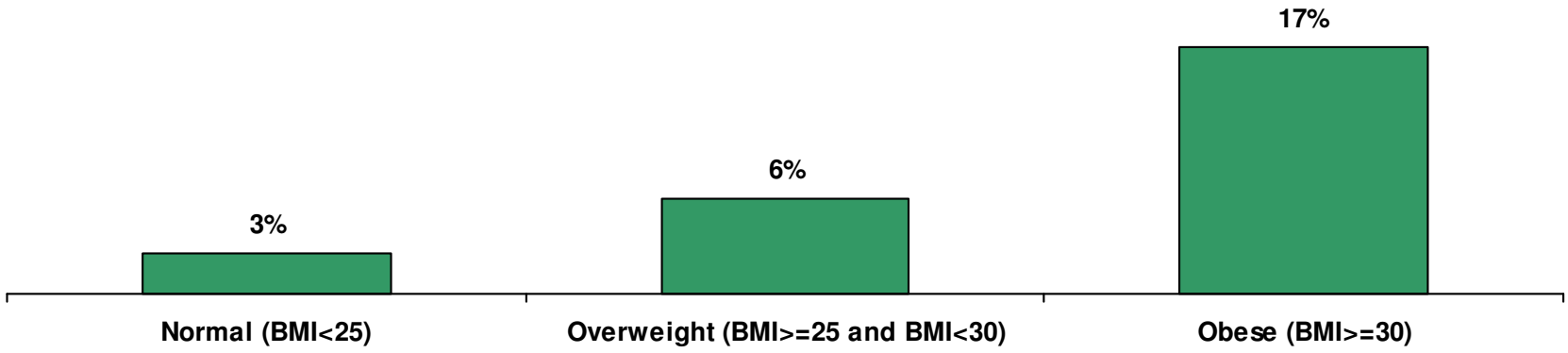
When looking at Federal Poverty Level (FPL), diabetes prevalence is significantly higher among households with an income lower than 250% FPL. Diabetes prevalence for those with a high school education or less is higher than all other categories, while prevalence for college graduates is significantly lower than all other categories.




Source: Vermont Behavioral Risk Factor Surveillance System, 2011-2012

# Diabetes Prevalence by Body Mass Index

Diabetes prevalence increases dramatically among adults with a higher body mass index (BMI). Persons with BMIs greater than or equal to 30 are significantly more likely to have diagnosed diabetes.

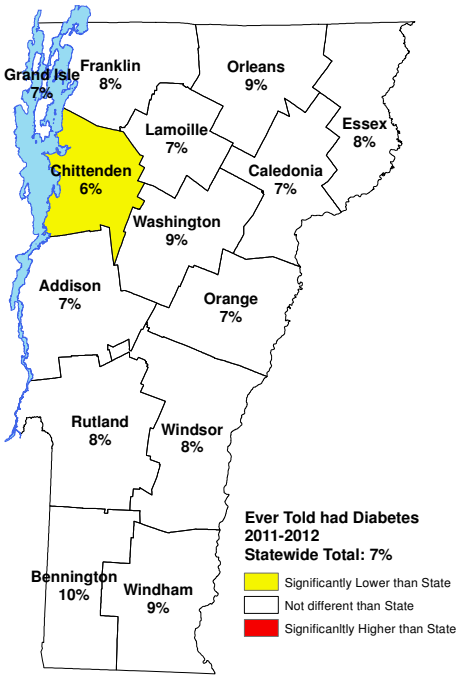



Source: Vermont Behavioral Risk Factor Surveillance System, 2011-2012

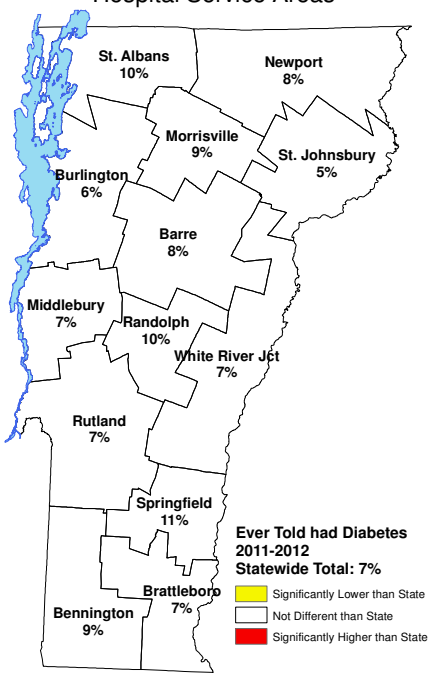
# Adult Diabetes Prevalence

Generally, rates of diabetes prevalence are the same throughout Vermont. However, when looking at diabetes by geography, prevalence is significantly lower in Chittenden County than elsewhere in the state. Prevalence is higher in the Springfield area (Springfield HSA and District Office), though not significantly so.

