



# Asthma Data Pages

## 2014 BRFSS and ACBS

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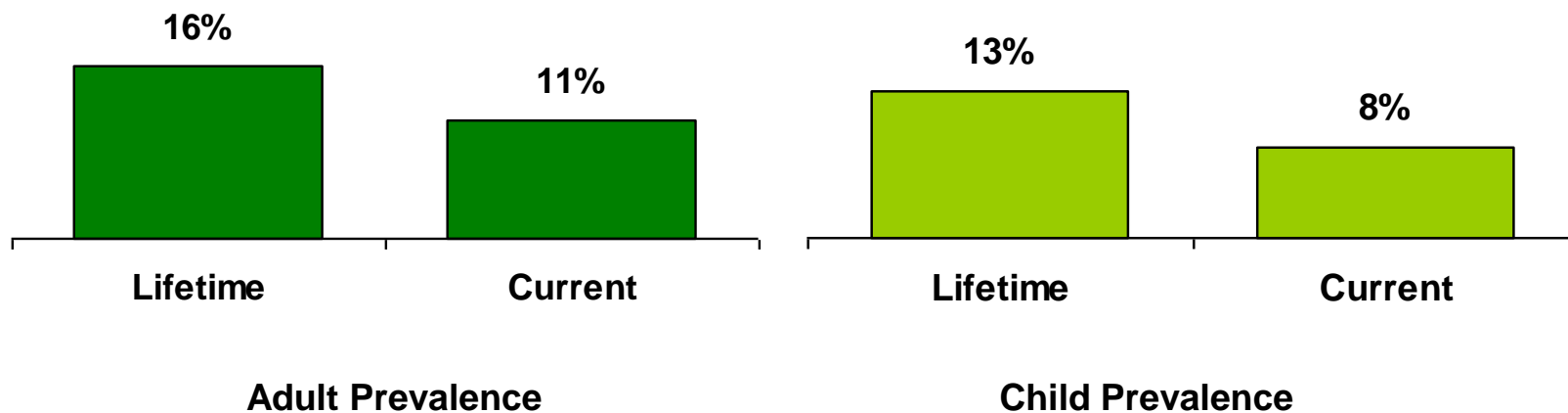
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# Asthma Prevalence

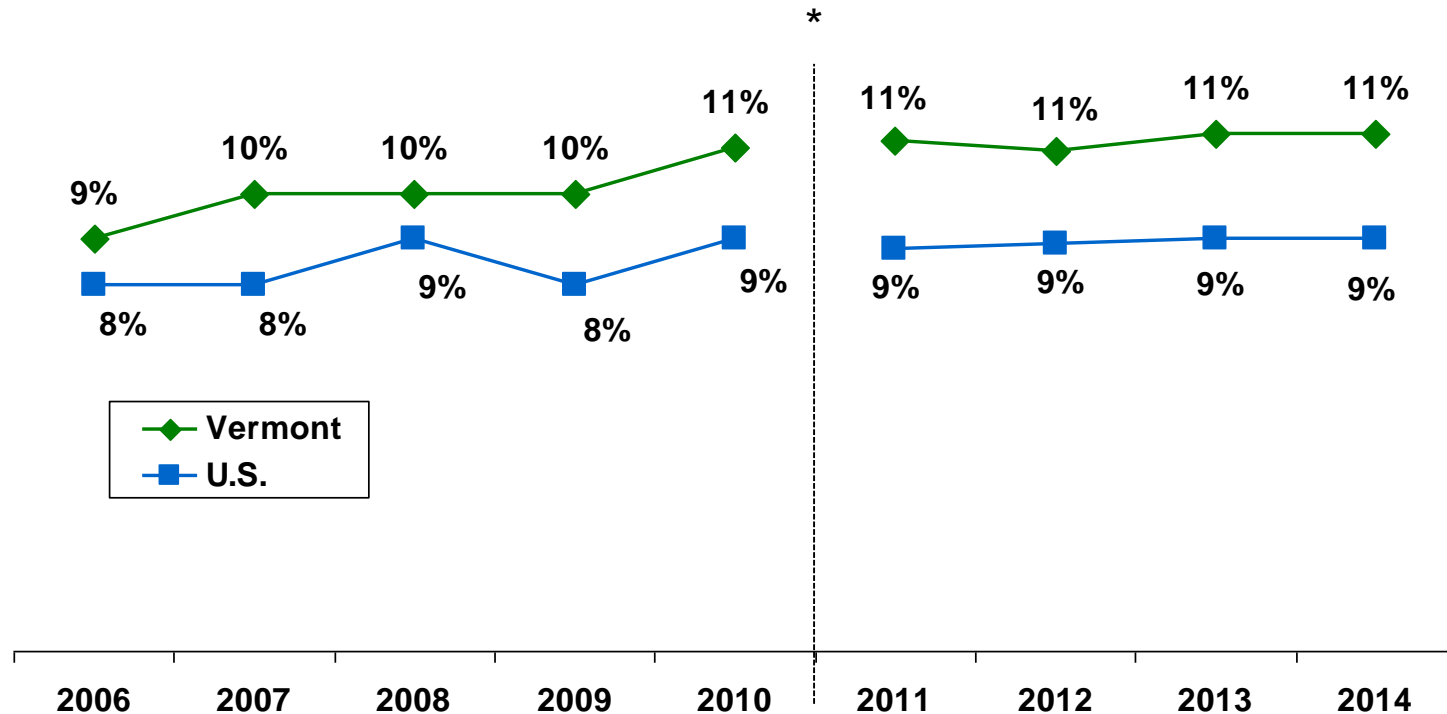
# Asthma Prevalence In Vermont

- In 2014, 11% of adult Vermonters reported having current asthma and 16% of adult Vermonters reported being diagnosed with asthma at some point in their lifetime. This equated to approximately 57,000 adult Vermonters with current asthma.
- One in 12 children in Vermont had current asthma in 2014, which equates to approximately 9,600 children.



# Asthma Prevalence Among Adults

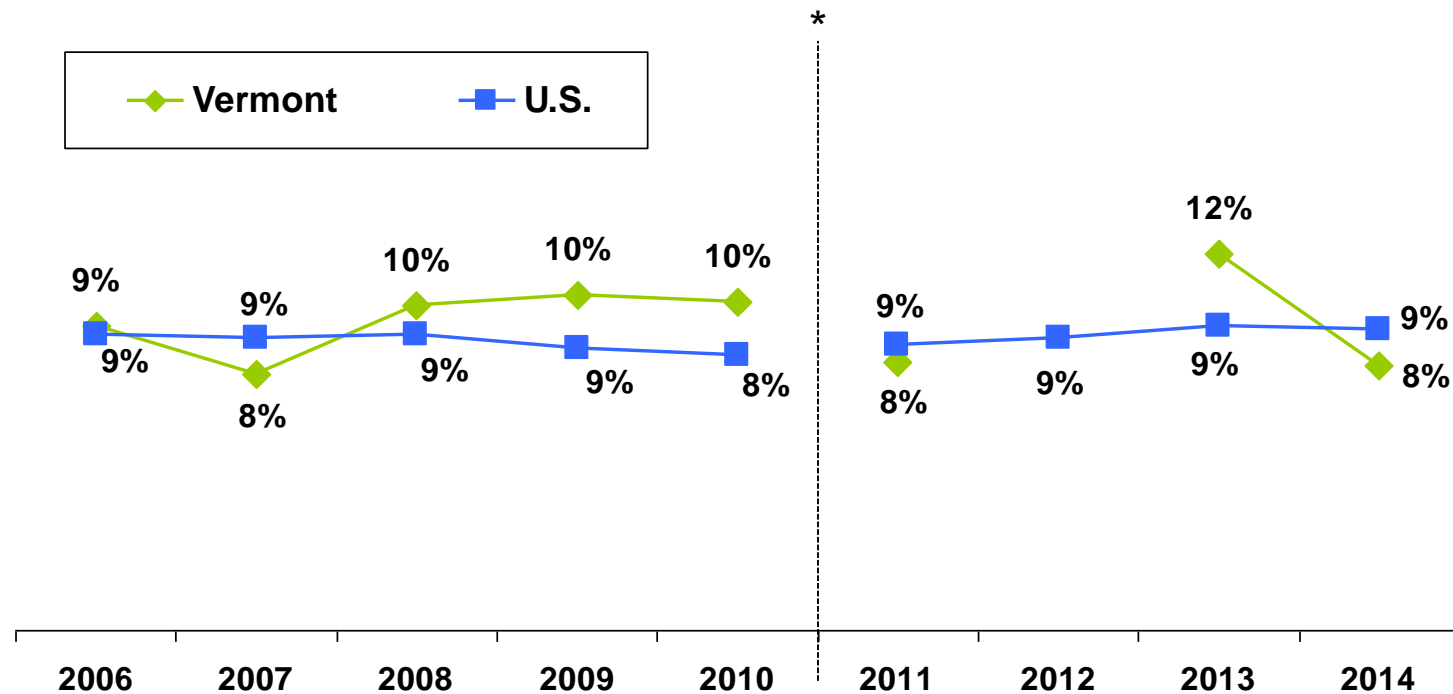
From 2007-2014, the prevalence of asthma in adult Vermonters has been significantly higher than the adult asthma prevalence in the U.S.



\* Due to weighting methodology changes beginning in 2011, comparisons between data collected in 2011 and later and that from 2010 and earlier should be made with caution.

# Asthma Prevalence Among Children

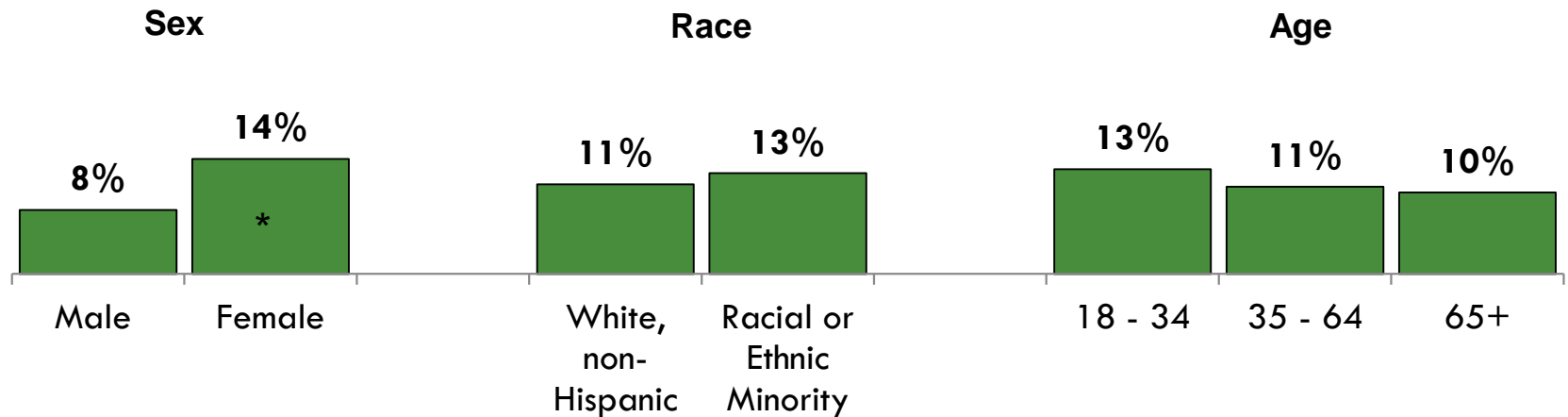
From 2006-2014, the prevalence of asthma among Vermont youth has not been significantly different from the prevalence in the U.S.



\* Due to weighting methodology changes beginning in 2011, comparisons between data collected in 2011 and later and that from 2010 and earlier should be made with caution.

# Asthma Prevalence Among Adults

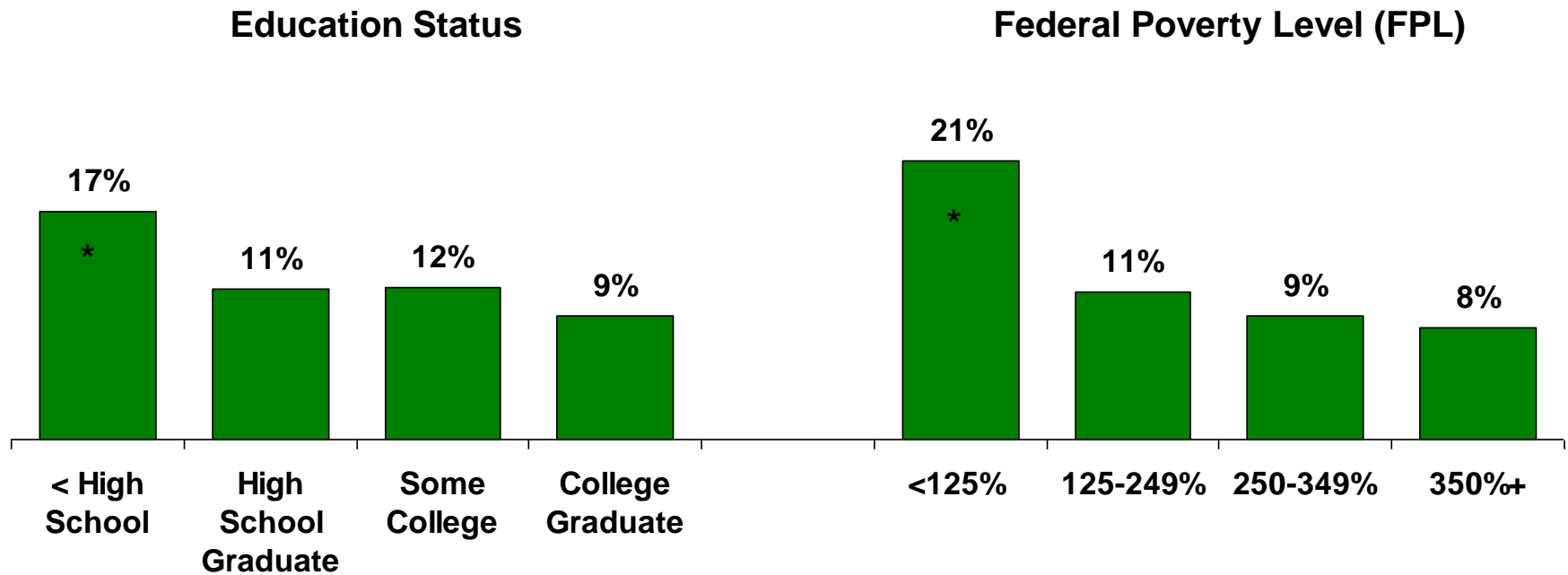
Vermont women had a significantly higher prevalence of current asthma compared to men. Asthma prevalence did not differ significantly across racial groups or age groups.



\* Group is significantly different from other group within demographic breakdown

# Adult Asthma Prevalence by Education and Income

Adults that did not graduate from high school had a significantly higher prevalence of current asthma than Vermonters with higher levels of education. Adults with a household income closer to the federal poverty level (FPL < 125%) had a significantly higher prevalence of current asthma than those with higher levels of household income.



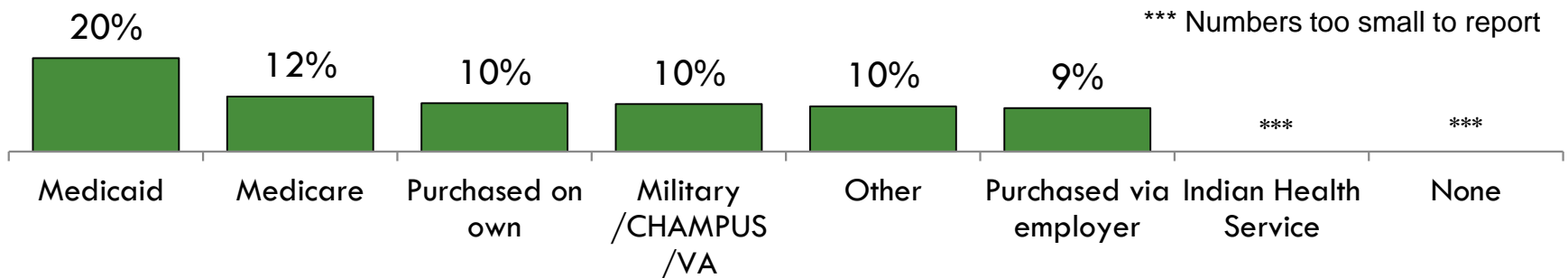
\* Group is significantly different from other groups within demographic breakdown



# Asthma Prevalence by Health Insurance

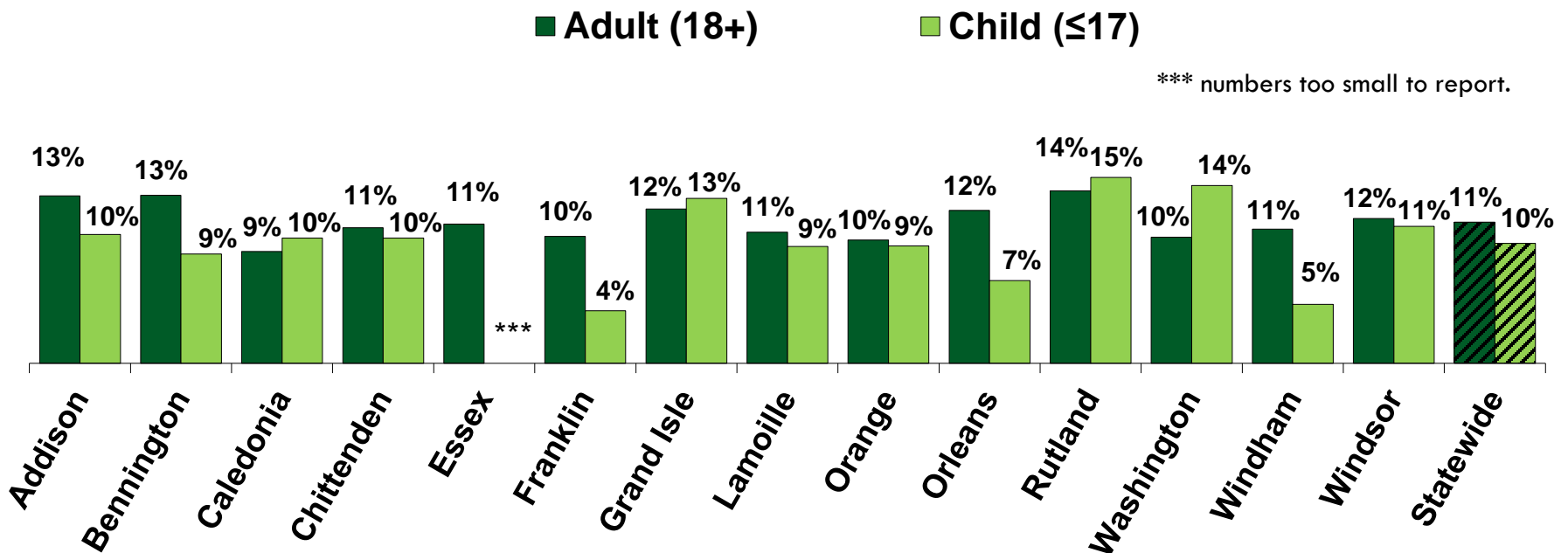
Asthma prevalence was significantly higher among those insured by Medicaid (20%) as compared to those with coverage provided through Medicare, the Military/CHAMPUS, or Veteran's Affairs and those with insurance purchased on one's own or via an employer.

