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Report Highlights

- Around **one in five** Montana Medicaid members with COPD have a history of asthma, which **may indicate ACOS**.
- Montana Medicaid members **under the age of 50 years** have a higher prevalence of **ACOS** than COPD alone.
- **Sex and race** had **no significant impact** on Montana Medicaid members who have COPD with or without ACOS.
- Treatment with **durable medical equipment** and with **personal care agencies** were the **most common** treatment types for both ACOS and COPD alone
- There is likely **no clinical difference** in the **charge and allowable amount** between ACOS and those with COPD alone.

Asthma-COPD Overlap Syndrome among Montana Medicaid recipients, 2019

Asthma is a common, chronic lung condition in which the airways narrow, swell, and produce extra mucus. Asthma can cause shortness of breath, wheezing, and trigger coughing[1] and is commonly diagnosed in children. Chronic obstructive pulmonary disease (COPD) on the other hand, is typically diagnosed in adults over the age of 65. COPD is a group of diseases, such as emphysema and chronic bronchitis, which can cause coughing, wheezing, extra mucus, and difficulty breathing.[2]

Despite asthma and COPD sharing many of the same symptoms, they are different diseases, and patients can have one or both of these conditions. Asthma-COPD overlap syndrome (ACOS) is diagnosed when a patient has symptoms of both asthma and COPD.[3] ACOS symptoms include difficulty breathing, wheezing, coughing, chest tightness, extra mucus, fatigue, and shortness of breath.[4] ACOS diagnosis involves a medical history check, physical exams, chest x-rays, and/or CT scans.[3] However, physicians are still working to fully understand ACOS, and exact diagnosis guidelines have not been established yet.[5]

Treatment typically involves management of both COPD and asthma symptoms. Inhaled corticosteroids and long-acting bronchodilators are used for asthma symptoms, and long-acting muscarinic antagonists are common for COPD symptoms.[3] Each patient receives a custom treatment plan to reduce their particular symptoms and identify which medications work best for the patient.[4]

This report describes the overlap of asthma claims among COPD claims submitted to Montana Medicaid in 2019.

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Methods

This report utilized Montana Medicaid claims data from 2019. Claims were included in the analysis if they met the following criteria: they were final, paid claims for a Montana resident; they had a primary diagnosis of COPD (ICD-10 codes J44.0 — J44.91); and the claim was for a person who was a Medicaid member for at least two consecutive years. In the absence of a formal ICD-10 code for ACOS, members were considered to have ACOS if they also had a claim with asthma (ICD-10 codes J45.0—J45.998) in any of the four ICD-10 code locations in the past two years. The same member could have multiple claims, and the asthma and COPD diagnoses could be on the same claim.

A single visit can result in multiple claims, each of which are associated with the same member and the same ICD-10 code. Therefore, a system was developed for deduplication to ensure accurate counts.

When analyzing by demographic information, claims were deduplicated using the patient's Medicaid ID and the information from the COPD claim with the earliest date of service was used. For analyses on reasons for visits, treatment type, and treatment location, claims were de-duplicated to one claim per Medicaid ID number per day. This method was used to determine the variables associated with unique visits. Charge and allowable amount data included all eligible claims (with no de-duplications) since payment amounts varied for each claim.

Chi-square tests were conducted to assess for significant differences between members (or claims) with COPD alone and those with ACOS.

All analyses were performed in SAS 9.4.

Characteristics of the Sample

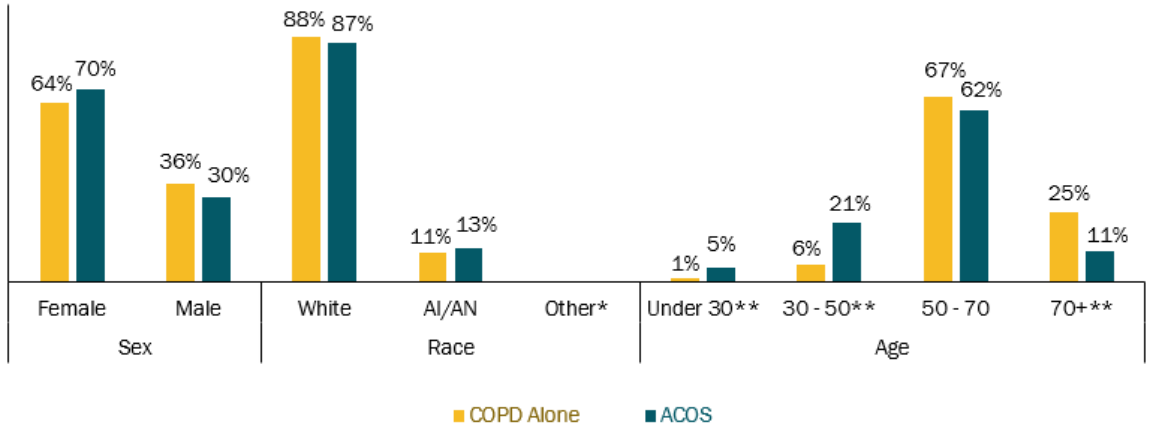
There were 245,423 COPD claims in 2019, with 3,908 individual members. Of the Montana Medicaid members with COPD claims in 2019, one in five (21%) had a history of asthma and were categorized as having ACOS. After de-duplication, there were 48,944 total visits among these 3,908 members, which averages to 12.5 potential visits per person in 2019 (Table 1).