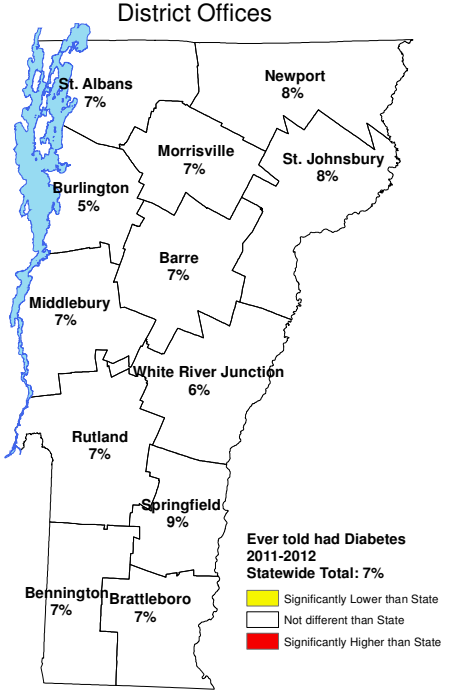
Counties




Hospital Service Areas



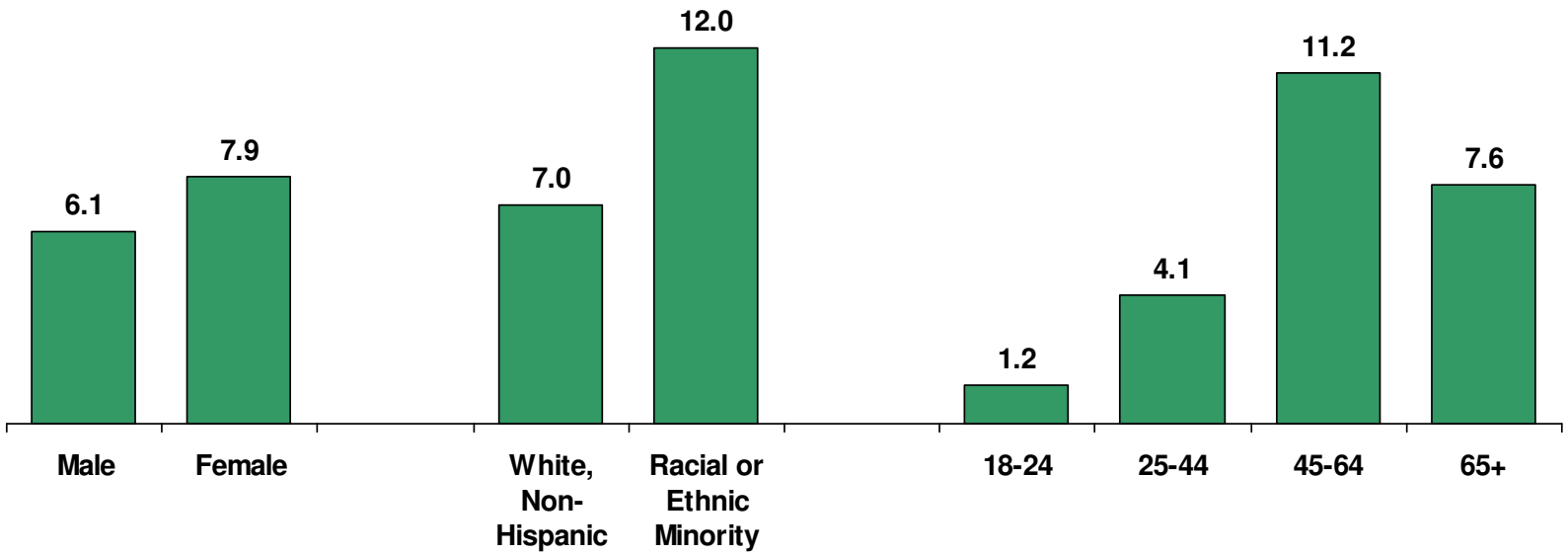

District Offices




Source: Vermont Behavioral Risk Factor Surveillance System. 2011-2012

# Diabetes Incidence

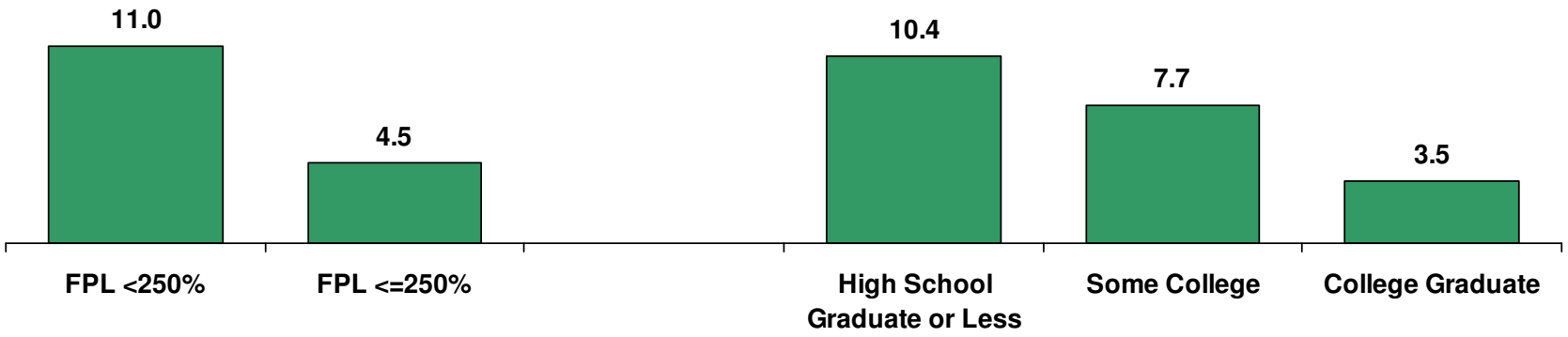
The rate of new diagnoses of diabetes among Vermont adults is 7.0 per 1,000 per year. Vermonters younger than 45 have a significantly lower incidence rate than Vermonters ages 45 and older. White Non-Hispanic residents have a lower diabetes incidence, but not significantly so.




Source: Vermont Behavioral Risk Factor Surveillance System, 2008-2010

# Diabetes Incidence

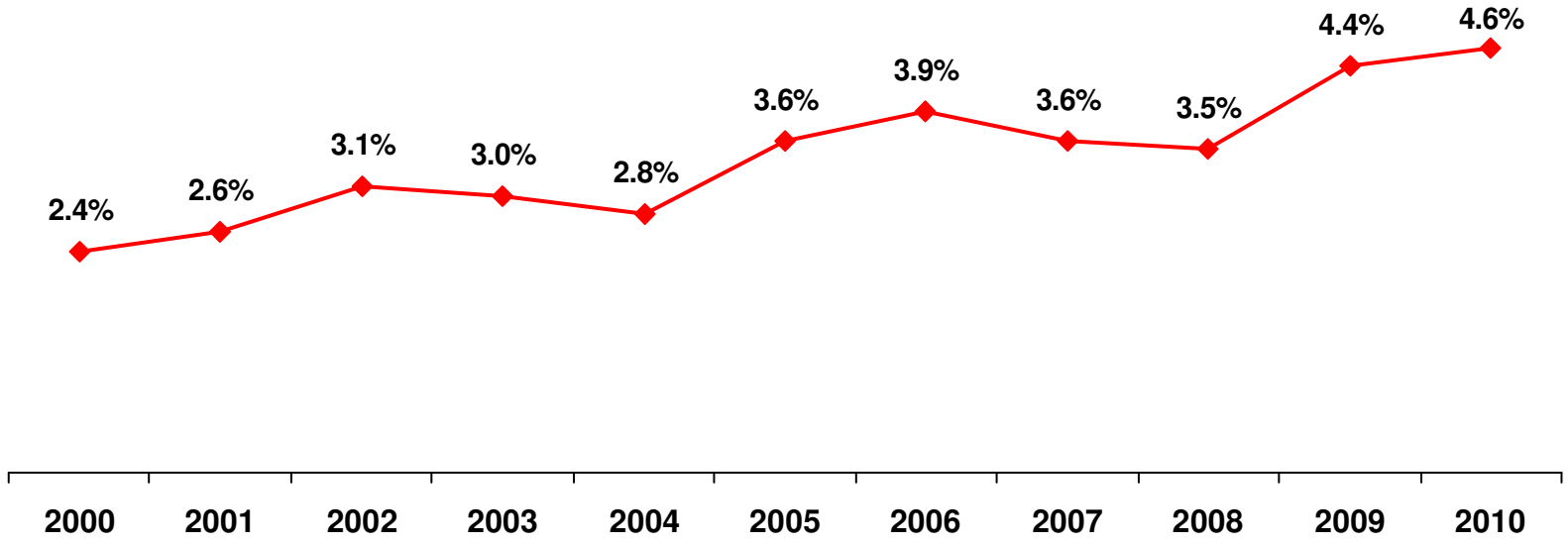
The incidence rate per 1,000 is significantly higher among household incomes below 250% FPL. Those with a high school education or less are also significantly higher than college graduates.




