



# Asthma Data Pages

2021 Behavioral Risk Factor Surveillance Survey

2021 Adult Asthma Call-Back Survey

2019-2021 Child Asthma Call-Back Survey

Division of Health Statistics and Informatics

Published November 2023

# Table of Contents

Topic	Page
<a href="#">Executive Summary</a> .....	3
<a href="#">Asthma Prevalence in Vermont</a> .....	4
<a href="#">Indications of Poor Asthma Management</a> .....	23
<a href="#">Quality of Life</a> .....	33
<a href="#">Asthma Risk and Protective Factors</a> .....	41
<a href="#">Medical Management</a> .....	56
<a href="#">COVID-19 and Asthma</a> .....	65
<a href="#">Data Sources and Notes</a> .....	69
<a href="#">Asthma Resources</a> .....	71


# Executive Summary

 In 2021, Vermont had the fifth highest prevalence among U.S. states and territories for adult current asthma and the 16<sup>th</sup> highest for child current asthma.

 The prevalence of adult asthma has not changed significantly in Vermont in recent years. Child asthma decreased significantly in 2021 compared to 2019.

 Emergency department visits and hospitalizations for asthma have been decreasing since 2016.

 60% of adults and 61% of children with asthma have uncontrolled asthma.

 LGBTQ+ Vermonters, those who rent, and those with incomes less than 125% of the federal poverty level have disproportionately high rates of uncontrolled asthma.

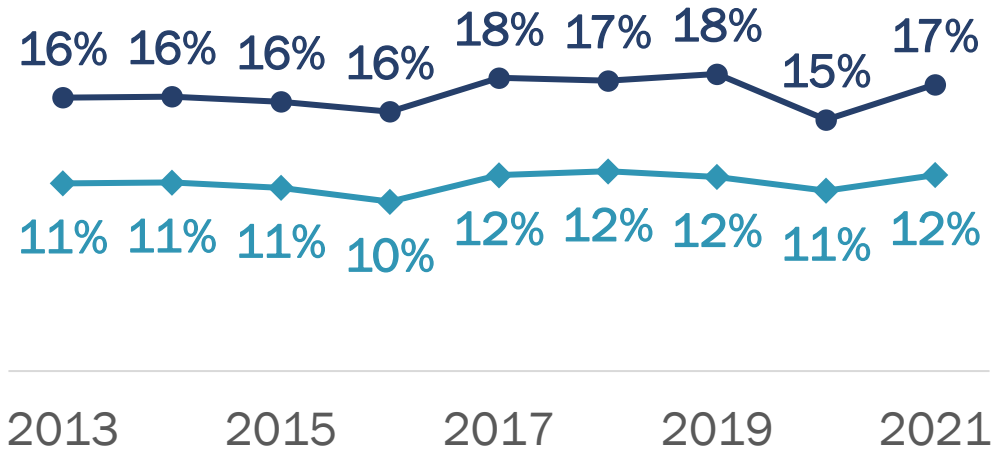
# Asthma Prevalence in Vermont

Who has asthma in Vermont?

# Who has asthma in Vermont?

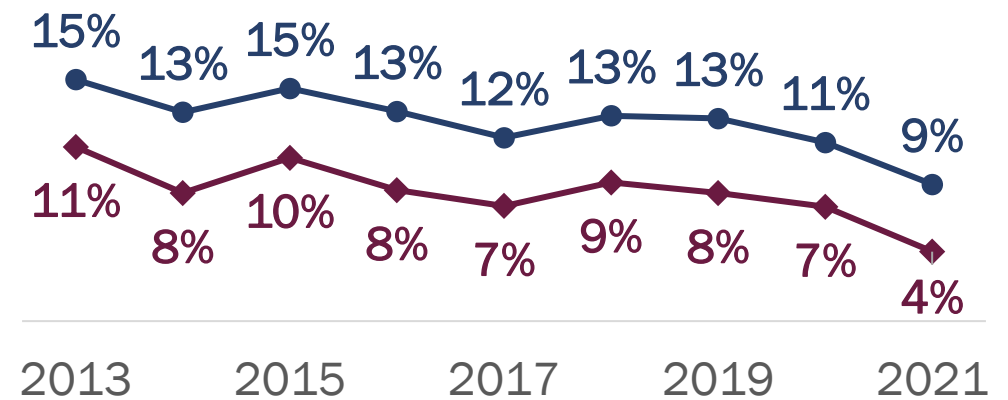


Adult **lifetime** and **current** asthma have not changed significantly over time.



**Current child asthma** decreased significantly from 2019 to 2021.

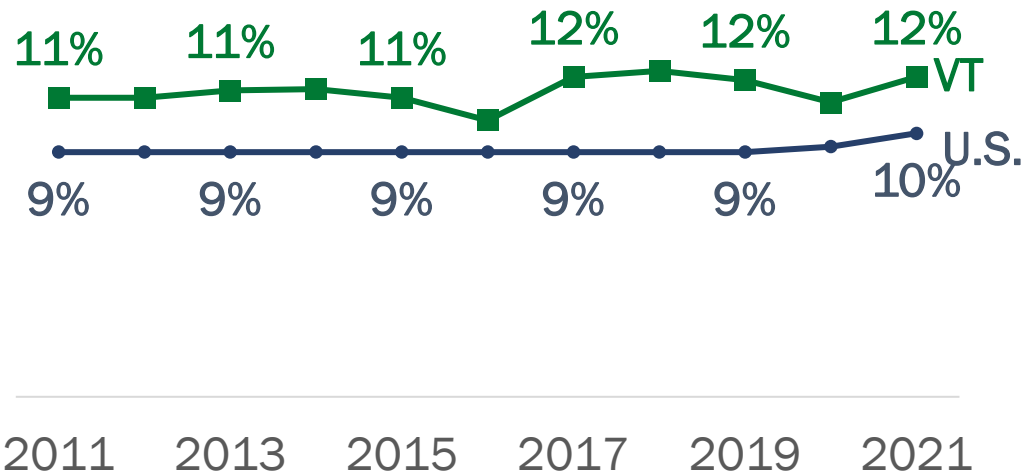
The decrease is likely related to social distancing behaviors due to COVID-19.



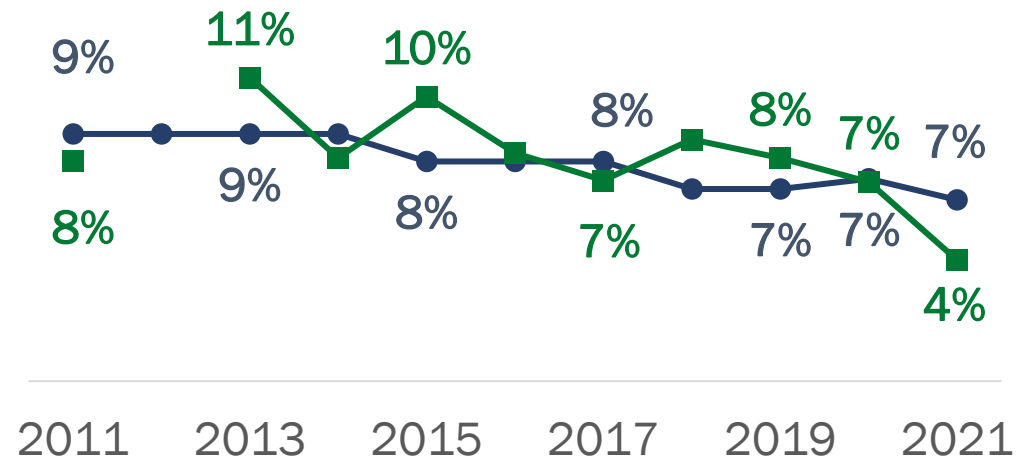
# Who has asthma in Vermont?



Adult current asthma prevalence in **Vermont** has been higher than in the **U.S.** since 2011.



Current child asthma prevalence in **Vermont** was significantly lower in 2021 than in the **U.S.**

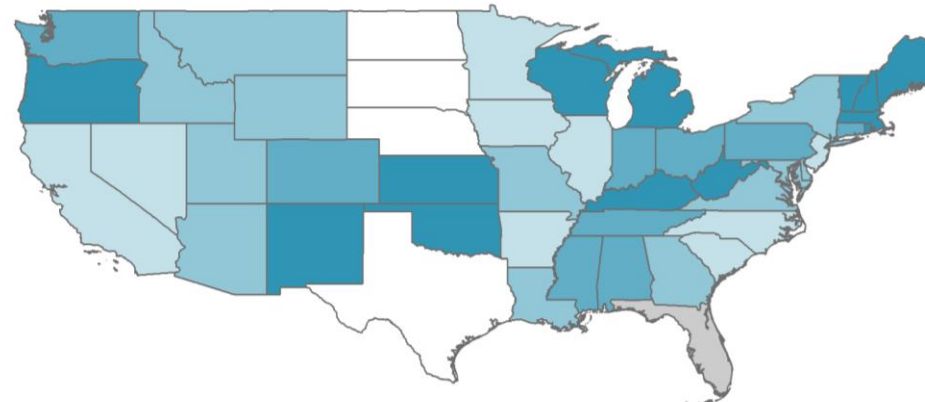
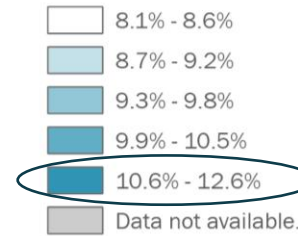




In 2021, Vermont had the fifth highest rate of adult current asthma among US states and territories.

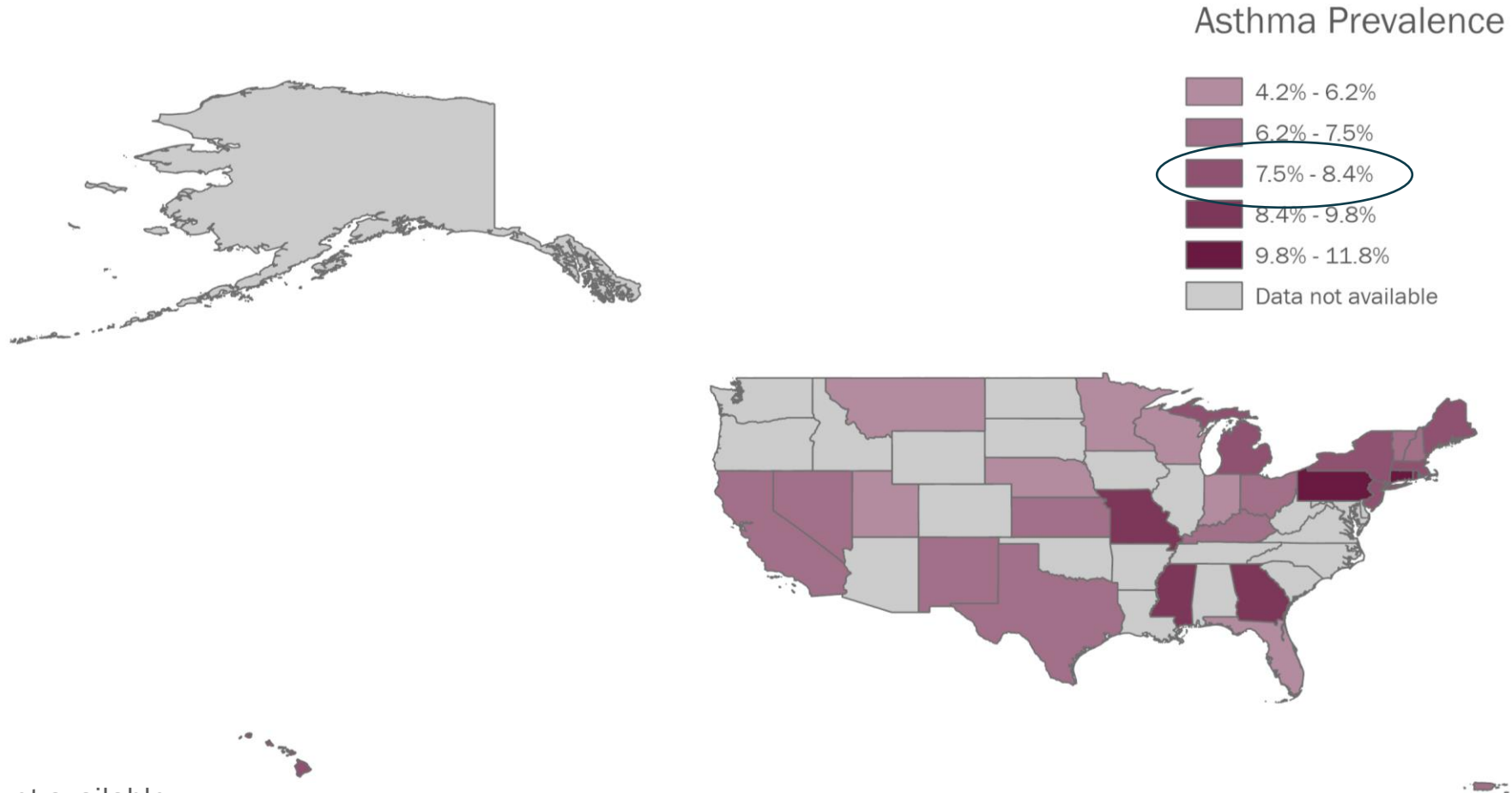


Asthma Prevalence





In 2020+, Vermont had the 16<sup>th</sup> (out of 30) highest rate of child current asthma in jurisdictions that collected data.



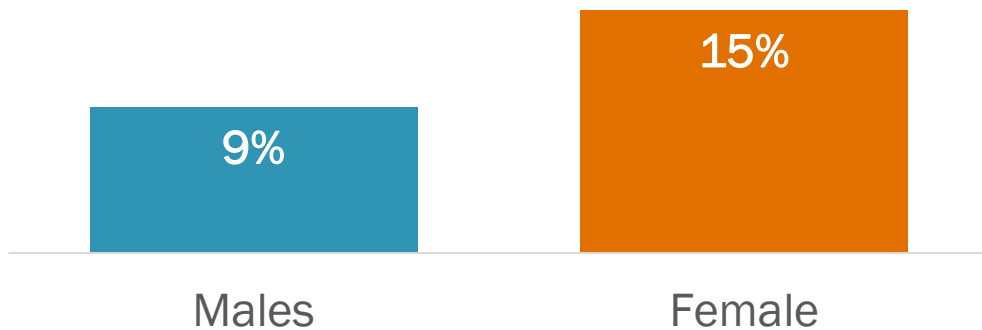
+2021 data not yet available.

Vermont Department of Health Source: 2020 BRFSS: (<https://www.cdc.gov/asthma/brfss/2020/child/tableC1.html>)

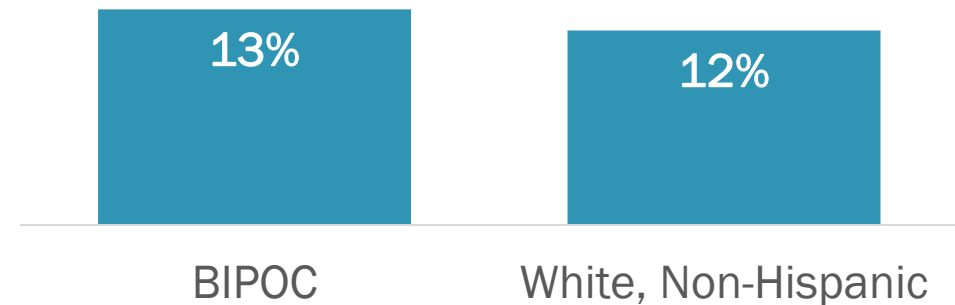


# Who has asthma in Vermont?

**Female adults** are more likely to have asthma than males.

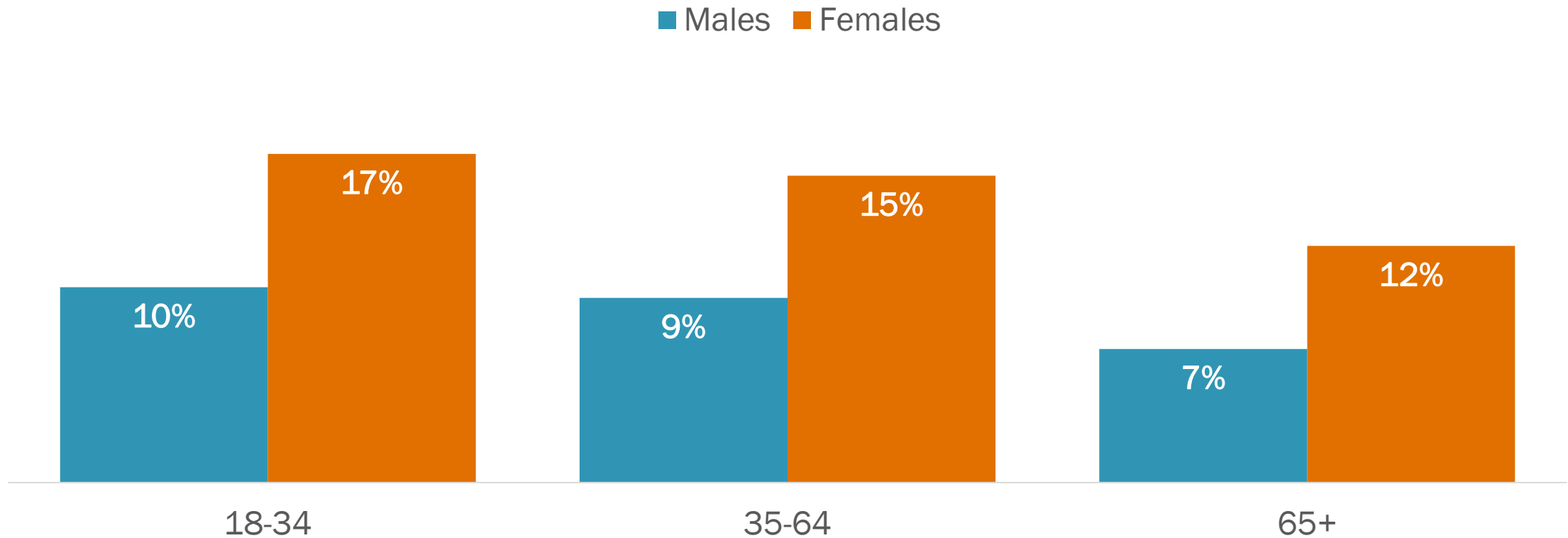


BIPOC and white non-Hispanic adults have asthma at similar rates.



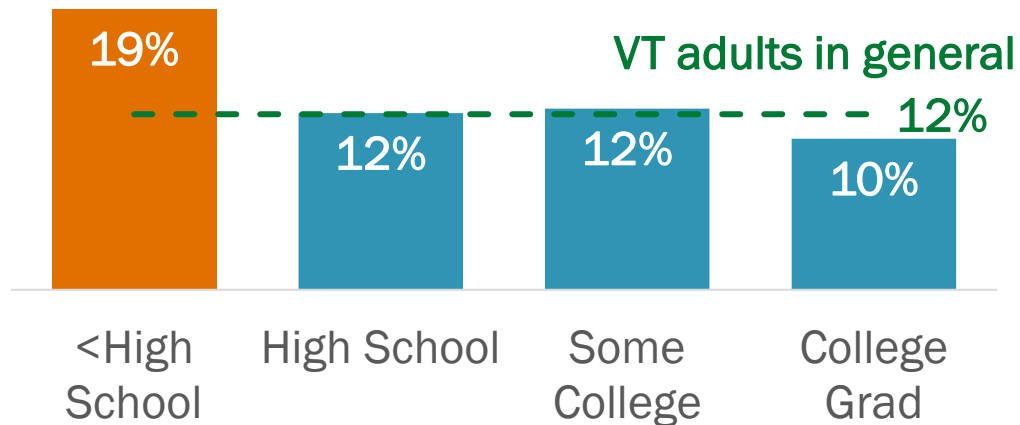
# Who has asthma in Vermont?

**Female adults** are more likely to have asthma at any age than **males**.

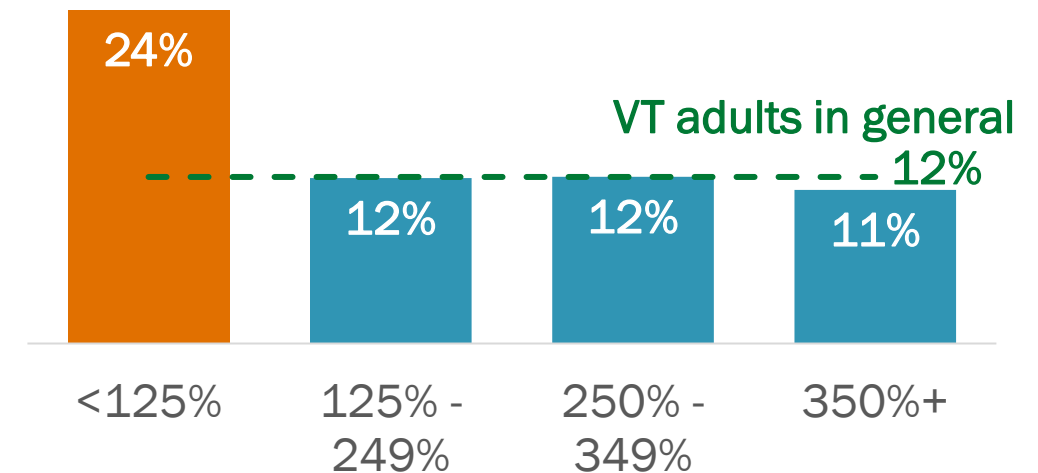


# Who has asthma in Vermont?

Adults who did not finish high school are more likely to have asthma than adults in general.

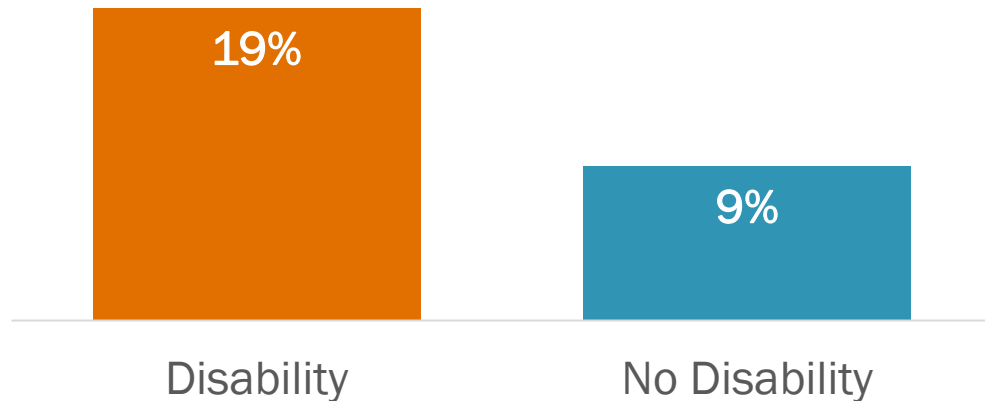


Adults with an income less than 125% of the federal poverty level are more likely to have asthma than adults in general.