## Asthma Prevalence by Primary Source of Health Insurance



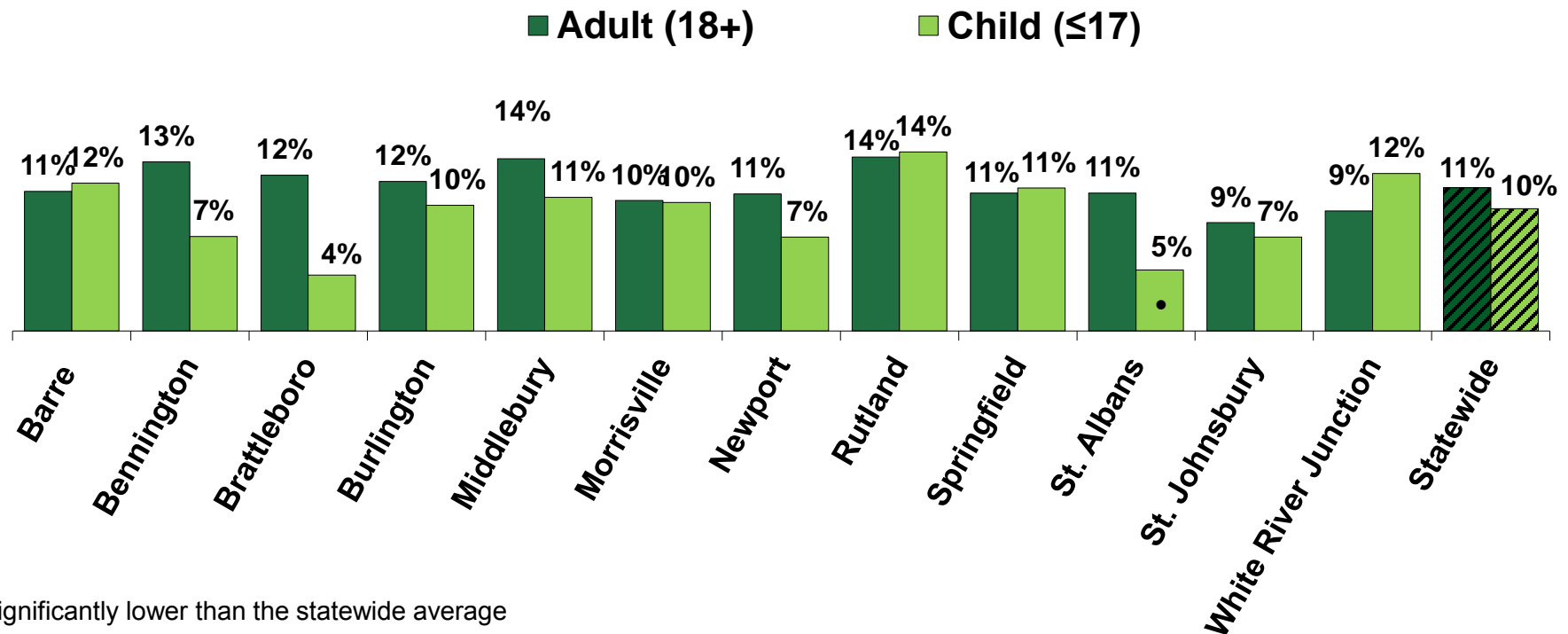
# Adult and Child Asthma Prevalence by County

- The prevalence of current asthma among adult Vermonters ranged from 9% in Caledonia county to 14% in Rutland county.
- Among children, asthma prevalence ranged from 4% in Franklin County to 15% in Rutland county.
- No individual county was significantly different from the state average.



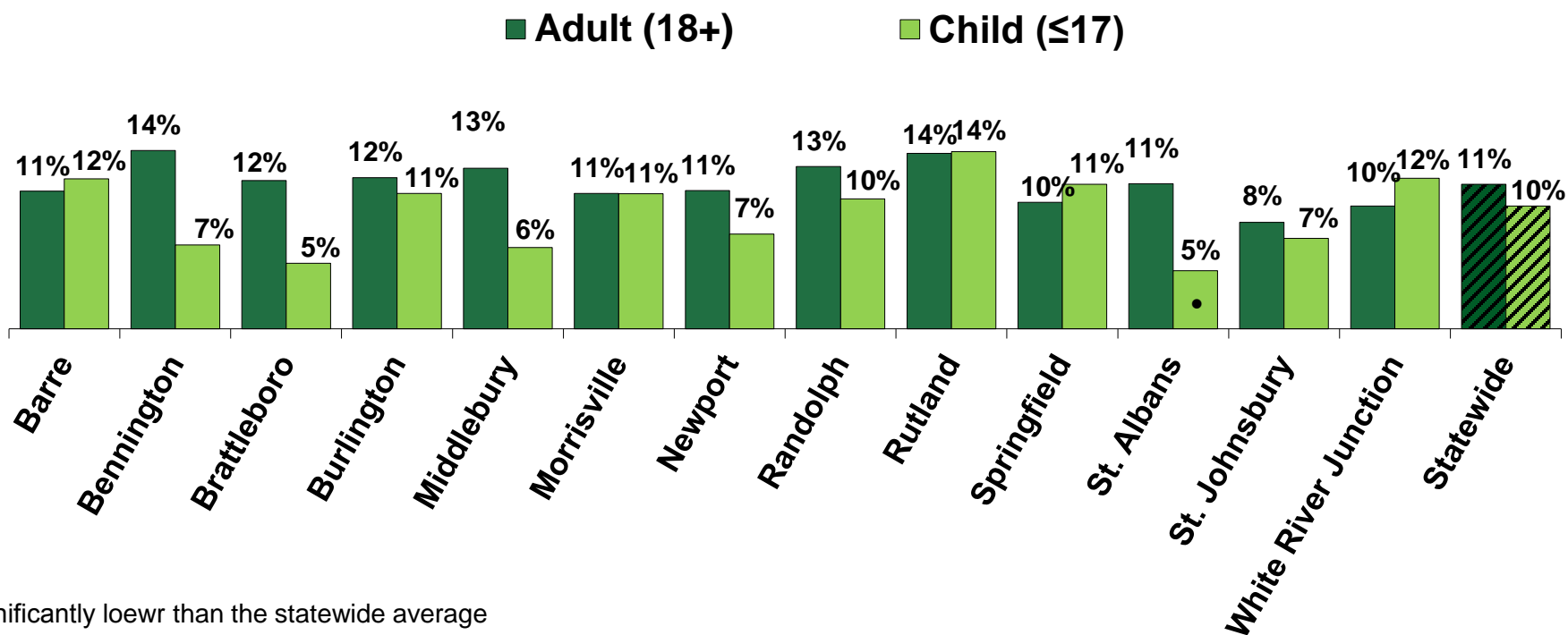
# Adult and Child Asthma Prevalence by District Office

- The prevalence of current asthma in adult Vermonters ranged from 8% at St. Johnsbury and White River Junction District Offices to 14% at the Middlebury and Rutland District Offices (DO). There were no statistically significant differences between current asthma prevalence by DO and the statewide prevalence for adults.
- Child asthma prevalence ranged from 4% in Brattleboro DO to 14% in the Rutland DO. The child asthma prevalence in St. Albans DO was significantly lower than the statewide child asthma prevalence.



# Adult and Child Asthma Prevalence by HSA

- The prevalence of current asthma in adult Vermonters ranged from 8% in the St. Johnsbury Hospital Service Area (HSA) to 14% in the Bennington and Rutland HSAs though no HSA differed from the statewide rate.
- Child asthma prevalence ranged from 5% in Brattleboro and St. Albans HSA's to 14% in Rutland HSA. Child asthma prevalence in St. Albans was significantly less than the statewide rate.



# Asthma Prevalence by Industry

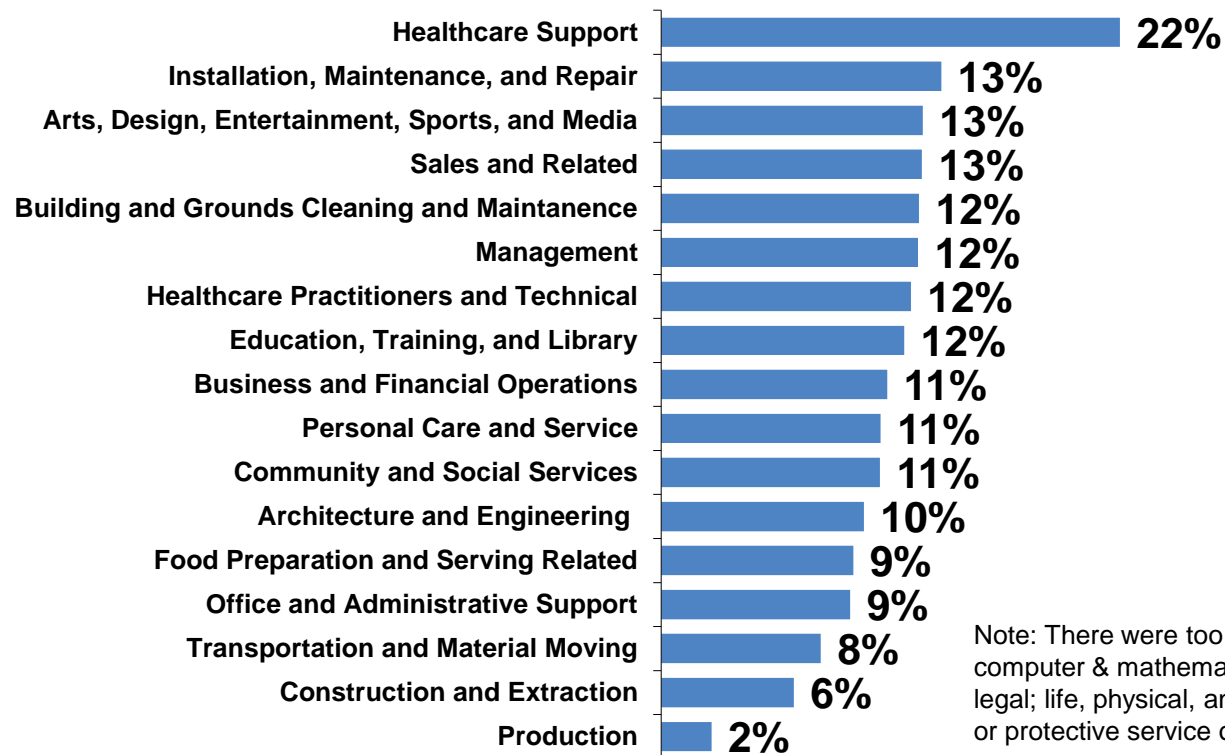
- In 2014, survey respondents were asked what industry they worked in. The current asthma prevalence ranged from 6-14% across industry sectors and was highest among those working in health care and social assistance.



Note: There were too few respondents working in wholesale trade, utilities, mining, management of companies and enterprise, or the armed forces to report data for these industries.

# Asthma Prevalence by Occupations

- In 2014, survey respondents were asked what occupation they worked in. The current asthma prevalence ranged from 2-22% across occupations.
- Those working in healthcare support had a significantly higher asthma prevalence (22%) compared to the statewide average (11%). It is estimated that approximately 1,600 Vermonters with asthma work in the healthcare support area.



Note: There were too few respondents working in computer & mathematical; farming, fishing, & forestry; legal; life, physical, and social science; military specific, or protective service occupations to report.



# **Asthma Morbidity**

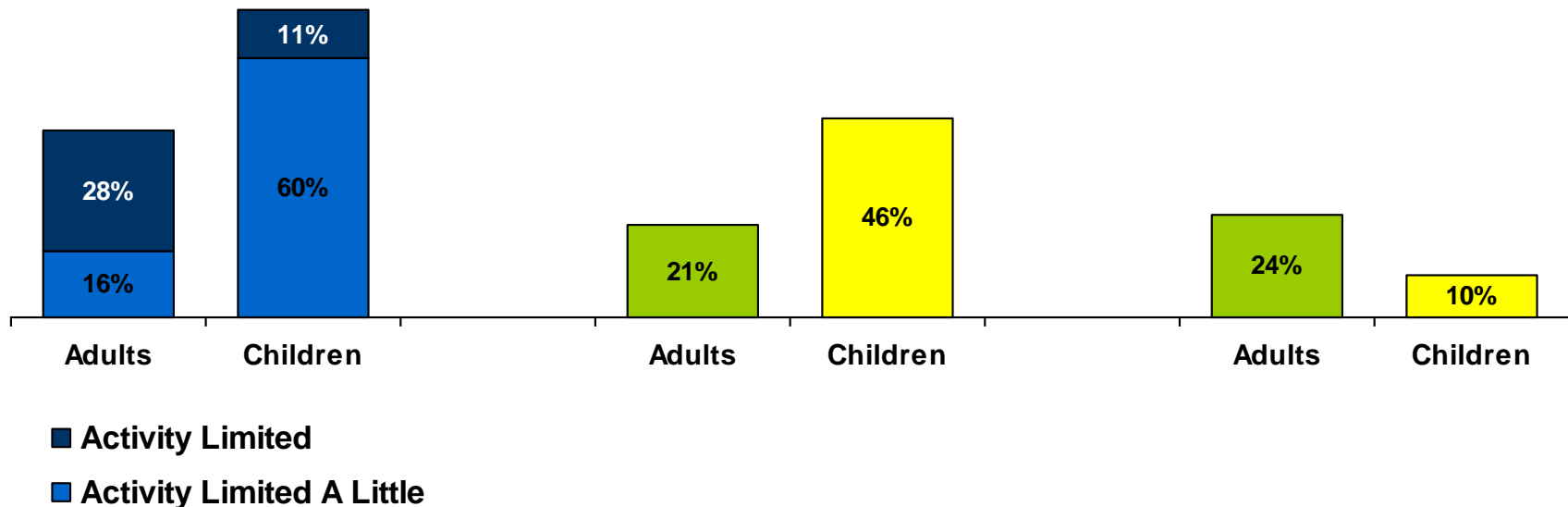
# Quality of Life Among Those with Current Asthma

- More than four in ten adults and seven in ten youths indicated their daily activities were at least a little limited by asthma.
- Approximately one in five (21%) adults with asthma reported missing at least one day of work in the past year due to their asthma and half (46%) of school-aged youths with asthma missed school at least once in the past year because of their asthma.
- Among adults with current asthma, 24% reported that symptoms made it difficult for them to sleep on one or more nights in the past month.

## Activity Limitations

## Absenteeism

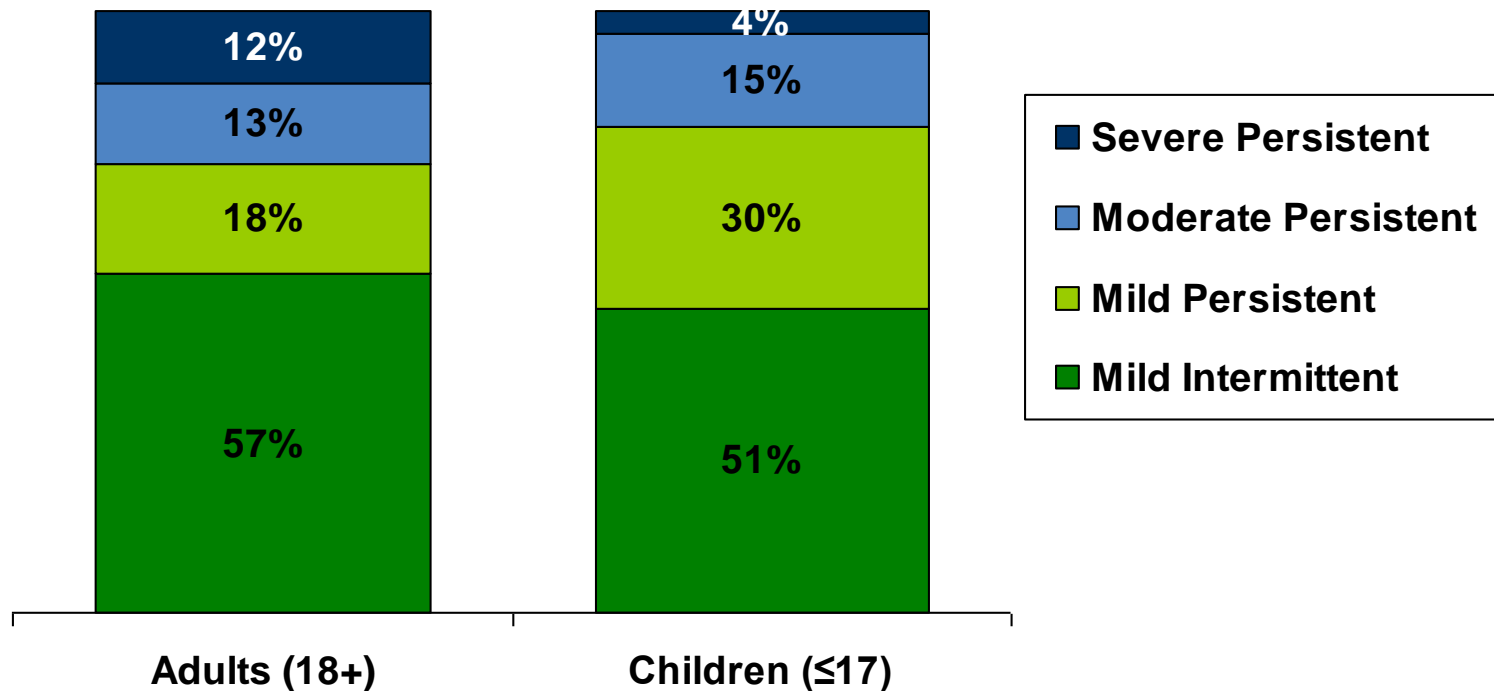
## Sleep Disruption





# Quality of Life - Asthma Severity

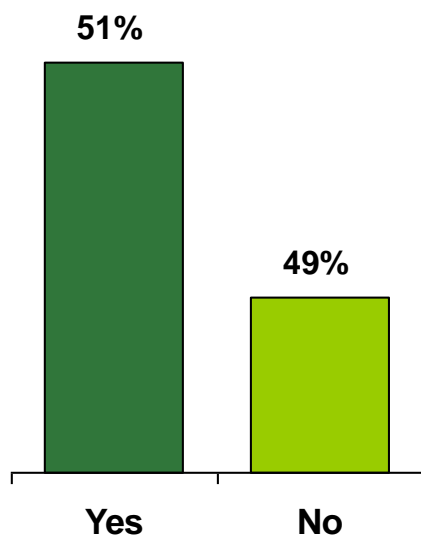
Approximately half of adults and youth with current asthma had mild and intermittent asthma. One out of four of adults and one out of five youth had either moderate or severe asthma.



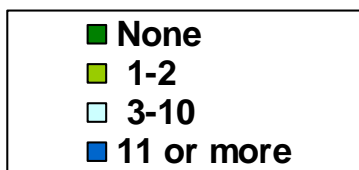
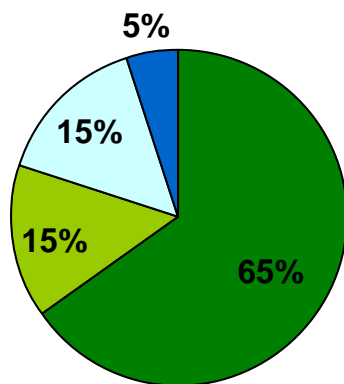
# Asthma Exacerbations- Adult

- Approximately half of Vermont adults with current asthma reported that they experienced an asthma exacerbation within the past year.
- One in five adults with current asthma experienced 3 or more episodes of asthma exacerbation within the last 3 months. The duration of the last asthma exacerbation ranged from minutes to hours for the majority of adults with current asthma (79%) while 22% of respondents experienced exacerbations lasting days to weeks.