Source: Vermont Behavioral Risk Factor Surveillance System, 2008-2010

# Gestational Diabetes

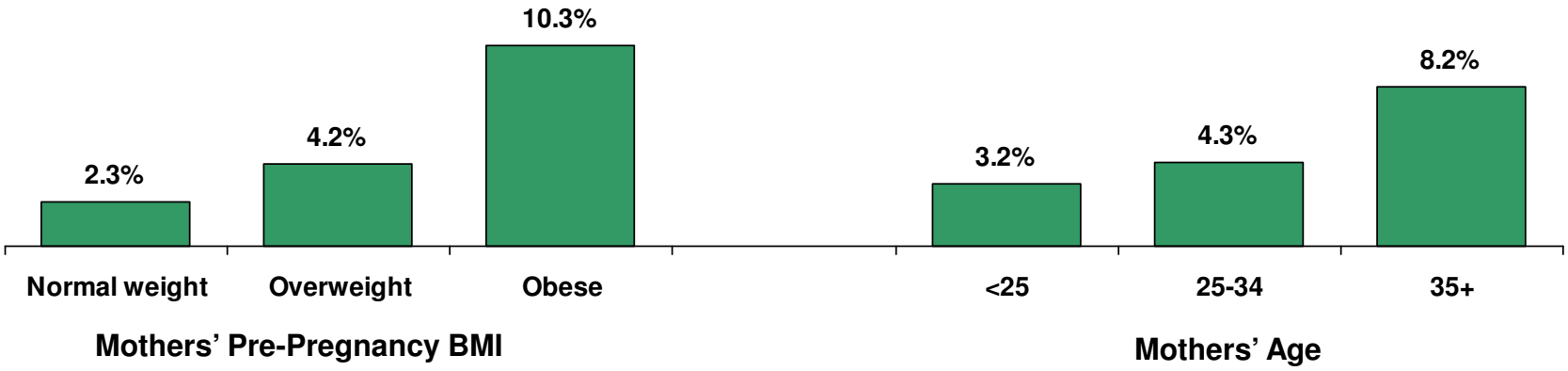
Gestational diabetes can cause pregnancy complications, as well as an increased risk of developing diabetes later in life for the mother. Since 2000, the rate of gestational diabetes among Vermont births has significantly increased (2.4% to 4.6%). That represents 285 births to mothers with gestational diabetes in 2010.




Source: Vermont Birth Certificate Data

# Gestational Diabetes

In 2010, 5% of Vermont births were to mothers who developed diabetes while pregnant. Mothers who were obese pre-pregnancy and who were 35 years of age or older were more likely to have gestational diabetes. Gestational diabetes rates did not vary by mother's education level.

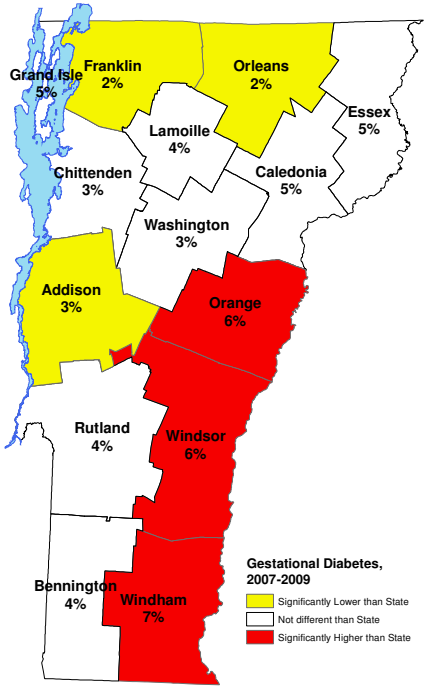



Source: Vermont Birth Certificate Data, 2009

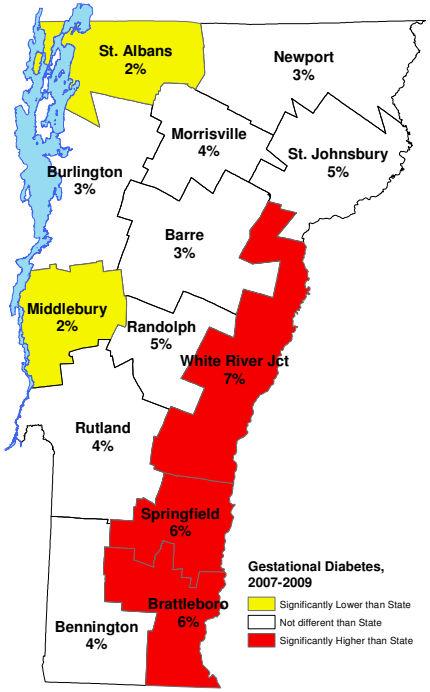
# Gestational Diabetes

Regionally, areas along the southeastern border of Vermont have higher rates of gestational diabetes, while northern and northwestern areas have lower rates. Demographically, mothers from the southeastern section of Vermont do not vary significantly by pre-pregnancy BMI, age, or education from other areas.

