# Back to School for Asthma

## BURDEN FACTS

- **The month of September** has the highest **emergency department** and **hospitalization** burden for asthma-related admissions (**14.4%** and **16.5%**, respectively)
- **American Indian/Alaskan Native** high school students have a **significantly higher asthma prevalence** ( **30.3%**) than **white** high school students (**21.5%**)
- **35%** of high school students with asthma **currently use electronic cigarettes**, which is **significantly higher** than high school students without asthma (**28.5%**)
- Only **14% of schools** in Montana had **full-time registered nurses** to provide health services in school, which is **lower** than the **national median** at **53%.**

## Asthma in Children

Asthma is one of the leading chronic illnesses in children and adolescents in the United States. More than 8.2% of children in Montana currently have asthma, meaning in a classroom of 30 kids, at least 2 children may have asthma. Asthma is one of the leading causes of school absenteeism.[1] During 2013, children (aged 5—17 years) with asthma missed 13.8 million days of school in the United States.[2]

September is known to be a difficult time for asthma in the United States, with the third week of September being considered Asthma Peak Week, having the most asthma hospitalizations compared to the rest of the year.[3] There are a few contributing factors, including but not limited to viral infections such as the common cold or flu and asthma triggers associated with the school.[3]

Asthma triggers are irritants and substances that can cause signs and symptoms of asthma.[4] School buildings have very common asthma triggers such as dander from animals, mold, secondhand smoke, dust mites, cleaning agents, and perfumes.[2] This report will review the statistics and demographics of asthma in Montana school-aged children.

## Methods

Data from the 2015-2019 Montana Behavioral Risk Factor Surveillance System (BRFSS) was used to describe asthma prevalence among children in Montana. A child (aged 5—17) was considered to have current asthma if the parent or guardian responded “yes” to both of the following questions: “Has a doctor, nurse, or other health professional ever said that the child has asthma?” and “Does the child still have asthma?”. Hospitalization and emergency department data were from the Montana Hospital Discharge Data System (MHDDS) for 2016-2020 and included only records of Montana residents with a primary diagnosis of asthma. Data from the 2019 Montana Youth Risk Behavior Survey (YRBS) was used to look at asthma and smoking prevalence among high school students. YRBS is a national survey given to high school students during odd-numbered years. Asthma prevalence in the YRBS was defined as a respondent reporting that a doctor or nurse ever told them they have asthma.


## CONTACT

Chronic Disease Prevention and Health Promotion Bureau
Phone: (406) 444-7304

Fax: (406) 444-7465
asthmainfo@mt.gov


### Resources

Visit the Montana Asthma Control website for more information on:

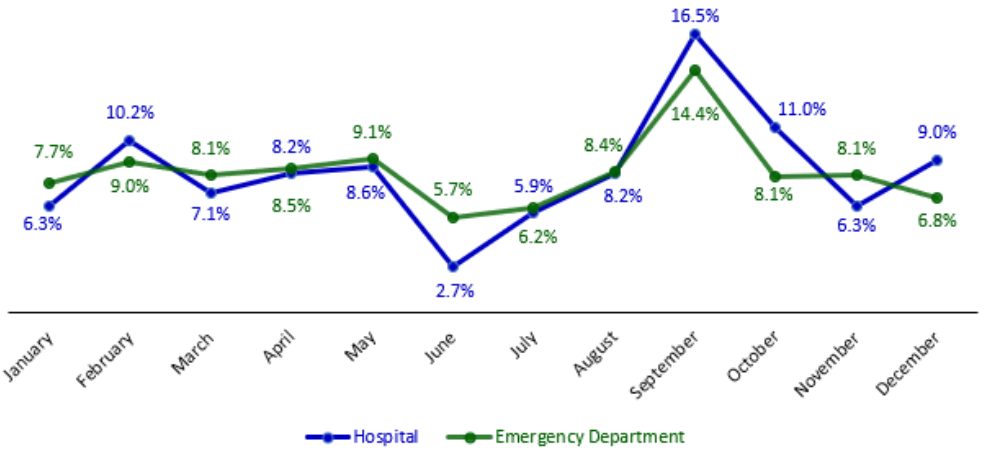
1. Asthma control Program: https://dphhs.mt.gov/asthma
2. Montana Asthma Home Visiting Program: https://dphhs.mt.gov/Asthma/asthmahomevisiting
3. Asthma Friendly Schools: https://dphhs.mt.gov/Asthma/asthmafriendlyschools
4. School Health Grants: https://dphhs.mt.gov/schoolhealth/grants
5. Free Trainings for Professional Development: https://dphhs.mt.gov/Asthma/onlineasthmatrainings

Updated 09/21/2021

## Results

- From 2016-2020, the **highest percentage of asthma-related hospitalizations** in Montana occurred in **September** among children aged 5-17 years (Figure 1).