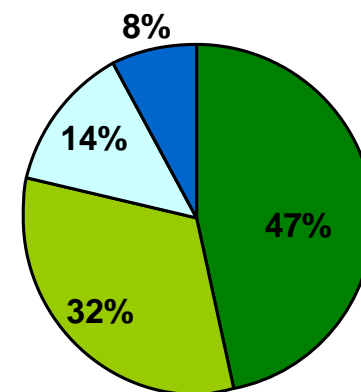
**Asthma Exacerbation within Past 12 Months?**



**Number of Asthma Exacerbations within Past 3 Months**



**Duration of Last Asthma Exacerbation**

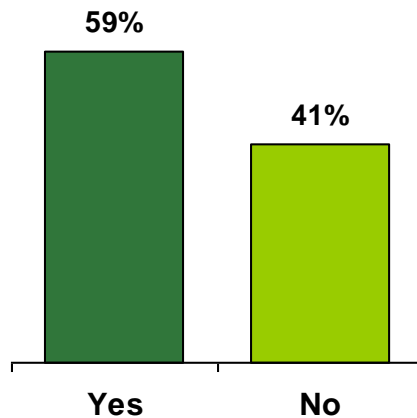


# Asthma Exacerbations- Child

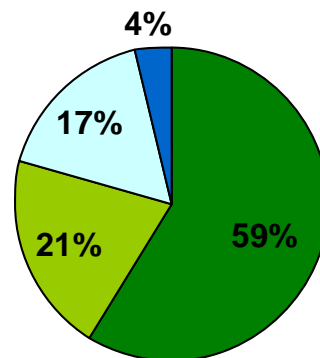
- Approximately 6 out of 10 children with current asthma experienced an asthma exacerbation within the past year.
- Twenty-one percent of children with current asthma experienced 3 or more episodes of asthma exacerbation within the last 3 months. The duration of the last asthma exacerbation ranged from minutes to hours for the majority of children with current asthma (64%) while 36% experienced exacerbations lasting days to weeks.

## Children with Current Asthma ≤ 17 years of age

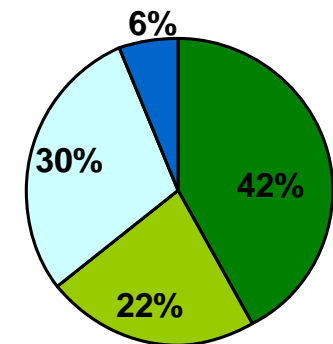
**Asthma Exacerbation within Past 12 Months?**



**Number of Asthma Exacerbations within Past 3 Months**

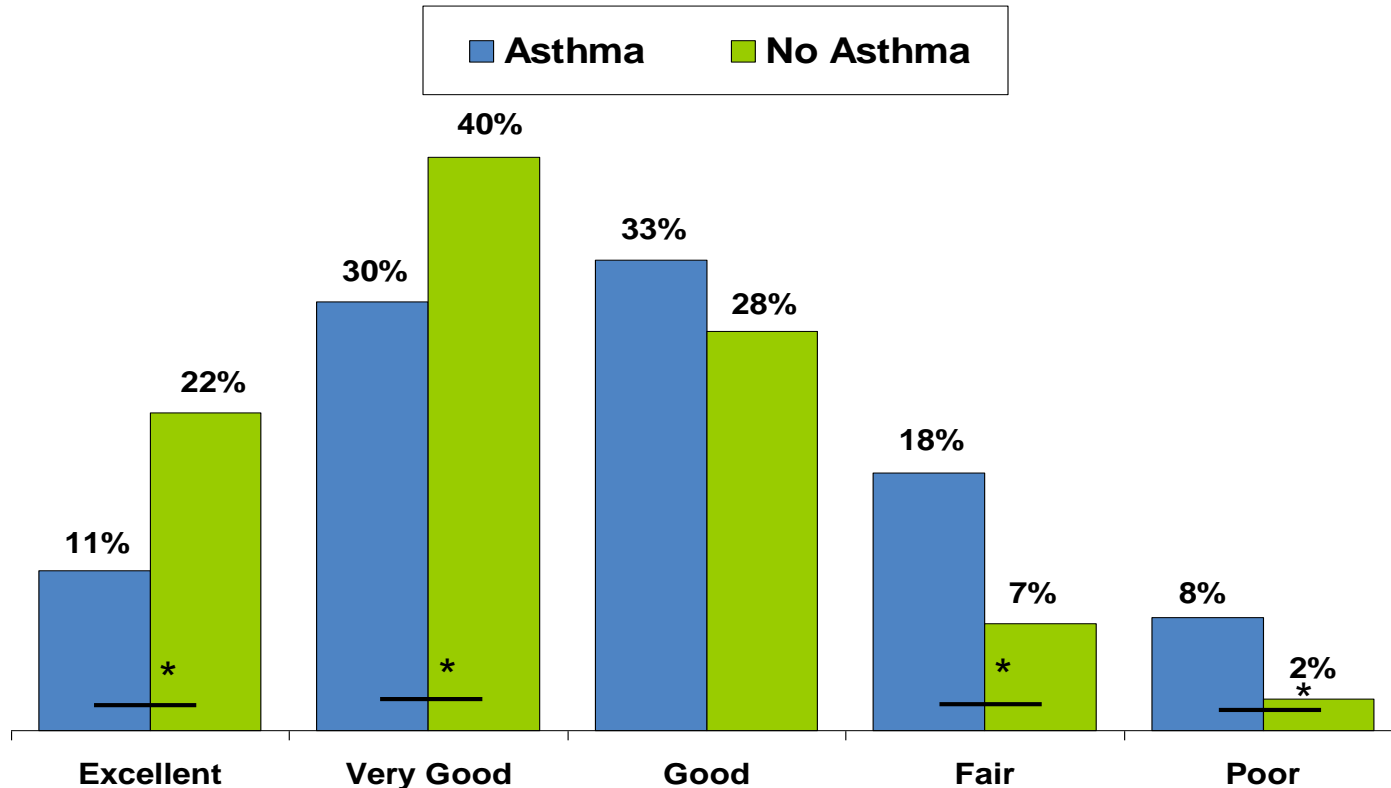


**Duration of Last Asthma Exacerbation**



# Asthma and Overall Health Status

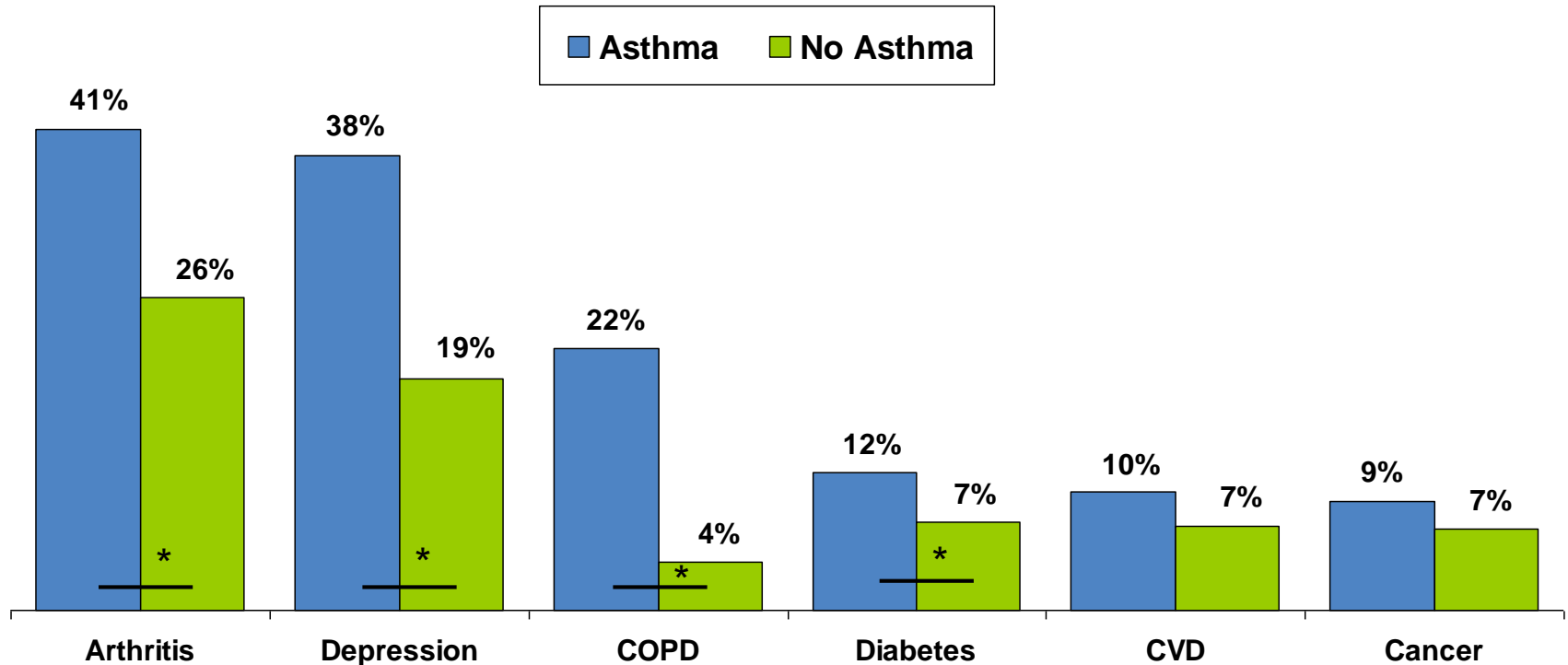
Adults with current asthma were significantly less likely to rate their health as excellent or very good and more likely to rate their health as fair or poor as compared to adults that do not have asthma.



\* Indicates significant difference between groups.

# Adult Asthma Co-Morbidities

Those with current asthma were significantly more likely to report arthritis, depression, chronic obstructive pulmonary disease (COPD), and diabetes than those without asthma. There were no significant differences in cardiovascular disease (CVD) or cancer rates based on current asthma status.

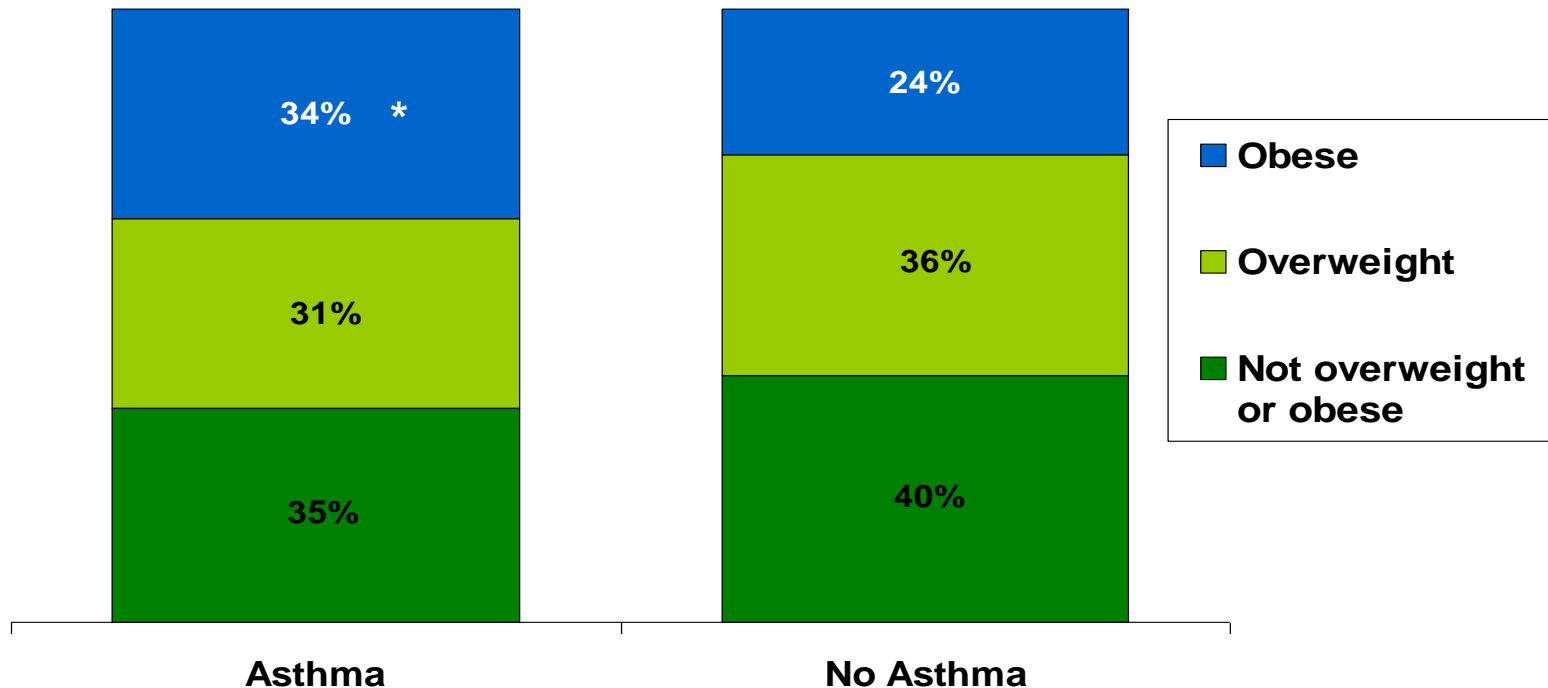


\* Indicates significant difference between groups.

# Adult Asthma Comorbidities

Vermont adults with current asthma were significantly more likely to be obese than those without asthma.

## Body Mass Index ‡



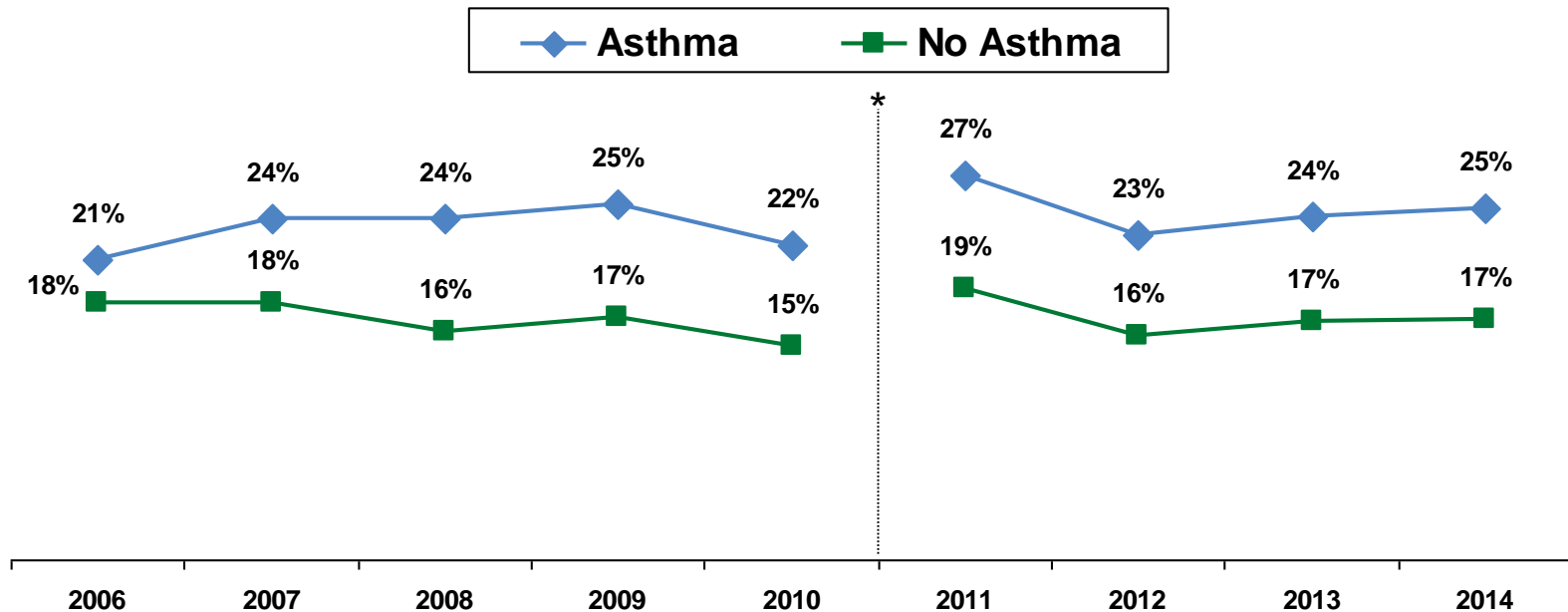


# Asthma Risk Factors

# Asthma Risk Factors – Smoking Prevalence

In the past several years, there has been a higher prevalence of smoking among adult Vermonters with current asthma than adults that do not have asthma. For each year since 2007, adult Vermonters with current asthma were significantly more likely to smoke than adults without asthma.

## Smoking Prevalence ‡



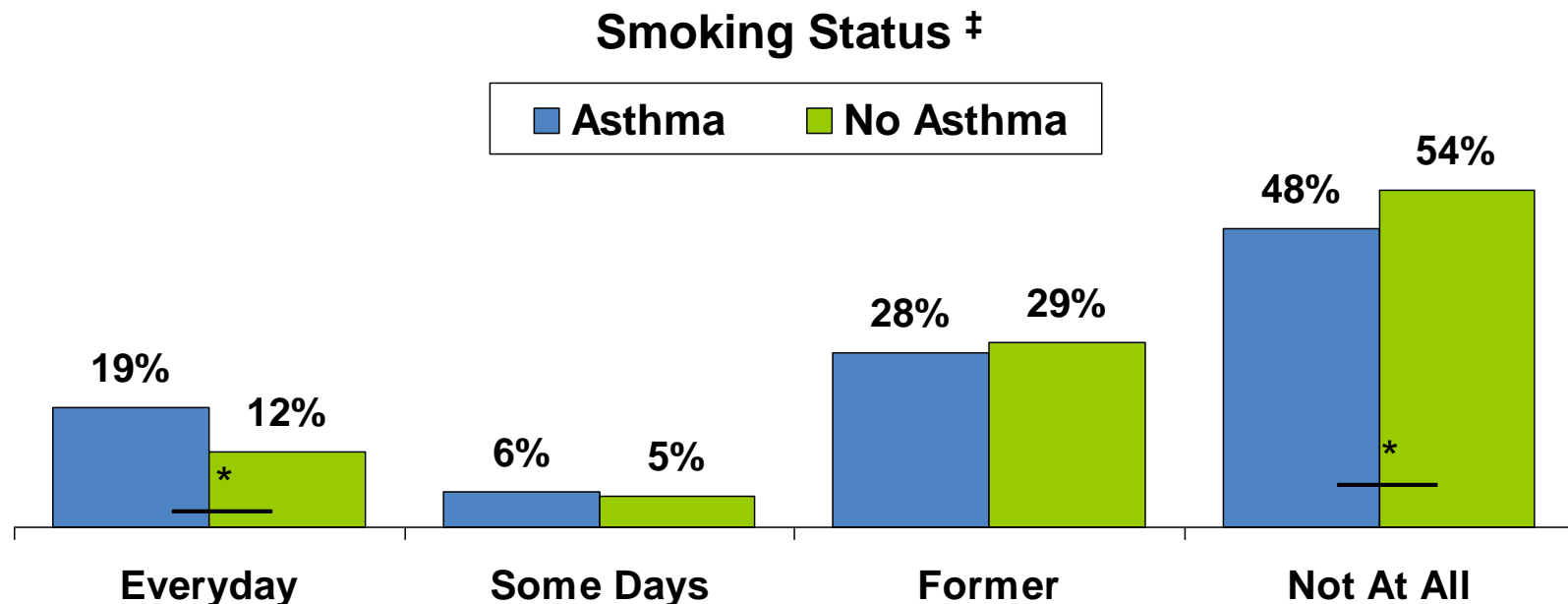
\* Due to change in survey methodology, comparisons between data collected in 2011 and later and that from 2010 and earlier should be made with caution.