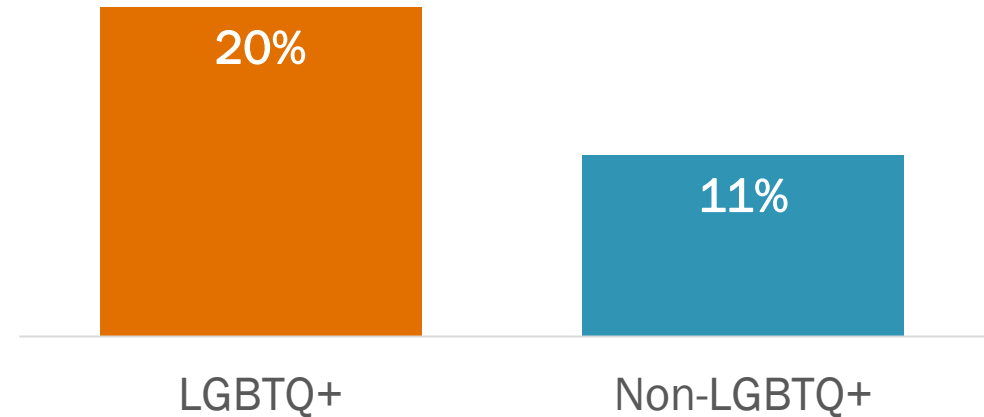


# Who has asthma in Vermont?

**Adults with a disability** are more likely to have asthma than **adults without a disability**.

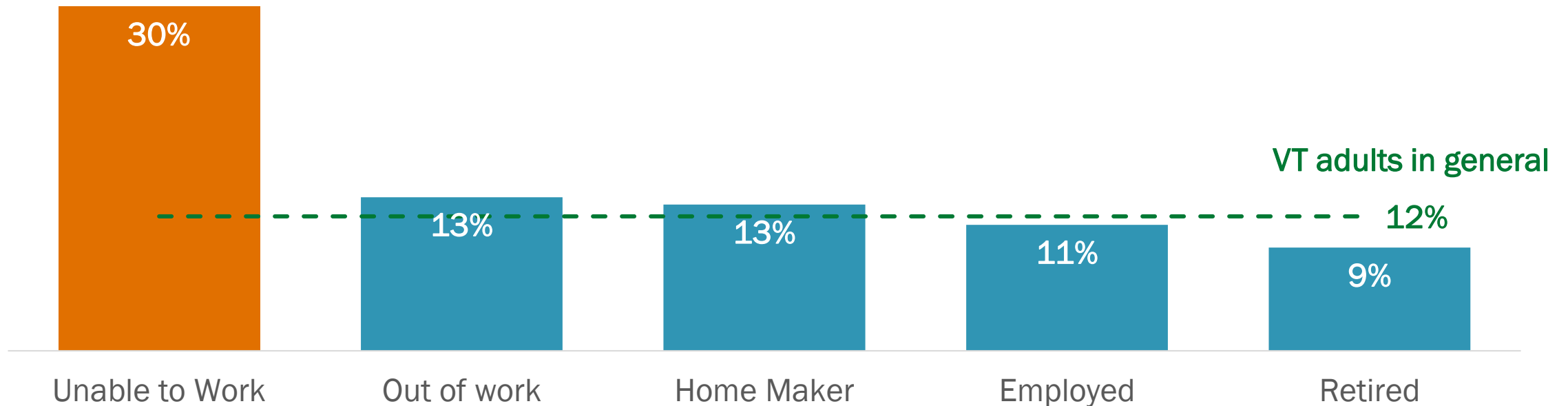


**LGBTQ+ adults** are more likely to have asthma than **non-LGBTQ+ adults**.



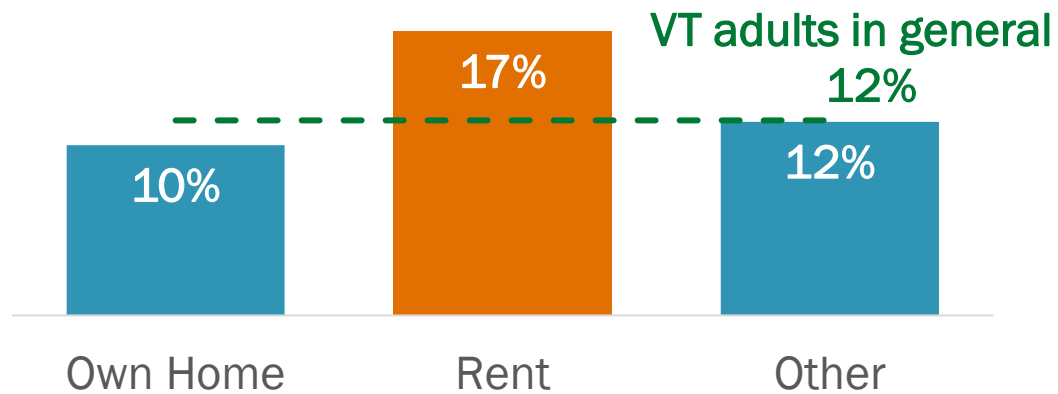
# Who has asthma in Vermont?

Adults who are unable to work are more likely to have asthma than adults in general.

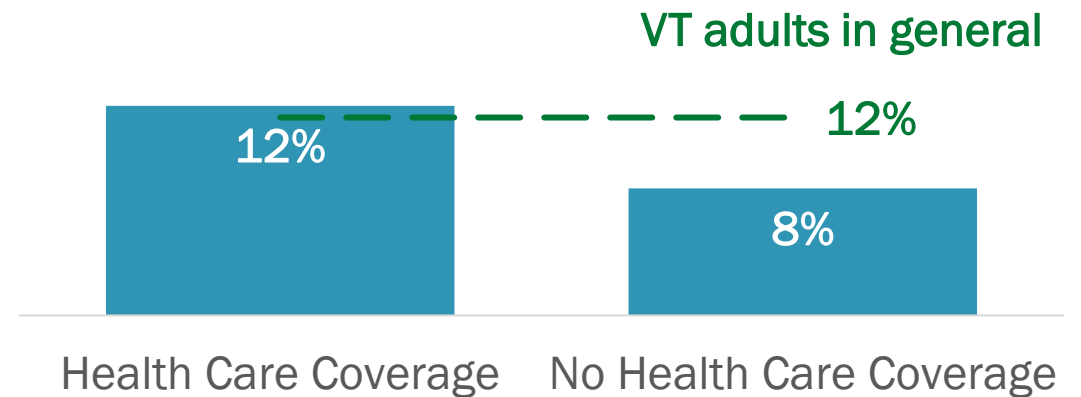


# Who has asthma in Vermont?

Adults who rent are more likely to have asthma than adults in general.

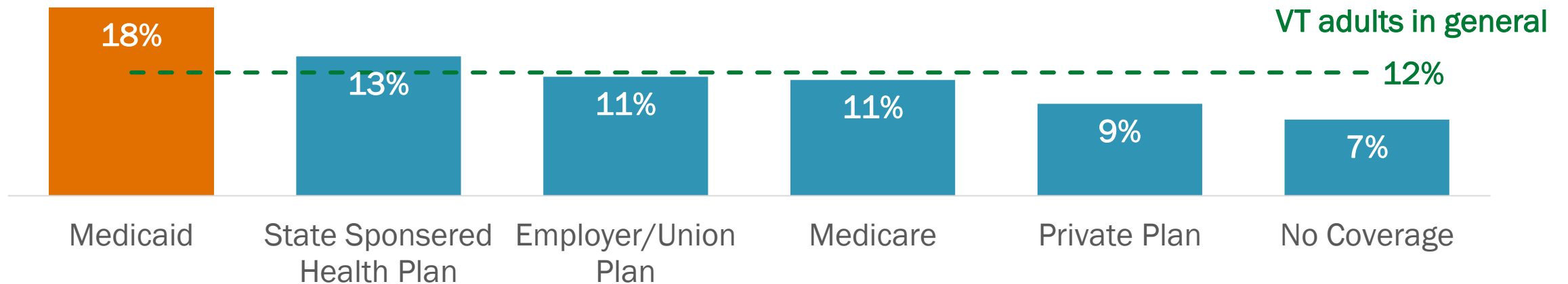


Adults with and without health care coverage have asthma at similar rates.



# Who has asthma in Vermont?

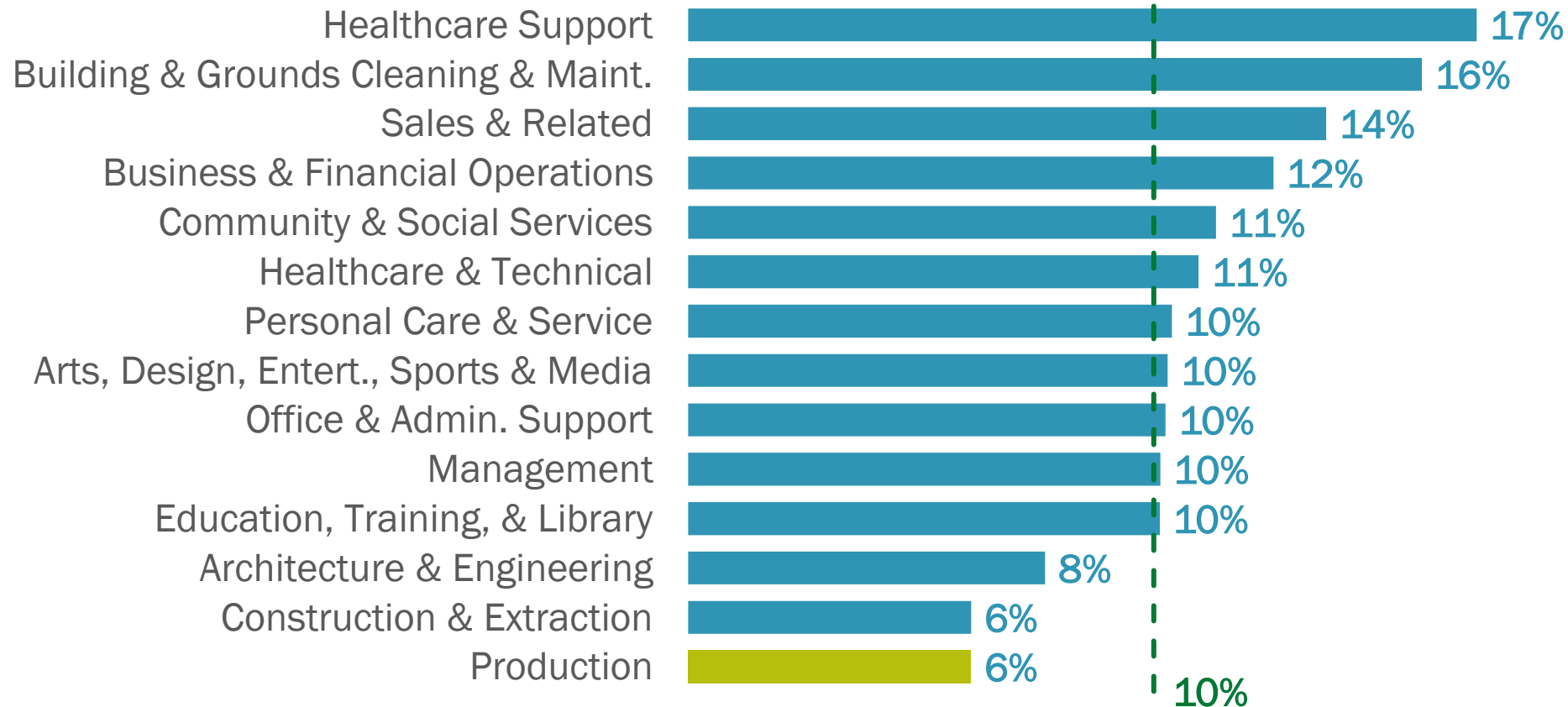
Adults insured by Medicaid are more likely to have asthma than adults in general.



# Who has asthma in Vermont?

Adults with an occupation in production are less likely to have asthma than employed adults in general.

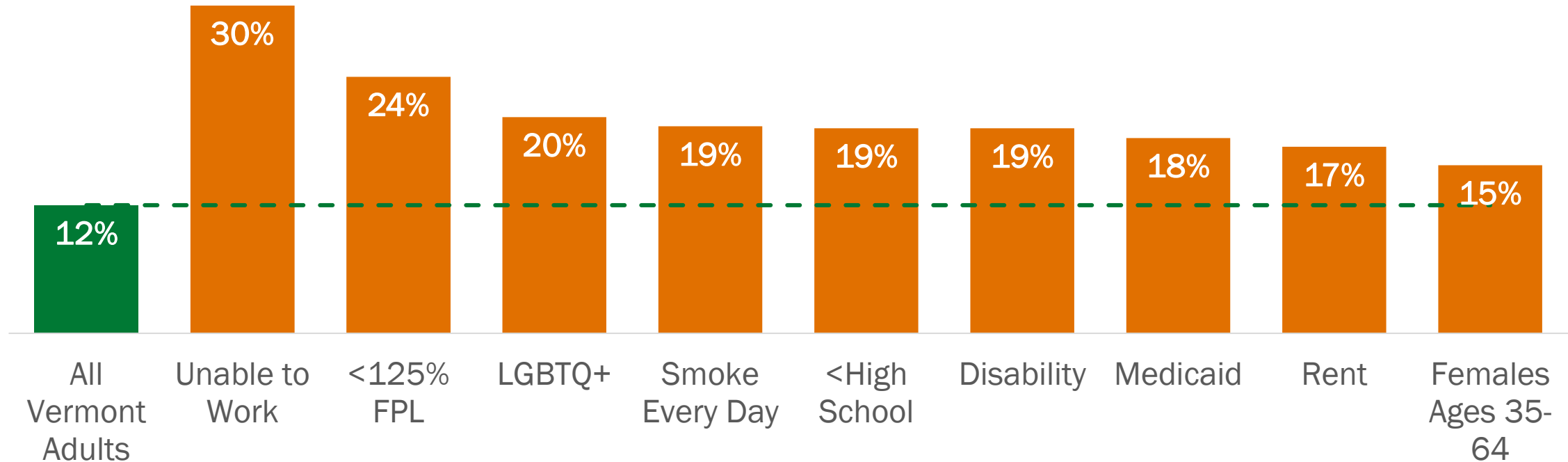
Employed VT adults in general





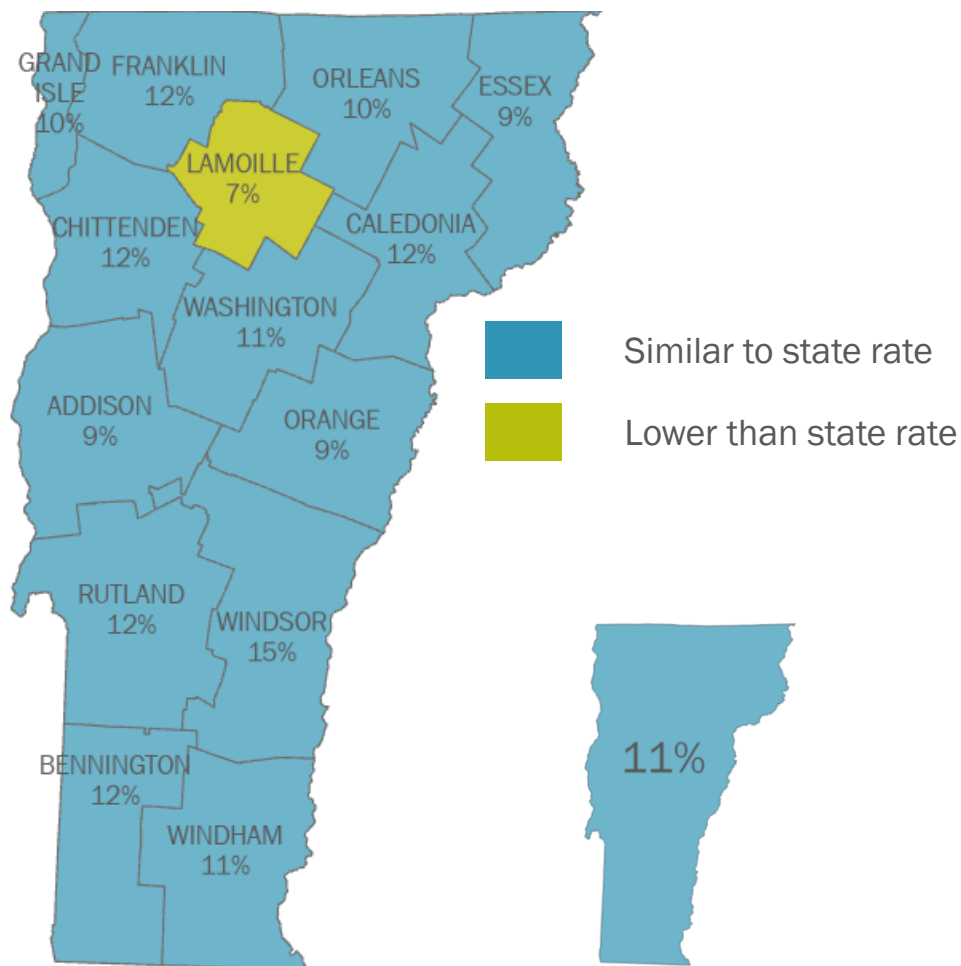


Adult populations with rates of current asthma that are higher than the **statewide rate**.

