



July 2021

## Asthma Medication Adherence among Montana Medicaid Members aged 5-64 years, 2015-2019

### Report Highlights

- **Only 6%** of Montanan Medicaid members aged 5-64 years **were fully adherent to their asthma medication.**
- Montana Medicaid members **aged 18—40 years** experienced **significantly higher prevalence of non-adherent** asthma medication status than **every other adult age group.**
- **American Indian/Alaskan Native (AI/AN)** Medicaid members experienced **significantly higher prevalence of non-adherent** asthma medication status than white Medicaid members and other races.

### Background

Asthma is a common chronic respiratory condition, affecting over 90,000 people in Montana. More than half of Montana adults with current asthma (65%) reported symptoms that indicate their asthma is either not well or very poorly controlled.<sup>1</sup>

Medication adherence is defined as the extent to which patients take medication as prescribed by their doctors or take medication correctly.<sup>2</sup> Patients are generally considered adherent to their medication if 80% of their medication is taken within the prescribed time frame.<sup>3</sup> Consequences of non-adherence include reduced lung function and decreased quality of life. Furthermore, there are economic costs associated with medication non-adherence, such as increased emergency department visits and heightened pharmacy, medical, and hospitalization costs.<sup>4</sup>

There are many factors which influence asthma medication adherence such as doubts about the accuracy of the diagnosis, daily life being perceived as unaffected by asthma, lack of patient-physician communication, cost, lack of knowledge of medication, poor inhaler technique, and concerns about medication side effects.<sup>5</sup> Additionally, there are multiple possible cultural impacts on medication adherence, including medication beliefs, complementary and alternative medication preferences, and language barriers.<sup>6</sup>

Multiple types of interventions have been designed to increase medication adherence. Some examples include: increased technology use, changing complex medications, use of reminder devices, reduced co-pays, and patient empowerment practices.<sup>7,8</sup> Interventions which target patient behavior, are delivered by pharmacists, and provide face-to-face interactions have been found to be the most effective.<sup>9</sup>

This report summarizes asthma medication adherence from 2015—2019 among Montana Medicaid members aged 5-64 years.

### Montana Asthma Control 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



## Methods

This report utilized Montana Medicaid claims data from 2015-2019. Between 2015 and 2019, there were 37,634 asthma claims. Claims for Montanans less than 5 years of age were excluded due to this age group being too young for a typical asthma diagnosis. Additionally, claims for Montanans 65 years of age and older were excluded because this age group is primarily covered by Medicare as opposed to Medicaid. After these exclusions, there were 33,297 asthma claims for Montanans aged 5-64 years. Claims were then excluded from the analysis if the patient was from out of state, did not have an address listed, or had a corrupted Medicaid ID number. Claims were de-duplicated by Medicaid ID, leaving a total of 20,766 members analyzed from 2015-2019. Both claims data (Figure 1) and individual Medicaid member data (Figures 2-7) were analyzed. Claims data were analyzed by each individual year and could include multiple claims for the same member within a given year. All five years of data were combined for the Medicaid member data analysis.

Each member was assigned a Proportion of Days Covered (PDC) score based on asthma medication refill dates for each individual claim. PDC scores are recommended for measuring adherence by the Pharmacy Quality Alliance (PQA). These scores range from a value of 0 to 1. The value of 1 corresponds to 100% medication adherence.

Members were grouped according to their PDC score into one of three “Adherence Status” categories. Montana Medicaid members with a PDC score of at least .8 were categorized as being “Adherent” to their asthma medication, while members with a PDC score less than .8 were categorized as “Non-Adherent” to their asthma medication. Additionally, members were categorized as “Partially Adherent” if they had multiple claims after the de-duplication process that indicated both “Non-Adherent” and “Adherent” practices.