Vermont Department of Health - Source: BRFSS 2006-2014; ‡ Data are age adjusted to the 2000 U.S. standard population.



# Asthma Risk Factors - Smoking

- Adults with current asthma were significantly more likely to smoke everyday than adults that did not have asthma (19% and 12% respectively). Those without asthma were more likely to have never smoked tobacco (54%) compared to those with asthma (48%).
- The number of quit attempts, where one stops smoking for at least a day, was similar among adults with current asthma (62%) and adults without asthma (60%).

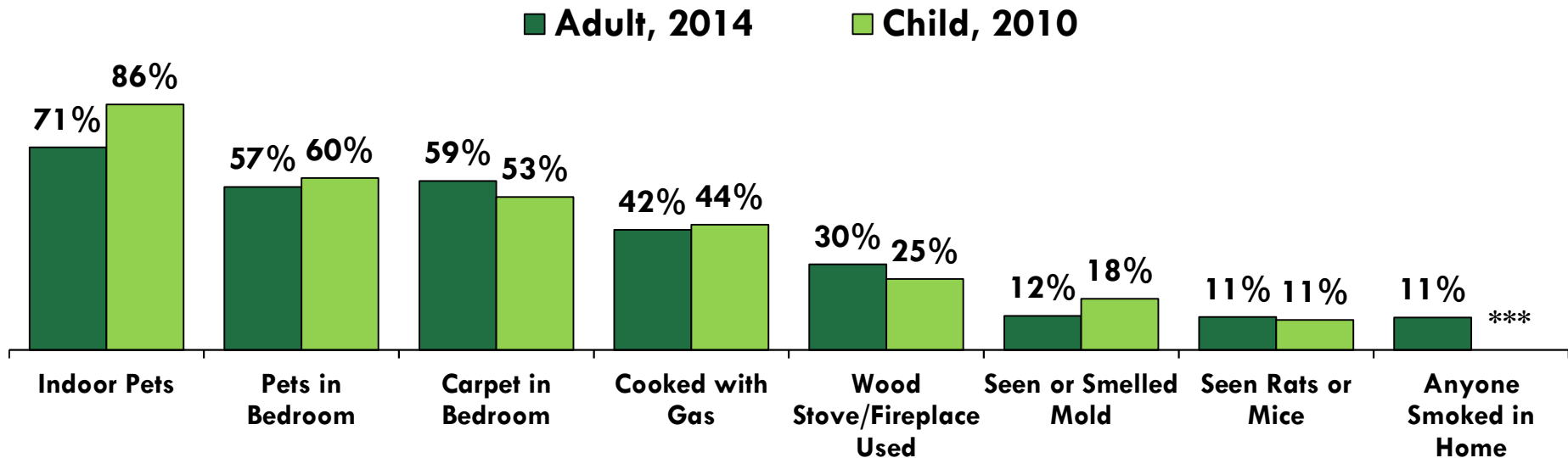


\* Significant difference between those with and without asthma within subgroup.

Vermont Department of Health, Source: BRFSS, 2014. † Data are age adjusted to the 2000 U.S. standard population.

# Exposure to Indoor Environmental Triggers among Vermonters with Current Asthma

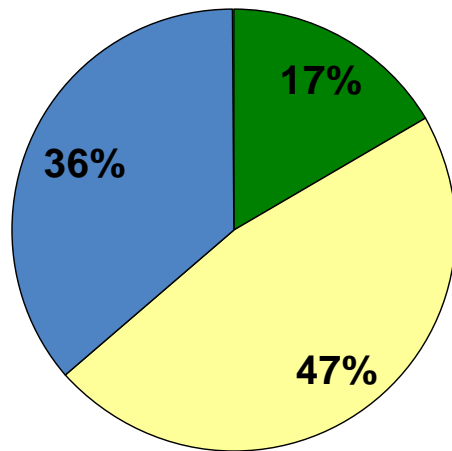
- In 2014, the most common environmental trigger among adults with current asthma was having an indoor pet. Allowing pets in the bedroom and carpeting in one's bedroom were also common with more than half of adults with current asthma reporting each respective trigger. The least common trigger was having anyone smoke inside one's home.
- The rates of adults with asthma who have indoor pets or allow pets in their bedroom in 2014 were approximately 10% lower than the corresponding 2013 rates, though not a statistically significant change.



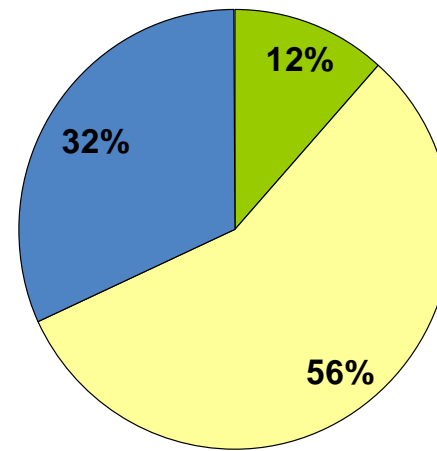
# Exposure to Indoor Environmental Triggers among Vermonters with Current Asthma

More than one third of Vermonters with asthma lived with 4 or more of common indoor asthma triggers. Triggers assessed included indoor pets, pets in the bedroom, carpet in the bedroom, cooking with gas, having a wood stove or fireplace, presence of mold or rodents, and someone smoking inside the house.

■ 0-1 Triggers    ■ 2-3 triggers    ■ 4+ Triggers



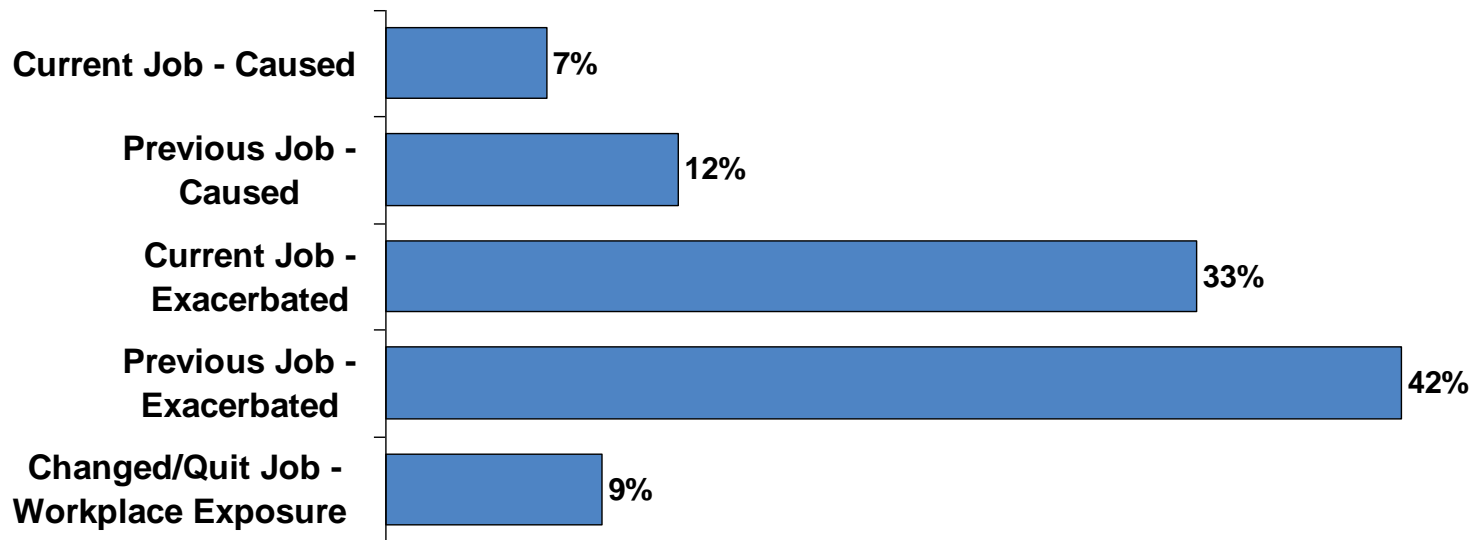
**Adults, 2014 ACBS**



**Children, 2010 ACBS**

# Asthma Risk Factors - Workplace Exposure

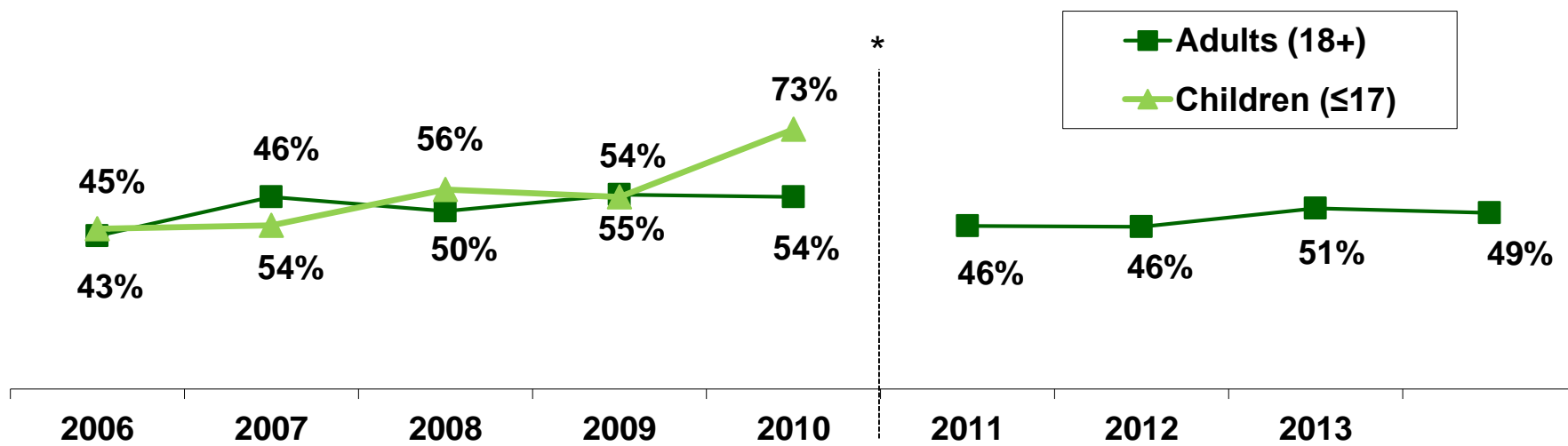
- In 2014, 7% of Vermont adults with current asthma indicated they believe their asthma was caused by chemicals, smoke, fumes, or dust at their current workplace. Another 33% believe their asthma was made worse by these factors in their current job. Among adults with current asthma, 9% reported quitting a job due to workplace factors they believed caused their asthma or made it worse.
- Despite the relatively high percentage of adults who reported issues with workplace exposures and asthma exacerbation, only 15% had told a doctor they believed their asthma was related to work and 9% had actually been told by a doctor that their asthma was related to their work. Twenty-one percent of adults with current asthma reported discussing with their health care provider whether their asthma may be work related.



# Asthma Risk Factors - Immunization

- In 2014, approximately half of adults with current asthma (49%) had a flu shot/spray within the previous year. Among youth with current asthma in 2010, 73% had a flu vaccination within the previous year.
- Adults with asthma were significantly more likely to receive a pneumonia vaccine (48%) when compared to adults without asthma (32%) in 2014.

**Flu Vaccine in the Past Year - Current Asthma**



\* Due to change in survey methodology, comparisons between data collected in 2011 and later and that from 2010 and earlier should be made with caution.



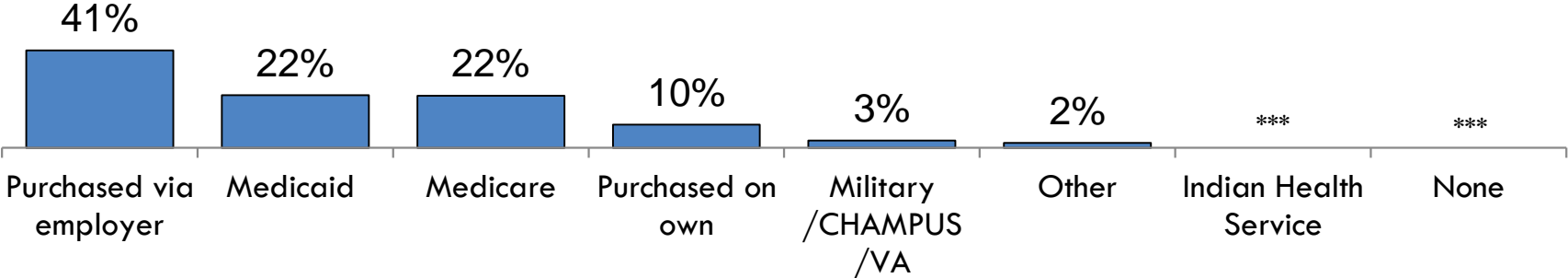
# **Self and Clinical Care Management**

# Health Care and Health Insurance

Among Vermonters with current asthma, 95% had health care coverage in 2014. Of those Vermonters with current asthma, 41% had insurance through an employer, 22% through Medicaid, 22% through Medicare and 10% through plans they or a family member purchased on their own.

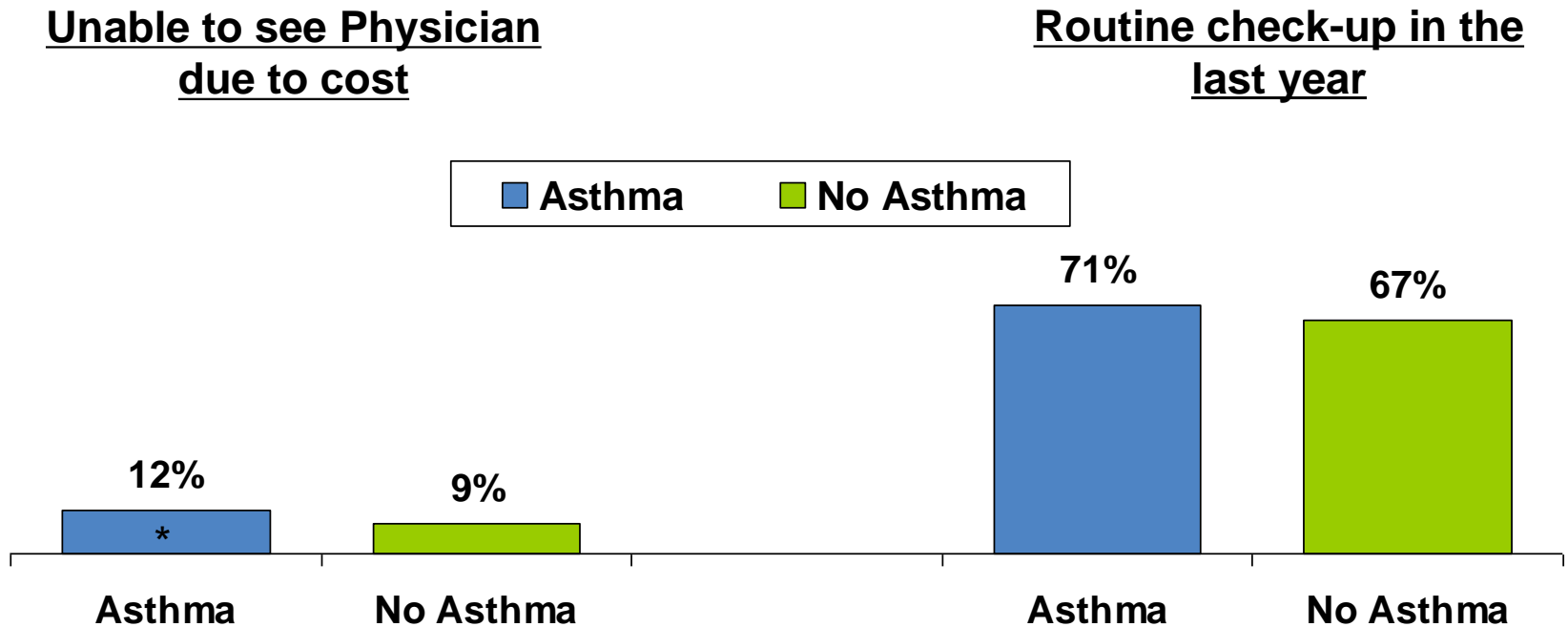
## Primary Health Insurance Coverage Among Those with Current Asthma

\*\*\* Numbers too small to report



# General Health Care

Adults with current asthma were significantly more likely to report that they could not see a physician due to cost than those without asthma. Approximately 3 out of 4 adults with current asthma had a routine check-up in the last year.