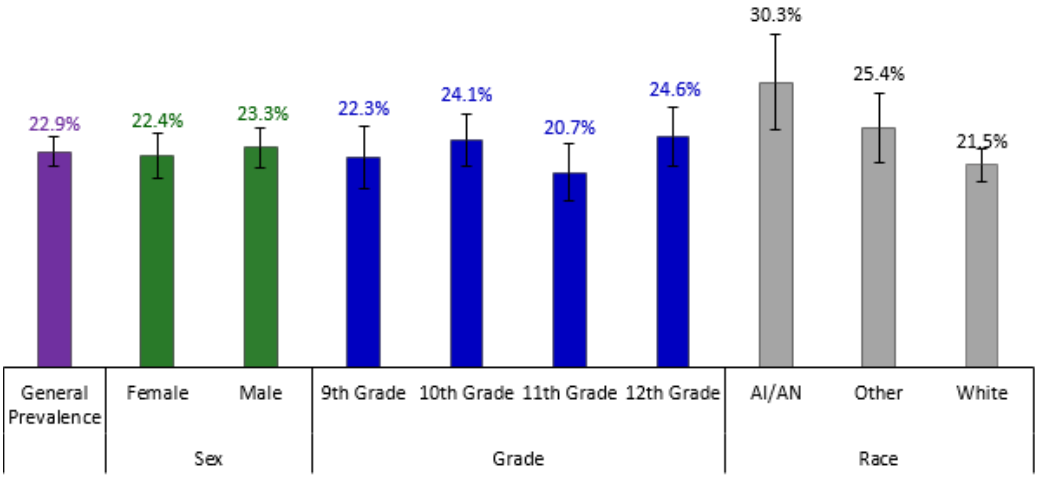
Figure 1. Percent of Asthma-Related Hospital Stays and Emergency Deparment Visits Among Children (Aged 5 - 17) by Discharge Month, Montana, 2016 - 2020, MHDDS




- Similar to asthma-related hospitalizations, the asthma emergency department visits also spiked in September, with **14.4%** of **total asthma-related emergency department visits** happening **in September** between 2016 and 2020 for school-aged children (aged 5-17 years) (Figure 1).

- Almost one-quarter (23%) of high school students in Montana have been told by a healthcare professional they have asthma at some point in their lifetime (Figure 2).

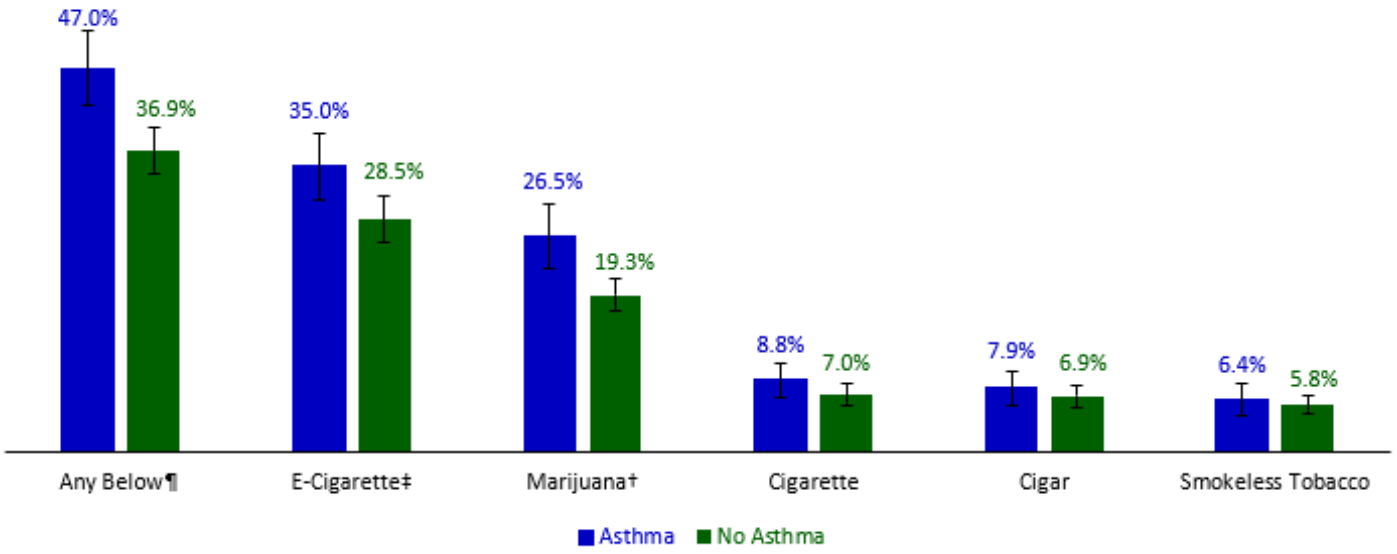
Figure 2. Percent of Montana High School Students Ever Told They Have Asthma by Sex, Grade, and Race, YRBS, 2019