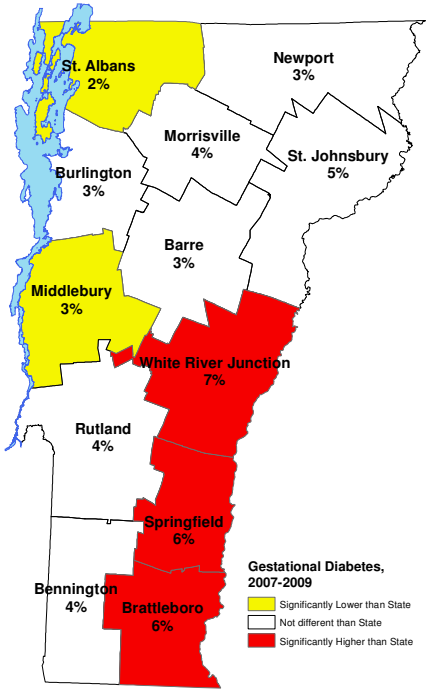
Counties




Hospital Service Areas




District Offices

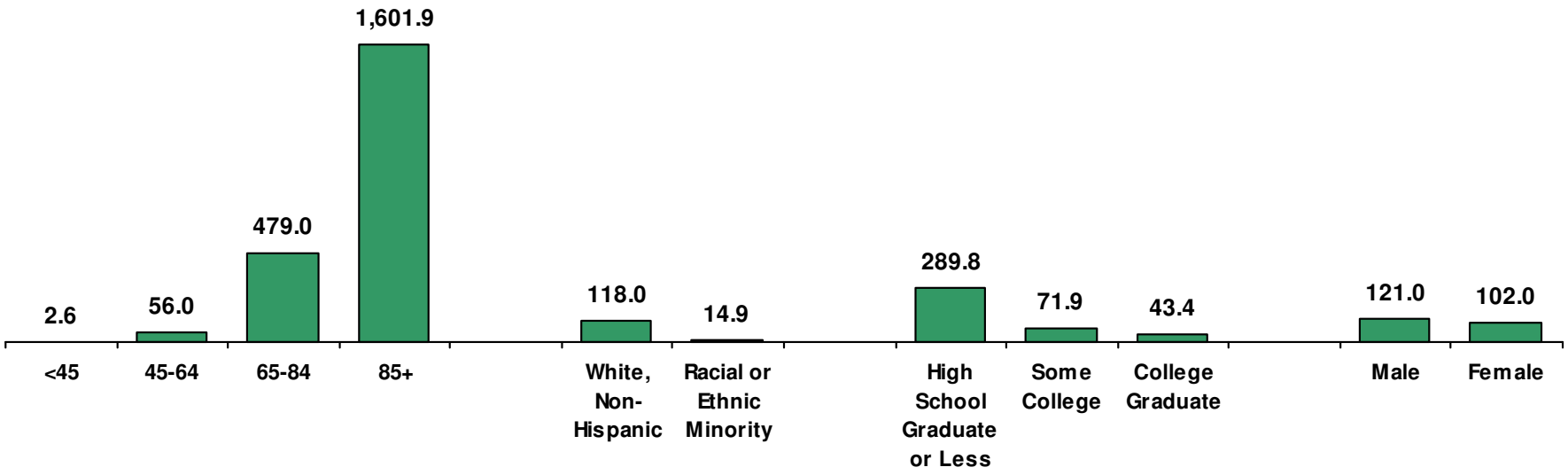



Source: Vermont Birth Certificate Data, 2007-2009

# Diabetes Morbidity and Mortality

# Diabetes Related Mortality

In 2010, the diabetes-related mortality* for Vermont was 111.4 deaths per 100,000. Diabetes-related mortality has remained steady since 2000. Diabetes-related mortality increases with age. Males, White, Non-Hispanic Vermonters and those with a high school education or less are significantly more likely to die of diabetes-related causes than females, racial or ethnic minorities and those with more than a high school education.

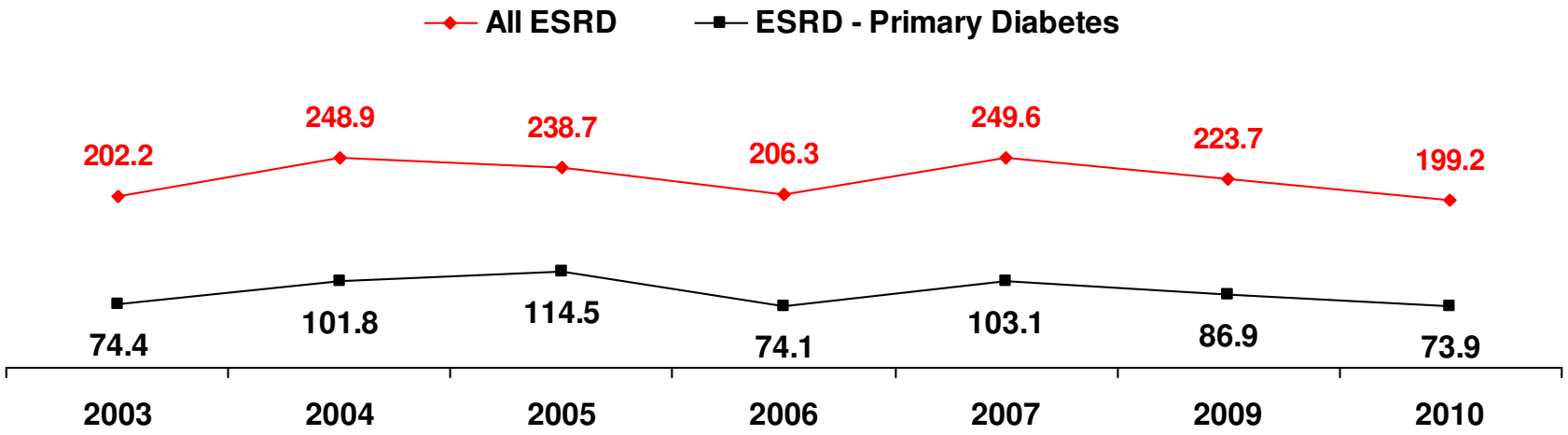



* Any mention of diabetes as either an underlying cause (e.g. diabetic ketoacidosis) or contributing cause (e.g. heart disease with diabetes) of death.

Source: Vermont Vital Statistics, 2009

# Diabetes and End Stage Renal Disease

The rate of new cases of end stage renal disease (ESRD) per million Vermonters, both overall and for those with diabetes, is similar for 2003 and 2010. But overall cases have dropped from a high of 249.6 per million in 2007 to 199.2 in 2010, while those with diabetes have dropped from a high of 114.5 per million in 2005 to 73.9 in 2010.