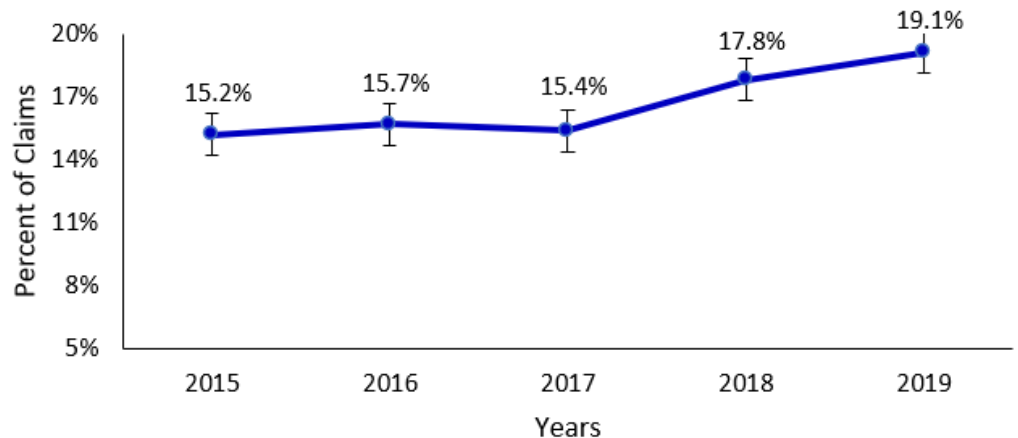
The prevalence of these asthma medication adherence categories were further assessed by sex, age group, race, and county of residence. Counties were grouped into regions according to the 14 Chronic Disease Contracting Regions of Montana. County level data were not available due to small sample sizes.

All analyses were performed in SAS 9.4.

## Results

- From 2015 to 2017 the percent of adherent Medicaid claims **remained stable**, but **increased** significantly from **15.4%** in **2017** to **19.1%** in **2019** (Figure 1).
- Despite the increase, the percentage of Medicaid claims with **full adherence remained below 20%** for all years.

Figure 1. Montana Medicaid claims among members aged 5-64 years with full asthma medication adherence by year, 2015 - 2019





## Results

- Only **6%** of Medicaid members were **fully adherent** to their asthma medication over the course of the five-year period. **16%** were **partially adherent**, meaning that they had at least one adherent and one non-adherent claim (Figure 2).
- **More than three quarters (77.9%)** of Montana Medicaid members between the ages of 5-64 years are considered **non-adherent to their asthma medication** (Figure 2).
- There was **no significant difference in asthma medication adherence by sex** (Figure 3).

Figure 2. Asthma medication adherence status among Montana Medicaid members aged 5-64 years, 2015-2019