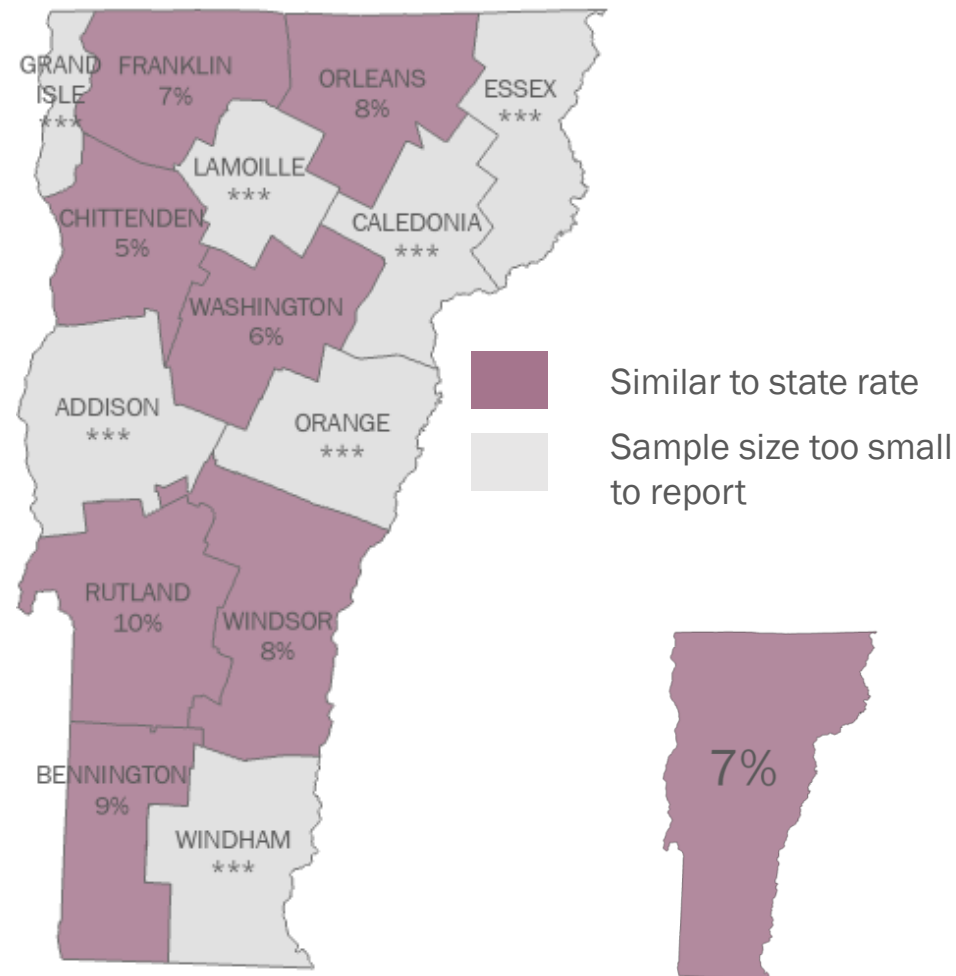




**Adults in Lamoille County are less likely to have current asthma than in Vermont as a whole.**

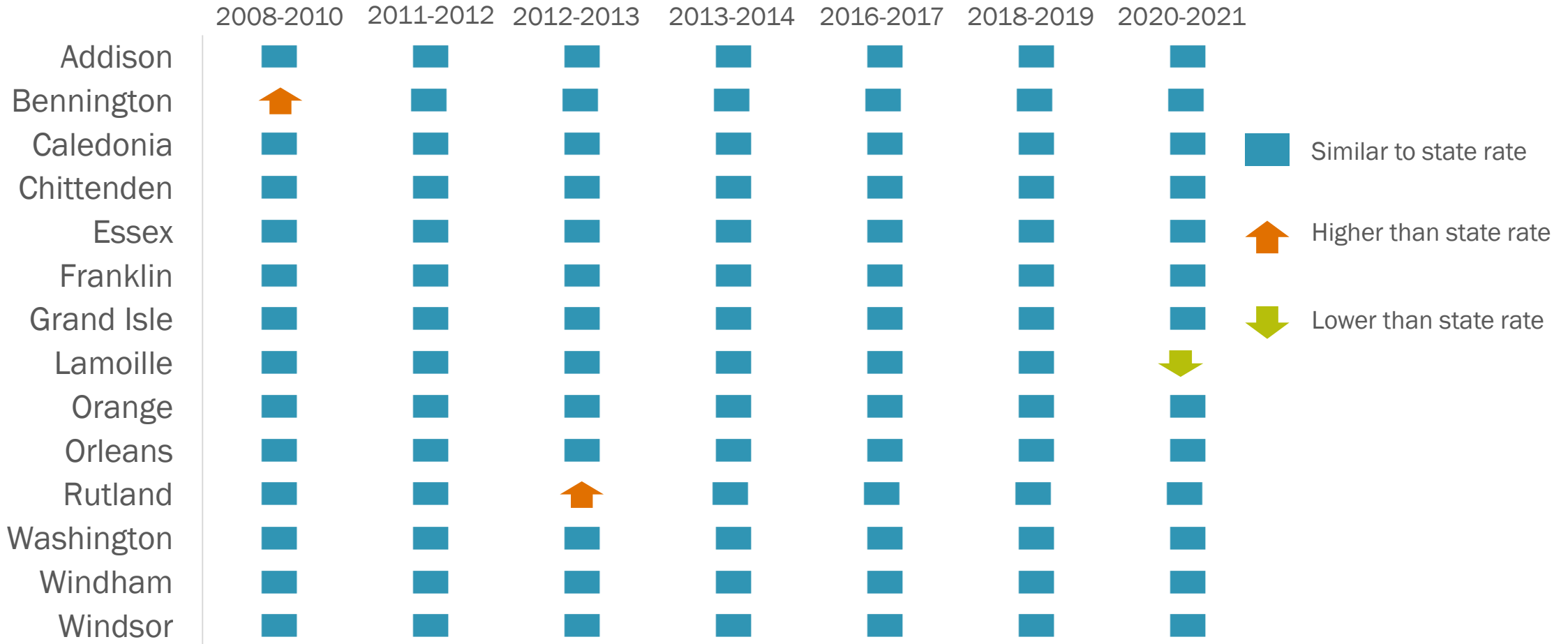


**Current child asthma prevalence in reportable counties is like that of Vermont as a whole.**



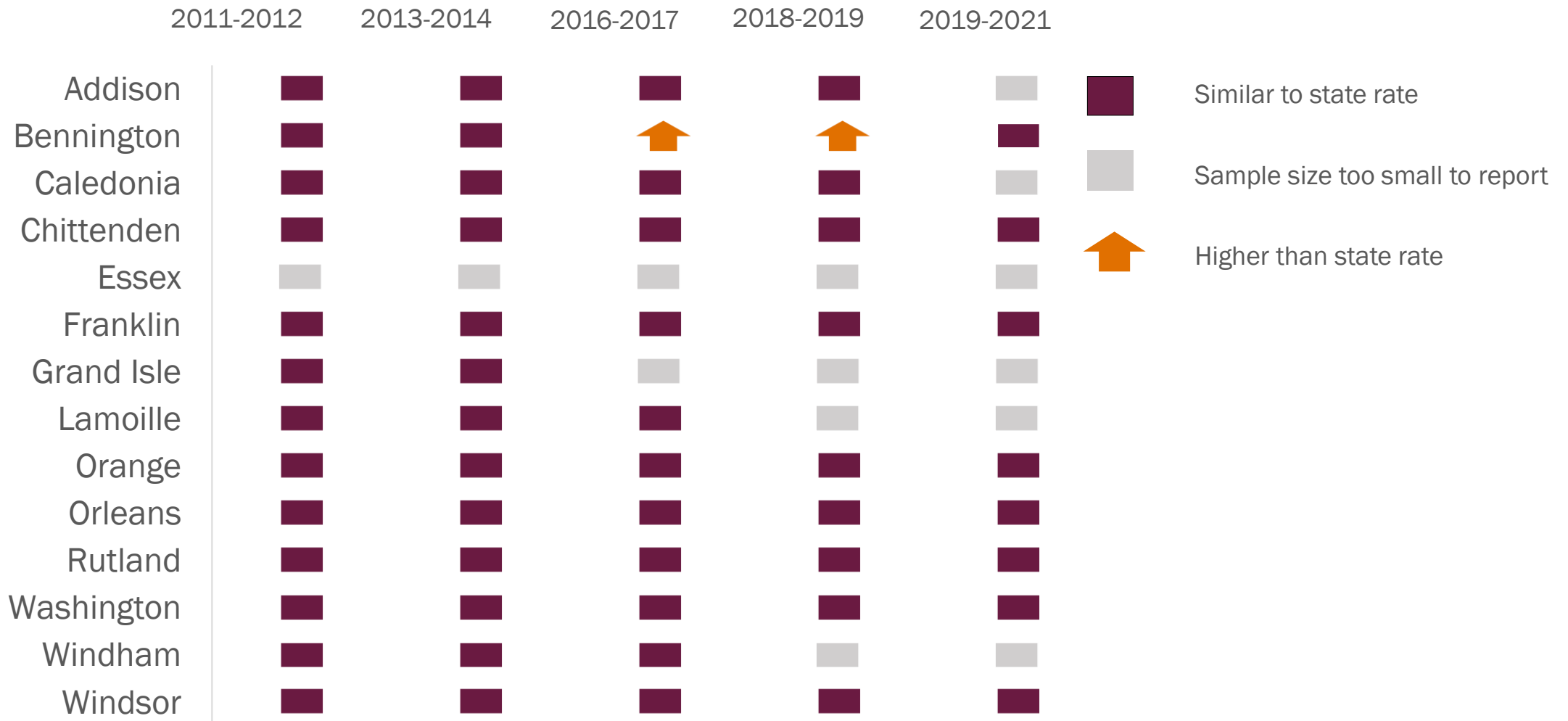


# In recent years, Vermont counties have had a similar or lower adult asthma prevalence than the statewide rate.



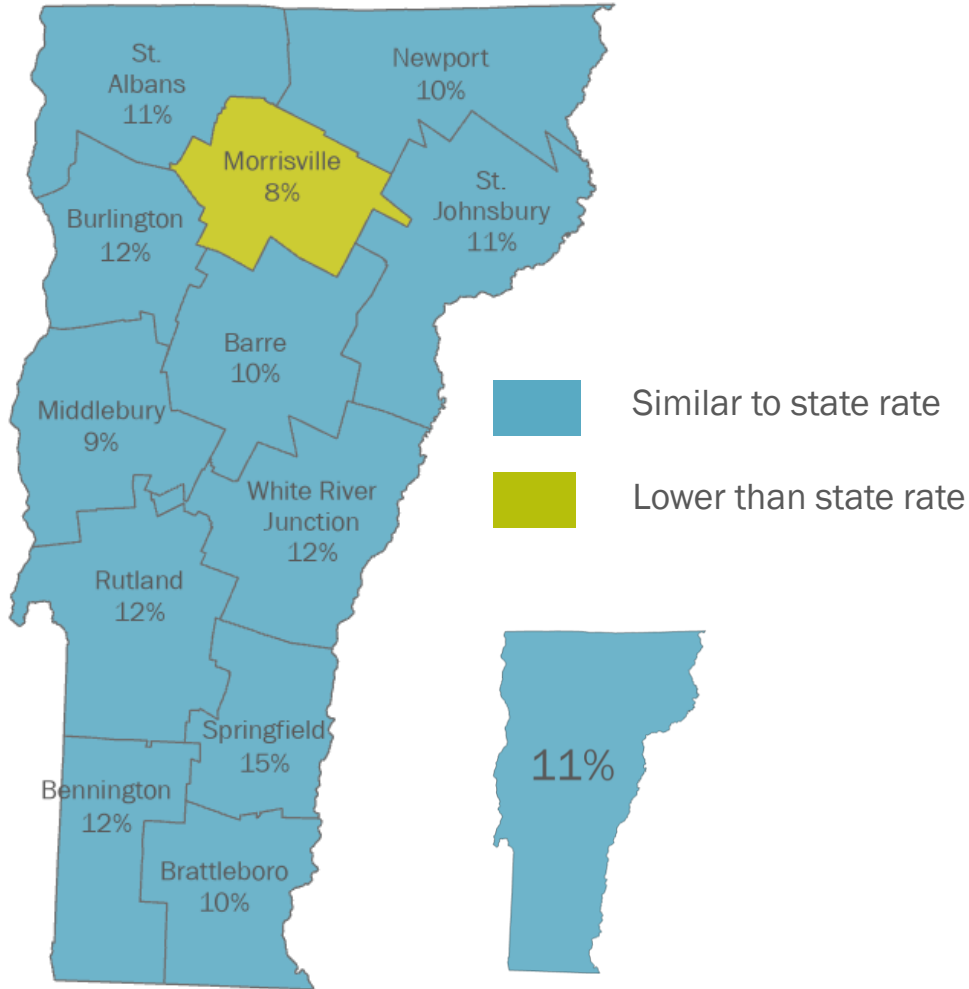


# Child asthma rates in Bennington were higher than the state rate until 2019-2021.

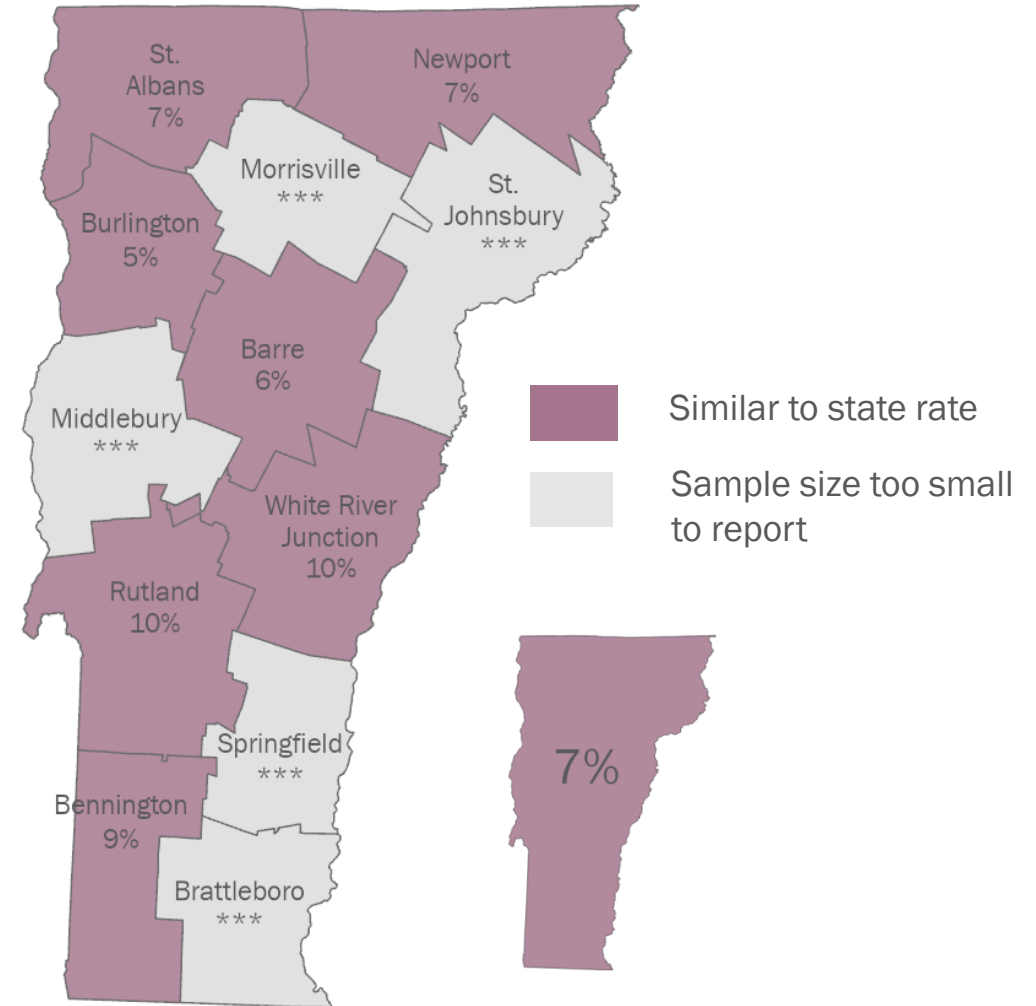




**Current adult asthma prevalence in Morrisville's health district is lower than Vermont as a whole.**

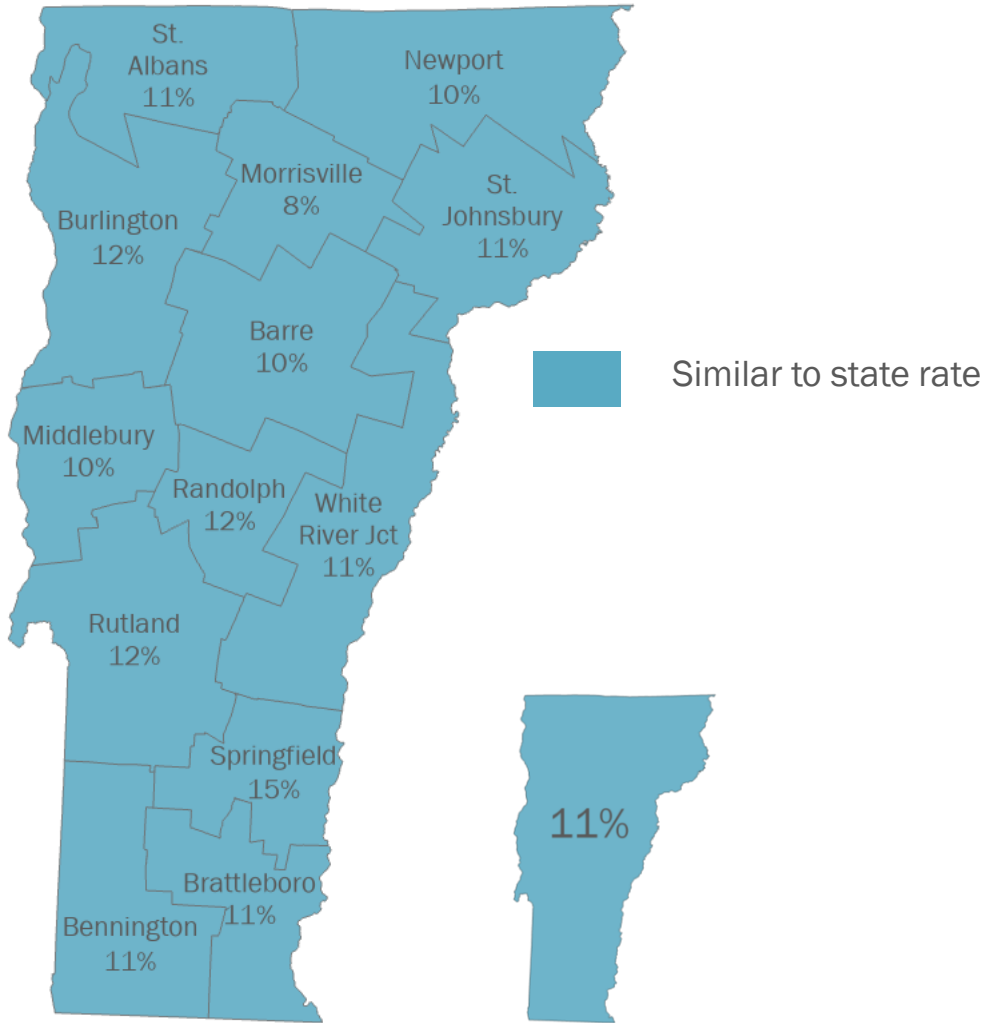


**Current child asthma prevalence in most health districts is similar to Vermont as a whole.**

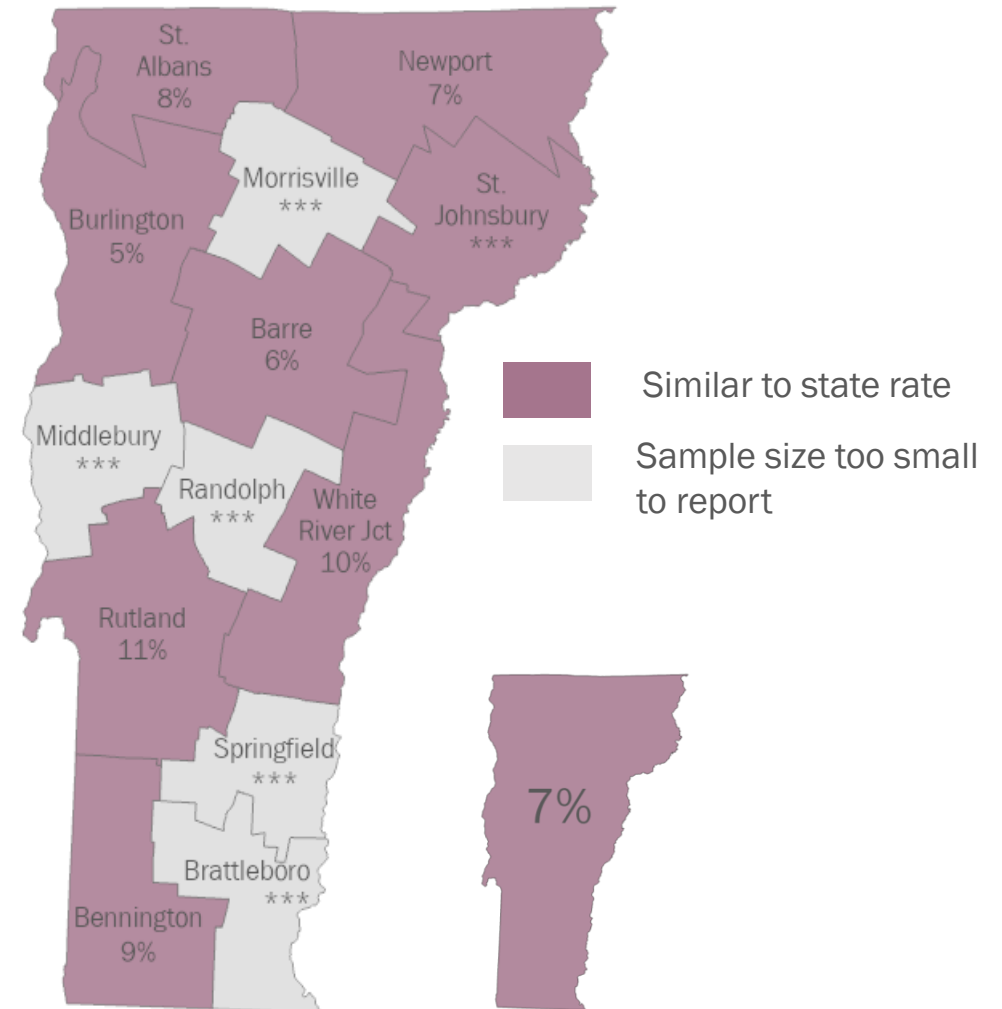




**Current adult asthma prevalence in each hospital service area is like that of Vermont as a whole.**



**Current child asthma prevalence in each hospital service area is like that of Vermont as a whole.**

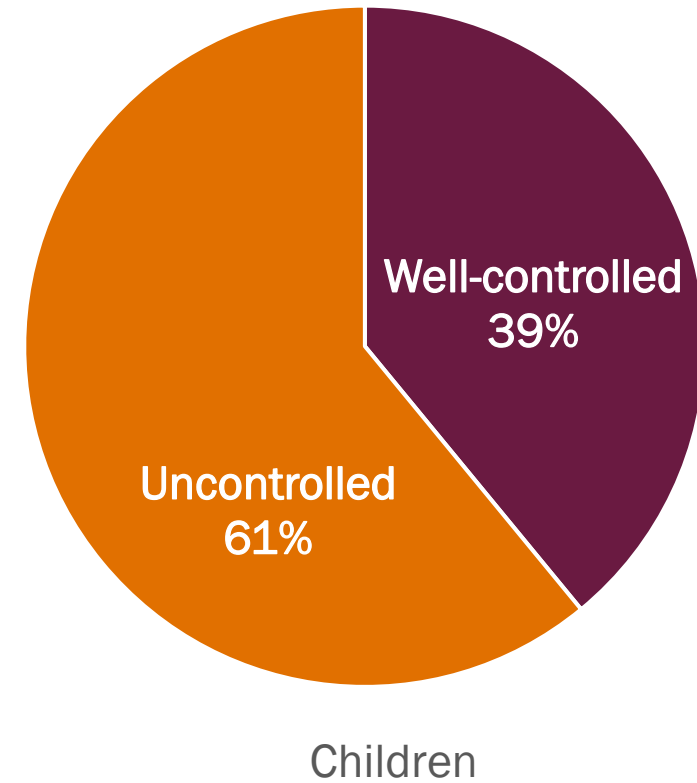
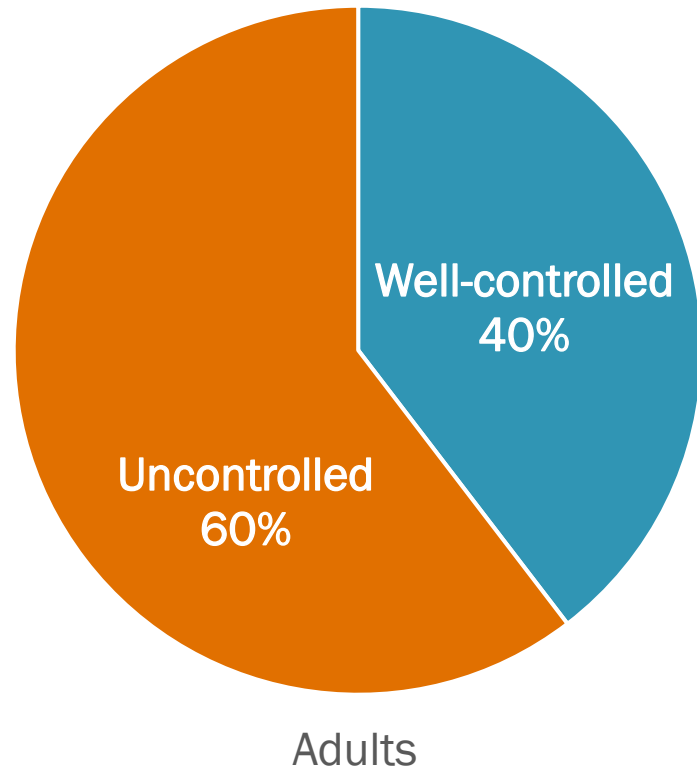


# Indications of Poor Asthma Management

How are Vermonters affected by poor asthma management?

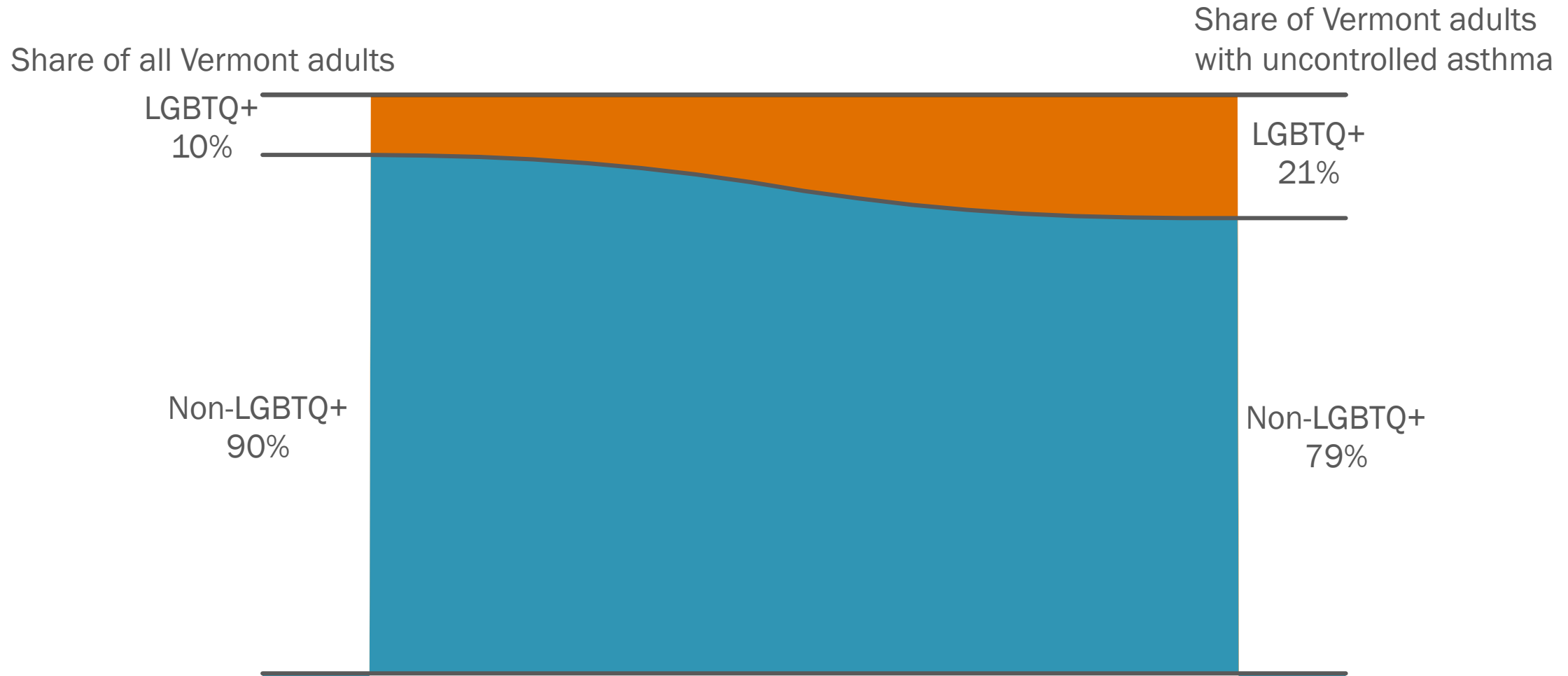
# How well-controlled is asthma in Vermont?