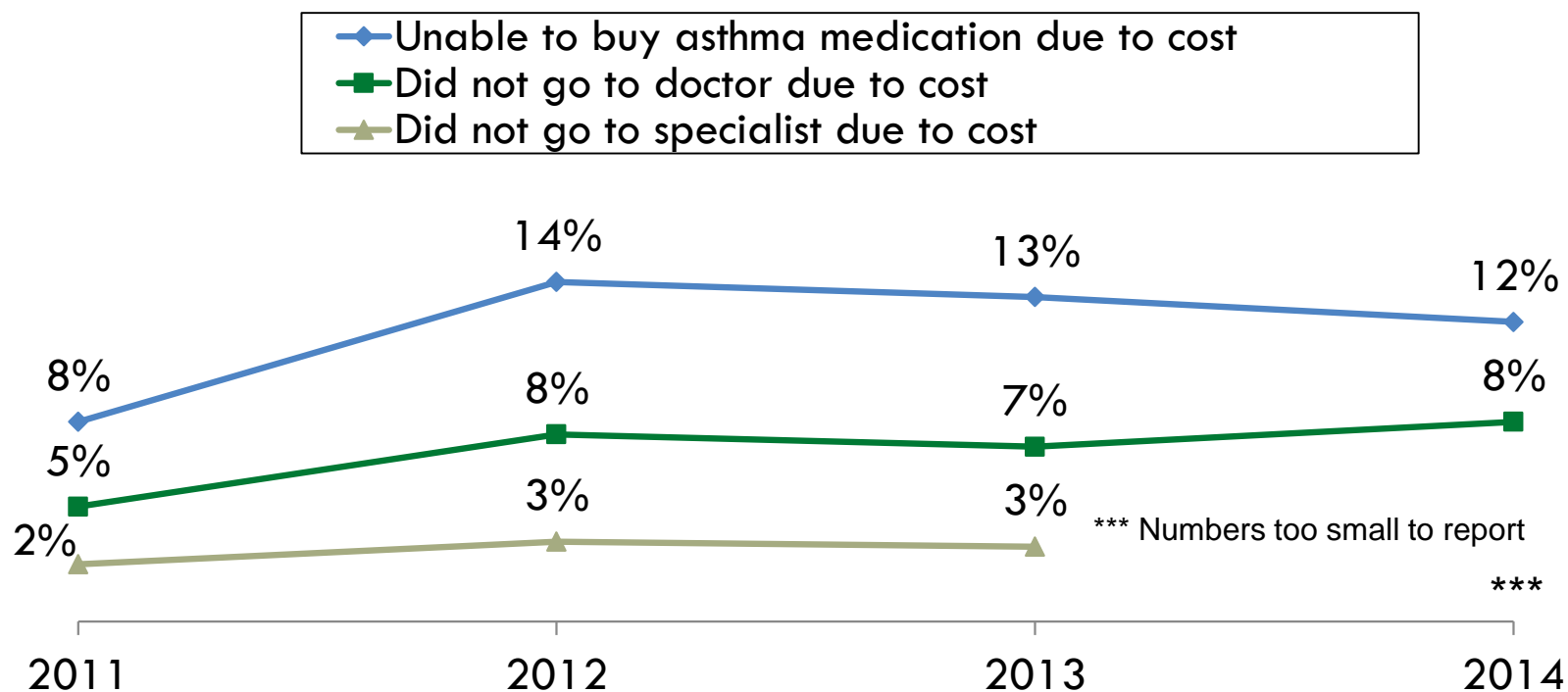


\* Significant difference between those with and without asthma



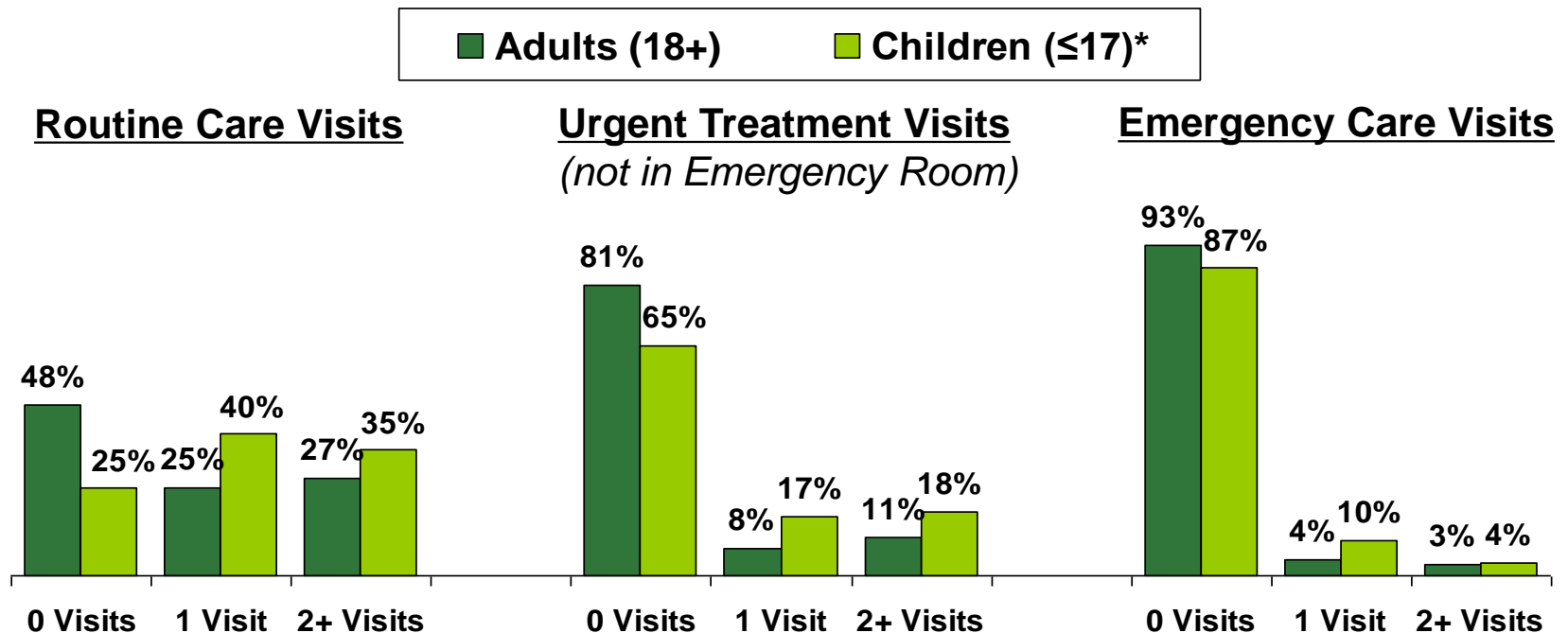
# Cost Barriers to Asthma Care

In 2014, 12% of adults with current asthma indicated that they were unable to buy needed asthma medication due to cost. Eight percent of adults report that there was a time in the past 12 months when they needed to see their primary care doctor for their asthma but could not because of the cost.



# Asthma Management – Clinical Care

- More than half of all adults with asthma (52%) reported at least one routine care visit for their asthma in the last 12 months. Compared to adults, a higher proportion of youth had one or more routine or urgent care visits. Nine out of ten adults and youth did not need an emergency care visit for their asthma.
- Adults requiring an ED visit for asthma has fallen from 12% in 2012 to 7% in 2014, though this decrease is not statistically significant.

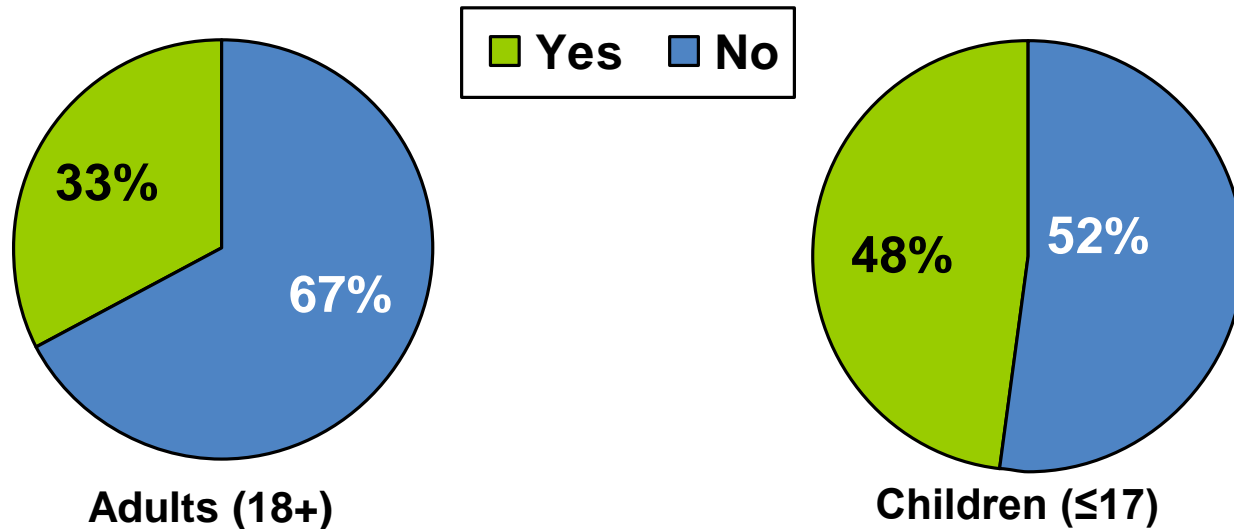


\*Due to small numbers, child data includes 2009-2010 data.

# Asthma Management – Action Plans

Approximately one in three adult Vermonters with current asthma reported having ever received an asthma action plan from a health care provider. Almost half of youths had ever received an asthma action plan from their health care provider.

## Have you ever received an asthma action plan? ‡

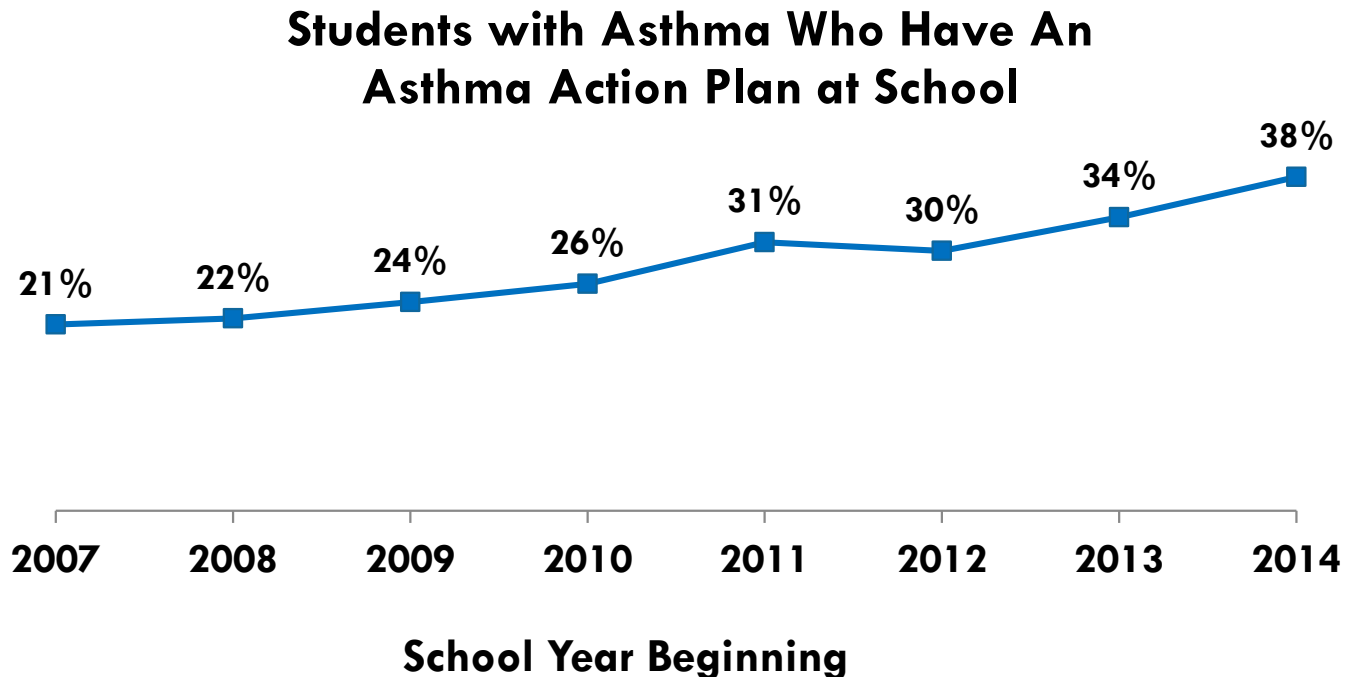


‡ Data are age adjusted to the 2000 U.S. standard population.

# Asthma Management in Schools

## Asthma Action Plans

The annual School Nurse Survey reports how many students in each school have asthma and how many of these students have an asthma action plan on file with the school nurse. The rate of asthma action plans in schools has steadily increased over the last 8 years. Policy guidelines are that each student with asthma should have a current asthma action plan on file with the school nurse at their school.

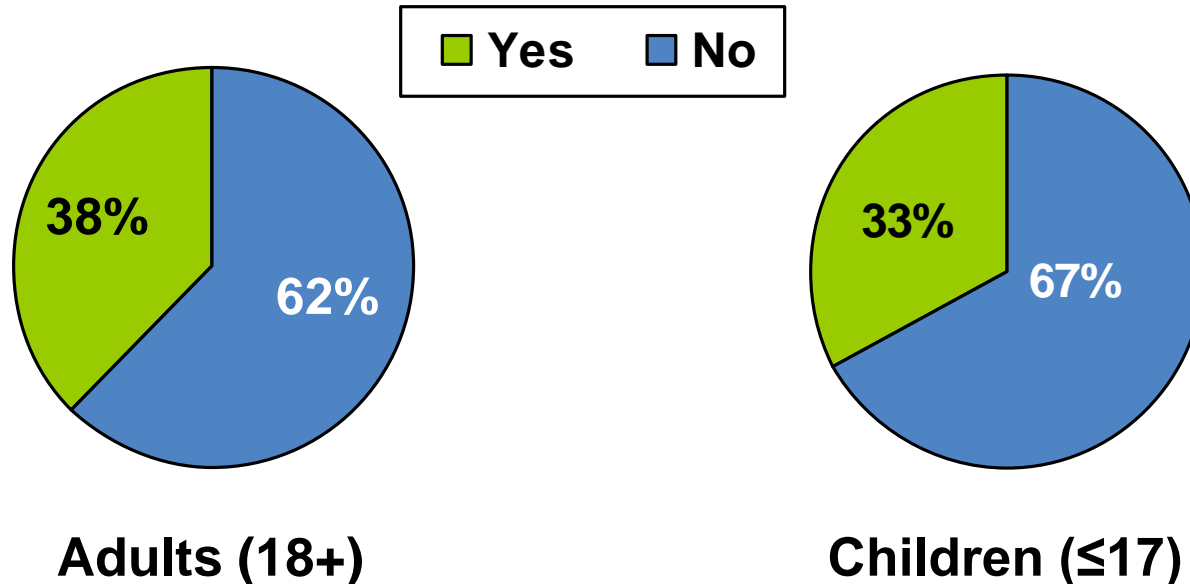


# Asthma Management

## Advised to Modify Environment

More than one third of Vermont adults and youths with current asthma report that they have been advised by their health professional to change things in your home, school, or work to improve their asthma.

**Have you ever been advised to modify things your environment? ‡**

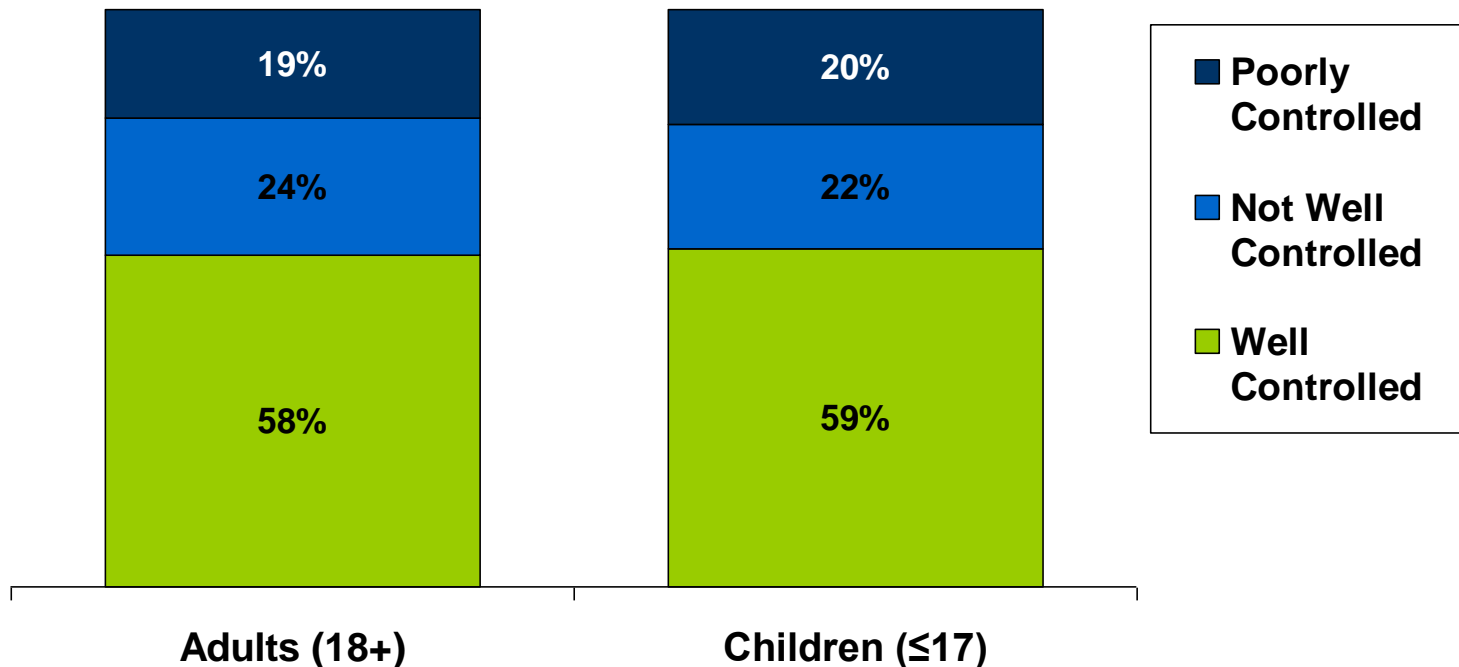


‡ Data are age adjusted to the 2000 U.S. standard population.

Vermont Department of Health - Source: Adult Asthma Callback Survey, 2014, Child Asthma Callback Survey, 2010.

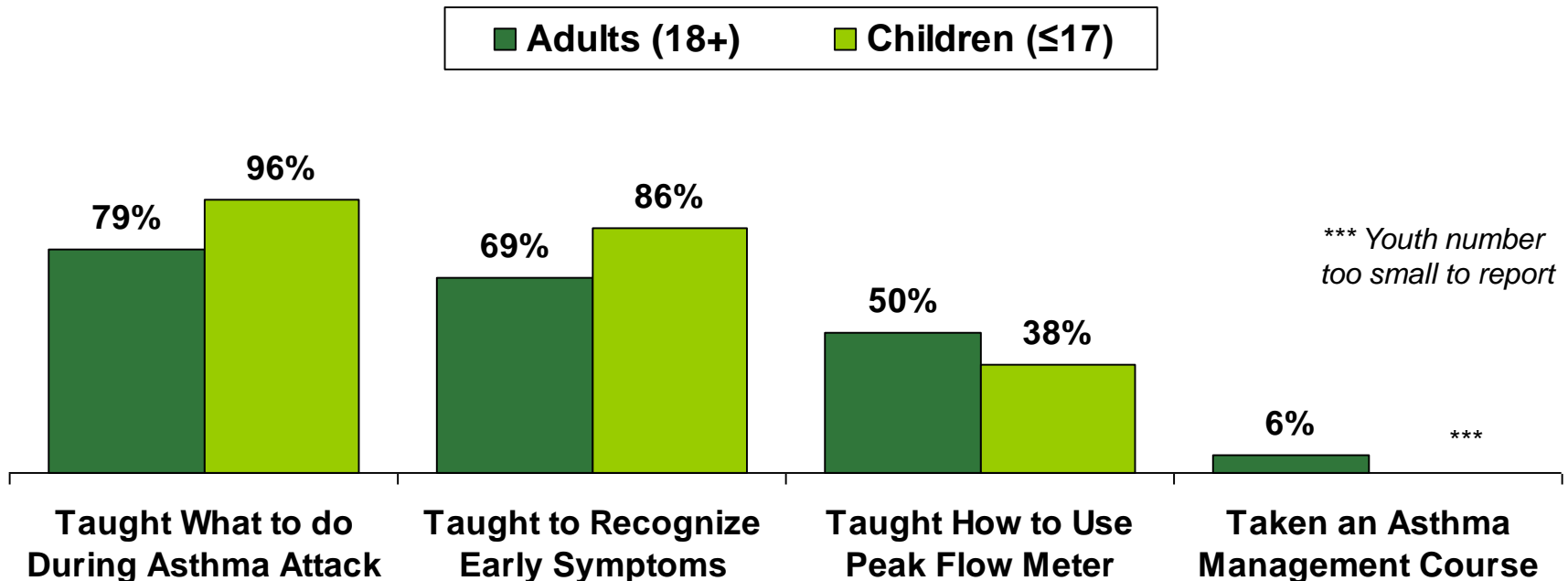
# Asthma Management - Control

Among those Vermonters with current asthma, over half had their asthma well controlled. Approximately, one quarter of adults and youth had asthma that was 'not well controlled' and one in five adults and youth had asthma that was 'very poorly controlled'. Distribution in asthma control has been steady since 2012.