- The prevalence of students who reported having ever had asthma was the **same** by **sex** and **grade** (Figure 2).

- However, the asthma prevalence in **American Indian/Alaskan Native** high school students (**30.3%**) was **significantly higher** than the asthma prevalence in **white** high school students (**21.5%**) (Figure 2).

Figure 3. Prevalence of Recreational Drug Current Use* in High School Students by Asthma Status, YRBS, 2019




* Current use was defined as: using the product on at least 1 day in the past 30 days

¶ Any Below was defined as: the current use of cigarettes, cigars, e-cigarettes, marijuana or smokeless tobacco.

‡E-Cigarette use did not specify the substance that was vaped.

†Marijuana use did not differentiate between smoking and ingestion.

- **Almost half** (47.0%) of **students with asthma** were current users of **at least one product**, which was significantly higher than **students without asthma** (36.9%).
- **30% of high school students** currently use **e-cigarettes** (data not shown) and **use was significantly higher** among **students with asthma** compared to students without (**35.0%** versus **28.5%**, respectively) (Figure 3).
- The next most frequently used product was **marijuana**, with **26.5% of students with asthma** and **19.3% of students without asthma**, reported current use or reported using it at least once in the past 30 days, also a statistically significant difference (Figure 3).
- There were **no significant differences** in the prevalence of other products (cigarettes**, cigars, and smokeless tobacco**) among students (Figure 3).

**Table 1. Montana School Health Profiles (Secondary Education), CDC School Health Profiles, 2018**

| Category | Montana | US Median | US Range |
|---|---|---|---|
| Secondary Schools that Have a Full-Time* Registered Nurse | 14.2% | 53.0% | 4.2% - 98.8% |
| Secondary Schools that Have a Part-Time† Registered Nurse | 46.3% | 39.4% | 14.1% - 85.6% |
| School-Based Health Center‡ that Offers Health Services to Students | 11.3% | 21.8% | 7.7% - 47.6% |
| Teachers Tried to Increase Knowledge on Asthma | 59.7% | 54.1% | 31.9% - 76.0% |
| Provided Families Health Information on Asthma | 15.1% | 34.4% | 7.8% - 44.8% |
| Lead Health Education Teacher Received Professional Development on Asthma | 18.4% | 18.4% | 7.9% - 58.7% |
| Lead Health Education Teacher Wanted Professional Development on Asthma | 46.7% | 44.5% | 26.6% -61.8% |
| Have a Protocol that Ensures Students with Chronic Conditions§ are Enrolled in Insurance Programs¶ | 52.3% | 62.2% | 38.0% - 78.6% |
| Routinely Use School Records to Identify and Track Students with Asthma | 93.5% | 95.7% | 78.7% - 100% |
| Provide Referrals for Students Diagnosed with or Suspected to Have Asthma | 53.3% | 53.0% | 25.2% - 82.2% |
| Daily Medication Administration for Students with Chronic Health Conditions§ | 76.6% | 85.8% | 57.3% - 97.7% |
| Stock Rescue or "As Needed" Medication for Any Student Experiencing a Health Emergency | 69.7% | 73.8% | 49.1% - 92.5% |
| Case Management for Students with Chronic Health Conditions§ | 56.6% | 74.2% | 40.2% - 88.0% |

* A nurse is at the school during all school hours, 5 days a week
† A nurse is at the school less than 5 days a week, less than all school hours, or both
‡ A place on school campus where enrolled students can receive primary care, including diagnostic and treatment services. These services are usually provided by a nurse practitioner or physician's assistant.
§ A condition that may require daily or emergency management (e.g., asthma, diabetes, food allergies).
¶ Private, state, or federally funded insurance programs.