Most adults and children with asthma have **uncontrolled asthma**.

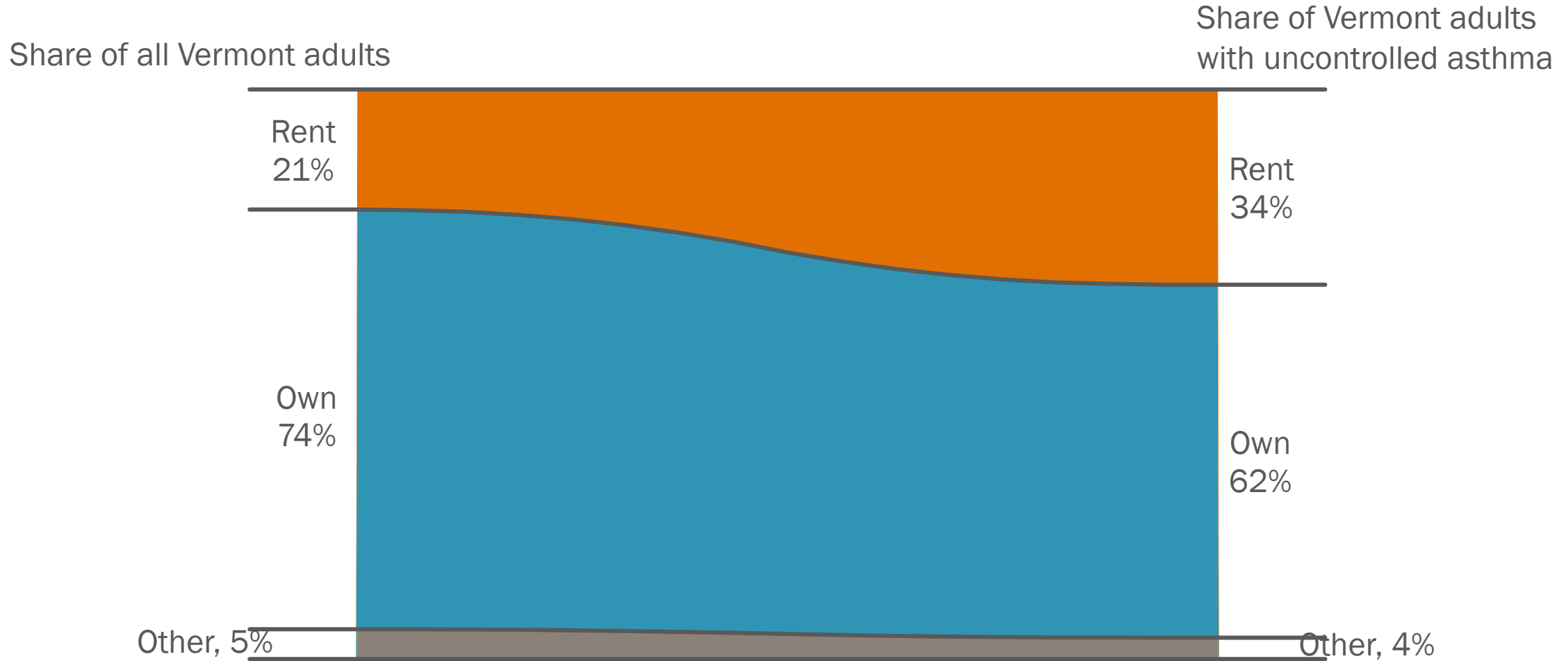




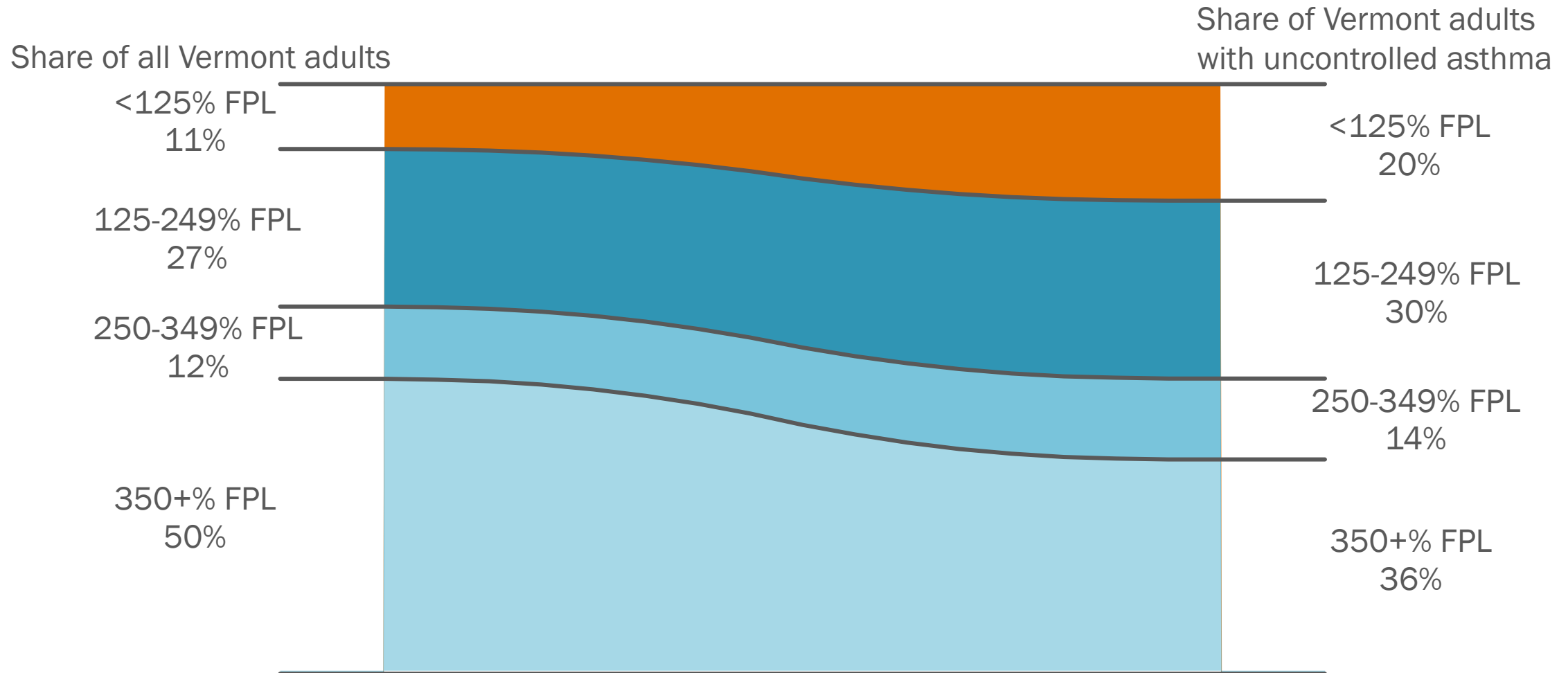
# LGBTQ+ Vermonters have disproportionately high rates of uncontrolled asthma.



# Vermonters who rent have disproportionately high rates of uncontrolled asthma.

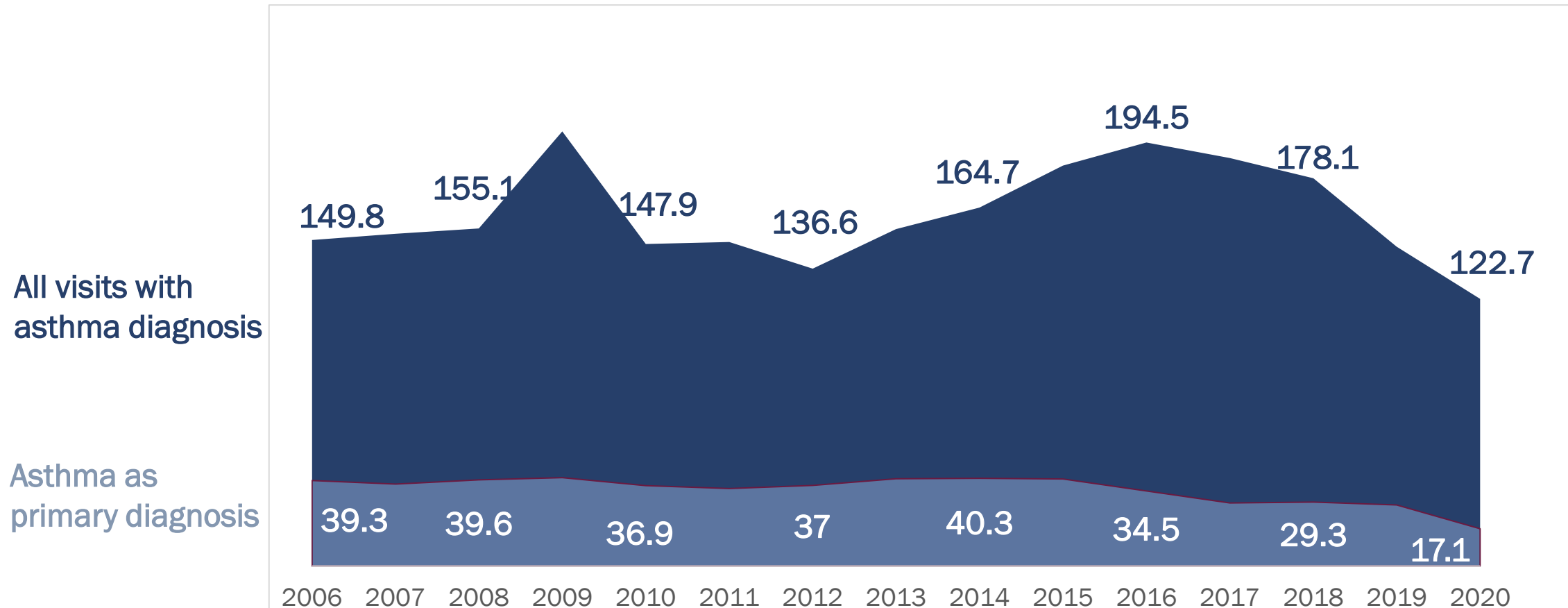


# Vermonters with an income less than 125% of the federal poverty level (FPL) have disproportionately high rates of uncontrolled asthma.



# Rates of Emergency Department visits for asthma have been decreasing since 2016. Rates fell sharply in 2020 due to COVID-19.

Emergency Department Visits for Asthma (rate per 10,000)



Rates for primary cause of asthma in 2014 and 2020 may include up to 10 visits each year that are not included here.

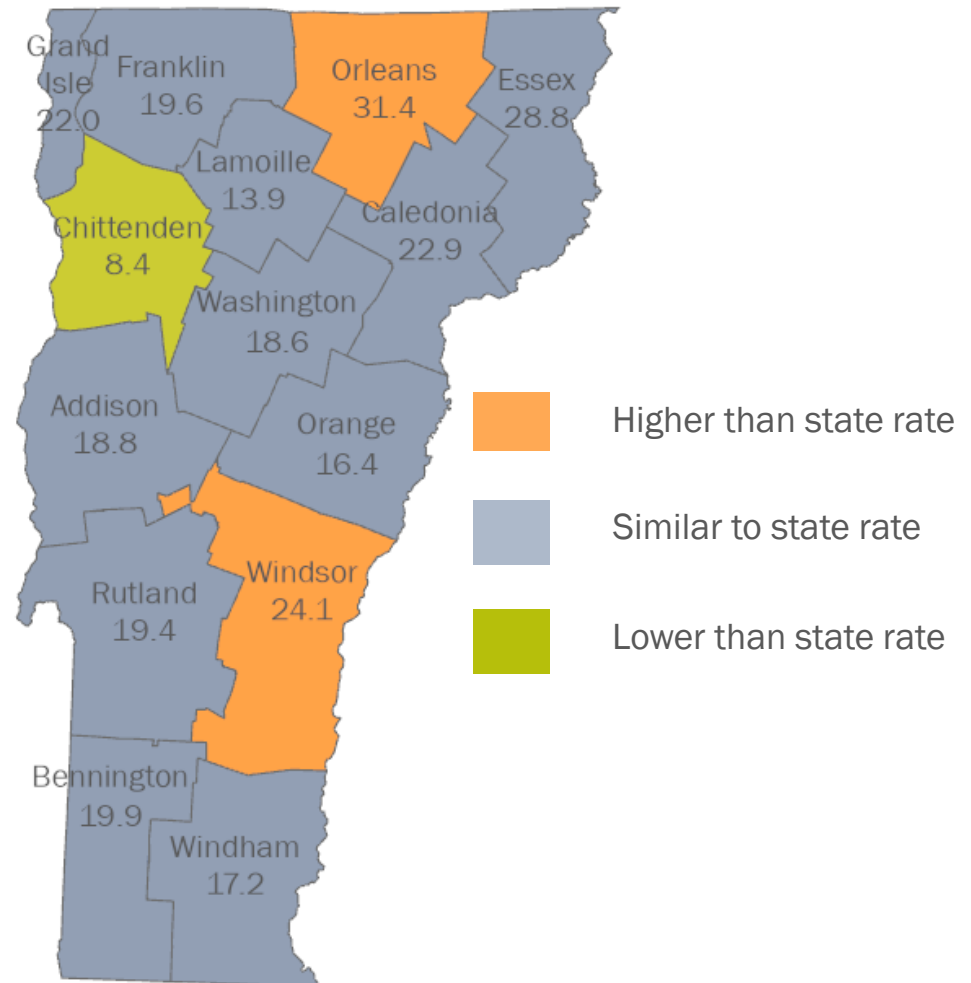
Vermont Department of Health Source: VUHDDS 2006-2020

# Who is visiting Emergency Departments for their asthma?

Emergency Department visits with a primary cause of asthma per 10,000 Vermonters

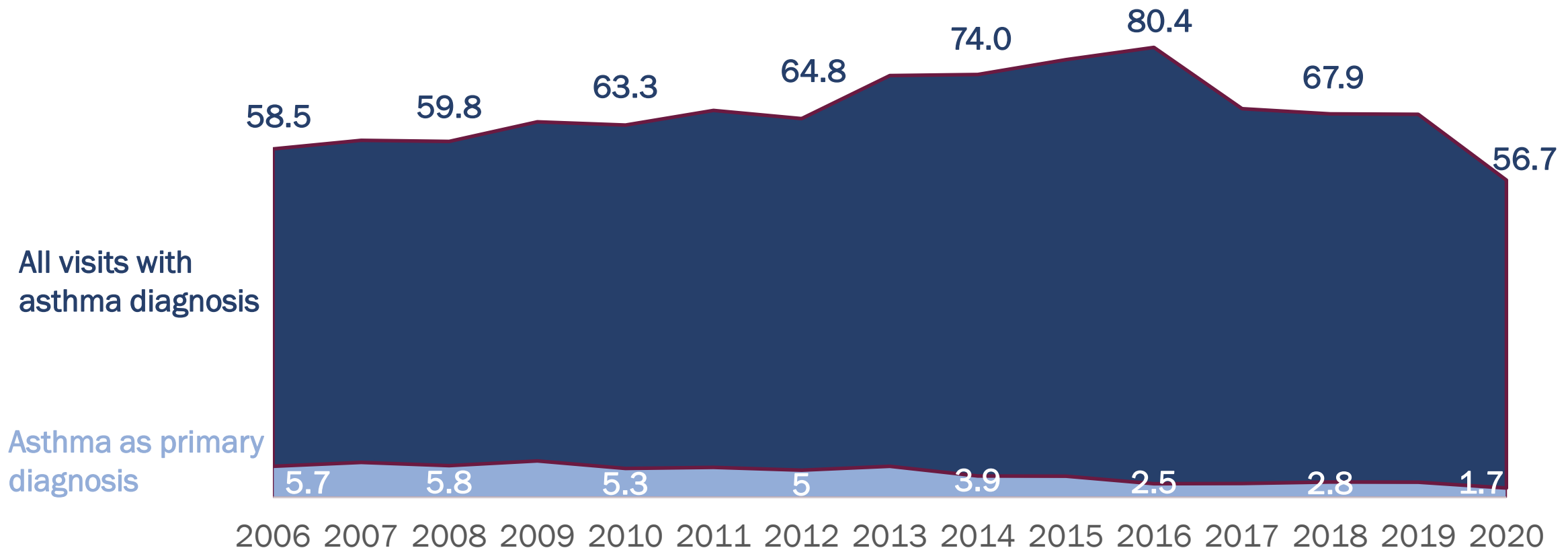
Vermonters in **Orleans** and **Windsor Counties** are more likely to visit the Emergency Department with a primary diagnosis of asthma than Vermonters in general.

Vermonters in **Chittenden County** are less likely to visit the Emergency Department with a primary diagnosis of asthma.



# The rate of hospitalizations for asthma has been decreasing since 2016. Rates fell sharply in 2020 due to COVID-19.

Hospital Discharges with an Asthma Diagnosis (rate per 10,000)



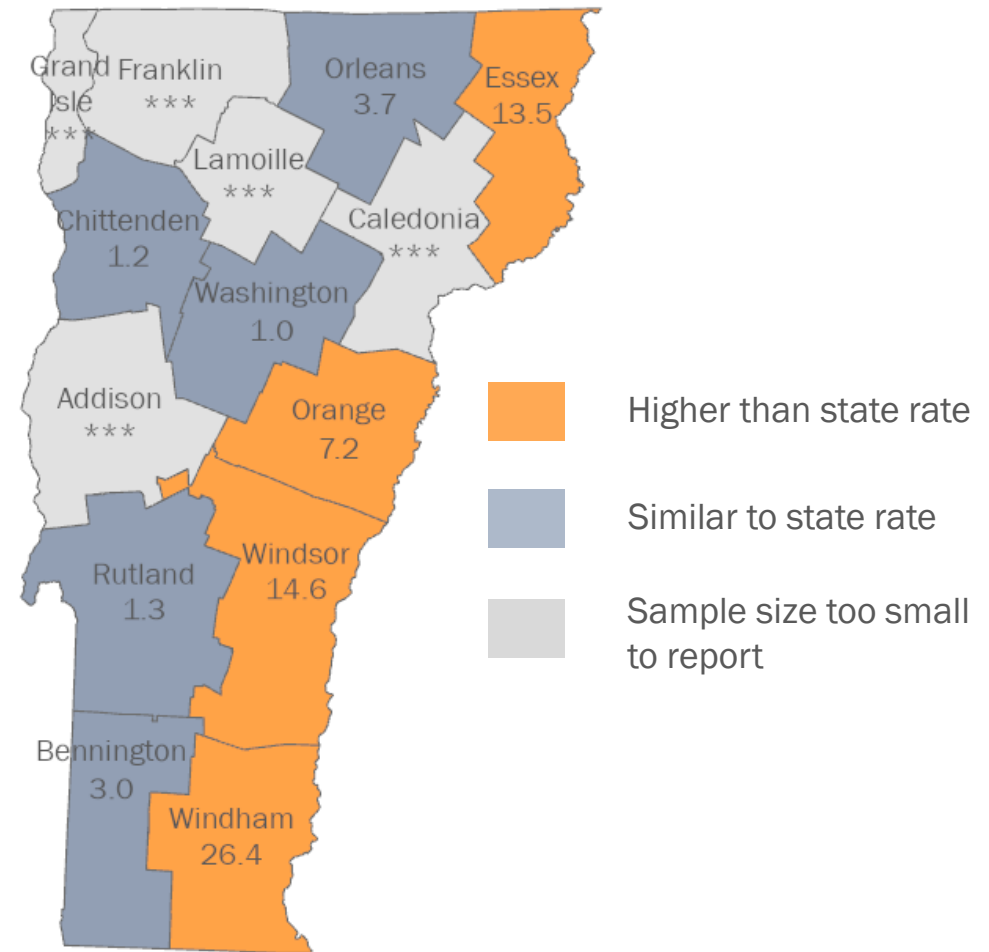
Rates for primary cause of asthma from 2014 to 2020 may include up to 10 visits each year that are not included here.

Vermont Department of Health Source: VUHDDS 2006-2020

# Who is being hospitalized for asthma in Vermont?

Hospitalizations with a primary diagnosis of asthma per 10,000 Vermonters

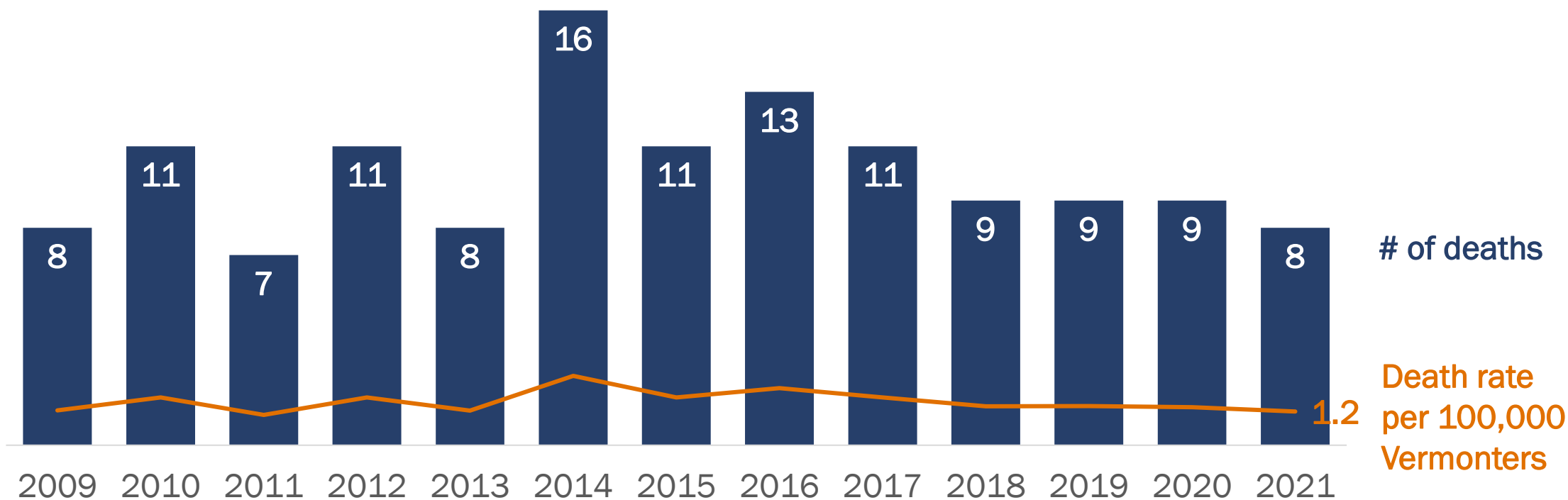
**Essex, Orange, Windsor and Windham counties** have higher hospitalization rates with a primary cause of asthma than the statewide rate.