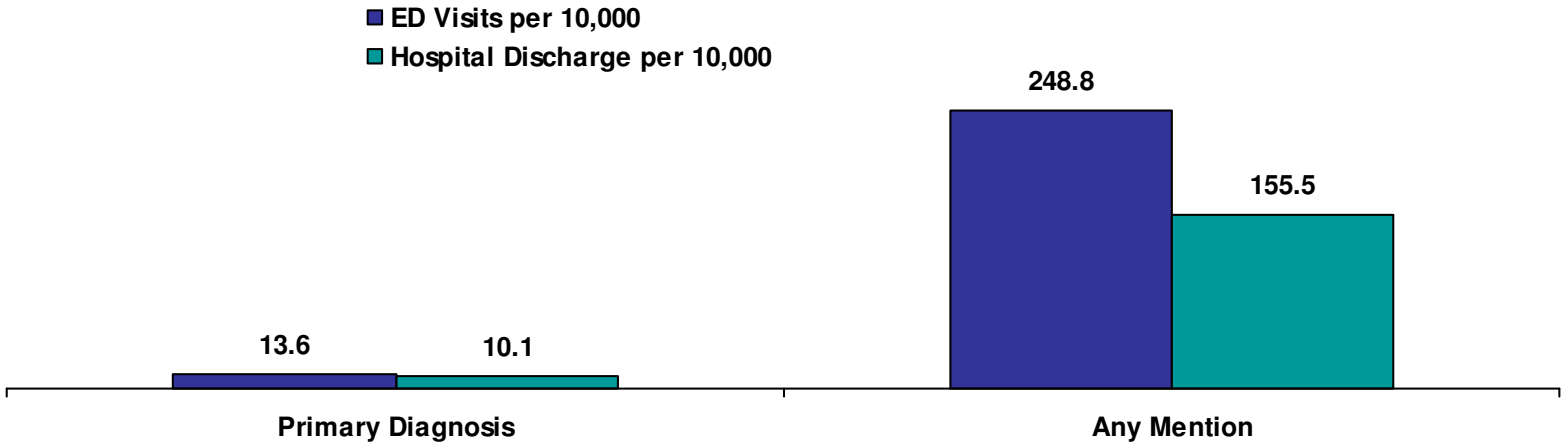



Source: United States Renal Data System

# Diabetes Related Hospital Discharges and ED Visits

Diabetes is rarely listed as the primary diagnosis for either hospital discharges or ED visits. This has remained steady since 2000 for both hospital discharges and ED visits. Diabetes diagnoses as any part of a hospital discharge has also remained the same since 2000.

For ED visits with diabetes as any part of the diagnosis, the rate has risen steadily since 2000 (149.9 per 10,000 in 2000 to 248.8 per 10,000 in 2009). The Diabetes Prevention and Control Program feels this increase reflects better coding of diabetes as a complication of morbidity and not an increase in diabetes complications in general.

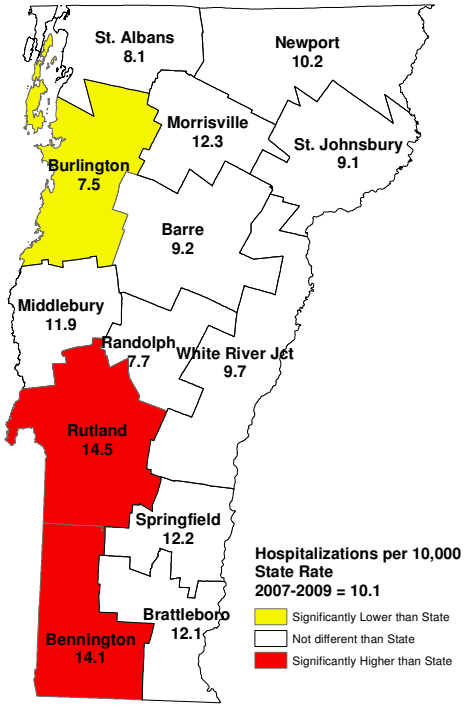



Source: Vermont Uniform Hospital Discharge Data, 2007-2009

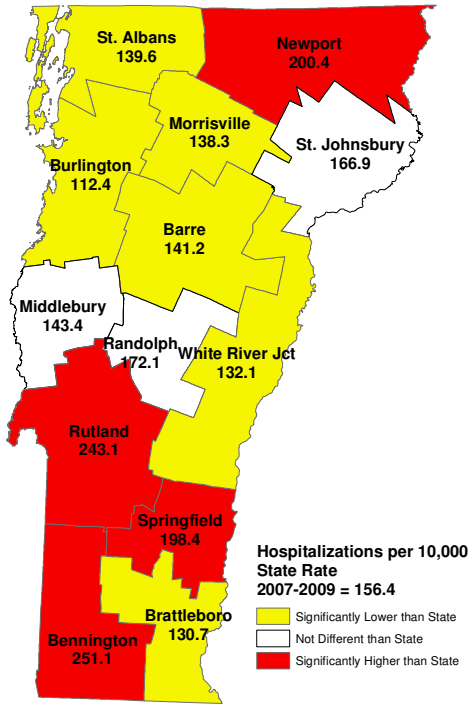
# Diabetes-Related Hospital Discharges by HSA

For hospital discharges with a primary diagnosis of diabetes, the Burlington Hospital Service Area (HSA) is significantly lower than the state, while Rutland and Bennington have higher rates. For hospital discharges with any mention of diabetes, Newport, Rutland, Springfield and Bennington are higher than the state.

Primary Diagnosis




Any Mention

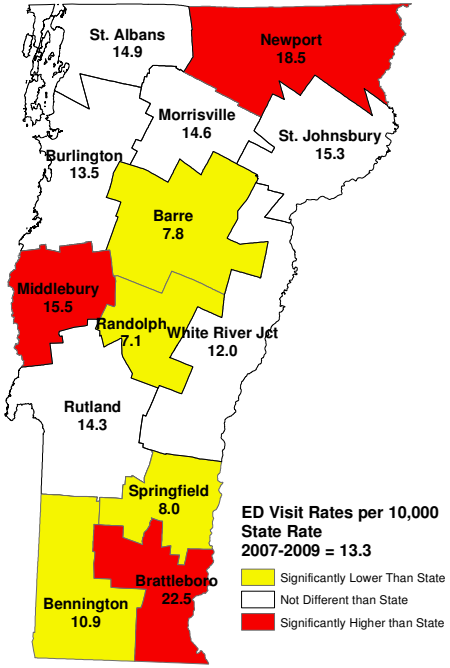



Source: Vermont Uniform Hospital Discharge Data, 2007-2009

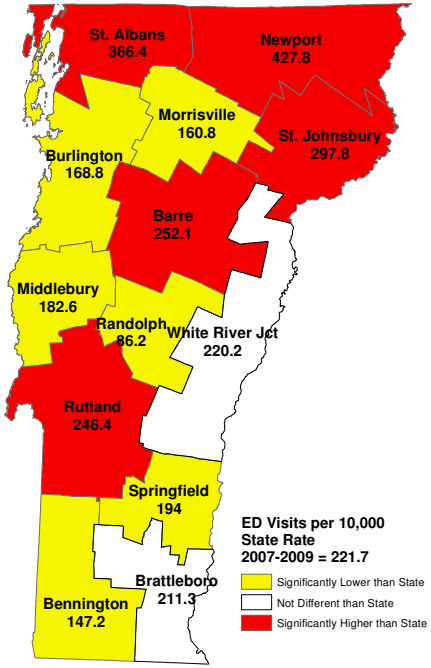
# Diabetes-Related Emergency Department Visits

Regionally, Newport is consistently higher than the state average for both primary diagnoses and any mention of diabetes as a cause of ED visits. For any mention of diabetes, Newport is by far the highest of any Hospital Service Area (427.8 vs. 221.7 for the state overall).

