Montana
Chronic Disease Prevention
& Health Promotion Bureau

Asthma among Medicaid Enrolled Children

Montana, 2011-2013

Recommendations

- **Regularly review medications and evaluate use among children with asthma, especially those with new-onset asthma and following an asthma exacerbation.**
- **Schedule regular office visits to monitor children's asthma. National guidelines recommend at least two visits per year.**
- **When treating a patient in the emergency department (ED), ensure a follow-up visit with a primary care provider is scheduled to review their level of asthma control.**

Billing data for children enrolled in Medicaid from 2011 through 2013 were analyzed in order to describe the burden of asthma among children in low-income families. Children in low-income households experience a disproportionate asthma burden. In 2012-2014, Montana children living in households with annual incomes under $25,000 had a prevalence of asthma twice that of those in higher income households (12.6% and 6.2%, respectively).[1]

Using Medicaid billing data for public health surveillance allows an individual's healthcare and medication use to be measured over time. Through this, chronic disease onset and the burden in the Medicaid enrolled population can be described and monitored. In addition, because the dataset is large, measurements can be made with a high level of precision. This provides a different perspective on the population's health than other available data sources such as statewide surveys and de-identified hospital discharge data.

This report summarizes the incidence and prevalence of asthma among children enrolled in Medicaid by demographic group. Among children identified with asthma, asthma-related healthcare and medication use was also examined during a one year follow-up period.

Methods

Over 73,000 children (aged < 18 years) continuously enrolled in Montana Medicaid for at least 13 months between 2011 and 2013 were followed for up to two years to identify asthma cases. New-onset cases were distinguished from prevalent (existing) cases by the time at which they first met the cases definition. Prevalent cases met the case definition in the first year of data (2011). New-onset cases were asthma-free for the first year but met the case definition during the second year (2012). Children identified as having asthma were observed for an additional year (2013) to assess asthma persistence and asthma-related healthcare and medication use.

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Asthma Incidence and Prevalence

Prevalence

- The childhood asthma prevalence identified in Medicaid claims was 10.5% (95% Confidence Interval (CI) 10.3, 10.8). This is similar to the prevalence among children in low-income households (12.6% (95% CI 10.0, 15.1) identified from a large telephone survey.[1]
- Females had a lower overall prevalence than males and showed an increase in prevalence with age (Figure 1).
- There was no difference in prevalence between children living in urban/rural counties and those in frontier counties.
- Prevalence was similar among White, American Indian, and Hispanic children. Black children had a higher prevalence than white children. This pattern persisted when controlling for age and sex differences (Figure 2).

Incidence

- Estimates of incidence rates (the rate at which new-onset asthma occurs in a population) are useful for understanding trends and may lead to a better understanding of asthma.
- Overall, there were 23.6 new-onset asthma cases per 1,000 children per year (95% CI 22.3, 25.0). This is comparable to other population based studies which have estimated incidence rates in U.S. child populations ranging from 12.5 to 42.6.[2-5]
- Patterns of incidence rates by age and sex were similar to the patterns in prevalence (Figure 3).
- There were no differences in incidence rates by county type (urban/rural/frontier) or by race/ethnicity (Figure 2).

Figure 1. Prevalence of asthma among children (aged 1 to 17 years) in MT Medicaid by sex and age group

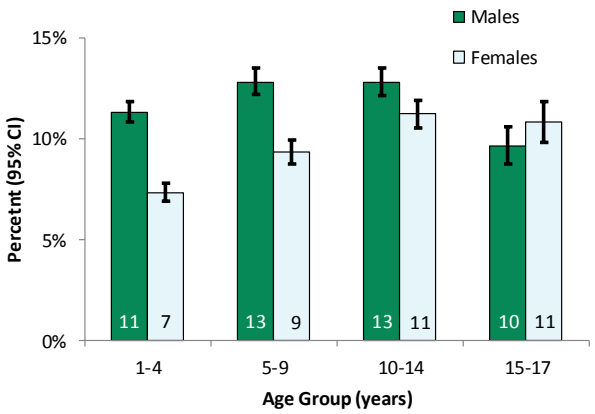


Figure 2. Prevalence and incidence (per 1,000 person-years) of asthma among children (aged 1 to 17 years) in MT Medicaid by race/ethnicity

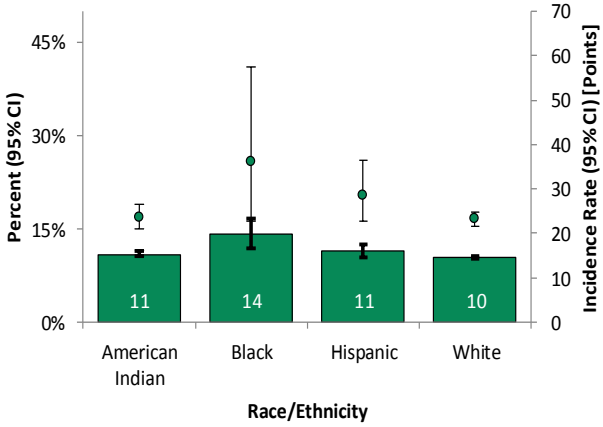
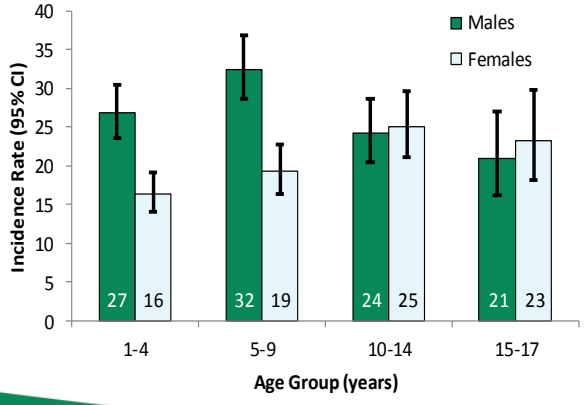