Table 1: Claim, Member, and Visit Count for COPD and ACOS Montana Medicaid, 2019

Claims		
	N	Percent
Total COPD Claims	245,423	100%
ACOS Claims	40,203	16%
COPD Alone Claims	205,220	84%
Members		
Total Individual Members	3,908	100%
Members with ACOS	804	21%
Members with COPD Alone	3,104	79%
Visits		
Total Number of Visits	48,948	100%
ACOS Visits	7,884	16%
COPD Alone Visits	41,064	84%

There was no significant difference between members with ACOS and those with COPD alone for sex reported. Similarly, there were no significant differences by race between members with ACOS compared to without ACOS. The proportion of Montana Medicaid members with ACOS compared to those with COPD alone was significantly higher among those under 30 years old (5% versus 1%, respectively) and among those aged 30-50 years old (21% versus 6%, respectively). Additionally, the percentage of Montana Medicaid members with ACOS who were 70 years of age and older (11%) was significantly lower than those with COPD alone (25%; Figure 1).

Figure 1. Demographics of Montana Medicaid Members with COPD claims, by ACOS and COPD alone, Montana Medicaid, 2019

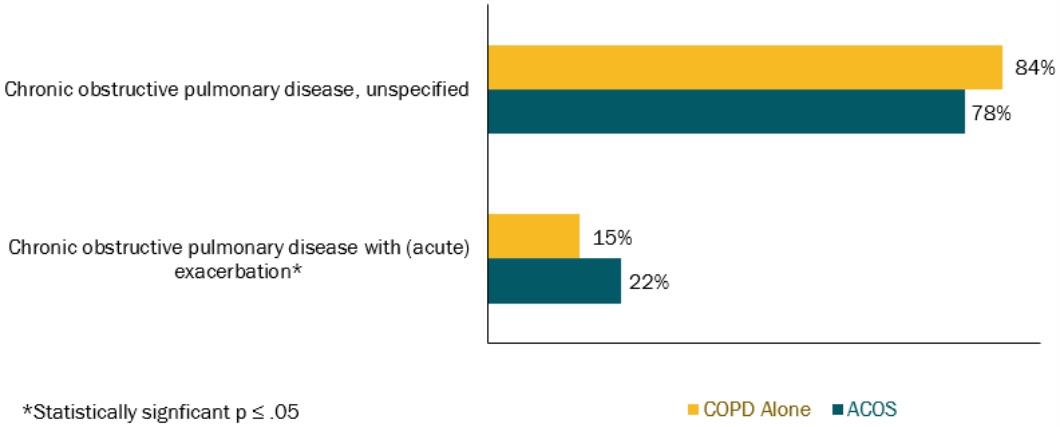


*Too few records to report
**Statistically signficant p ≤ .05

Reason for Visits

There was a difference in the primary ICD-10 code used on COPD claims submitted by members with ACOS compared to those with COPD alone: acute exacerbation (J44.1) was used significantly more often on claims submitted by members with ACOS than on claims submitted by those with COPD alone (22% compared to 15%). However, there was no significant difference in use of the code J44.9 (unspecified COPD) between the two categories (Figure 2).

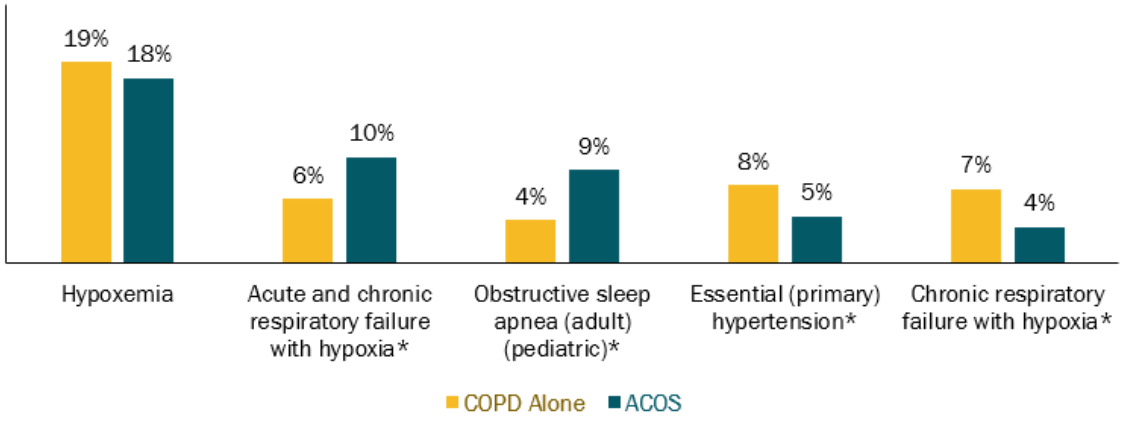
Figure 2. Percent of visits associated with select primary ICD-10 codes among Montana Medicaid Members with COPD, by ACOS and COPD alone