# 131 Vermonters have died since 2009 due to a primary cause of asthma.

The death rate in Vermont in 2021 is like previous years.

The death rate in 2021 is similar to the U.S. death rate of 1.1 per 100,000 people





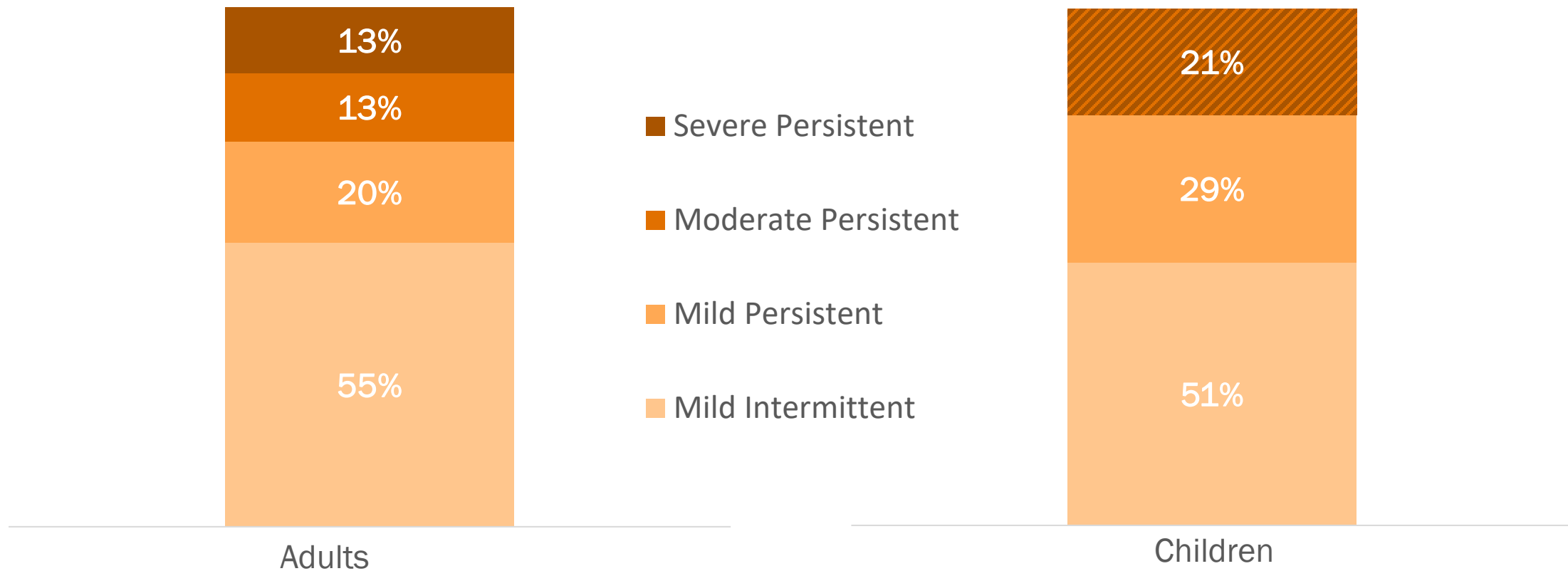
# Quality of Life

How does having current asthma affect Vermonters' quality of life?

# How severe is asthma in Vermont?

About 26% of adults have **moderate persistent** or **severe persistent** asthma.

About 21% of children have **moderate persistent** or **severe persistent** asthma.

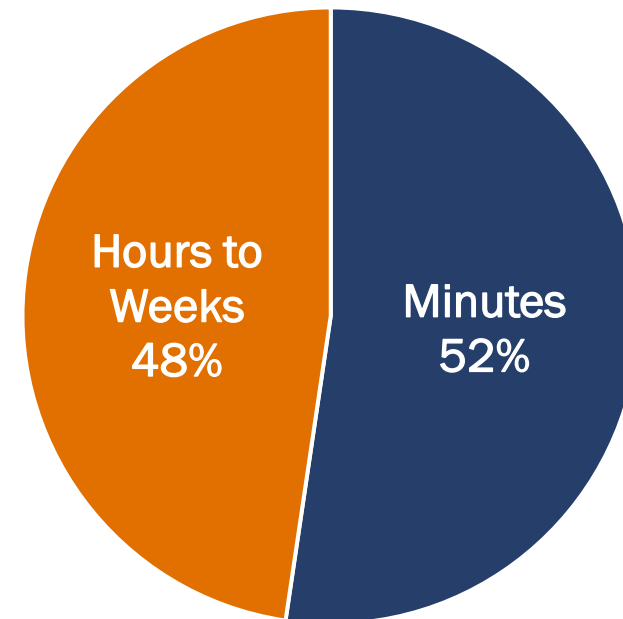
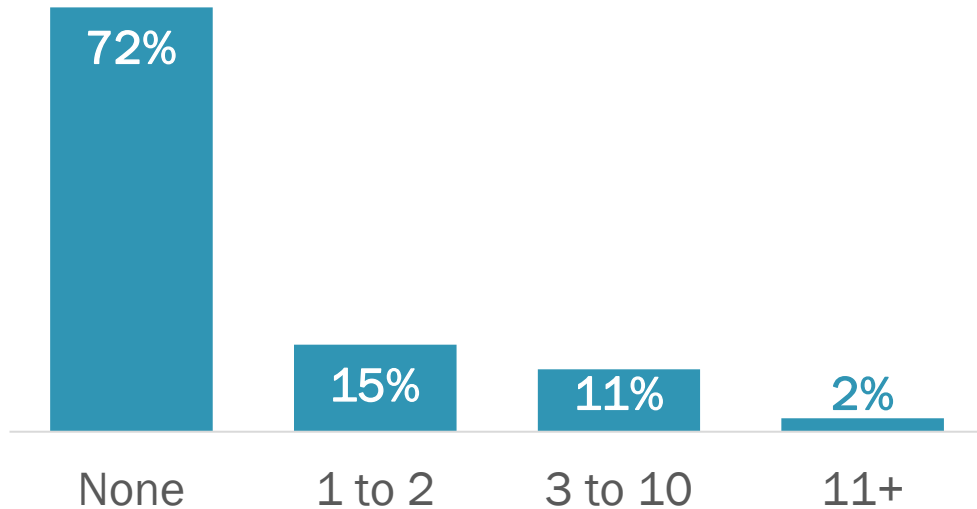




**43%** of adults with current asthma had an exacerbation in the past year.

28% of adults with current asthma had one or more exacerbations in the past three months.

The duration of the most recent exacerbation lasted for **hours, days or weeks** for almost half of adult respondents.

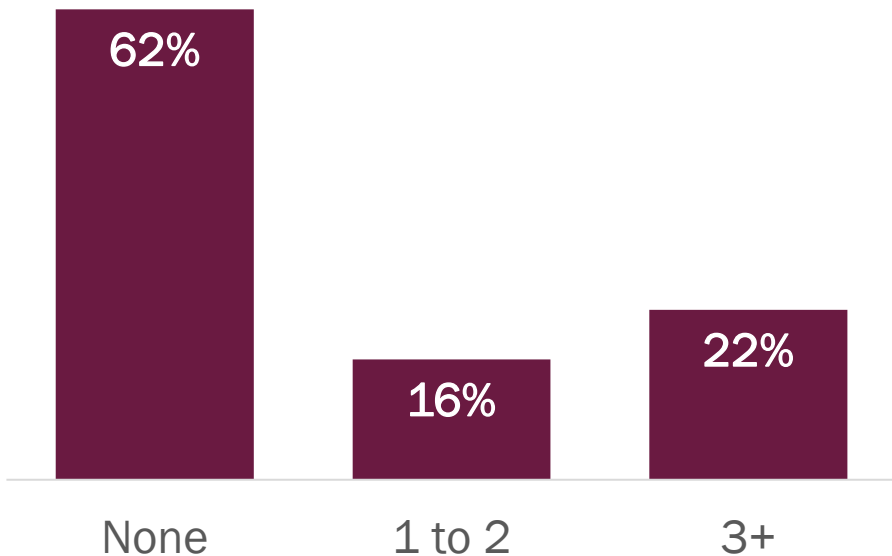




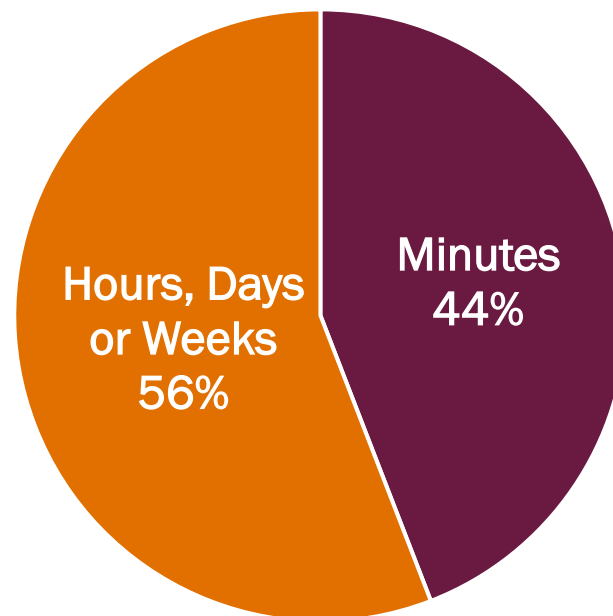
51%

of children with current asthma had an exacerbation in the past year.

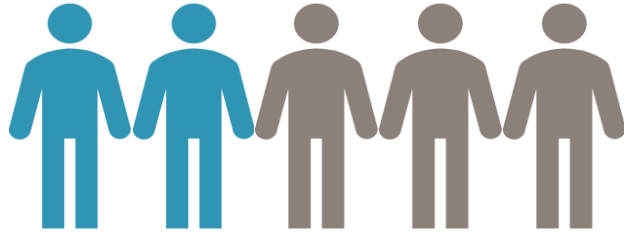
38% of children with asthma had one or more exacerbation in the past three months.



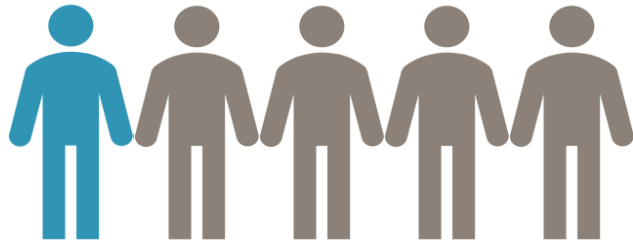
The duration of the most recent exacerbation lasted for **hours, days or weeks** for more than half of children with asthma.



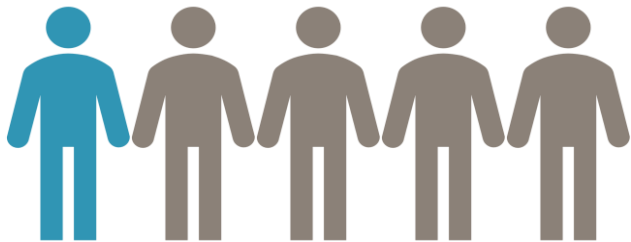
# How are adults with current asthma affected by their asthma?



About **2** in 5 (41%) adults report activity limitation in the last month.

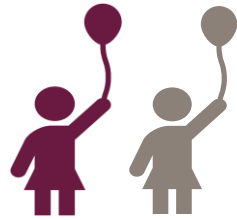


About **1** in 5 (21%) adults report sleep disruption in the last month.

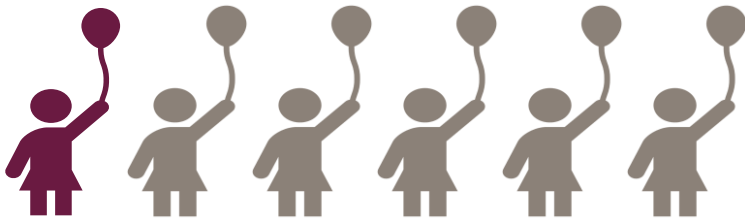


About **1** in 5 (19%) adults report missing at least one day of work due to their asthma in the last year.

# How are children with current asthma affected by their asthma?



**Almost 1 in 2 (47%)** children had activity limitation due to their asthma in the last month.

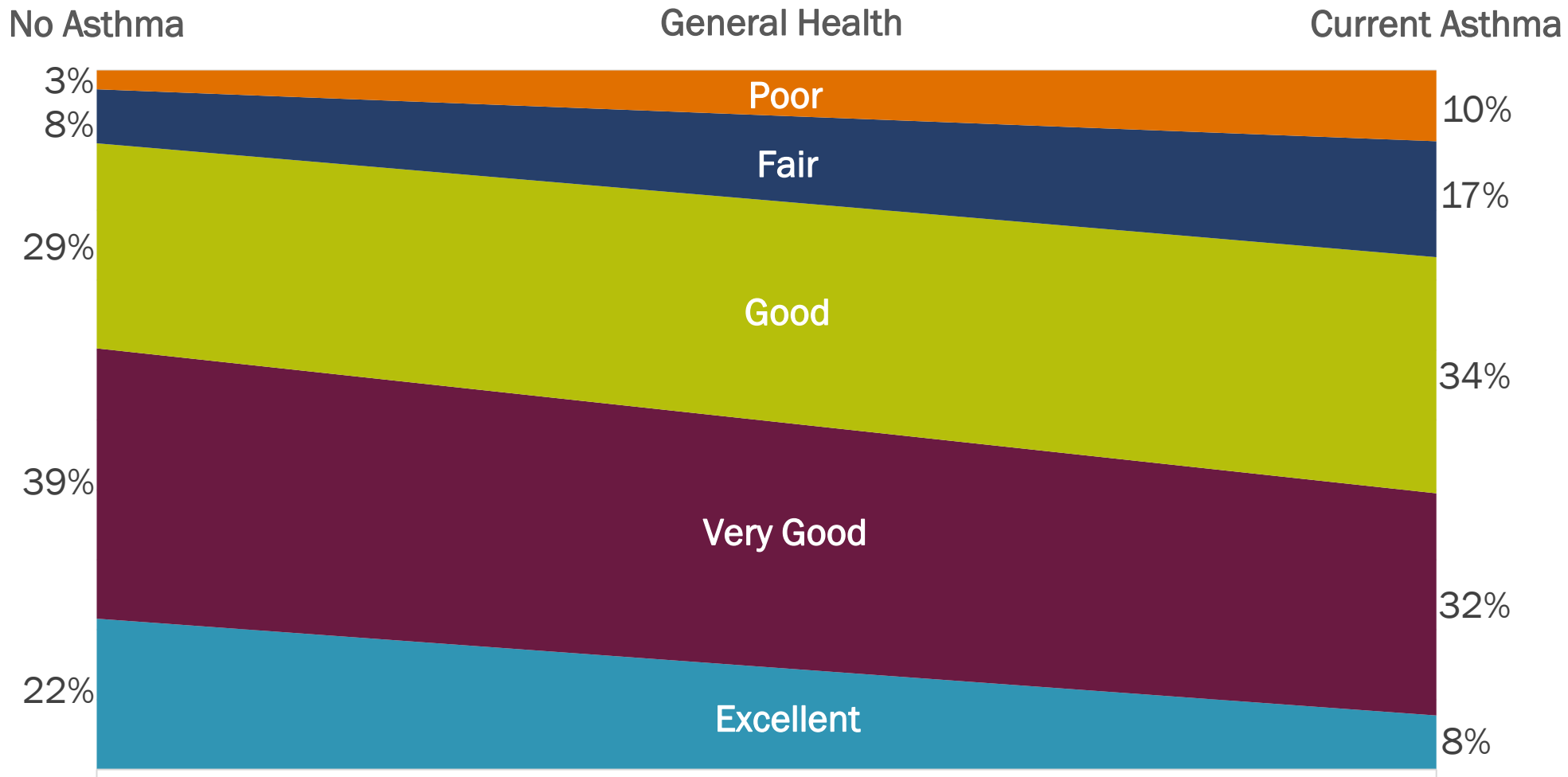


**About 1 in 6 (17%)** children had sleep disruption due to their asthma in the last month.



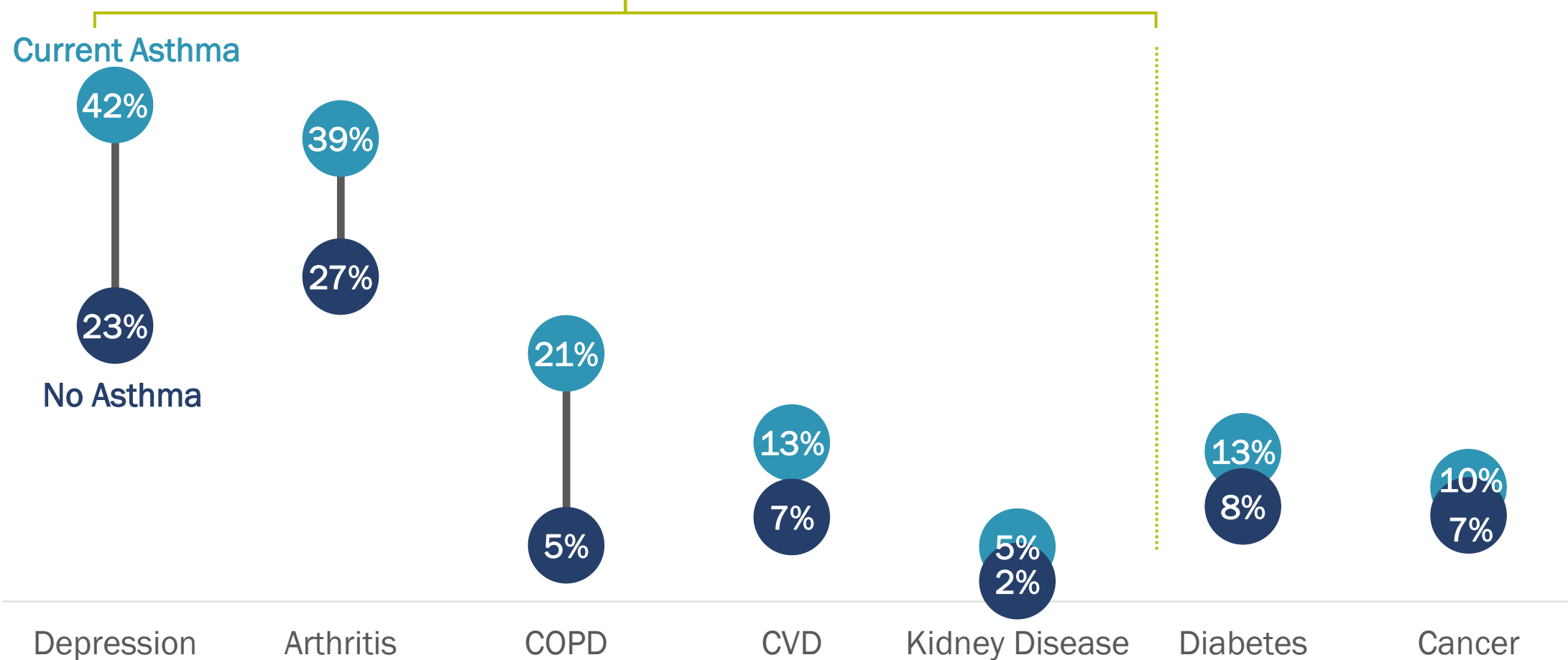
**Almost 1 in 3 (29%)** children missed at least one day of school due to their asthma in the last 12 months.

# Adults with current asthma are more likely to rate their general health negatively than those without asthma.



# Vermonters **with current asthma** are more likely to have other chronic diseases than those **without current asthma**.

Significant difference between individuals with and those without current asthma.



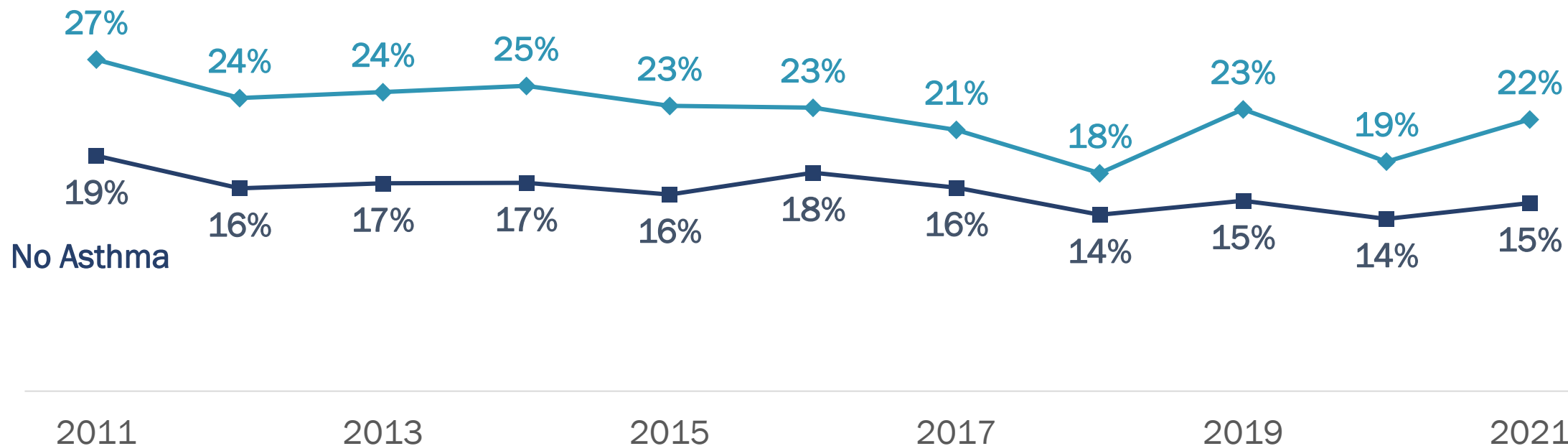


# Asthma Risk and Protective Factors

What factors increase and what factors decrease the risk of having or exacerbating asthma?