Figure 3. Incidence of new onset asthma per 1,000 person-years among children (aged 1 to 17 years) in MT Medicaid by sex and age group



References

1 Montana Behavioral Risk Factor Surveillance System, [2012-2014], Behavioral Risk Factor Surveillance System Office, Montana Department of Public Health and Human Services

2 Wendt JK, Symanski E, Du XL. Estimation of asthma incidence among low-income children in Texas: a novel approach using Medicaid claims data. Am J Epidemiol. 2012 Oct 15;176(8):744-50.

3 Garcia, E and Lyon-Callo S. "Asthma Burden for Children in Medicaid." Epidemiology of Asthma in Michigan. Bureau of Epidemiology, Michigan Department of Community Health, 2012.

4 Winer RA, Qin X, Harrington T, Moorman J, Zahran H. "Asthma incidence among children and adults: findings from the Behavioral Risk Factor Surveillance system asthma call-back survey--United States, 2006-2008." J Asthma. 2012 Feb;49(1):16-22.

5 Black MH, Zhou H, Takayanagi M, Jacobsen SJ, Koebnick C. Increased asthma risk and asthma-related health care complications associated with childhood obesity. Am J Epidemiol. 2013 Oct 1;178(7):1120-8.

6 National Heart Lung and Blood Institute (US). Expert Panel Review-3 Guidelines to Asthma Management. National Institutes of Health (US); 2007 Aug. NIH Pub.

Asthma Burden and Control

New Onset Asthma Cases (Figure 4)

- Ongoing asthma was assessed by the number and type of asthma billing claims in the year following case identification.
- The frequency of having had an ED visit or <2 outpatient visits was similar between children with new onset asthma and those with prevalent asthma.
- A larger proportion of children with new onset asthma did not have a long-term controller medication and a smaller proportion had too many rescue medications than children with prevalent asthma.

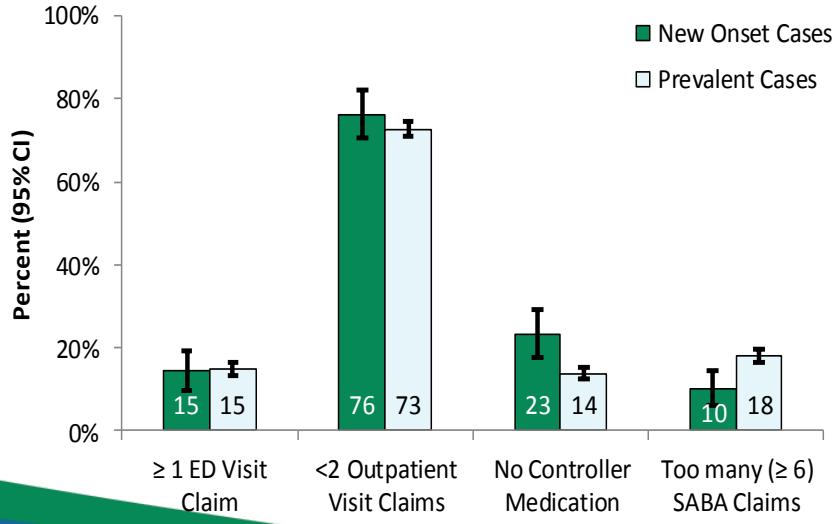
Asthma Burden

- 15% of children with ongoing asthma had at least one ED visit in a year (Figure 4). Younger children (aged 1-4 years) more frequently had ED visits than older children.
- 3% of children with ongoing asthma were hospitalized in a year. This was also more common among younger than older children.
- There were no differences in ED visits or hospitalizations by race/ethnicity or urban/rural/frontier county type when controlling for age and sex.

Asthma Control

- 73% of children with ongoing asthma had fewer than two outpatient visits for asthma (Figure 4). This proportion increased among older children.
- 15% of children with ongoing asthma had no long-term controller medication.
- 17% of children with ongoing asthma had too many rescue medication (SABA) claims (6 or more prescriptions filled in a year). This proportion was greater in older age groups.

Figure 4. Differences in asthma burden and control between new-onset and prevalent asthma among children in MT Medicaid with ongoing asthma over a 1-year study period



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Clinical Recommendations

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- **Schedule regular office visits to monitor children's asthma. National guidelines[6] recommend at least two visits per year.**
- **When treating a patient in the emergency department, ensure a follow-up visit with a primary care provider is scheduled to review their level of asthma control.**

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Report Highlights:

Asthma among Children Enrolled in Medicaid in Montana

- **Asthma was twice as prevalent among children living in low-income households (<$25,000) than those in higher income households.**
- **An estimated 24 new-onset asthma cases occur for every 1,000 children enrolled in Medicaid each year.**
- **There were no differences in incidence rates by county rurality or race/ethnicity in this population.**