*Statistically signficant p ≤ .05

The five most common secondary ICD-10 codes used for COPD visits by Montana Medicaid members (excluding asthma codes for those with ACOS) were hypoxemia, acute and chronic respiratory failure, obstructive sleep apnea, hypertension, and chronic respiratory failure. Acute and chronic respiratory failure (10%) and sleep apnea (9%) were significantly higher in visits for Medicaid members with ACOS than those with COPD alone (6%, and 4%, respectively). Hypertension (5%) and chronic respiratory failure (4%) were significantly lower in visits for Medicaid members with ACOS than those COPD alone (8% and 7%, respectively; Figure 3).

Figure 3. Percent of visits associated with select secondary ICD-10 codes among Montana Medicaid Members with COPD, by ACOS and COPD alone



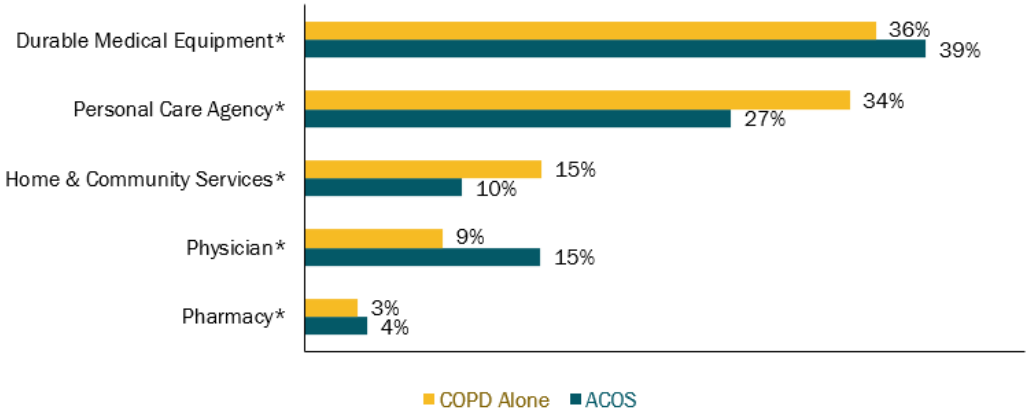
*Statistically signficant p ≤ .05

Treatment Type and Location

Treatment with durable medical equipment was the most common type of treatment associated with both groups (39% for those with ACOS and 36% for those with COPD alone). This was followed by personal care agencies (27% for ACOS and 34% for COPD alone; Figure 4).

Pharmacy treatments accounted for the least amount of visits for both groups (4% for ACOS and 3% for COPD alone; Figure 4).

Figure 4. Percent of visits associated with select treatment types among Montana Medicaid Members with COPD, by ACOS and COPD alone

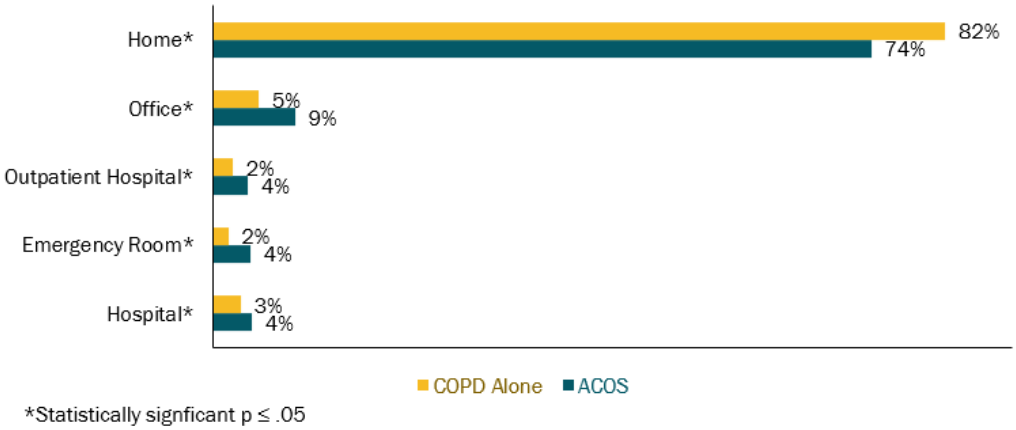


*Statistically signficant p ≤ .05

Home was the most common treatment location for COPD visits, accounting for 82% of visits with COPD alone and 74% of those with ACOS. Treatments in offices were the next highest (9% for ACOS and 5% for COPD alone; Figure 5).