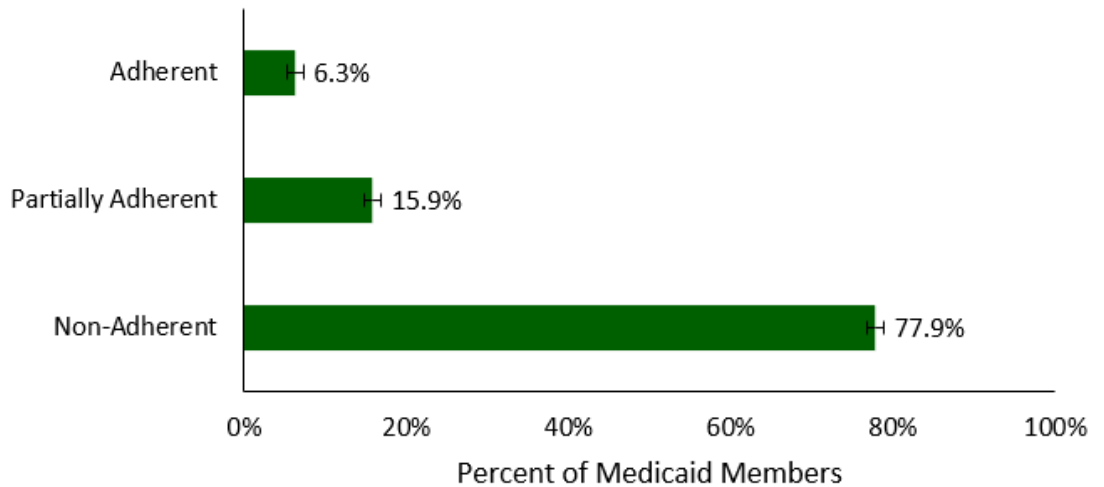
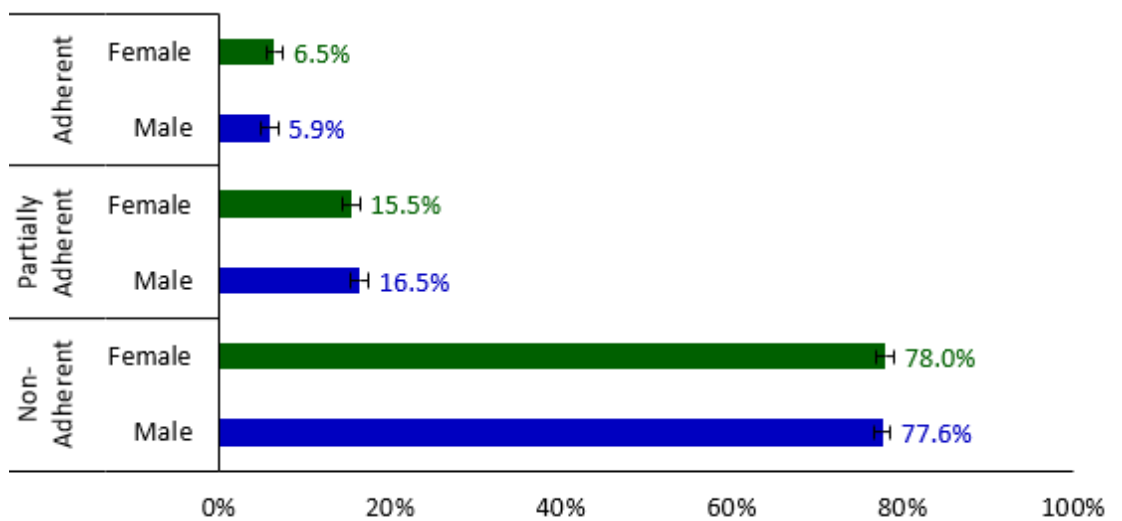
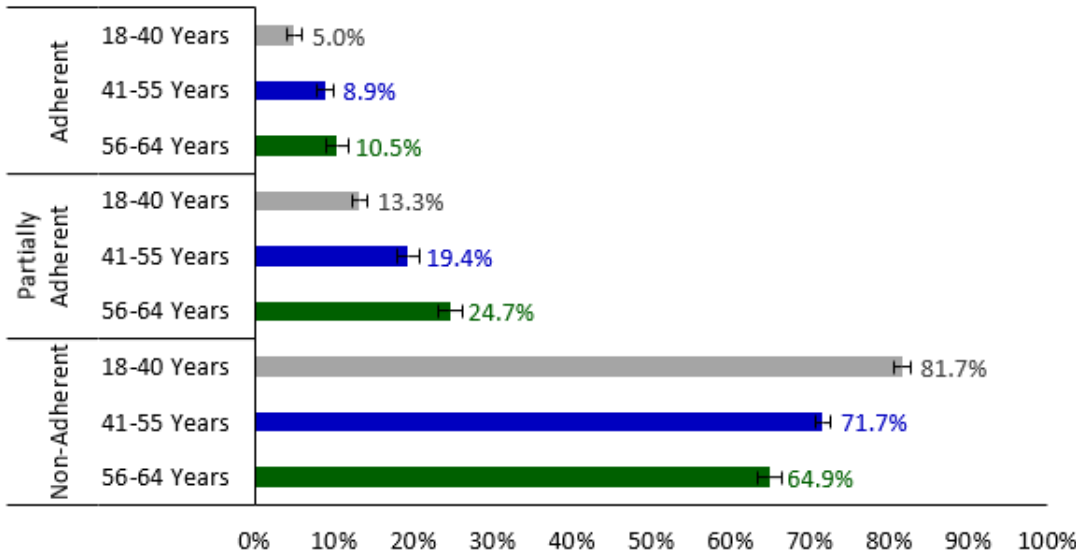


Figure 3. Asthma medication adherence among Montana Medicaid members aged 5-64 years, by sex, 2015-2019



## Results

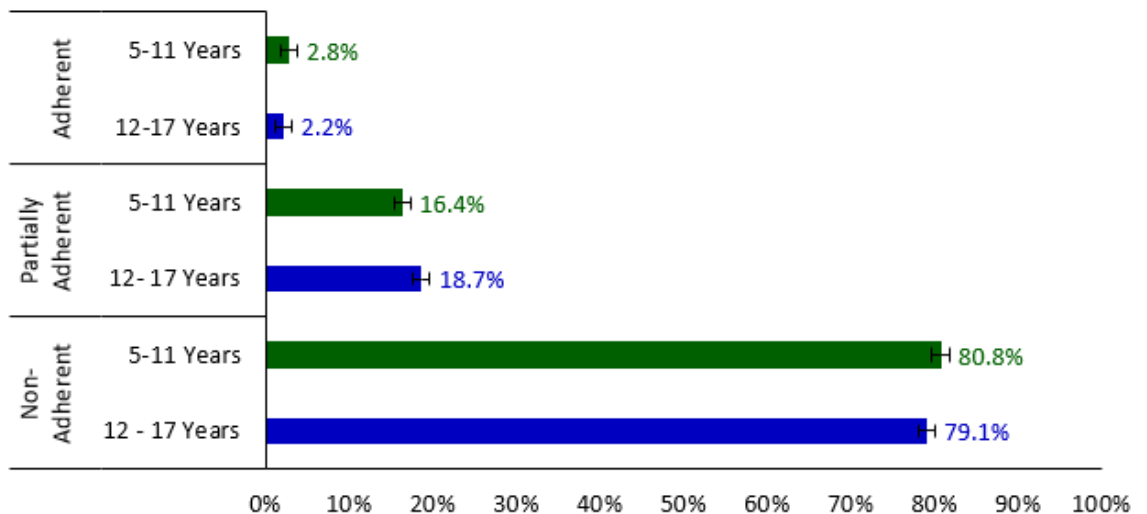
Figure 4. Asthma medication adherence among Montana Medicaid adult members aged 18-64 years, by age group, 2015-2019