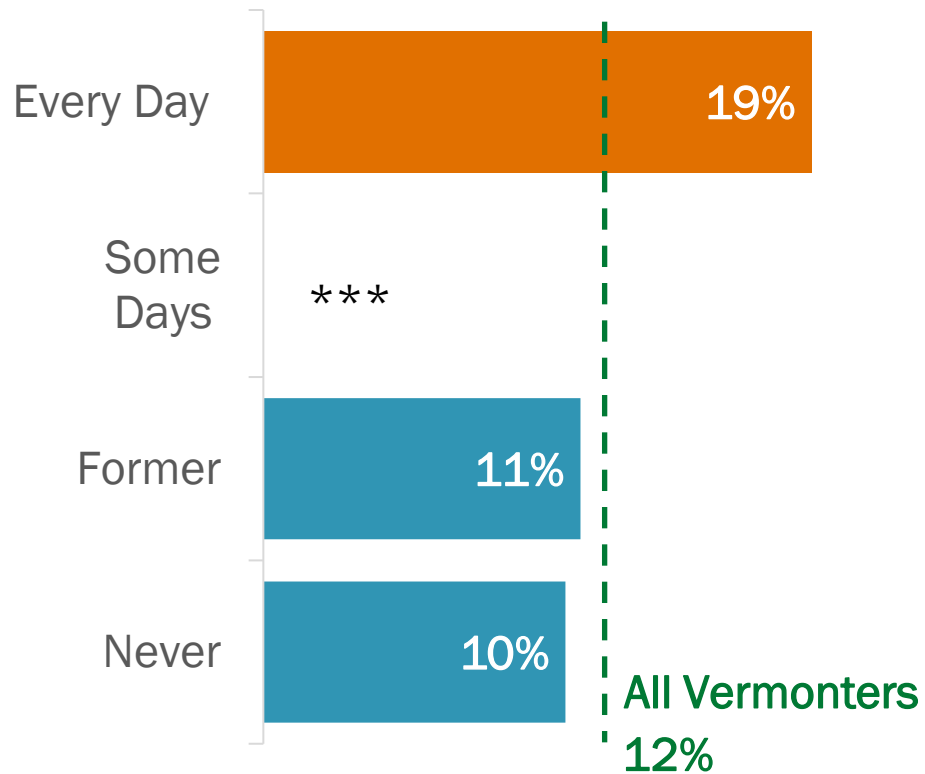
# In 2021, adults with current asthma were more likely to smoke than adults without asthma. ‡

## Current Asthma

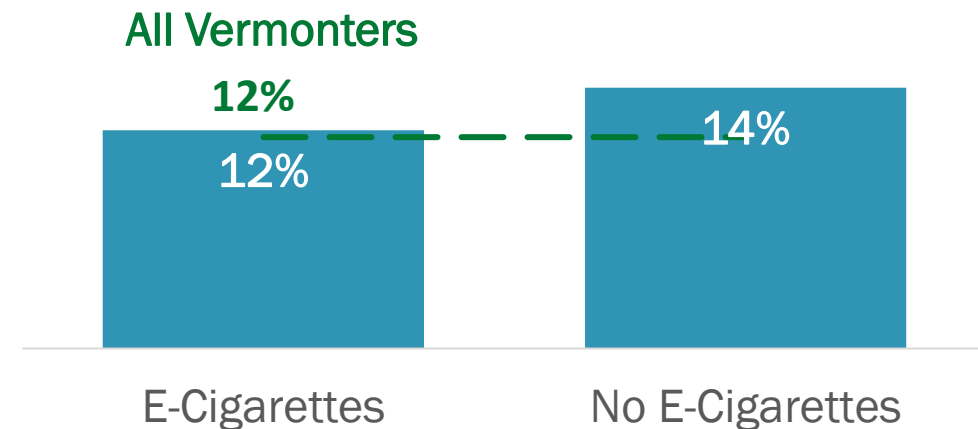


# Cigarette and E-Cigarette Use

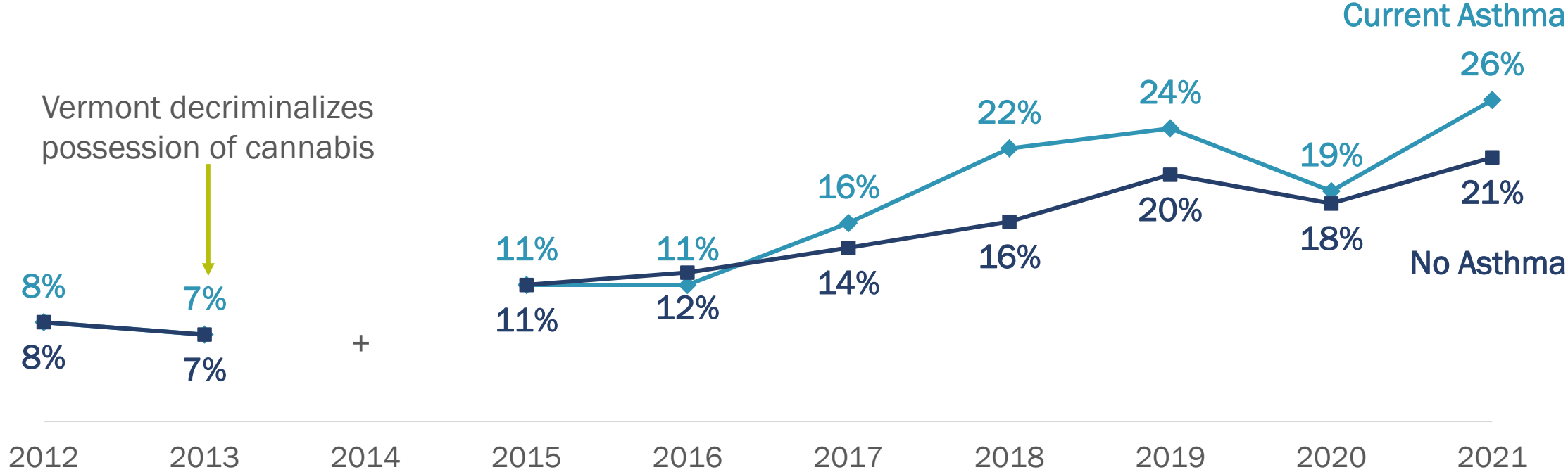
**Adults who smoke every day** are more likely to have current asthma than Vermonters in general.



Vermont adults who use e-cigarettes have asthma at a similar rate as those who do not use e-cigarettes.



# The rate of cannabis use among those **with current asthma** was similar to the rate among those **without current asthma** in 2021.

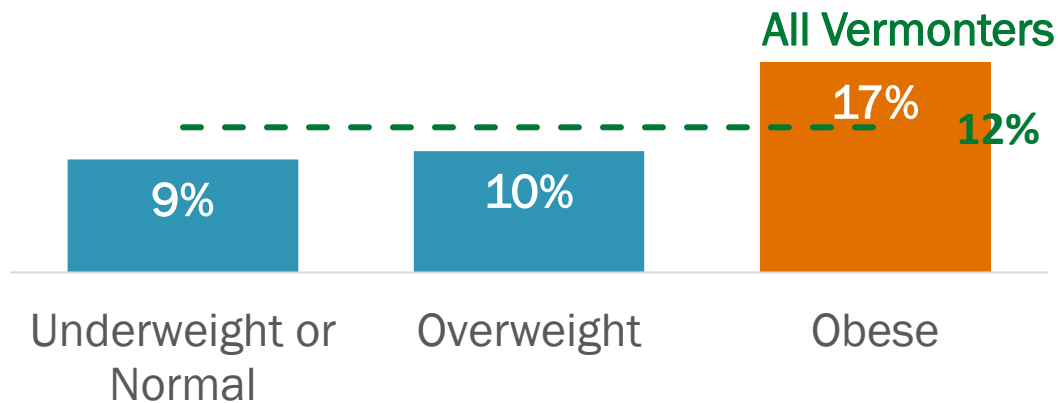


Vermont Department of Health Source: 2012-2021 BRFSS

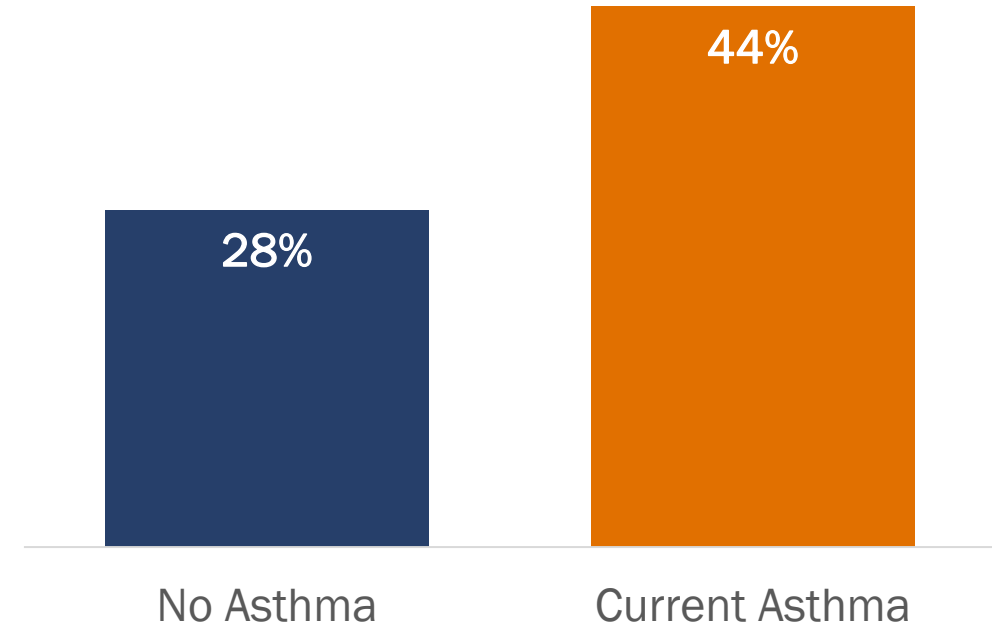
+ Data not available for 2014.

# Vermonters with obesity are at higher risk for asthma.

The rate of asthma is higher among **adults who have obesity** than the **Vermont population in general**.

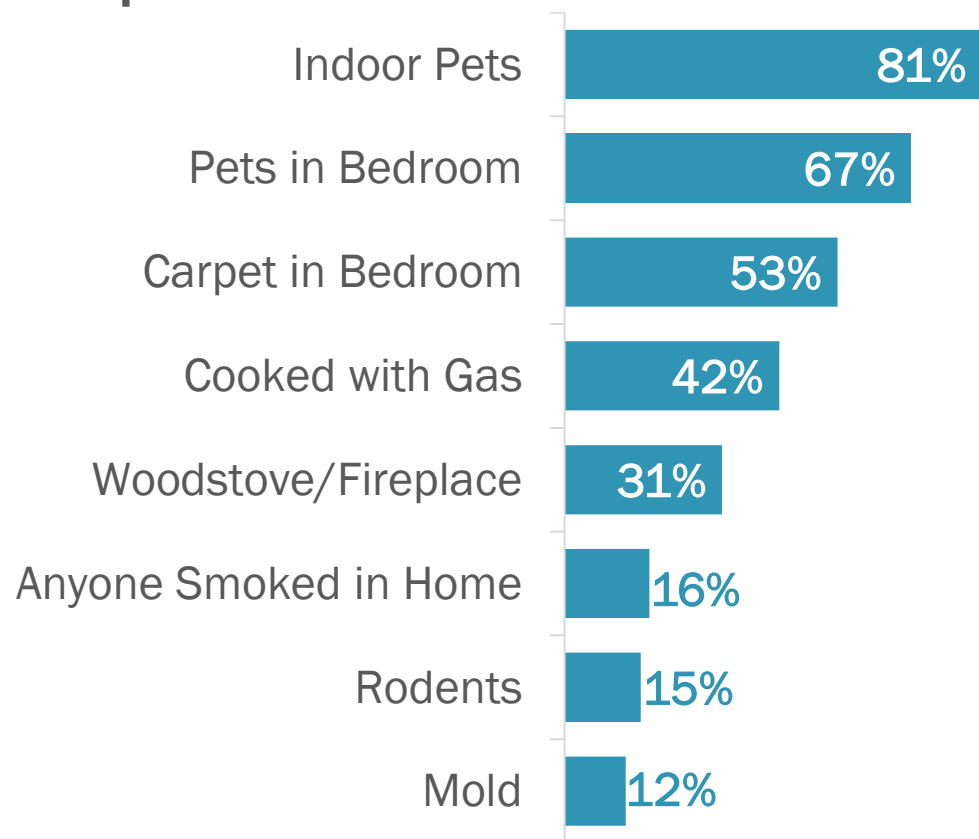


The rate of obesity is higher among **adults with current asthma** than among those **without asthma**.<sup>‡</sup>

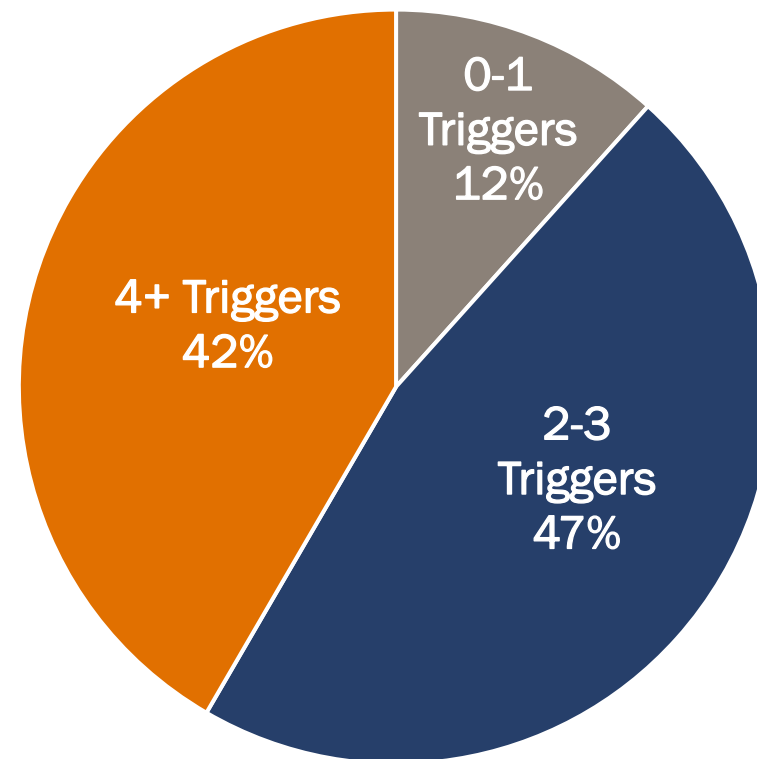


# What environmental factors are adults with current asthma exposed to in the home?

More than half of adults report indoor pets, carpet in the bedroom and pets in the bedroom.



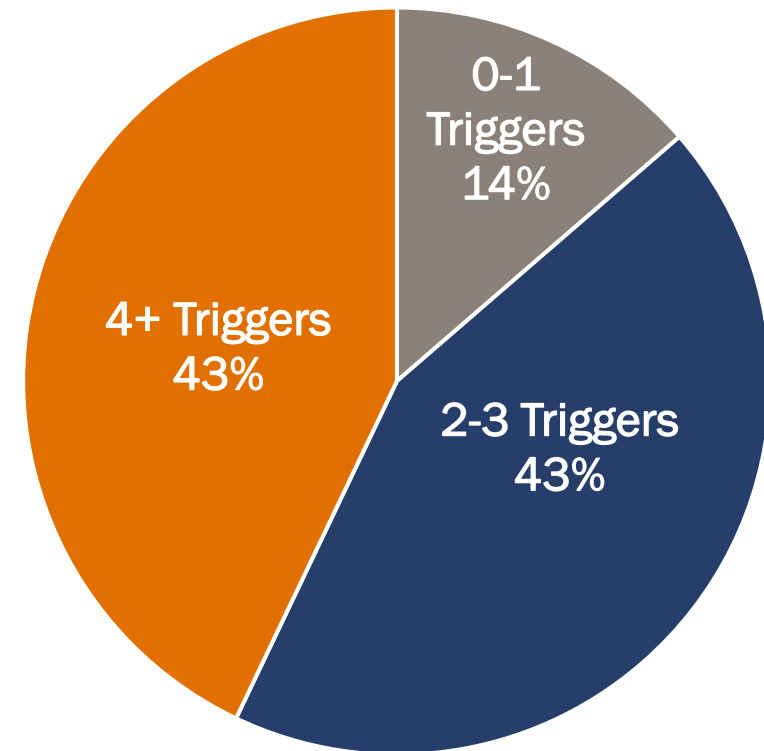
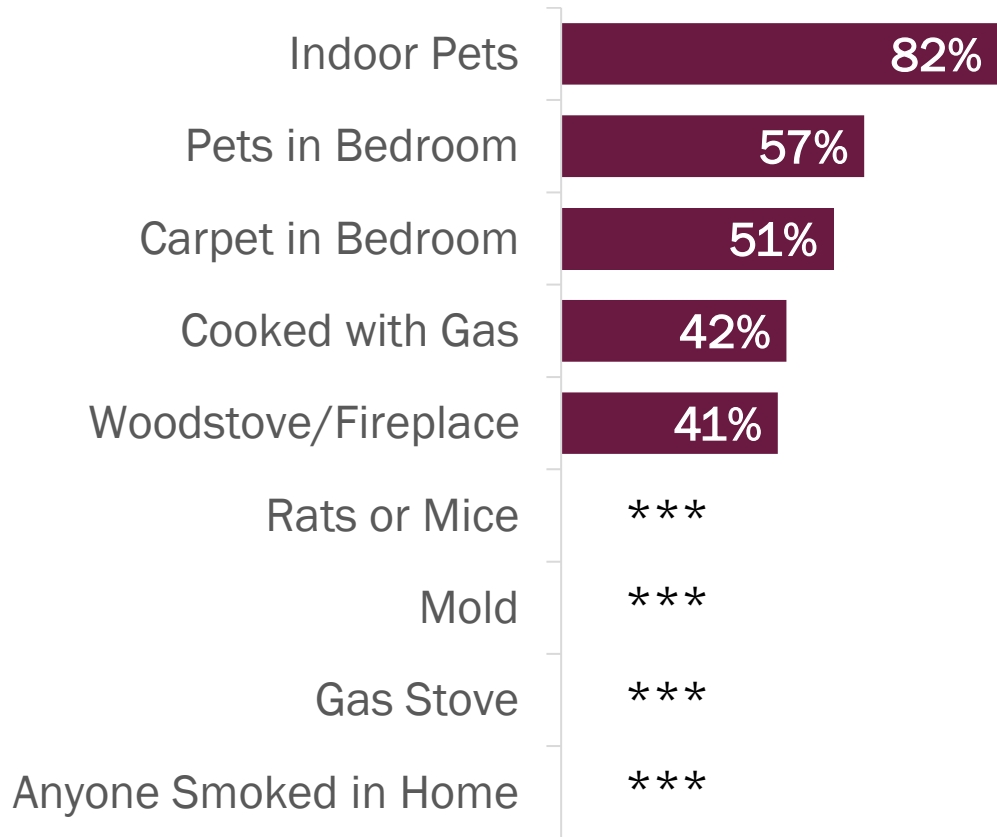
86% of adults report two or more triggers in their home.



# What environmental triggers are children with current asthma exposed to in the home?

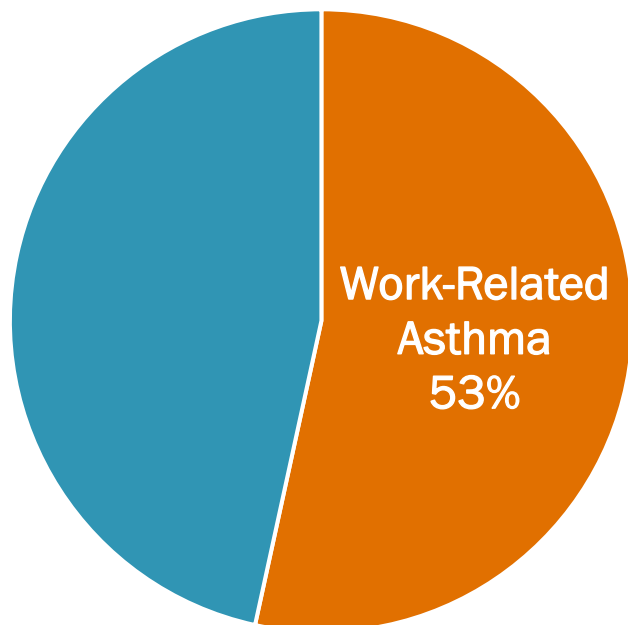
Half or more of children are exposed to indoor pets and pets and carpet in the bedroom.

84% of children are exposed to two or more triggers at home.

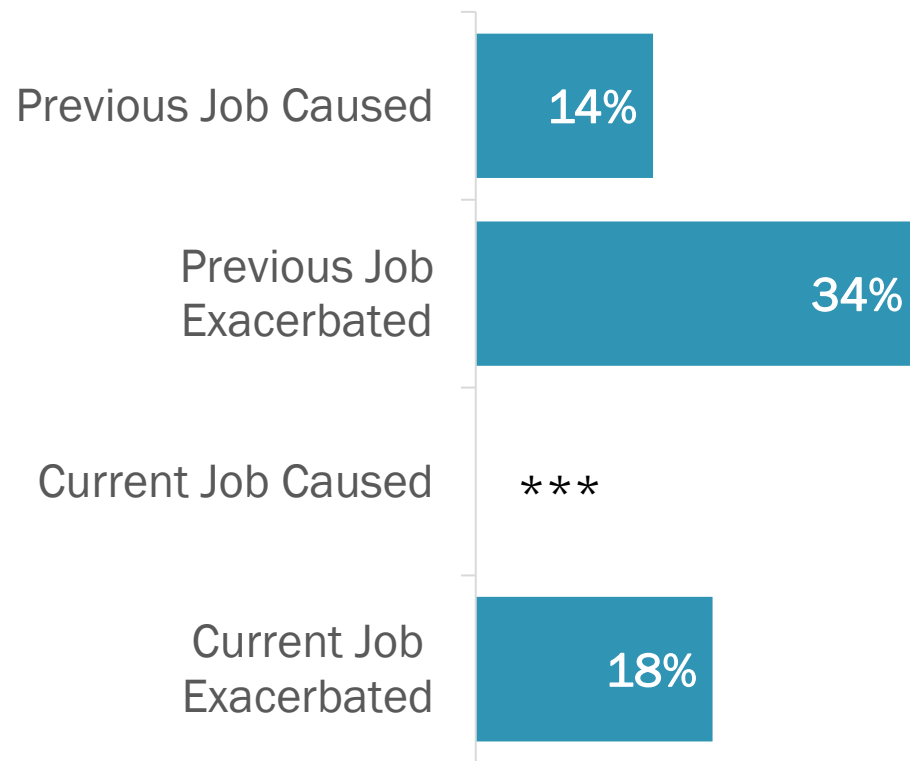


# Does work cause asthma or make asthma worse?

More than half of adults with current asthma have **work-related asthma**.



Vermonters with asthma often report that their work environment affects their asthma.



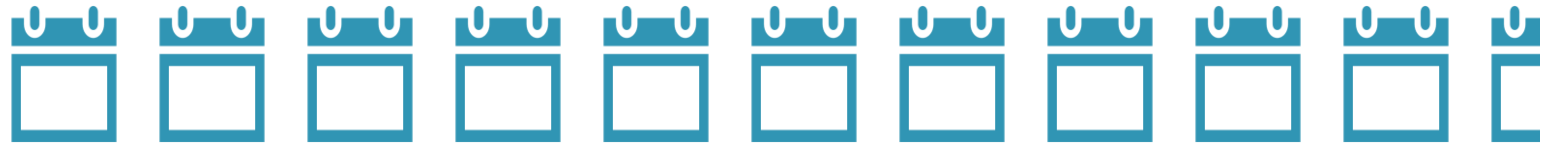


Adults **with work-related asthma (WRA)** miss on average **10.5 days** of work in a year, compared to **0.5 days** for those **without WRA**.