Primary Diagnosis




Any Mention

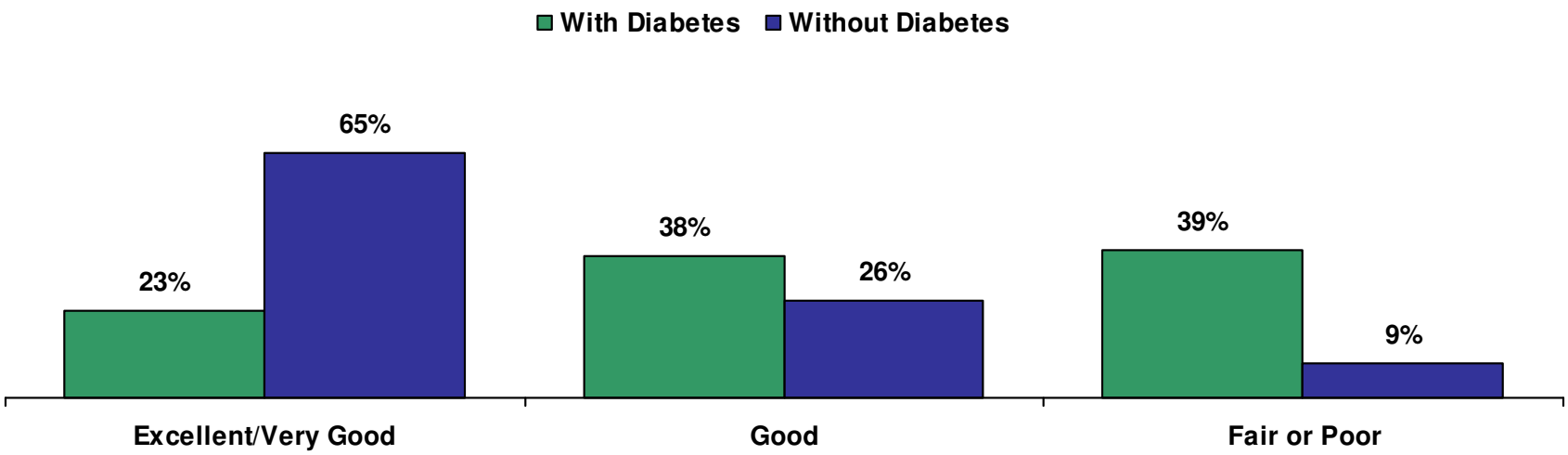



Source: Vermont Uniform Hospital Discharge Data, 2007-2009

# Diabetes Co-Morbidities

# Diabetes and Overall Health Status

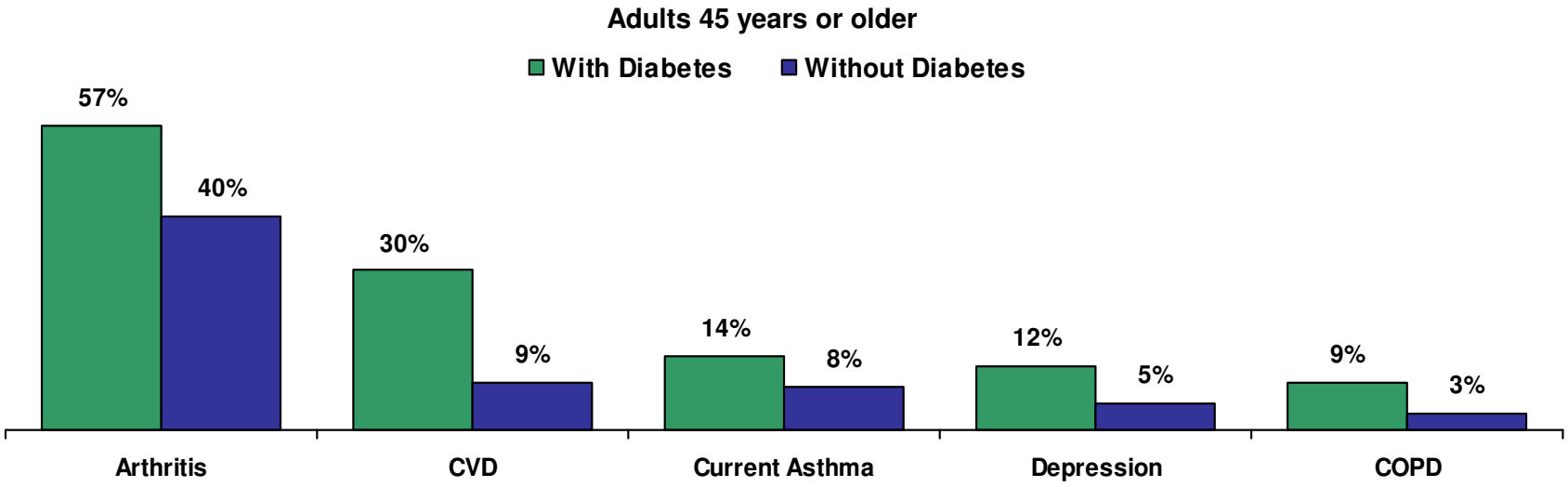
Adults with diabetes were significantly more likely to rate their health as fair or poor and less likely to rate their health as excellent or very good when compared to adults that do not have diabetes.