- Only **14% of schools in Montana** had **full-time registered nurses** to provide health services in school. The **national median** was **53%** (Table 1).
- About **3 out of 5 schools (59.7%)** had teachers that **tried to increase student knowledge** on asthma. The **national median** was **54.1%** (Table 1).
- **About 15%** of schools provided **families with health information** about asthma (Table 1).
- **Almost half (46.7%)** of lead health education teachers **wanted professional development** on asthma (Table 1).
- More than **three quarters (76.6%)** of schools **provided daily medication administration** for students with chronic health conditions, and **about 70% stocked rescue medication** for students experiencing a health emergency (Table 1).

## Discussion

- Much like the rest of the US[5,6], Montana school-aged children experience an increase of asthma hospitalizations in September. This could be due to a number of factors, including asthma triggers at school, fall allergies, an increase in germs that cause colds and flus, exposure to particulate matter like wildfire smoke, or exercise-related asthma due to fall sports.
- American Indian/Alaskan Native high schoolers had a significantly higher prevalence of asthma than whites.
- Electronic cigarette use is high among Montana youth. E-cigarettes are relatively new, so there are less studies on the association between e-cigarettes and asthma; however, there are some studies that suggest e-cigarettes are linked to more severe asthma symptoms.[7,8]
- Part-time registered nurses at schools in Montana are more common (46.3%) than full-time registered nurses (14.2%) but still understaffed, which leaves students without adequate medical care at school.
- Montana State Law (20-5-420) allows students who fill out the required paperwork carry and administer their own rescue medication. Additionally, 69.7% of Montana schools stock rescue medication for health emergencies and 76.6% provide daily medication for students with chronic health conditions, leaving some options for medicine administration at school.

For more information contact:
**Mary Duthie**
**Asthma Epidemiologist**
**(406) 444-7304**
**Mary.Duthie@mt.gov**

## Clinical Recommendations

- Encourage patients to schedule a routine visit for their asthma and create an Asthma Action Plan (AAP).
- Encourage patients and/or caregivers to discuss their/their child's asthma with the school nurse or staff in charge of student health.
- Ensure children are up to date on vaccinations, including influenza, as people with asthma are at a high risk of developing flu complications.[9] As well as the COVID-19 vaccination for children aged 12 years and older, as people with asthma can also be at increased risk for severe illness.[10]
- Assess patients' asthma control before the school year starts and review any asthma triggers commonly found in a school building.
- Counsel high school patients on the importance of avoiding tobacco or other inhaled recreational drugs.
- Inform patients who are able to administer their own medication that they can fill out a self-carry form to administer medication at school.

## Citations


1. Asthma | Healthy Schools | CDC. https://www.cdc.gov/healthyschools/asthma/index.htm. Published June 14, 2021.
2. Managing Asthma in the School Environment - US EPA. https://www.epa.gov/iaq-schools/managing-asthma-school-environment. Published August 2010.
3. September Asthma Epidemic - Community. https://community.aafa.org/blog/september-asthma-epidemic. Published August 26, 2016.
4. Asthma - Symptoms and causes - Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/asthma/symptoms-causes/syc-20369653. Published August 11, 2020.
5. Johnston NW, Johnston SL, Duncan JM, et al. The September epidemic of Asthma exacerbations in children: A search For etiology. Journal of Allergy and Clinical Immunology. 2004;115(1):132-138. doi:10.1016/j.jaci.2004.09.025
6. Sears MR. Epidemiology of asthma exacerbations. Journal of Allergy and Clinical Immunology. 2008;122(4):662-668. doi:10.1016/j.jaci.2008.08.003
7. Vaping and Smoking with Asthma | Allergy & Asthma Network. https://allergyasthmanetwork.org/what-is-asthma/vaping-smoking-with-asthma/. Accessed August 13, 2021.
8. How Smoking and Vaping Impacts Asthma - GAAPP. https://gaapp.org/smoking-vaping-asthma/. Accessed August 13, 2021.
9. Flu & People with Asthma | CDC. https://www.cdc.gov/flu/highrisk/asthma.htm. Published May 6, 2021. Accessed August 13, 2021.
10. People with Certain Medical Conditions | CDC. https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html. Published August 20, 2021. Accessed September 23, 2021.



### Montana Chronic Disease Program

1400 E Broadway
Helena, Montana 59620-2951
(406) 444-7304
**http://www.dphhs.mt.gov/asthma**

### Asthma Program Staff

Jessie Fernandes—Section Supervisor
BJ Biskupiak—Program Manager
Carolyn Linden—Administrative Assistant
Jenifer Van Syckle—QI Coordinator
Ann Lanes—Data Analyst
Mary Duthie—Epidemiologist