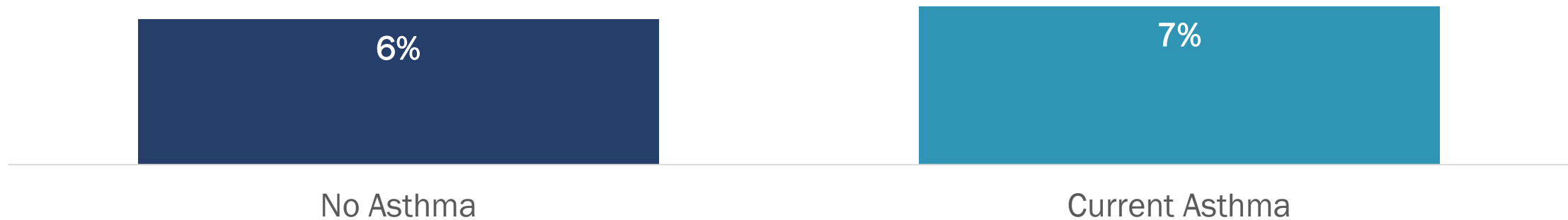
No Work-Related Asthma:



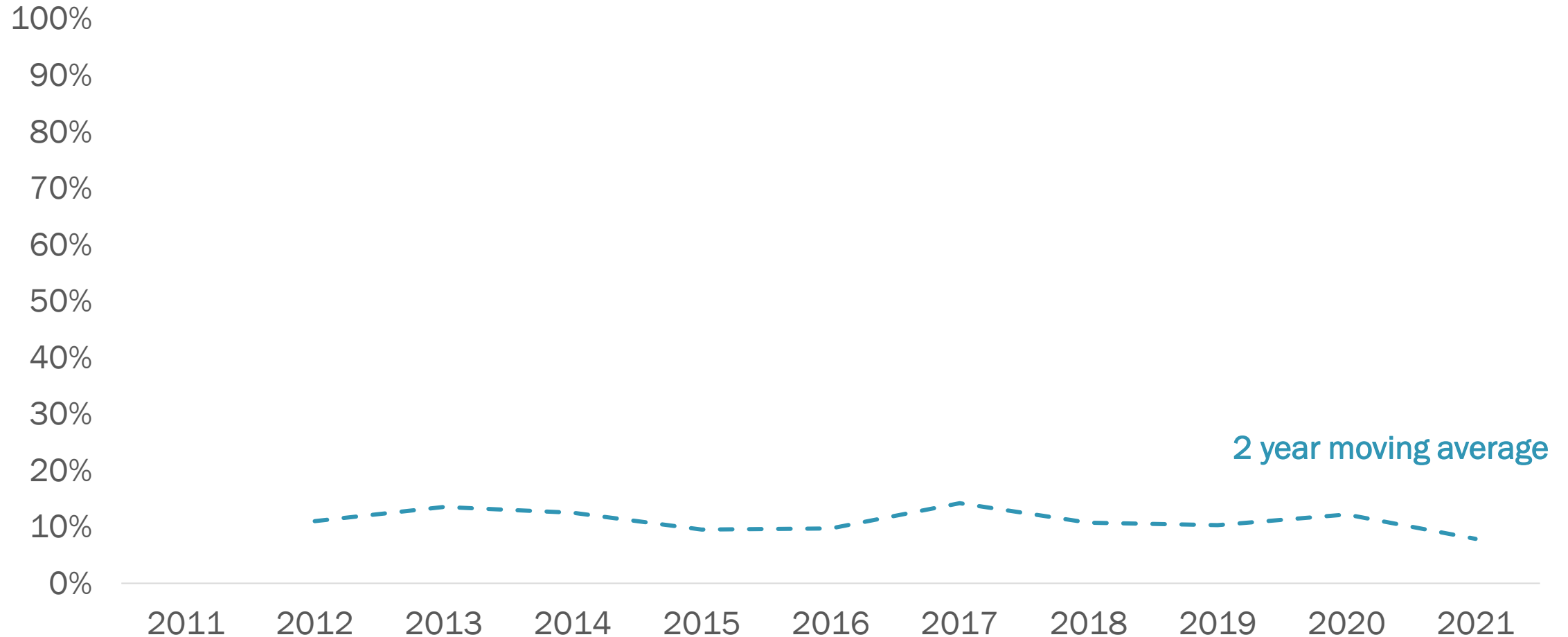
Work-Related Asthma:



**Adults with current asthma were not able to visit a doctor due to cost at a similar rate as those with no asthma.**



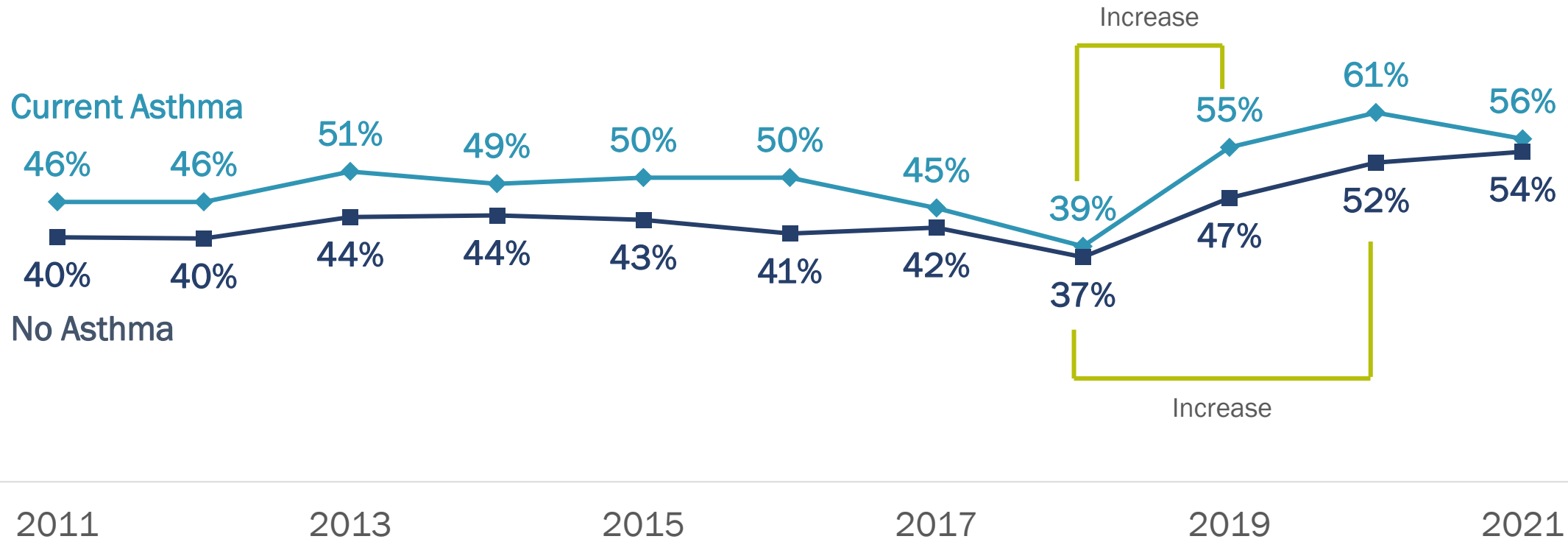
# The percent of adults with current asthma who can't buy asthma medication due to cost has stayed steady in recent years.



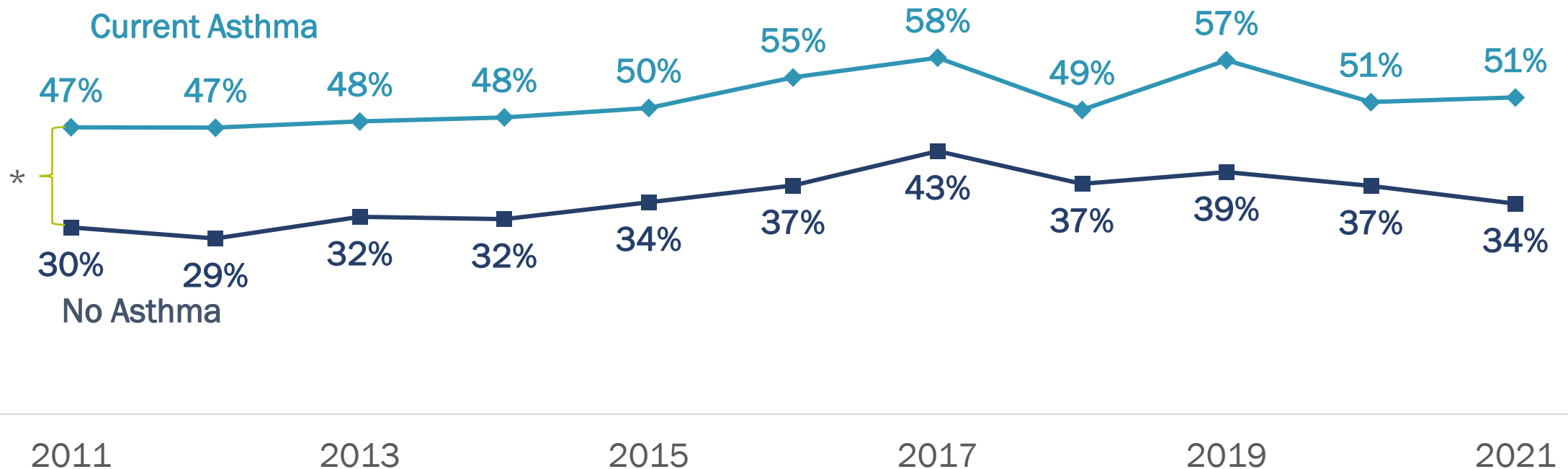
# Adults **with** and **without** asthma received the flu vaccine at similar rates in 2021.

Adults **with asthma** have received the flu vaccine at similar rates since 2019.

Flu vaccine rates increased among **adults without asthma** from 2018 to 2020 and then stayed at a similar rate in 2021.



# Adults with **current asthma** have received the pneumonia vaccine at least once at a higher rate than those **without asthma** in recent years.

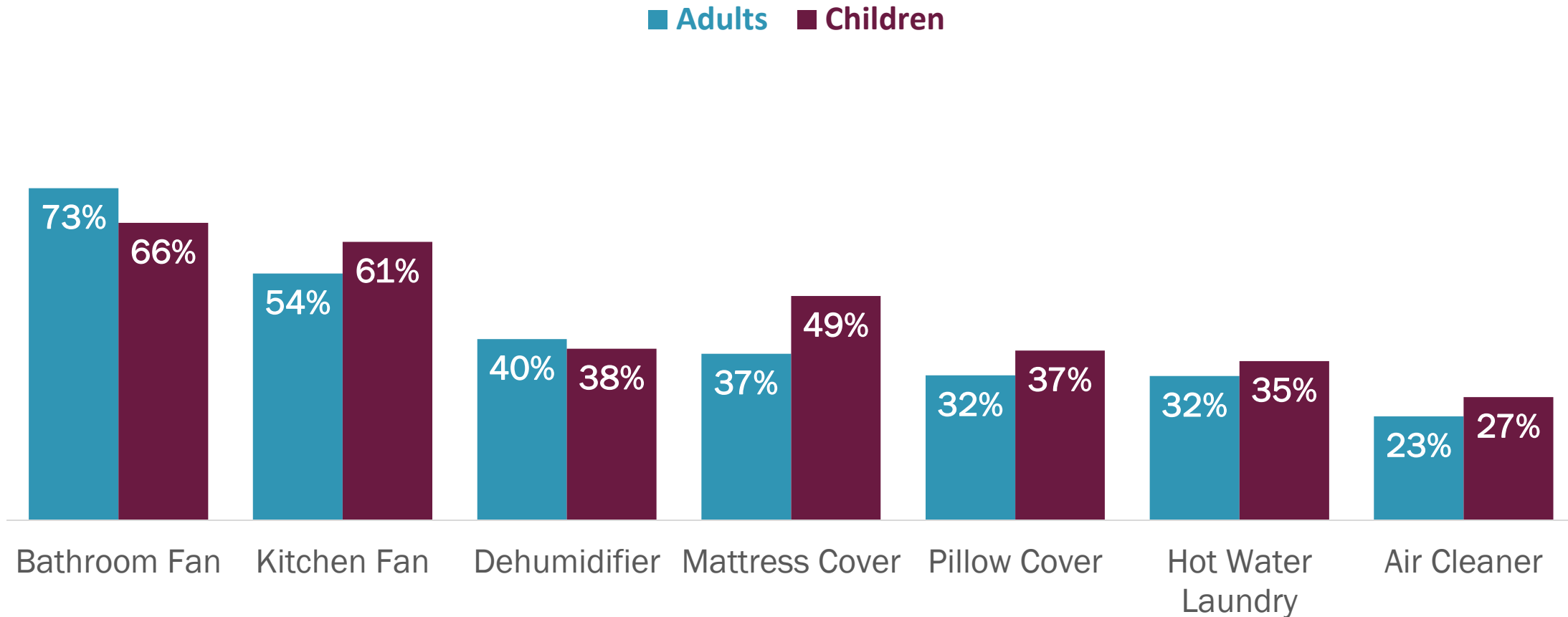


In 2021, adults with **current asthma** received at least one dose of the **COVID-19 vaccine** at a similar rate to those **without asthma**.



# What protective measures do **adults** and **children** with current asthma have in the home?

Half or more of all **adults** and **children** have bathroom fans and kitchen fans.



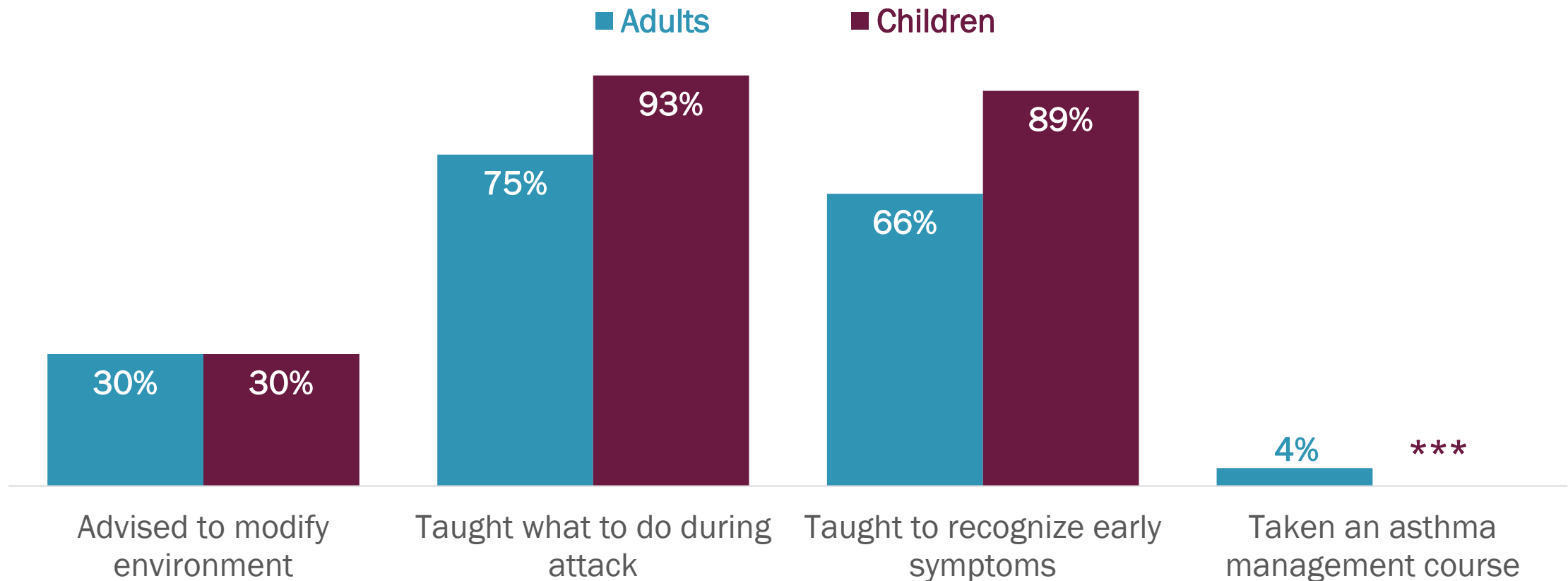
# Medical Management

How is the medical system helping Vermonters manage their asthma?



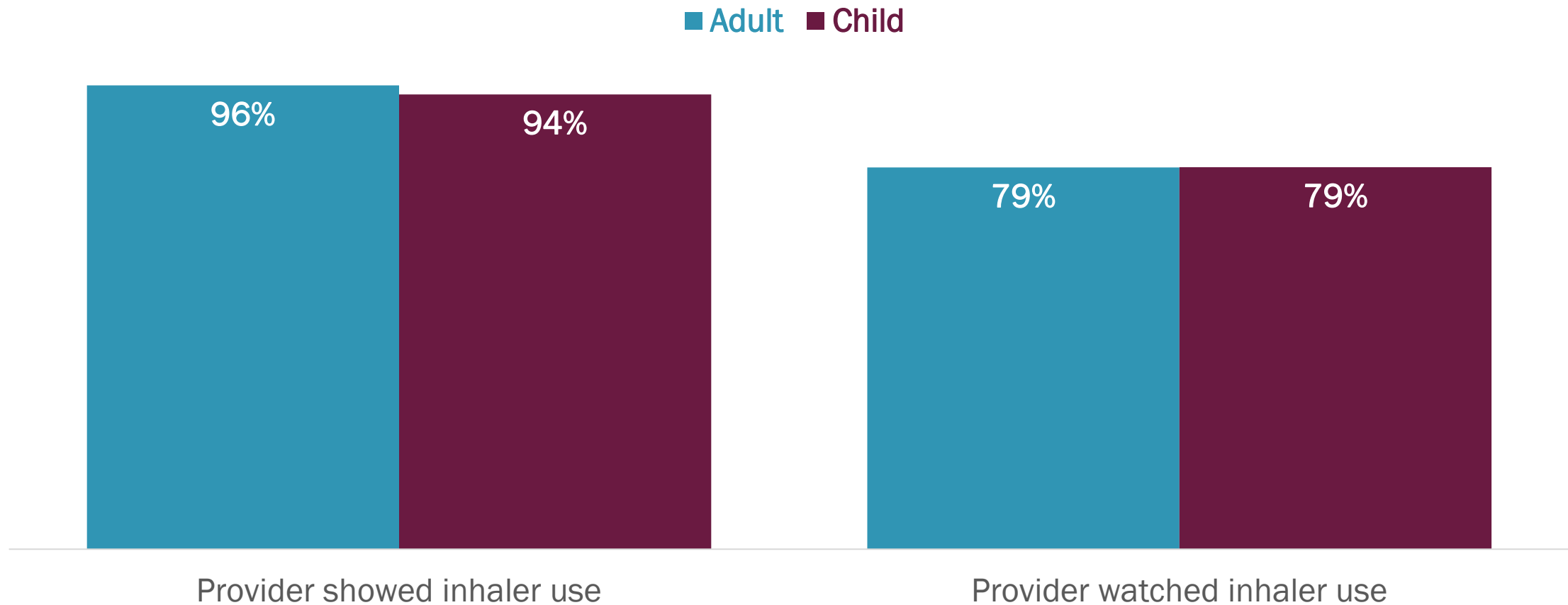
# How are Vermonters educated on asthma management?

More **children** are provided education on exacerbations than **adults**. Very few Vermonters with asthma take asthma management courses.



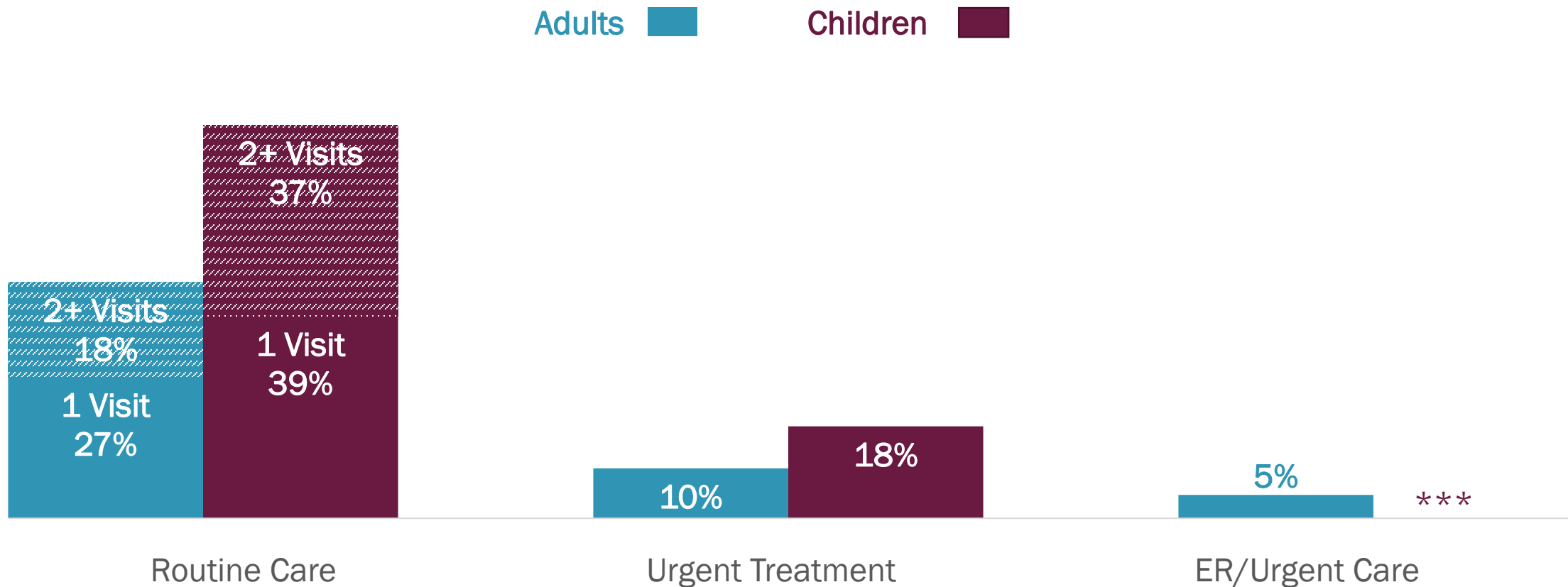
# How are Vermonters educated on asthma management?

Most **adults** and **children** with asthma were educated on inhaler-use by a provider.



# How are Vermonters using the health care system to manage their asthma?

**Children with asthma** are using the health care system in the past year for routine and urgent treatment more than **adults**.

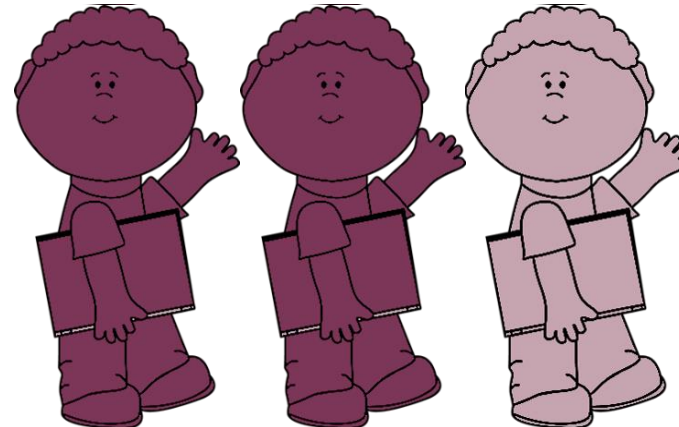


# Are Vermonters with asthma receiving asthma action plans?

About 1 in 4 (27%) adults with asthma received an asthma action plan from a provider.‡



Almost 2 in 3 (63%) children with asthma received an asthma action plan from a provider.