- Among adults, asthma medication adherence **increased with increasing age**; the prevalence of asthma medication adherence was more than **twice as high in the oldest age group** of Montana Medicaid members compared to the youngest age group (**10.5% vs 5.0%**, respectively) (Figure 4).

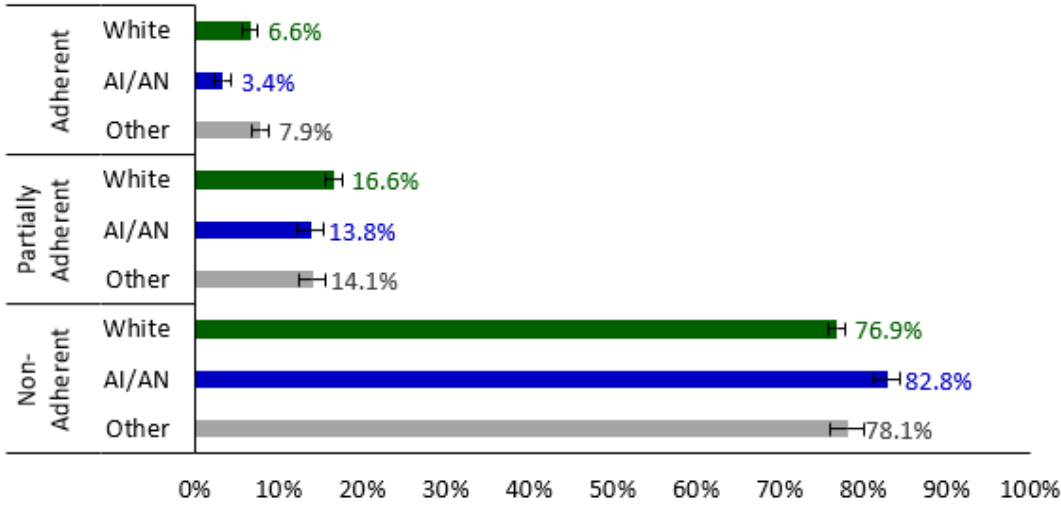
- There was no significant difference in **Adherent** or **Non-Adherent** asthma medication status by childhood age groups (Figure 5).
- Almost **80%** of members in both child age groups are **not adherent** to their asthma medication (Figure 5).

Figure 5. Asthma medication adherence among Montana Medicaid child members aged 5-17 years, by age group, 2015-2019