Source: Vermont Behavioral Risk Factor Surveillance System, 2008-2010

# Diabetes Co-Morbidities

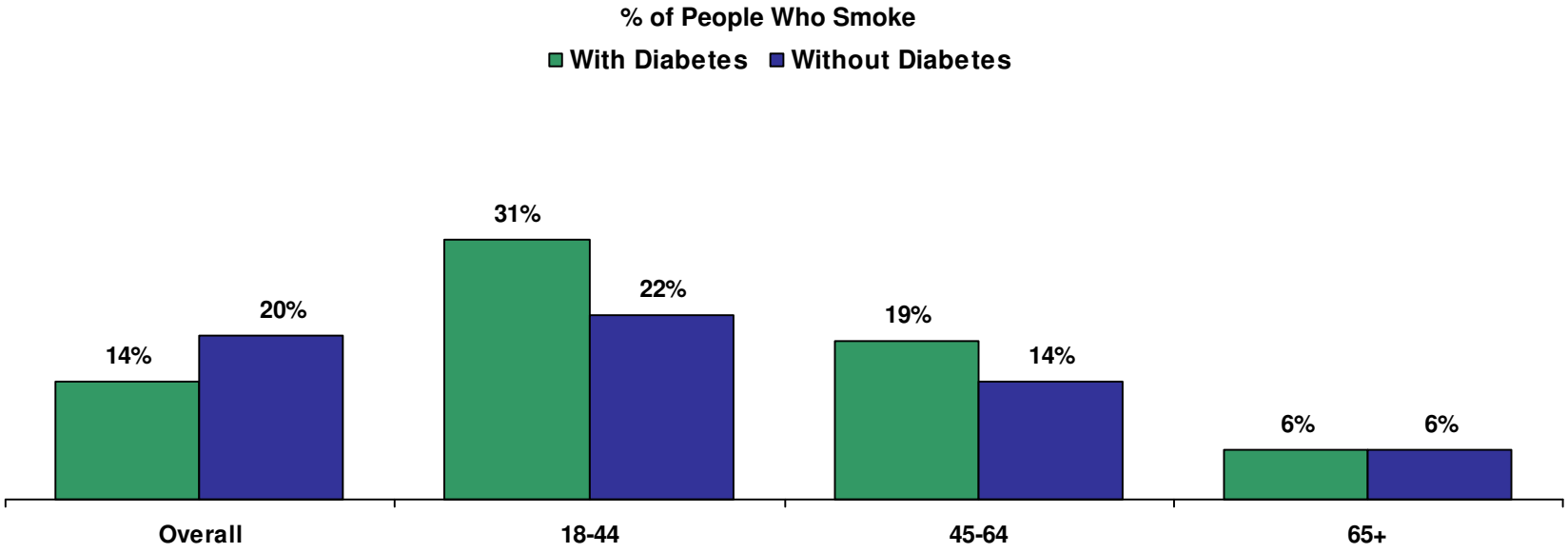
Adults aged 45 or older with diabetes were significantly more likely to report arthritis, cardiovascular disease (CVD), asthma, moderate to severe depression and chronic obstructive pulmonary disease (COPD) than adults aged 45 or older without diabetes. Cancer rates did not differ (5% asthma and 6% without asthma).




Source: Vermont Behavioral Risk Factor Surveillance System, 2008-2010

# Smoking and Diabetes

Because diabetes and smoking are both associated with heart disease and stroke, people with diabetes are at much increased risk of these complications due to smoking. Since 2004, the rate of smoking among those with diabetes has remained steady at about 14%. While the overall rate is lower among those with diabetes, those younger than 65 who have diabetes smoke at significantly higher rates than Vermonters without diabetes.

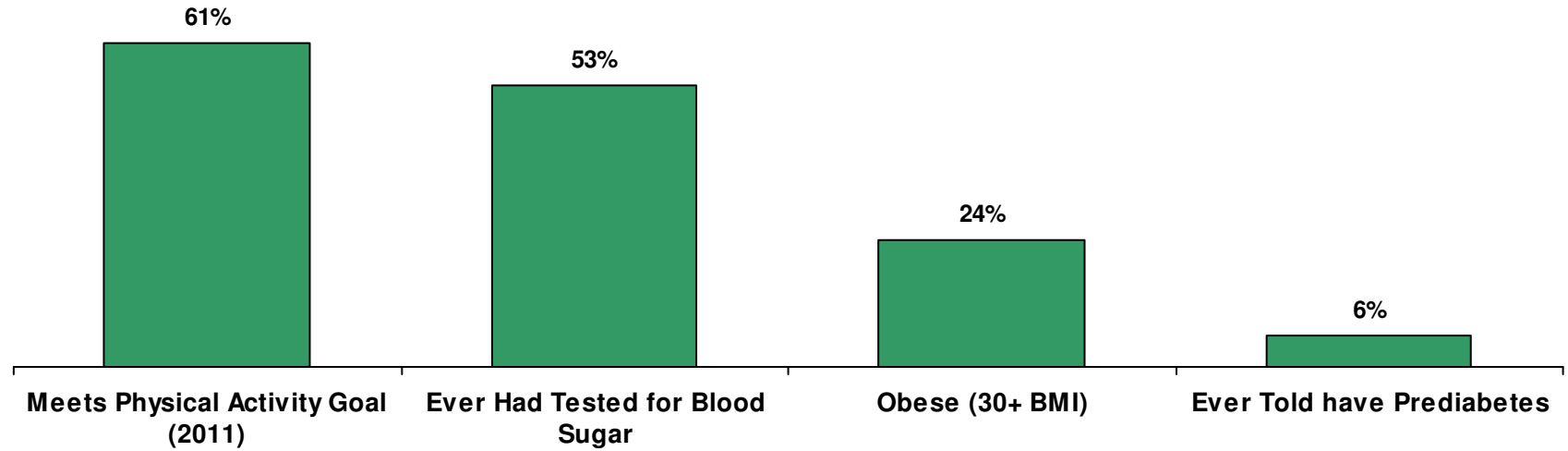



Source: Vermont Behavioral Risk Factor Surveillance System, 2008-2010

# Risk Factors for Diabetes

# Diabetes Risk Factors Among All Vermont Adults

Obesity and lack of physical activity are the largest modifiable contributors to diabetes. While physical inactivity among Vermont adults has remained around 40%, obesity has been climbing steadily since 2004, from 19% to 25%. Almost half of Vermont adults have had their blood sugar tested for diabetes. Five percent have been told they have prediabetes.