# Asthma Management – Self Care

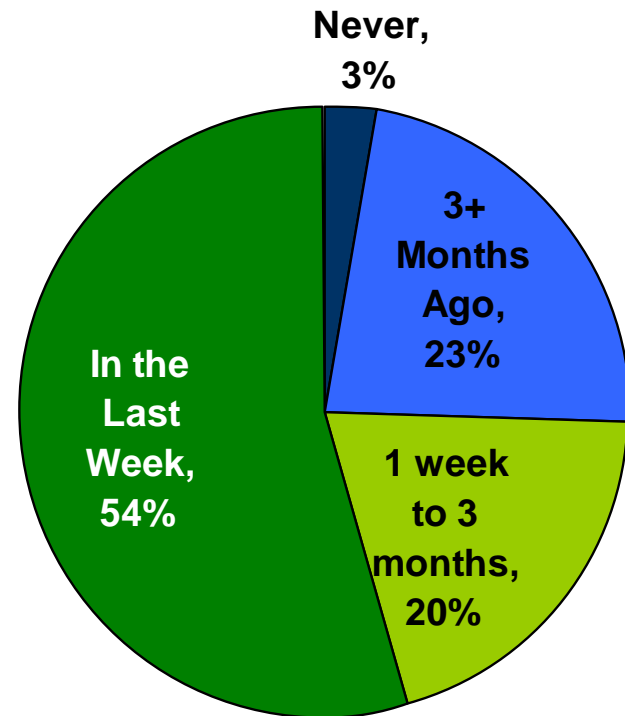
The majority of adults (79%) and youth (96%) with asthma reported that they were taught what to do during an asthma attack. Two-thirds of adults and most youth reported being taught to recognize early symptoms. Approximately half of adults and youth reported being taught to use a peak flow meter. Very few adults and youth have ever taken an asthma management course.



# Asthma Management – Adult Medication Use

- The majority of adults with asthma have used some type of asthma medication in the last three months (74%).
- Among adults with asthma who used asthma medications in the past three months, inhalers were the most common medication used (95%). Other common medications used in the last three months include nebulizers (13%) and pills (19%).

## Recent Use of Asthma Medication

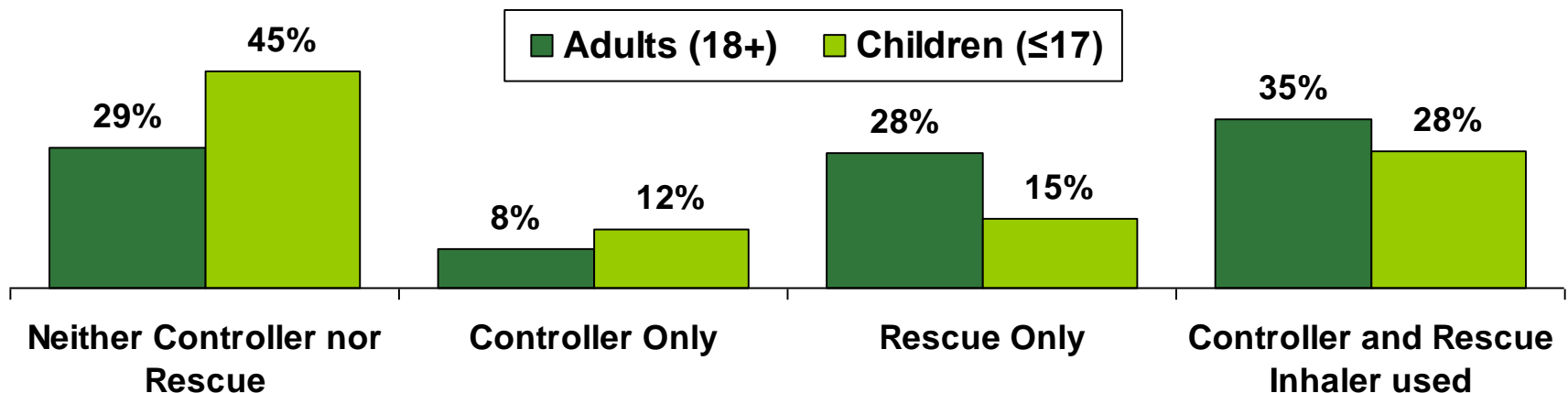




# Rescue vs. Controller Use in Last 3 months

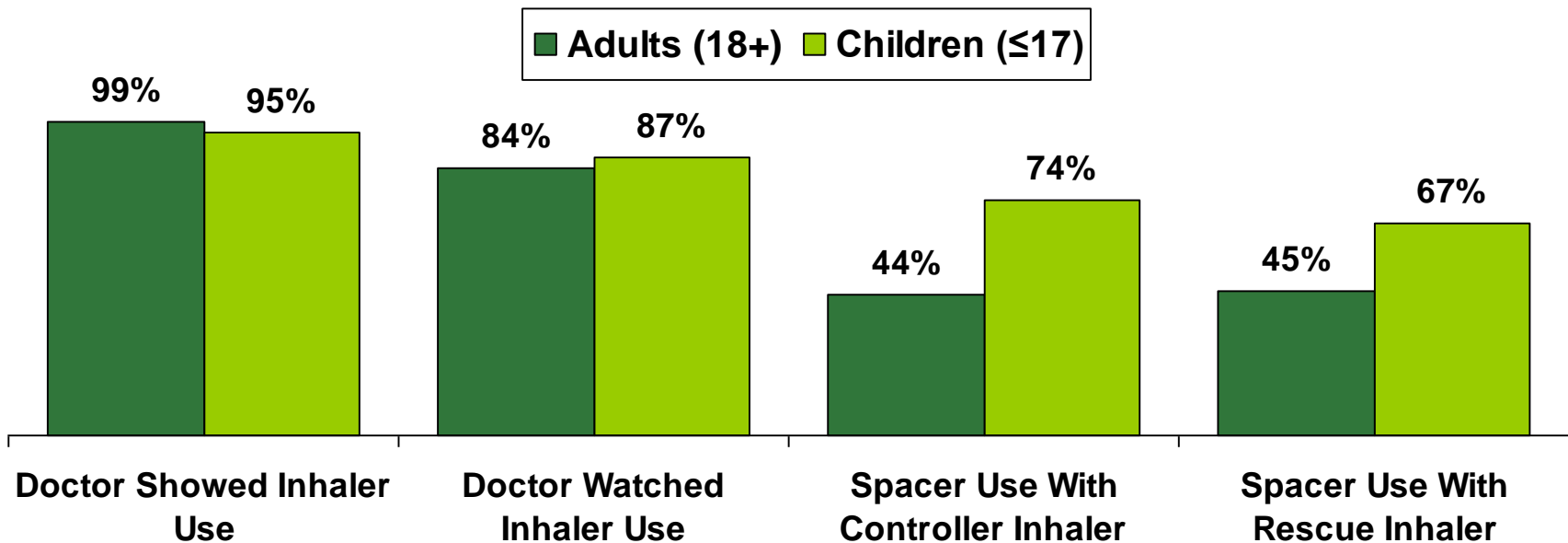
- Three in ten adults and almost half of youth with current asthma have not used either a rescue or controller inhaler in the last three months. One in 10 adults and youth have used a controller inhaler only. Three in ten adults have used a rescue inhaler only. One in 10 adults and youth have used a controller inhaler only. A third of adults and a quarter of youth have used both a controller and rescue inhaler.
- The rate of using both controller and rescue inhalers increases as asthma control worsens; 51% of those with not well controlled asthma and 60% of those with poorly controlled asthma used both rescue and controller inhalers in the last 3 months. Only 44% of adults with severe persistent asthma used both a rescue and controller inhaler (data not shown).

## Inhaler Use among Those with Current Asthma



# Inhaler Use - Technique

- Most adults with current asthma have been shown how to use an inhaler by their physician (99%), while 84% have had their doctor watch them use their inhaler.
- Approximately two out of five adults used a spacer with their controller (44%) or rescue (45%) prescription inhalers. Those using spacers with a rescue inhaler increased significantly from 21% in 2013. Youth were more likely than adults to use a spacer, with 74% of youth using a spacer with controller inhalers and 67% with rescue inhalers.



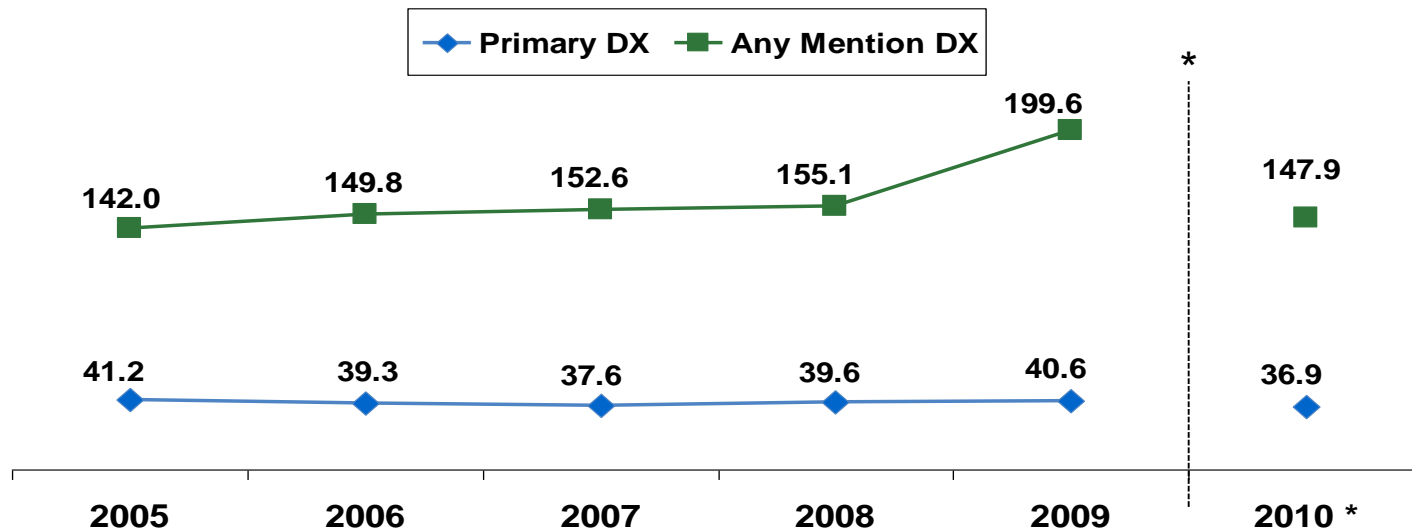


# **Indications of Poor Asthma Management**

# Emergency Department Visits

- In 2010, among Vermont residents, there were 2,309 emergency department visits with a primary diagnosis of asthma which was a 9% decrease from 2009 counts. The rate of ED visits for a primary diagnosis of asthma was 36.9 per 10,000 Vermonters. Asthma was listed as a contributing factor in 9,252 ED visits, a rate of 147.9 per 10,000 Vermonters.
- The rates of ED visits for asthma (primary and any diagnosis) in 2010 were significantly less than 2009 values; however, changes in methodology used for data collection may contribute in part to this decrease \*.

**ED Visit with an Asthma Diagnosis (rate per 10,000) 2005-2010**

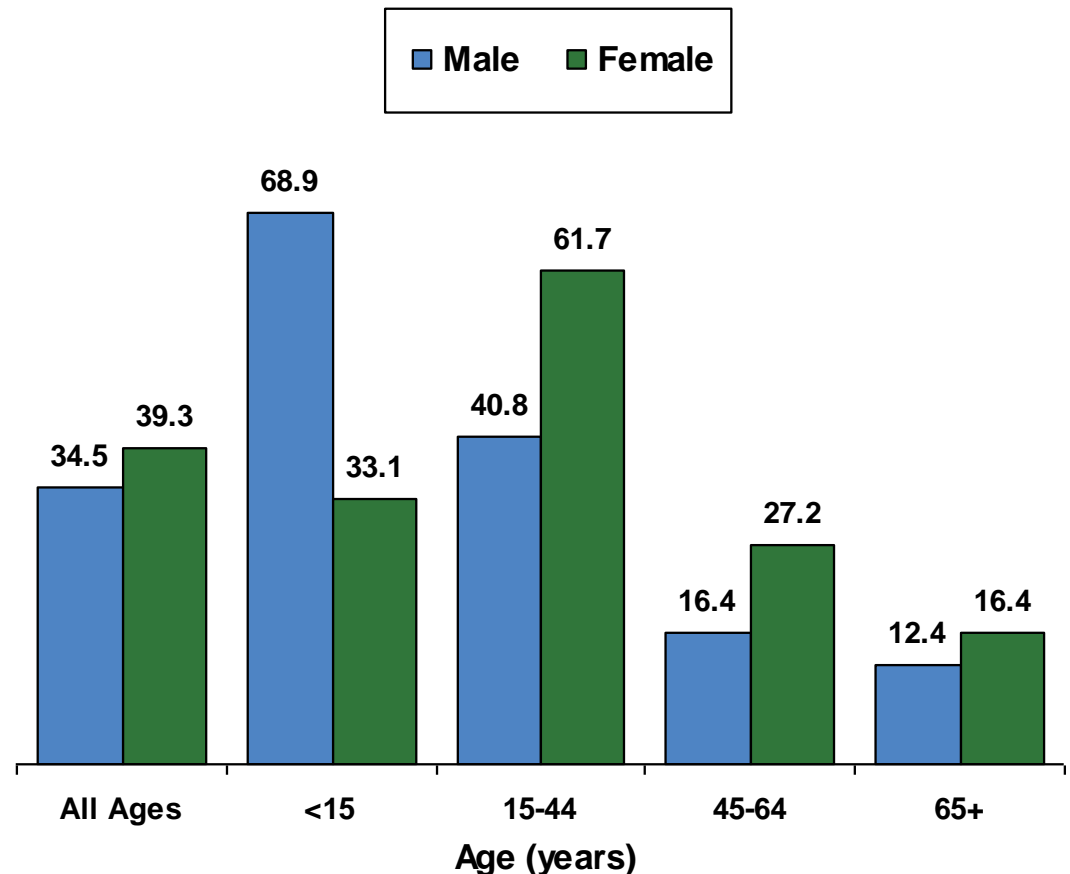


\* See note in Data Sources regarding changes to the Hospital Discharge data which occurred during this time;  
 • 2010 data is the most recent data available that includes all bordering states.

# Emergency Department Visits

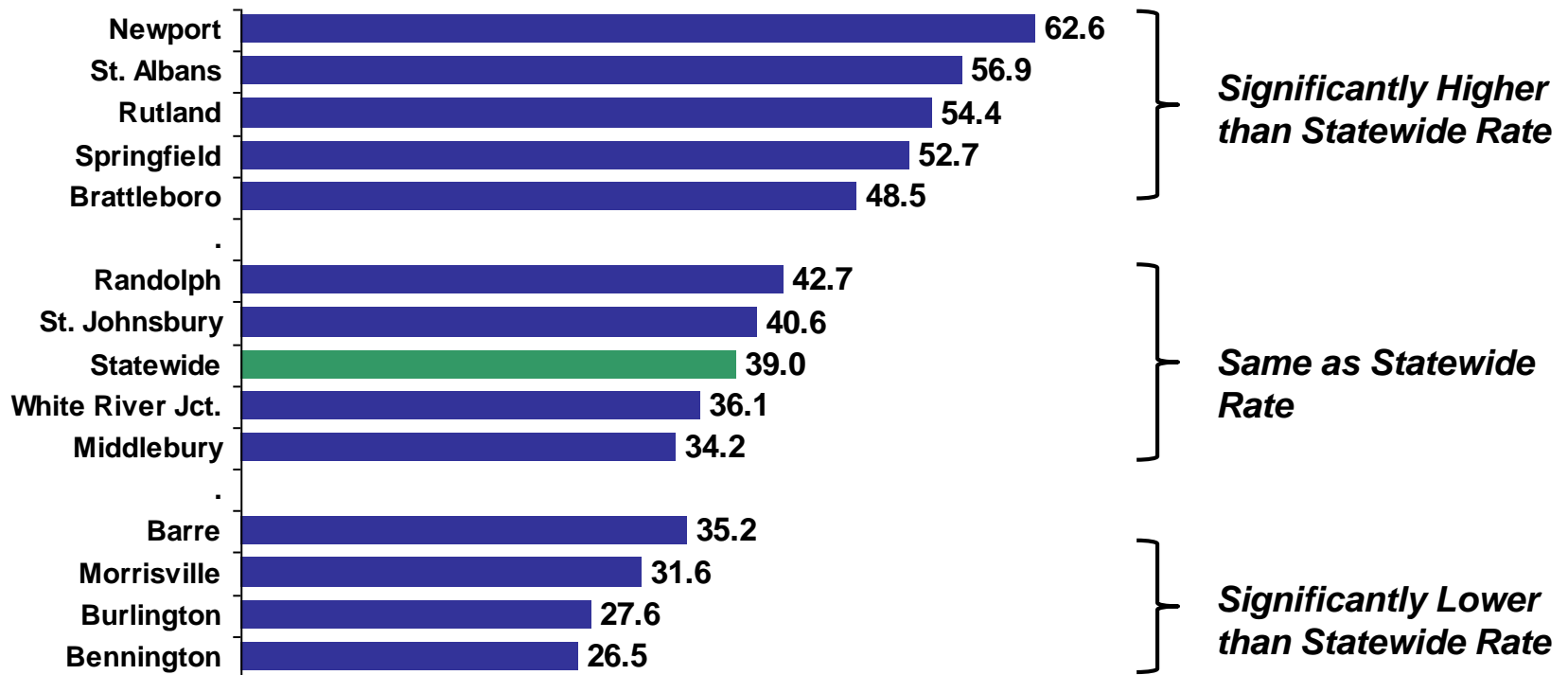
**Primary Asthma Diagnosis (rate per 10,000), 2010**

- In 2010, when looking at emergency department data, females had a higher rate of visits with asthma as a primary diagnosis than males (39.3 per 10,000 vs. 34.5 per 10,000).
- When examined by age, the highest rates of emergency department visits with a primary diagnosis of asthma were seen among males under the age of 15 and females 15-44 years of age.