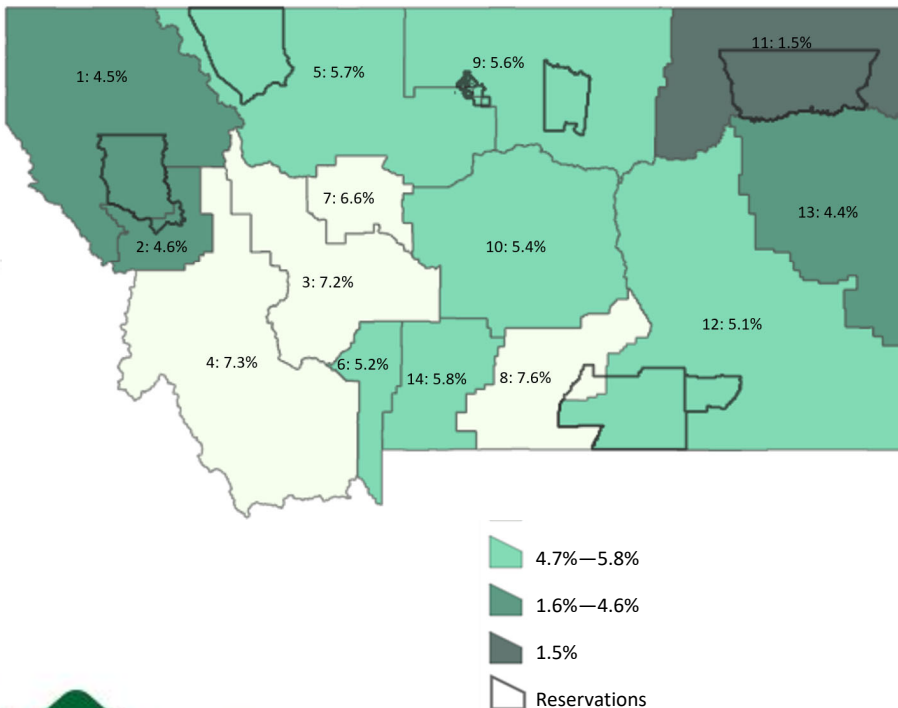
## Results

Figure 6. Asthma medication adherence among Montana Medicaid members aged 5-64 years, by race, 2015-2019



- A significantly lower percent of **AI/AN** Medicaid members were **Adherent** with their asthma medication, compared to white members and other races (Figure 6).
- There was no statistically significant difference in **Partially Adherent** asthma medication status by race (Figure 6).

Figure 7. Asthma medication full adherence among Montana Medicaid members, aged 5-64 years, by chronic disease contract region, 2015-2019



- The regions with the **highest asthma medication adherence** among Montana Medicaid members aged 5-64 years were **3, 4, 7, and 8**. These regions included the following counties: **Granite, Powell, Deer Lodge, Silver Bow, Madison, Beaverhead, Ravalli, Lewis & Clark, Jefferson, Broadwater, Meagher, Cascade, Stillwater, Carbon, and Yellowstone** (Figure 7).
- The region with the **lowest asthma medication adherence** was **11**. This region included the following counties: **Valley, Daniels, Sheridan, and Roosevelt** (Figure 7).



## Discussion

- From 2015 to 2019, the adherence of asthma medication claims was from 15% - 19%. This is lower than many papers, which list asthma medication adherence at 30% - 70%.<sup>10,11</sup>
- Additionally, only 6% of Montana Medicaid members were fully adherent to their asthma medication. This means that most Montana Medicaid members are taking their asthma medication less than 80% of the time, which can lead to decreased asthma control. Furthermore, lack of asthma control can contribute to patients having more asthma symptoms, increased hospital and emergency department visits, and a greater risk of asthma mortality.
- The groups that have the lowest medication adherence are children (aged 5-17 years) and Alaskan Natives/American Indians (AI/AN).
- While Medicaid members aged 56-64 years had the lowest asthma medication non-adherence prevalence, it still was well over 50%, indicating room for improvement.
- This method of assessing medication adherence is subject to at least three limitations. First, this analysis used claims and prescription data; yet having an asthma prescription may not always mean the patient is diagnosed with asthma, as these medications may be prescribed for other reasons. Additionally, a prescription being filled does not necessarily indicate the medication was taken or used in the correct way (i.e. poor inhaler technique causing medication to not enter system). Furthermore, these data represent Montana Medicaid members aged 5-64 years and do not represent Montanans that do not fulfill these criteria.

## Clinical Recommendations

- Inform patients of any potential risks associated with forgoing asthma medications (lack of asthma control, increased risk of hospitalization, etc.).
- Ask patients about the reasons they choose to not use asthma medication (high cost, distaste for medications, etc.) and determine if changes can be made.
- Adhere to the most current evidence-based research on methods of increasing medication adherence (patient empowerment and decreasing complexity of medication regimens).
- In accordance with EPR-3 (National Asthma Education and Prevention Program's Expert Panel Report ) guidelines, all patients with persistent asthma should be given appropriate rescue and controller medication with an asthma educator, if possible.
- Montana Medicaid supports the Clinical Pharmacy Practitioner program (CPP), which has been shown to support patient adherence and lists asthma as one of the supported chronic diseases.
- Utilize services such as the [Montana Asthma home visiting program](#) (MAP) or the [CPP program](#) to provide team-based care to increase adherence rates.

For more information contact:

**Mary Duthie**

**Asthma Epidemiologist**

**(406) 444-7304**

**Mary.Duthie@mt.gov**



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### Montana Asthma Control Program

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