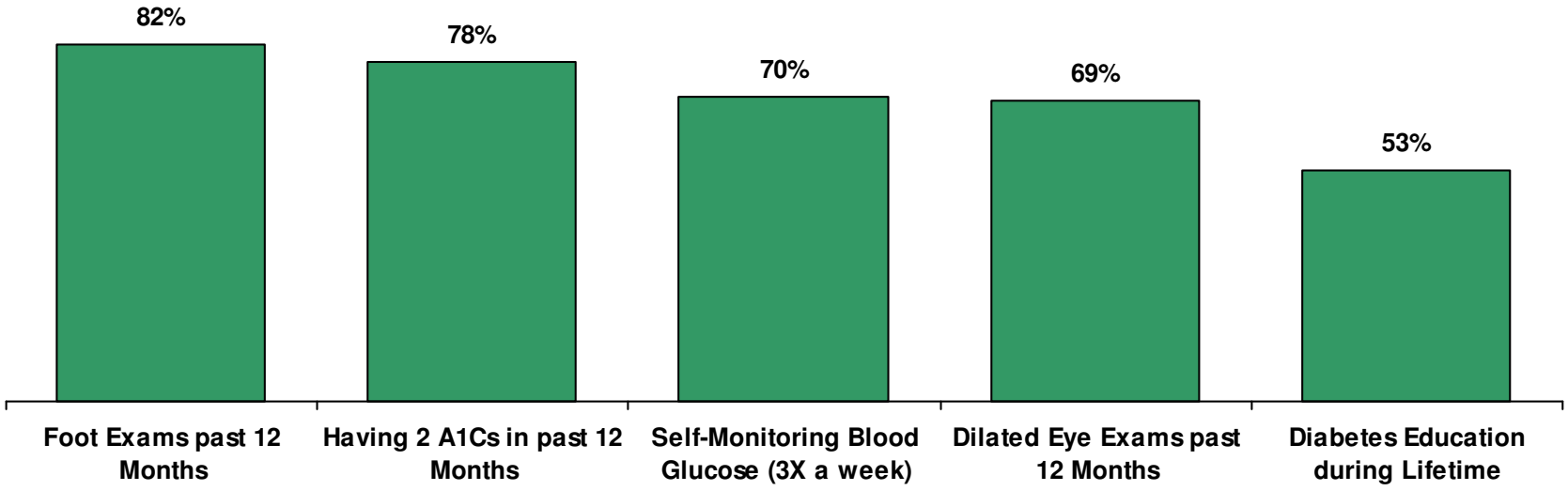

Source: Vermont Behavioral Risk Factor Surveillance System, 2011 and 2012

# Diabetes Self Management and Clinical Care

# Diabetes Care Measures

More than four out of five Vermont adults with diabetes have had their feet examined by a health care provider and three-quarters had at least two A1Cs in the past 12 months. Over two-thirds check their blood glucose at least three times a week, have had a dilated eye exam in the past 12 months and half have taken a diabetes education class.

Since 2000, both having had a foot exam (70% vs. 82%) and ever taken a diabetes education class (44% vs. 53%) have risen significantly.

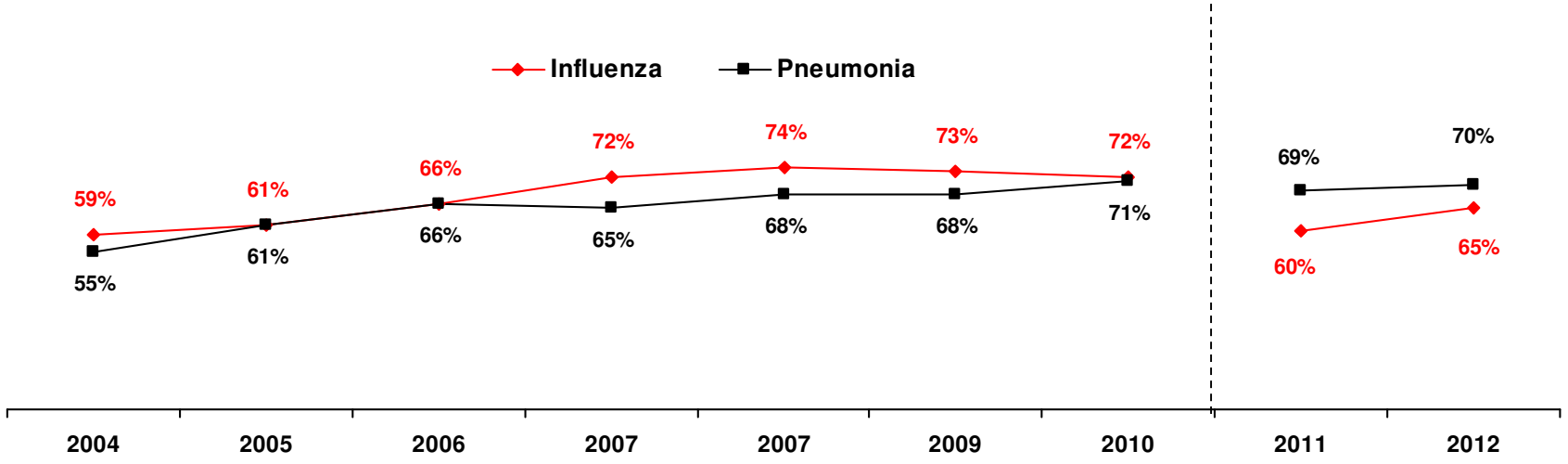



Source: Vermont Behavioral Risk Factor Surveillance System, 2008-2010

# Diabetes Immunization Rates

Both influenza and pneumonia vaccination rates among those with diagnosed diabetes have increased from 2004-2010.

When comparing adults with and without diabetes, adults aged 65 or older with diagnosed diabetes are more likely to receive an influenza and pneumonia vaccination than those adults aged 65+ without diabetes (80% vs. 70% influenza, 84% vs. 69% pneumonia).




Source: Vermont Behavioral Risk Factor Surveillance System

# Diabetes in Vermont

The prevalence of diabetes continues to rise. Diabetes prevalence is highest among adults aged 45 or older, those with BMIs over 30 and those with less than a high school education. With the rate of obesity in Vermont rising steadily, the prevalence of diabetes has the potential to continue to rise.

The prevalence of gestational diabetes also continues to rise. Gestational diabetes is especially high among mothers aged 35 or older, among mothers with a pre-pregnancy BMI over 30 and in the southeastern section of Vermont along the New Hampshire border.

Adults with diabetes are more likely to have other co-morbidities than those without diabetes, including: arthritis, CVD, asthma, depression and COPD. The presence of these co-morbidities can complicate diabetes care and self-management. One in seven of those with diabetes smoke, increasing the risk of complications. Younger people with diabetes (under age 65) are more likely to smoke than those age 65 or older with diabetes. Younger people with diabetes (under age 65) are also more likely to smoke than similarly aged people without diabetes.

Despite the rise in diabetes prevalence in Vermont, diabetes-related deaths, hospital discharges and end stage renal disease have remained steady.

Diabetes care measures, such as having had a dilated eye exam or having had two A1Cs in the past 12 months, have remained steady or shown an increase since 2000. Having had a foot exam, having taken a diabetes education class and having an influenza or pneumonia vaccination have increase significantly since 2000.