# Emergency Department Visits by Hospital Service Area

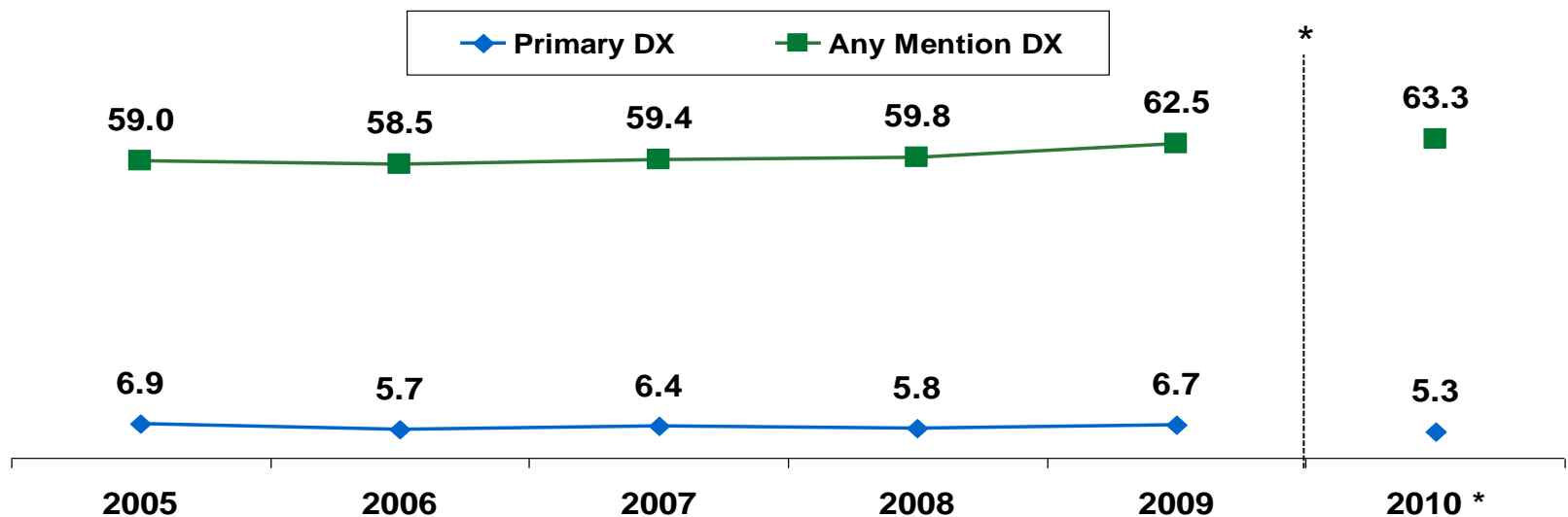
In 2010, emergency department visits with a primary diagnosis of asthma varied significantly by hospital service area (HSA). The Newport, St. Albans, Rutland, Springfield, and Brattleboro HSAs had significantly higher ED visit rates than the statewide rate, while the Barre, Morrisville, Bennington and Burlington HSAs had significantly lower rates of ED visits per 10,000.



# Hospitalizations

- In 2010, 334 Vermonters were discharged from the hospital with a primary diagnosis of asthma (5.3 per 10,000 Vermonters). In 2010, there were 3,963 hospitalizations with any mention of asthma (63.3 per 10,000 Vermonters).
- The rate of hospitalizations with a primary diagnosis decreased from 6.7 in 2009 to 5.3 in 2010 per 10,000 Vermonters; however, changes in methodology used for data collection may contribute in part to this decrease \*.

**Hospital Discharge with an Asthma Diagnosis (rate per 10,000) 2005-2010**

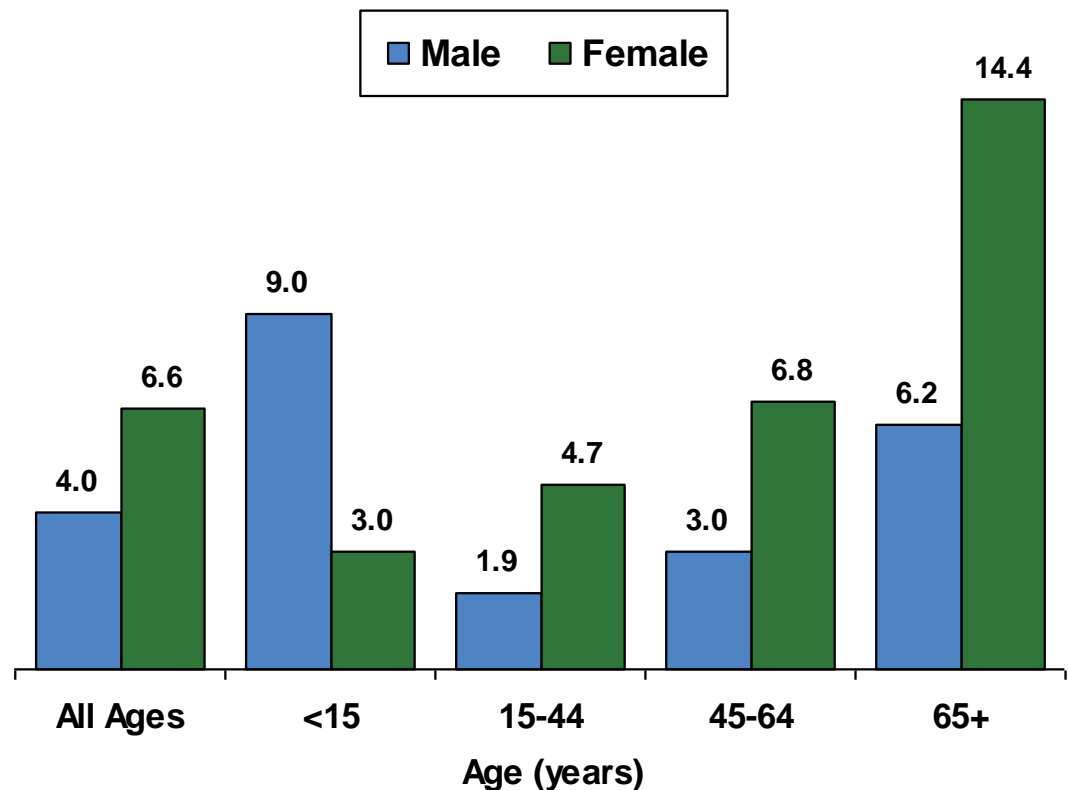


\* See note in Data Sources regarding changes to the Hospital Discharge data which occurred during this time.

# Hospitalizations

Primary Asthma Diagnosis (rate per 10,000), 2010

- As with ED visits, females overall had a higher rate of hospitalizations than males (6.6 versus 4.0 per 10,000).
- The highest rates of hospitalizations with a primary diagnosis of asthma were seen among females 65 years and older and males under the age of 15 years.

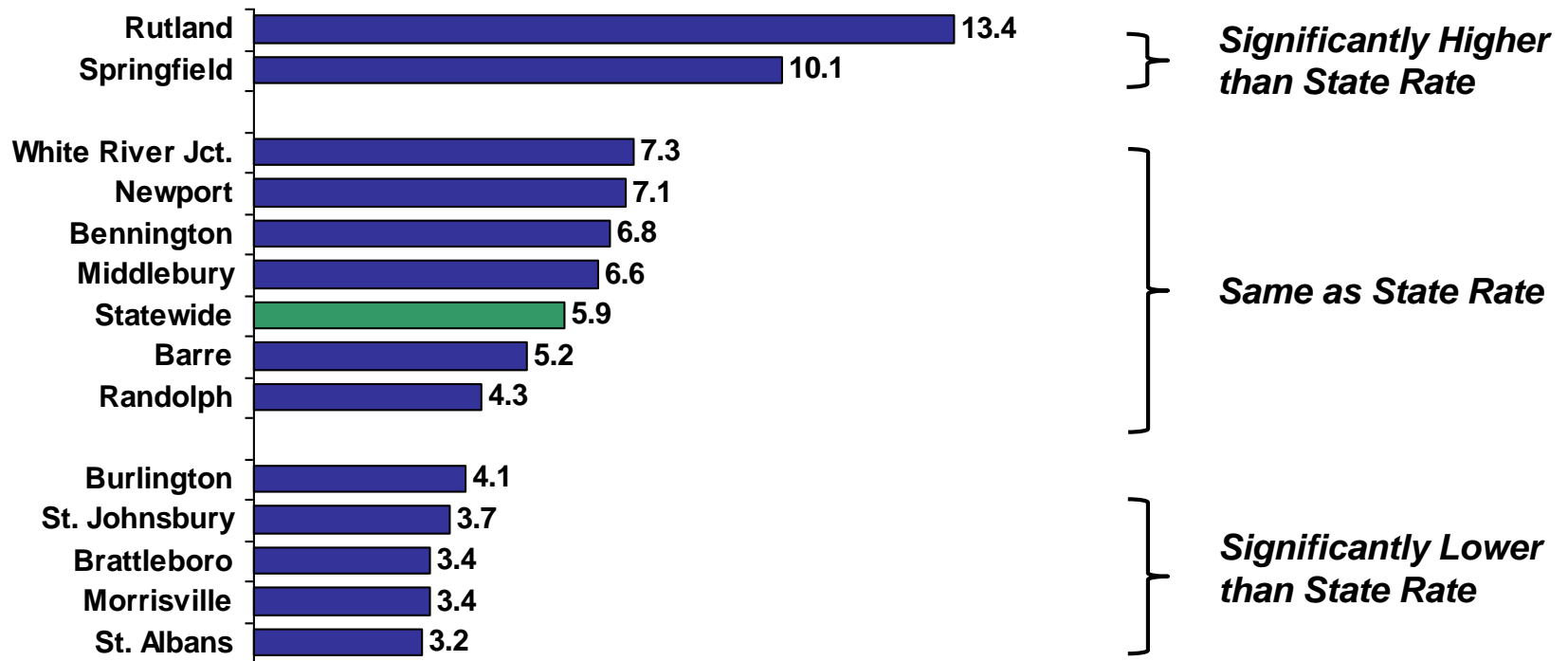




# Hospitalizations by Hospital Service Area

The rate of hospital discharges with a primary diagnosis of asthma varied when looked at by hospital service area (HSA). The Rutland and Springfield HSAs had significantly higher hospitalizations rates as compared to the statewide rate, while the Burlington, St. Johnsbury, Brattleboro, Morrisville, and St. Albans HSAs had lower rates compared to the statewide rate.

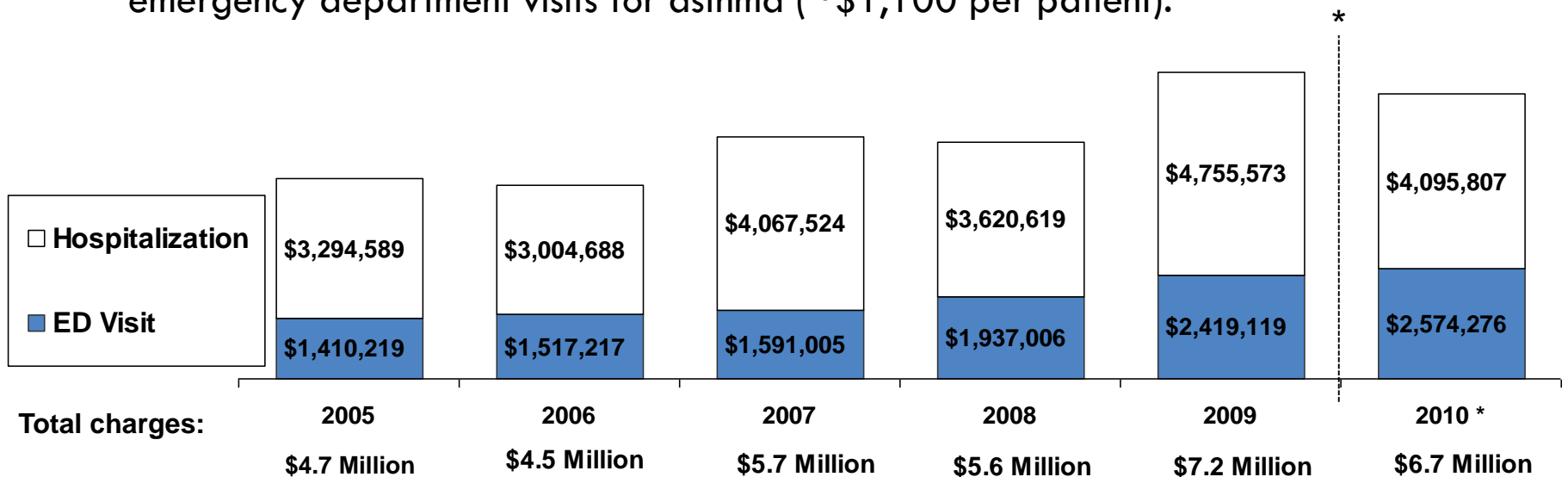
**Hospitalizations with a Primary Asthma Diagnosis by HSA (rate per 10,000) , 2008-2010**



# Charges of Poor Asthma Management

## Health Care Charges

- In addition to the negative health outcomes associated with poor asthma management, there are also financial costs. In 2010, hospitalizations and emergency department visits alone charged approximately \$6.7 million dollars, a decrease from 2009.
- In 2010, hospitalizations with a primary diagnosis of asthma, resulted in \$4.1 million in charges; an average of ~\$12,300 per patient and \$2.6 million was charged for emergency department visits for asthma (~\$1,100 per patient).

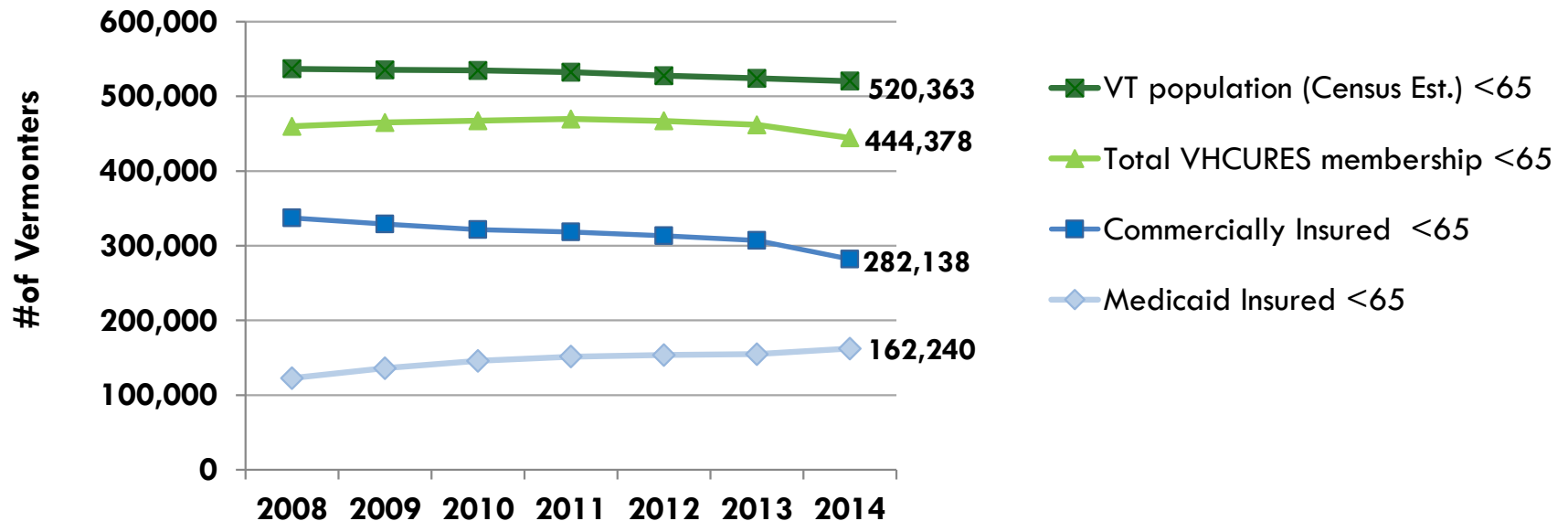


\* See note in Data Sources regarding changes to the Hospital Discharge data which occurred during this time.

# Claims-Based Healthcare Data

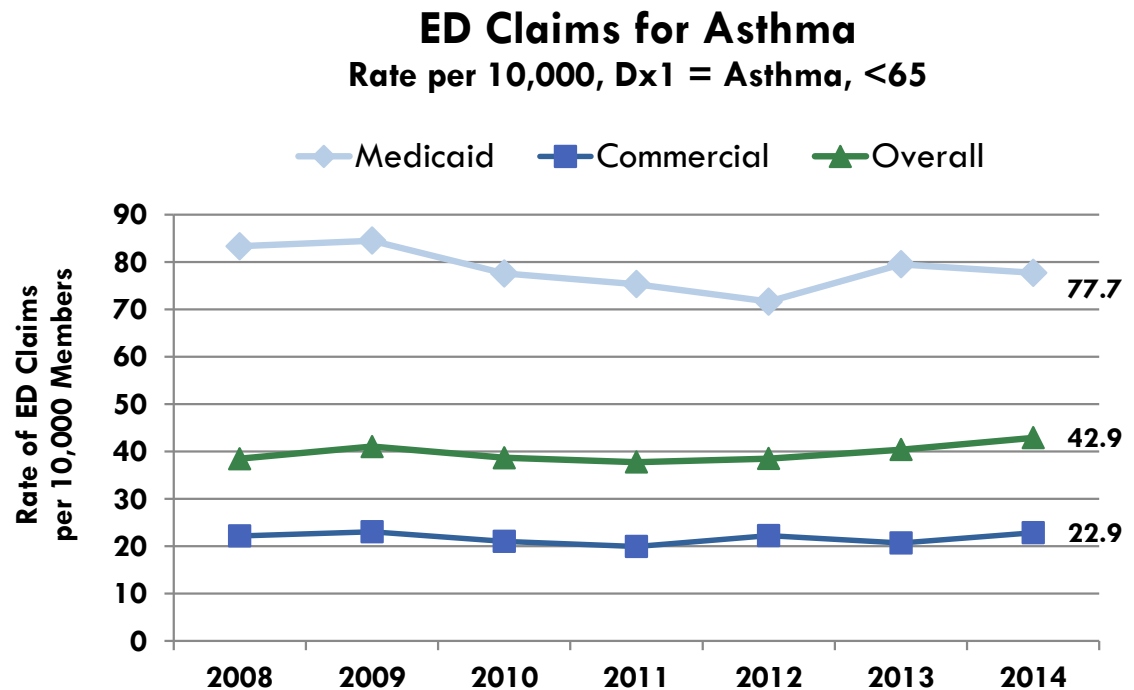
- Vermont's All Payer Claim's Database (VHCURES) provides access to more recent health care utilization data than is available through the hospital discharge dataset. However, data in VHCURES are available for only a subset of Vermont's population and does not capture all medical care that is delivered. Through VHCURES, data are available for Vermonters less than 65 years of age and with an insurance provider that shares paid claims information with the state of Vermont.
- VHCURES contains information on paid medical claims for approximately 85% of Vermont's population under 65 years of age.