All other treatment locations (outpatient hospitals, emergency rooms, and inpatient hospitals) were between 2% and 4% of all visits for both ACOS and COPD alone visits (Figure 5).

Figure 5. Percent of visits associated with select treatment locations among Montana Medicaid Members with COPD, by ACOS and COPD alone



*Statistically signficant $p \leq .05$

Charge and Allowable Amount

The median charged amount for a COPD claim for those with ACOS was $60.00, compared to $54.00 for those with COPD alone. The allowable amount was smaller, being about $27.00 for those with ACOS and $24.00 for those with COPD alone. While the charge and allowable amount were both significantly different between claims submitted by those with ACOS and those without, the differences, on average, were between $6.00 and $3.00, which is likely not clinically relevant (Table 2).

Table 2: Monetary Amounts of Medicaid Claims submitted by Montana Medicaid Members with COPD, by ACOS and COPD Alone, 2019

ACOS			
	Min	Max	Median
Charge Amount	$0.25	$30,927.00	$60.00
Allowable Amount	$0.00	$7,587.00	$26.94
COPD Alone			
	Min	Max	Median
Charge Amount	$0.00	$18,951.68	$54.00
Allowable Amount	$0.00	$8,857.76	$24.00
Difference Between ACOS and COPD Alone			
	Min	Max	Median
Charge Amount	$0.25	$11,975.32	$6.00
Allowable Amount	$0.00	($1,270.76)	$2.94

Discussion

Around one in five (21%) Montana Medicaid members with COPD could potentially have ACOS, which is a unique presentation of symptoms which may merit treatment beyond the typical management for COPD alone.

The percent of members with COPD under the age of 50 years old was higher for members with a history of asthma (27%) than those without (8%), which could indicate an earlier COPD diagnosis for this population or earlier COPD onset.

While unspecified COPD was the most common primary ICD-10 code used on claims regardless of ACOS (83%), the percent of COPD visits that were coded with acute exacerbation was greater in those with ACOS (22%) than those with COPD alone (15%). ACOS could lead to more acute exacerbations; however, it is also possible that specific ICD-10 codes are more likely to be assigned by a physician for a patient with ACOS.

Personal care agencies and home and community services both had higher prevalence of COPD-related visits for members with COPD alone than those with ACOS. However, the older average age of the patient population with COPD alone may be a confounding factor that contributes to this association. This also could contribute to the associations found in the treatment location. COPD-related visits that were treated at home were more common for those with COPD alone, which may be a reflection of the more elderly population.

Four of the five most common secondary diagnosis codes for claims from COPD-related visits were related to respiratory conditions — hypoxemia, acute and chronic respiratory failure, obstructive sleep apnea, and chronic respiratory failure. Only hypertension is not a respiratory condition.

There were minimal differences in the charged and allowable amounts for COPD claims submitted by members with ACOS and by those with COPD alone. However, if patients are diagnosed earlier with ACOS, there is a potential longer disease burden that should be considered.

Limitations

- The method of deduplication (one claim per person per date) eliminates any possible second, but separate, trip to another facility on the same date and does not account for multiple-day stays in hospitals.
- Medicaid claims are intended solely for billing purposes and diagnosis information included on claims is intended to justify payment. For this reason, diagnosis data on claims may not accurately reflect the clinical scenario.
- There is no official ICD-10 code or universally agreed upon clinical diagnostic criteria for ACOS. For this reason, the results presented here are only accurate for the specific criteria used in this report: a COPD claim with an asthma claim within the past two years.
- This report is limited to Montana Medicaid Members and does not represent Montanans outside of this population.

Clinical Recommendations

- Inform patients with asthma about possible COPD-asthma overlap, including potential symptoms that differ from asthma, and conduct screenings for patients with symptoms.
- ACOS should be considered in patients with chronic airways disease with features of both asthma and COPD, as this will potentially impact clinical management
- Consult current clinical practice guidelines regarding the diagnostic evaluation and treatment for asthma, COPD, or ACOS
- Perform spirometry regularly for all patients with asthma and COPD.
- Ensure all patients with both asthma and COPD are counseled on smoking cessation, educated on medication usage, including correct inhaler technique, and have regular asthma checkups.
- Additionally, for patients with both asthma and COPD, potential lung infections contribute to management of both conditions. All patients with asthma and COPD should receive the recommended influenza and pneumococcal vaccinations appropriate for their age group

Citations

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