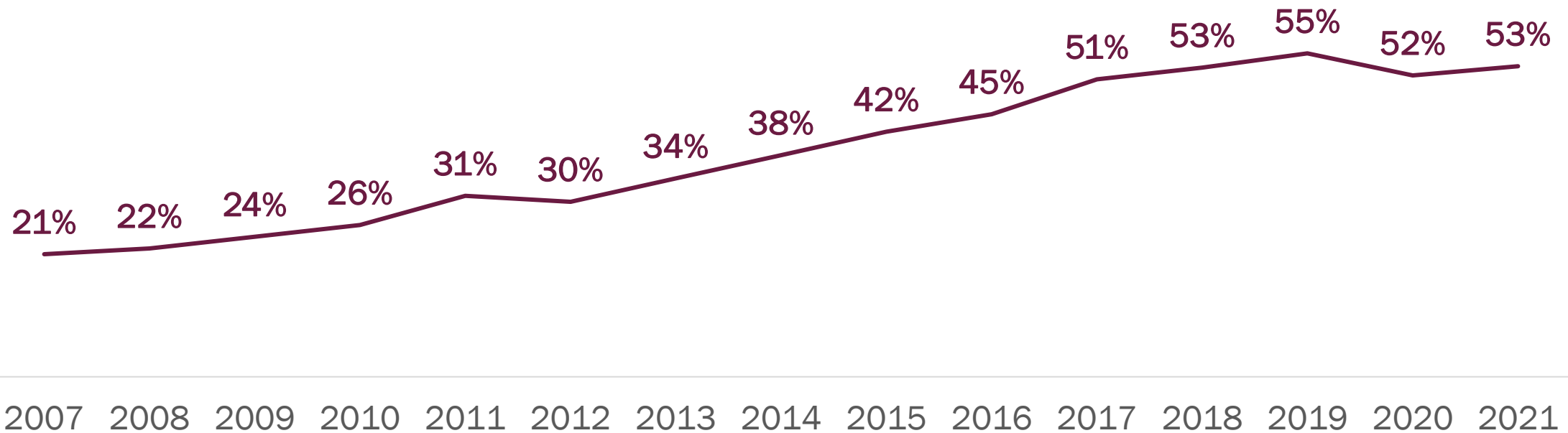


‡Estimate is age-adjusted to the 2000 U.S. standard population

Vermont Department of Health Source: 2021 Adult ACBS, 2019-2021 Child ACBS

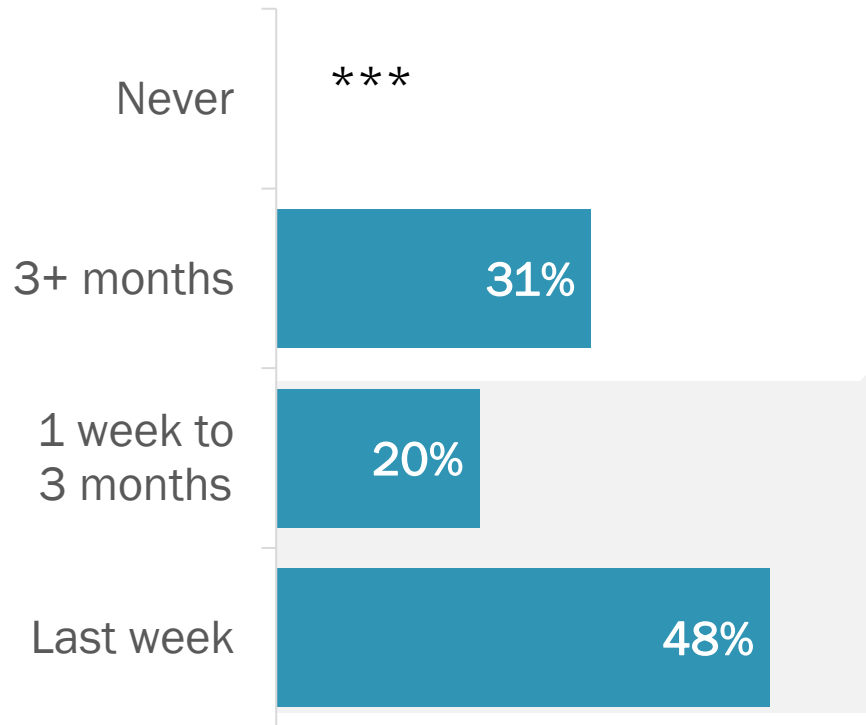
# The percent of children with asthma with a registered asthma actions plan in school steadily increased until 2019.

The percent dropped slightly in the 2020 school year but remained above 50%.

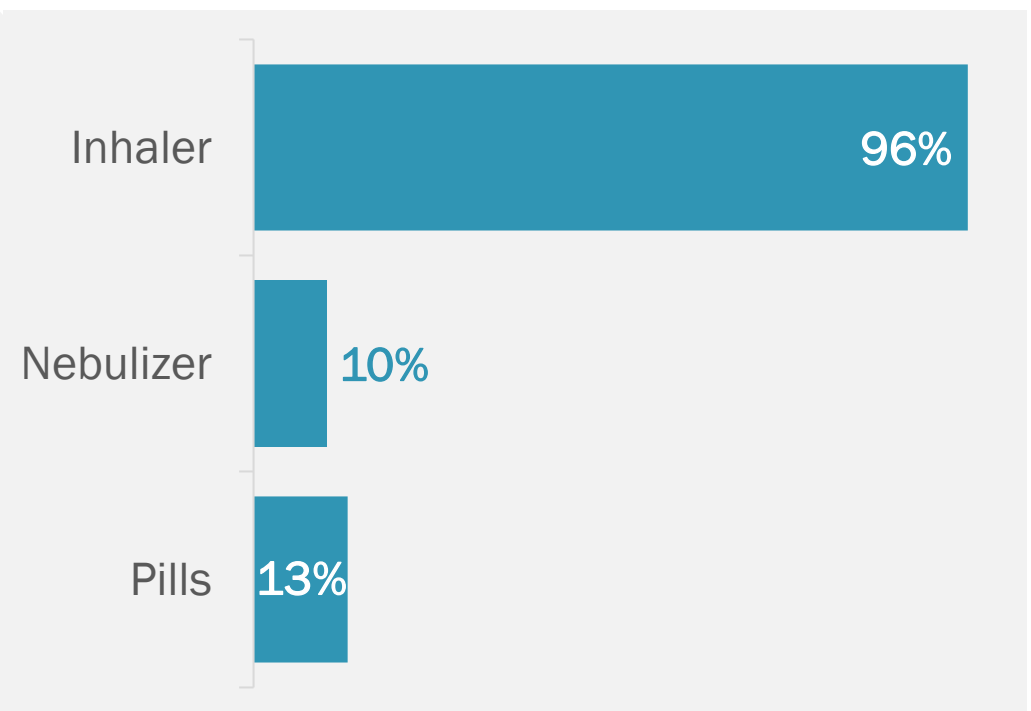


# How are Vermonters using medication to treat their asthma?

Almost half of adults with asthma used asthma medication in the last week.



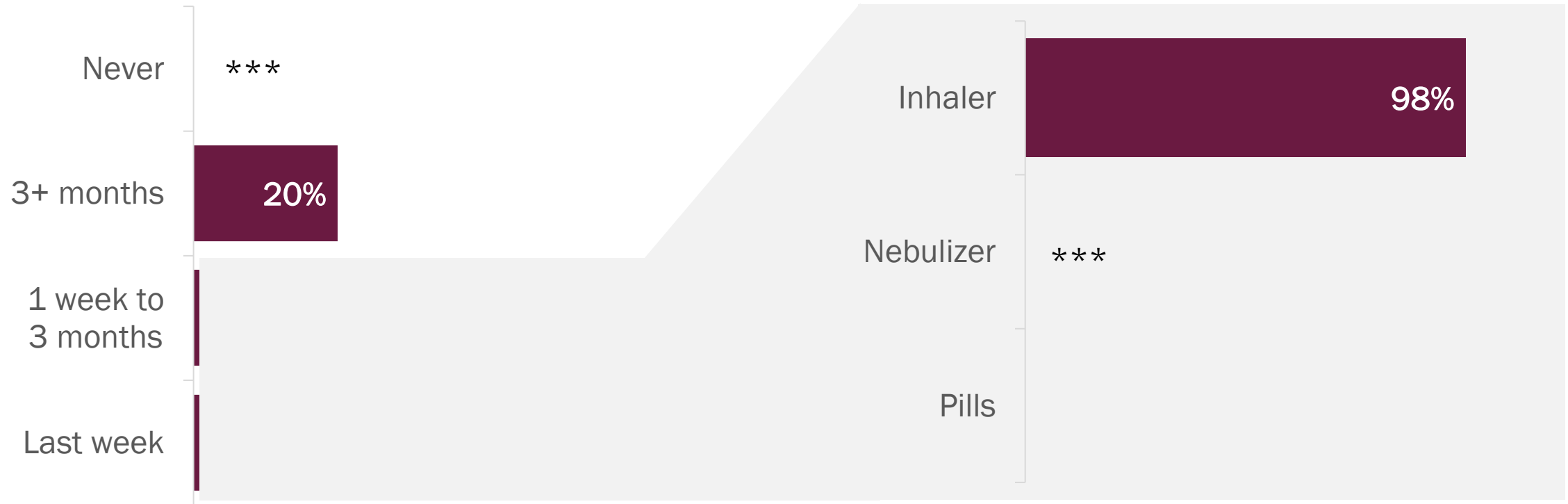
Almost all adults who used asthma medication in the past three months used an inhaler.



# How are Vermonters using medication to treat their asthma?

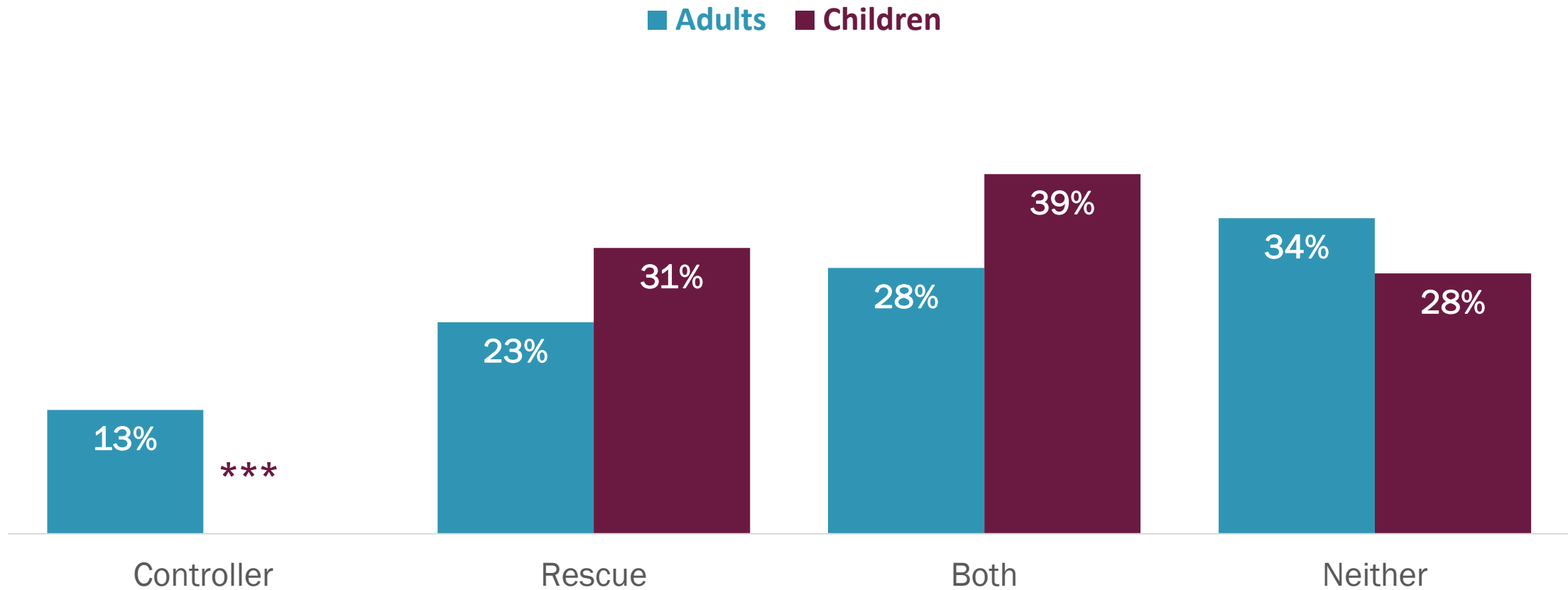
More than half of children with asthma used asthma medication in the last week.

Almost all children who used asthma medication in the past three months used an inhaler.



# How are Vermonters using medication to treat their asthma?

More **children** with asthma are using medication than **adults** with asthma.

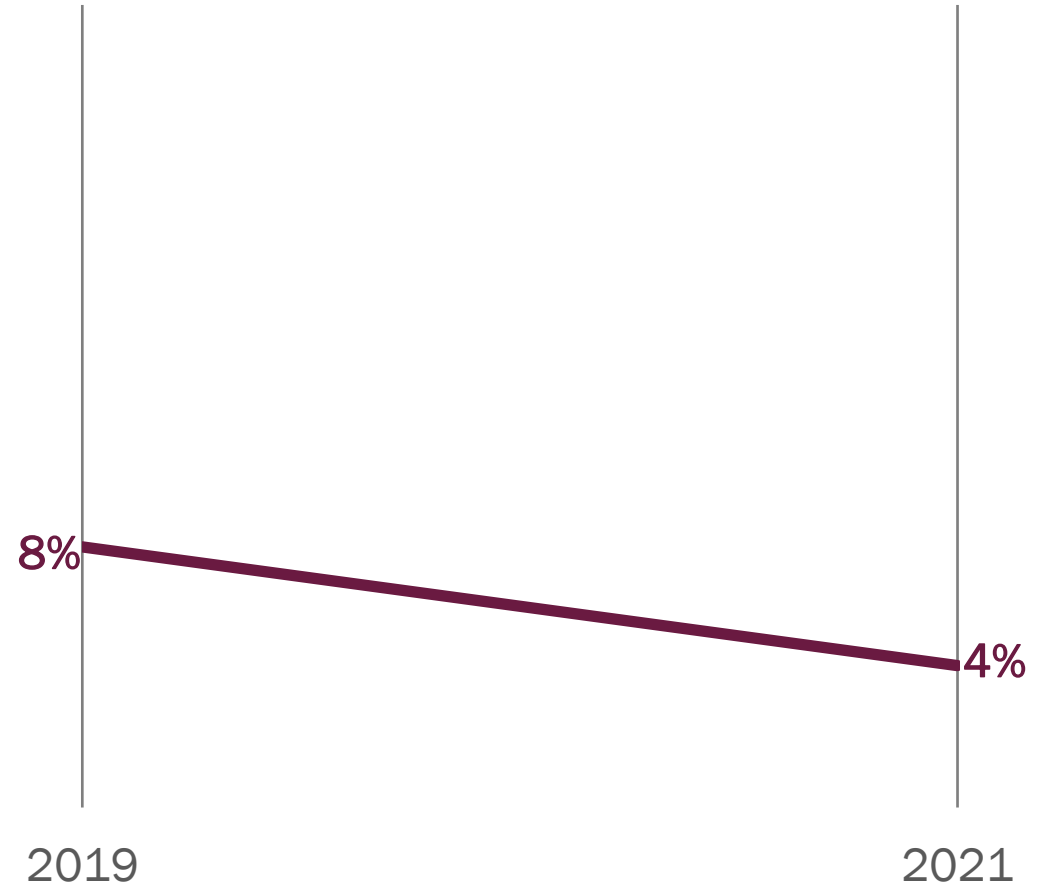




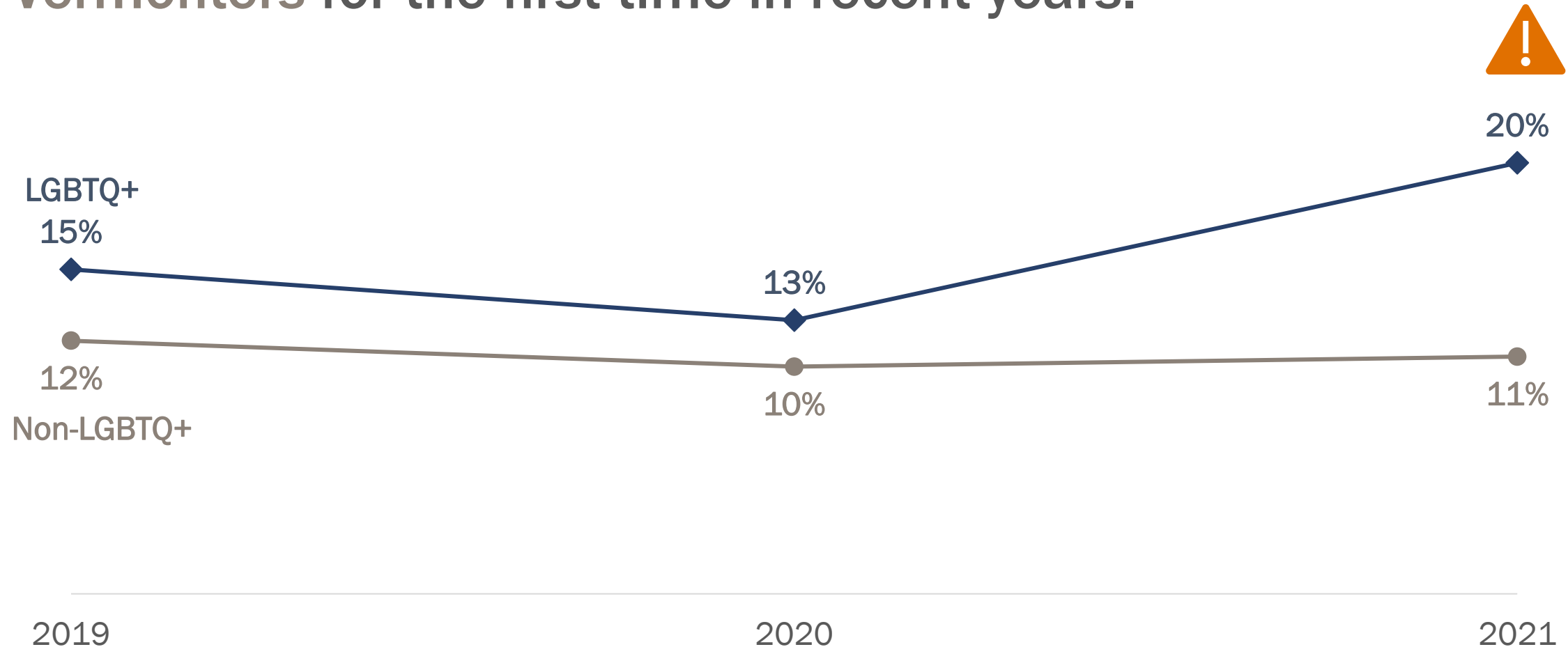
# COVID-19 and Asthma in Vermont

How did COVID-19 affect the burden of asthma in Vermont?

# Child current asthma prevalence decreased from 2019 to 2021.



The current asthma prevalence among **LGBTQ+ Vermonters** was higher in 2021 than among non-LGBTQ+ Vermonters for the first time in recent years.

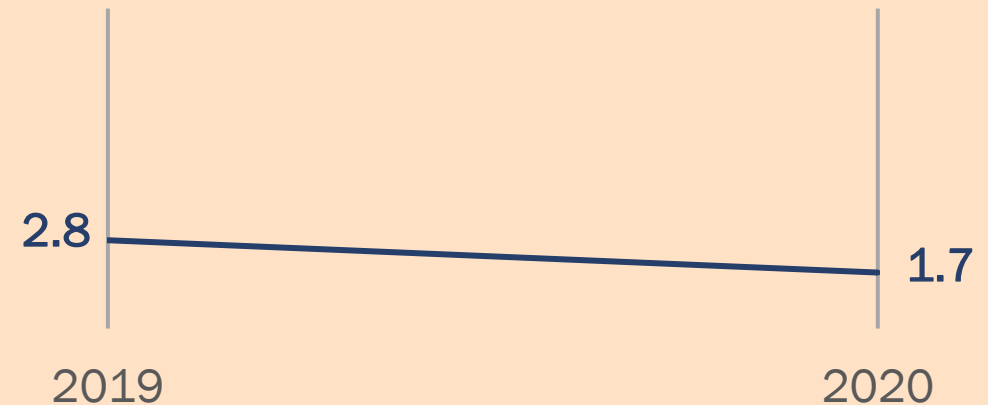


# Fewer Vermonters were admitted to emergency departments or hospitals for asthma.

**ED visits with a primary cause of asthma decreased from 2019 to 2020.**  
Rate per 10,000 Vermonters



**Hospitalizations with a primary cause of asthma decreased from 2019 to 2020.**  
Rate per 10,000 Vermonters



Fewer Vermonters used hospitals for care in general in 2020 compared to 2019.

Vermont Department of Health Source: VUHDDS 2019, 2020

# Data Notes and Sources

# Data Sources and Notes

**Behavioral Risk Factor Surveillance System (BRFSS):** Annual telephone survey conducted by individual state health departments with support from the CDC regarding health risk factors, health conditions and protective measures. 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):** In Vermont, this survey is conducted for both adults and children with asthma and collects 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. Due to small sample size of the child data sets, child data for combined years 2018-2021 is presented.

**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 ED are included in the hospital discharge data set and are not included in the ED data set.
- In 2009, the NH Department of Health and Human Services and the Department of Information Technology (DoIT), internalized the processing of their dataset. 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.
- In quarter four of 2015, coding for the data set changed from ICD9 to ICD10. The ICD9 coding for asthma (493) did not transfer directly in ICD 10 (J45); some ICD9 asthma codes (493.2) translate to ICD10 codes for COPD (J44). Therefore, direct comparison is not possible between data derived from ICD9 and ICD10 coded data.
- Special thanks to the New Hampshire and Massachusetts Asthma Programs for directly providing data to the Vermont Asthma Program.

**Vermont Vital Statistics System (Vitals):** Monitors vital events, including deaths. Information on the cause of death is obtained from a physician and reported on the death certificate. Asthma was identified as underlying cause of death: J45 or J46.

## Resources to Reduce the Burden of Asthma among Vermonters

- [Vermont Asthma Program](#)
- [More data on asthma in Vermont](#)
- [Physician's Guide to Managing and Diagnosing Asthma](#)
- [Vermont Asthma Action Plan](#)
- [802Quits](#): Find support for you or a loved one who is ready to quit smoking



## Learn more about asthma in Vermont:

**Vermont Asthma Program:**

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

**Vermont Asthma Surveillance:**

<https://www.healthvermont.gov/stats/surveillance-reporting-topic/asthma-data>

Lauren Ressue, PhD

lauren.ressue@vermont.gov

Research, Epidemiology & Evaluation

Vermont Department of Health

108 Cherry Street

Burlington, VT 05401