### VHCURES Enrollment, <65 Years of Age



# Emergency Department Use Among Those <65 Years of Age

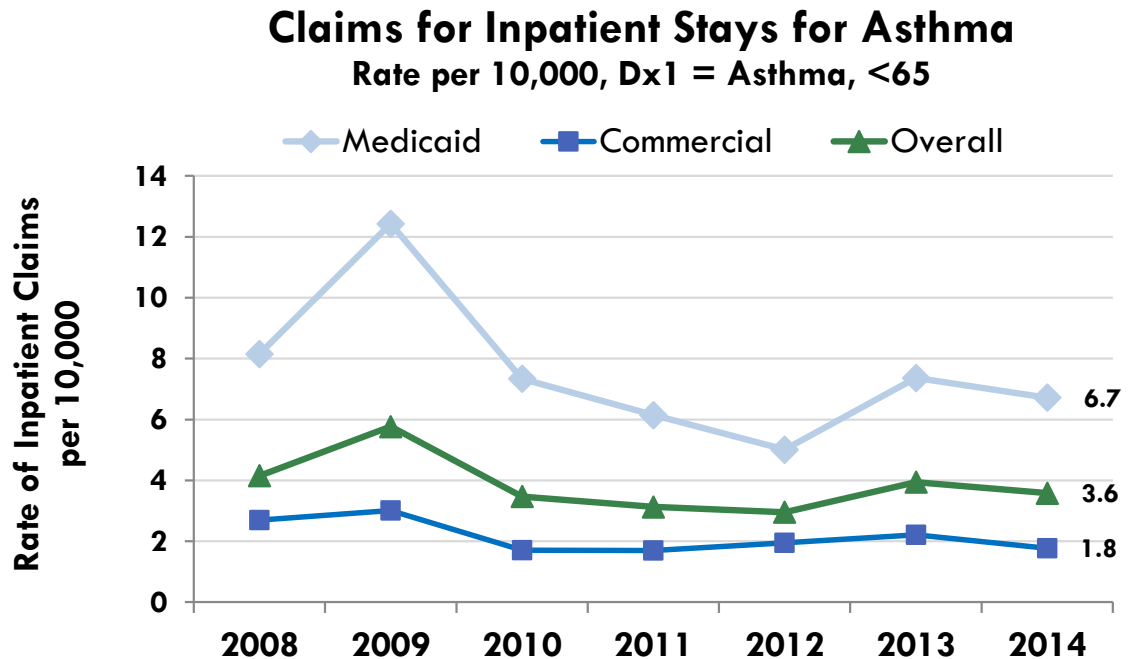
- Using VHCURES data to analyze ED use for asthma among those less than 65 years of age, the overall rate of claims for ED use with asthma as a primary diagnosis was 42.9 per 10,000 insured Vermonters in 2014.
- The rate of ED use for asthma among those insured by Medicaid was three times that of the rate for those commercially insured (77.7 per 10,000 vs. 22.9 per 10,000).
- VHCURES provides more recent data than is currently available through the Hospital Discharge data.
- Although the populations represented differ somewhat between each data source, in 2010 the overall rate of ED claims was roughly similar between the two (38.7 vs. 36.9).



# Inpatient Hospitalizations

## Among Those <65 Years of Age

- Using VHCURES data to analyze hospitalizations for asthma among those less than 65 years of age, the overall rate of claims for hospitalizations with asthma as a primary diagnosis was 3.6 per 10,000 insured Vermonters in 2014.
- The rate of hospitalizations for asthma among those insured by Medicaid was more than three times the rate for those commercially insured (6.7 per 10,000 vs. 1.8 per 10,000).
- In 2010, the rate of claims for inpatient hospitalizations for asthma (3.6 per 10,000 insured Vermonters < 65 ) was lower than the rate of hospitalizations determined using the Hospital Discharge dataset (5.3 per 10,000 Vermonters of all ages).

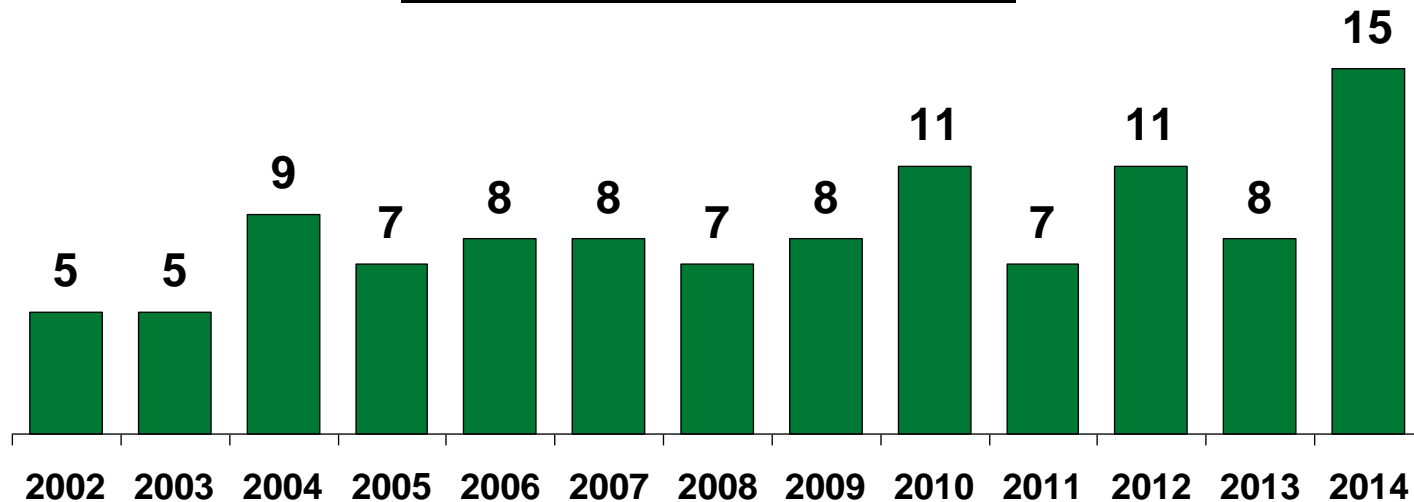


# Mortality Due to Asthma

## Death

In the past ten years, 90 Vermonters have died because of their asthma. In 2014, there were 15 deaths attributed to asthma. Between 2005 and 2014, there have been between 7 and 15 deaths per year due to asthma.

### Annual Deaths Due to Asthma





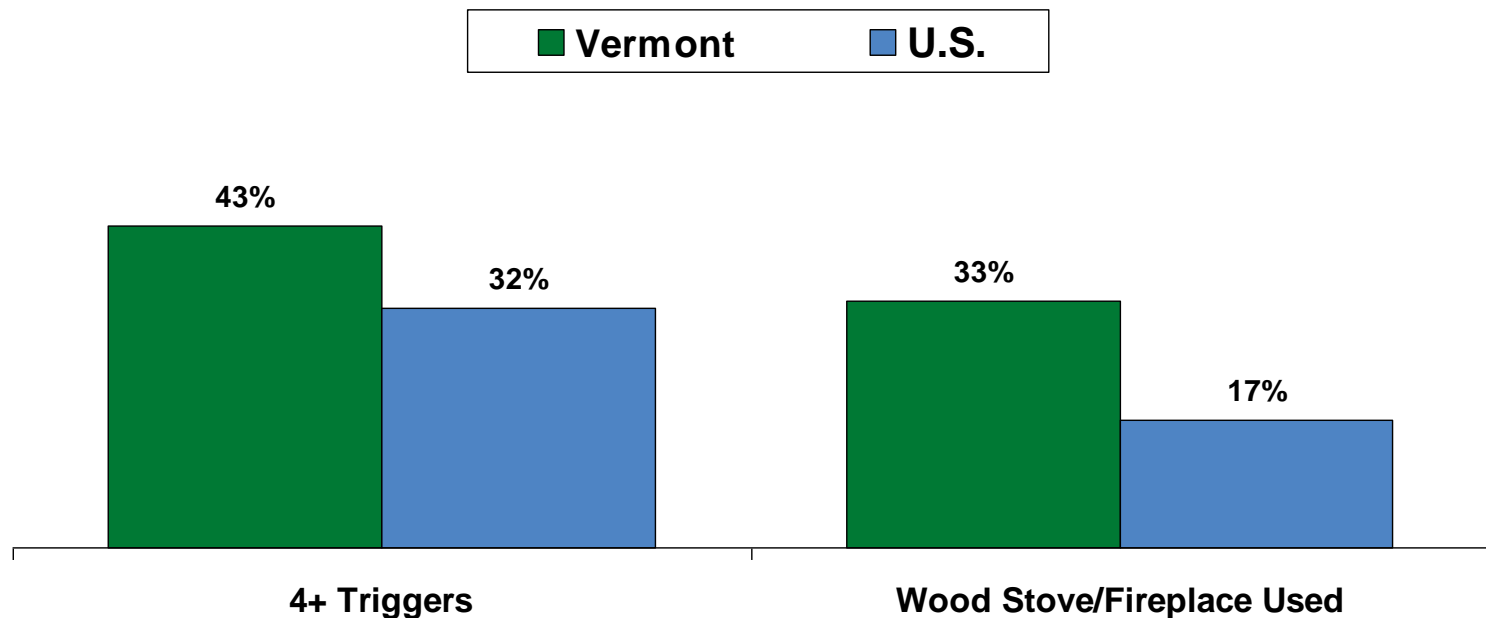
# Comparisons to U.S.

# Vermont and U.S. Comparisons

## Individual Triggers at Home

Adult Vermonters with asthma are more likely to have four or more triggers in their home compared to the U.S. states that do the Adult Asthma Callback Survey. Adult Vermonters with asthma are more likely to have used a wood stove or fireplace when compared to the U.S.

### Exposure to Indoor Environmental Triggers



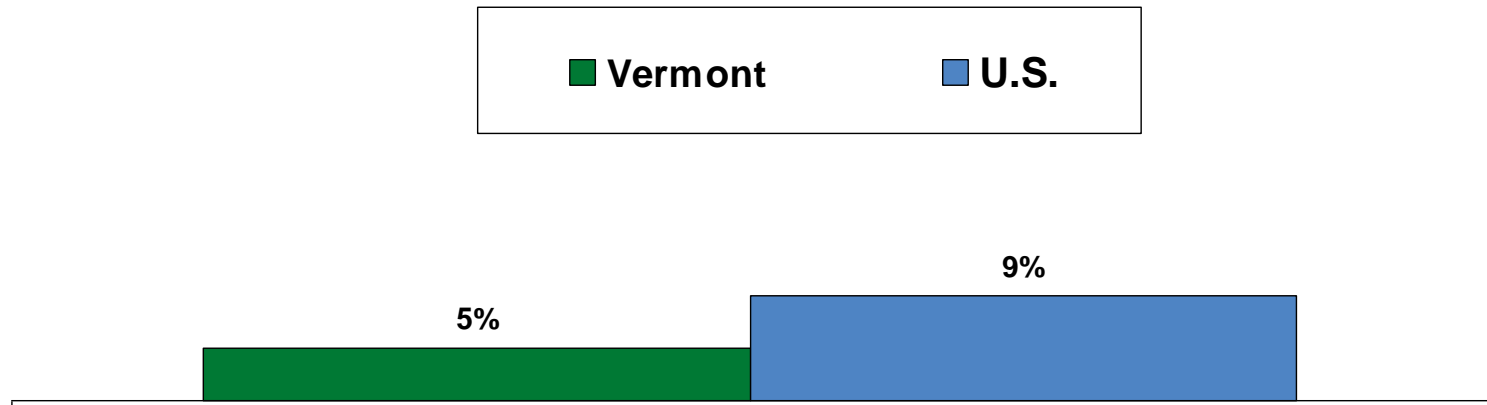


# Vermont and U.S. Comparisons

## Asthma Management Class

Adult Vermonters with asthma were less likely to have attended an asthma management course compared to adults with asthma nationwide among the U.S. states that do the Adult Asthma Callback Survey.

### Adults Who Attended an Asthma Management Class

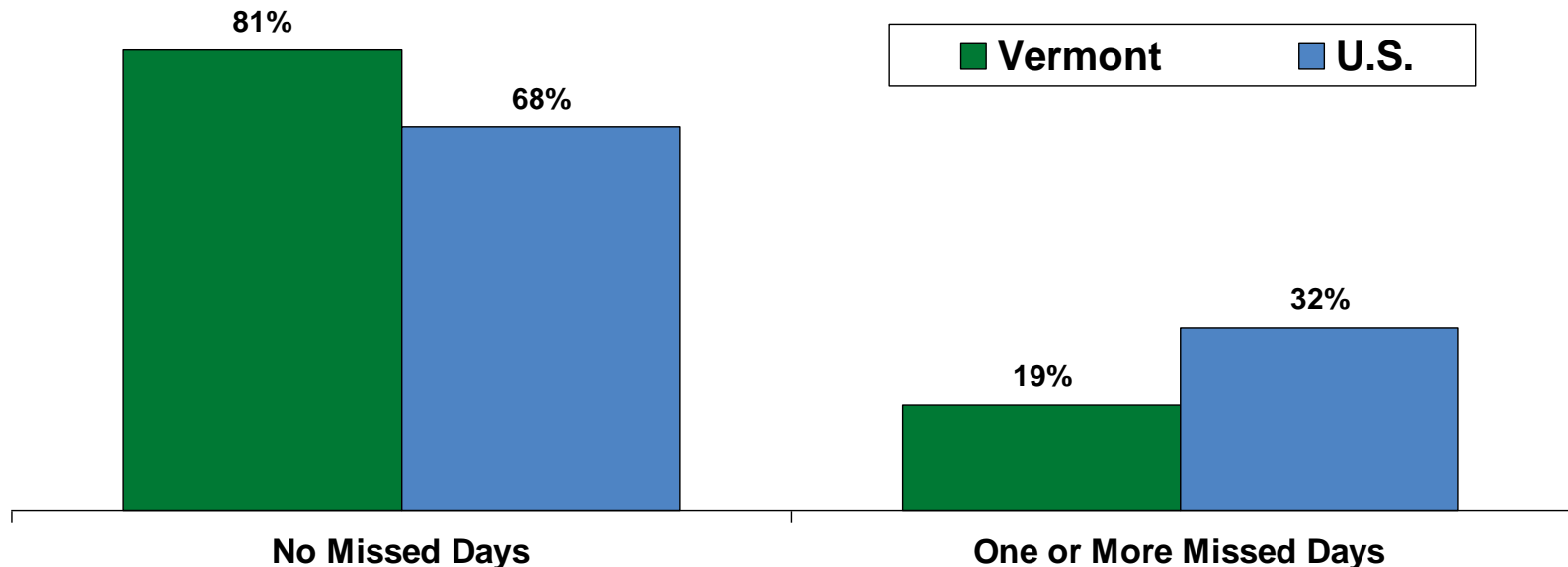


# Vermont and U.S. Comparisons

## Absenteeism

Four out of 5 Vermonters with asthma did not miss work in the past year due to their asthma. Vermonters with asthma were less likely to miss one or more days of work due to their asthma (19%) as compared to U.S. states that do the Adult Asthma Callback Survey (32%).

### Missed Days of Work

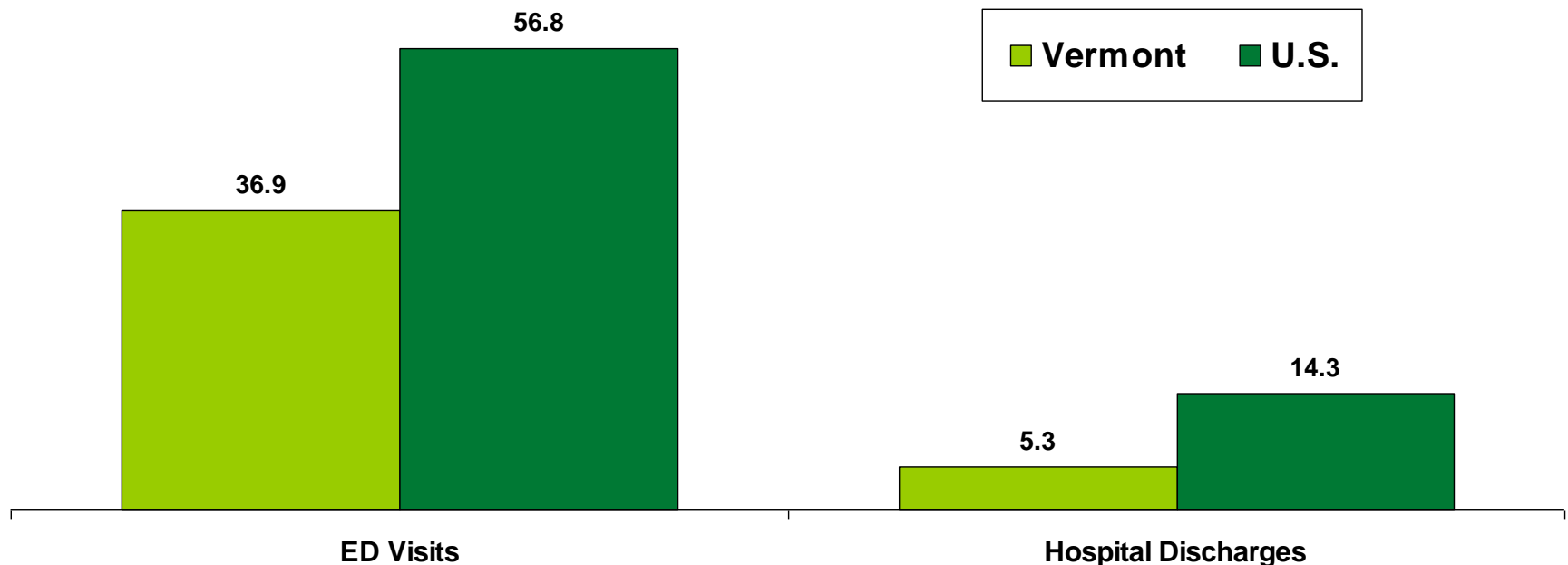


# Vermont and U.S. Comparisons

## Emergency Department Visits and Hospital Discharges

Emergency Department Visits and Hospital Discharges for asthma as the primary diagnosis were much lower for Vermonters than the rest of the U.S.

ED Visits or Hospitalizations with a Primary Asthma Diagnosis (rate per 10,000)



# Data Sources and Notes

**Behavioral Risk Factor Surveillance System (BRFSS):** Annual telephone survey conducted by individual state health departments with support from the CDC. All 50 states complete a set of core BRFSS questions and some states chose to include additional questions that focus on health topics relevant to the state. One of the optional modules completed in the State of Vermont provides data on asthma prevalence in children. BRFSS data is weighted so that it is representative of the Vermont population. All analyses completed with BRFSS data utilized weighted data.

**Asthma Call Back Survey (ACBS):** Annual survey conducted in 38 states for subjects that report having current asthma in BRFSS. In Vermont, this survey is conducted for both adults and children with current asthma. This survey allows for more detailed information on asthma risk factors, control, severity, and self-management. Information collected for the youth ACBS is reported by a parent or guardian.

**VHCURES:** Vermont's All-Payer claims database that contains claims and eligibility data for Vermonters insured by an insurance provider (public or private payer) who reports to the State of Vermont.

**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. The VUHDDS data set was narrowed to only include Vermont residents for this analysis. A primary asthma diagnosis refers to when asthma was listed as the first diagnosis code. Any asthma diagnosis refers to when asthma is listed as any of the twenty 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 discharge data set.

In 2009, the New Hampshire Department of Health and Human Services (DHHS), in partnership with the Department of Information Technology (DoIT), internalized the dataset after many years of using a vendor. DPHS and DoIT created a new system to receive, process, edit, validate, and store the data received by 32 reporting hospitals in the State of New Hampshire. This change in the program may explain some of the differences between the 2010 data provided to VT and data provided to VT for prior years.

2010 is the most current year for which hospital data is currently available from all bordering states.

**Vermont Vital Statistics System:** Monitors vital events, including deaths. Information on the cause of death is obtained from a physician and reported on the death certificate.

# For additional information

## **Vermont Asthma Program:**

<http://healthvermont.gov/prevent/asthma/index.aspx>

## **Vermont Asthma Surveillance:**

[http://healthvermont.gov/research/asthma/asthma\\_surv.aspx](http://healthvermont.gov/research/asthma/asthma_surv.aspx)

Maria Roemhildt, PhD

Research, Epidemiology & Evaluation

Vermont Department of Health

108 Cherry Street

Burlington, VT 05401

802-951-4067

[Maria.roemhildt@Vermont.gov](mailto:Maria.roemhildt@Vermont.gov)