Real-World Primary Non-Adherence to Biologic Therapies in Moderate-to-Severe Asthma: A Retrospective Claims Analysis

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Background

- Asthma affects approximately 25 million people in the United States and imposes a substantial economic burden, with annual medical costs estimated at $50.3 billion.[1,2]
- Although only 5-10% of patients have severe asthma, this group accounts for more than half of total asthma-related costs.[2]
- Biologic therapies can reduce exacerbations and hospitalizations by over 50%, yet primary non-adherence, which is defined as failure to initiate therapy after a prescription is sent to the pharmacy, remains common (20-25%).[3]
- Ensuring primary adherence is crucial to reducing exacerbations, preventing hospitalizations, and ensuring biologics deliver their intended health and economic impact.

Study Objectives

- The **primary objective** was to evaluate the rate of primary non-adherence of biologics in patients with moderate-to-severe asthma.
- The **secondary objectives** were to :
  - compare primary adherence rates of biologic claims associated with an asthma diagnosis compared to any approved diagnosis.
  - compare number of biologic claims filled within the measurement period by benefit type (pharmacy versus medical).
  - assess secondary adherence, defined as mean possession ratio (MPR), among members who initiated therapy.

Methods

- A retrospective observational analysis was conducted using medical and pharmacy claims of a biologic fill between January 1st, 2022, to May 31st, 2025, from a regional health plan in New York State.
- Members aged ≥ 6 years with ≥ 1 diagnostic code for asthma (J45) were included; Medicaid members were excluded. Additionally, members without a prior asthma diagnosis or without continuous enrollment for 6 months before and after the approval date were excluded.
- The index date was defined as the prior authorization (PA) approval date for an asthma biologic between January 1st, 2022, to December 31st, 2024.
- A total of six asthma biologics were included: benralizumab, dupilumab, mepolizumab, omalizumab, reslizumab, and tezepelumab.
- Primary adherence was defined as evidence of a biologic fill or administration within 180 days of the index date.
- For members with both medical and pharmacy claims, the first claim that demonstrated primary adherence was used for measurement.
- For secondary outcomes, primary non-adherence was analyzed across all pharmacy and medical claims, regardless of diagnosis code.
- Additionally, the number of biologic claims and secondary adherence (pharmacy benefit only) were assessed in members who initiated therapy. The MPR was calculated as total days supply of biologic therapy within a 180-day period after PA approval.

Charts and Tables

Table 1. Baseline Member Demographics with Asthma Diagnosis

Members with Asthma diagnosis	Rx Benefit N (%)	Medical Benefit N(%)
Overall	1,205	274
Lines of Business		
Commercial	872 (72.4%)	222 (81.0%)
Exchange	20 (1.7%)	8 (2.9%)
Medicare	232 (19.3%)	25 (9.1%)
Safety Net	81 (6.7%)	19 (6.9%)
Gender		
Male	431 (35.8%)	63 (23.0%)
Female	774 (64.2%)	211 (77.0%)
Drug		
Dupilumab	683 (56.7%)	N/A
Benralizumab	112 (9.3%)	26 (9.5%)
Mepolizumab	191 (15.9%)	9 (3.3%)
Tezepelumab	28 (2.3%)	19 (6.9%)
Omalizumab	191 (15.9%)	217 (79.2%)
Reslizumab	N/A	3 (1.1%)
Age		
< 18	114 (9.5%)	26 (9.5%)
18 - 64	802 (66.6%)	211 (77.0%)
65 ≥	289 (24.0%)	37 (13.5%)

Table 2. Number of Biologic Claims Among Primary-Adherent Members by Benefit Type

# of Claims	Rx Benefit N (%)	Medical Benefit N(%)
# of Primary – Adherent Members	1,201	274
1*	55 (4.6%)	14 (5.1%)
2	115 (9.6%)	20 (7.3%)
≥ 3	1,031 (85.8%)	240 (87.6%)

*1: initial fill counted as primary adherent

Figure 1. Initial Asthma Biologic Fill Rates by Benefit Type and Diagnosis

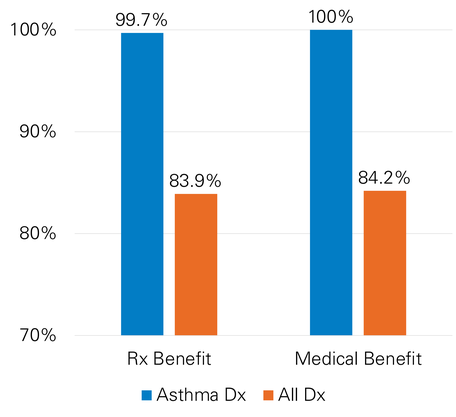
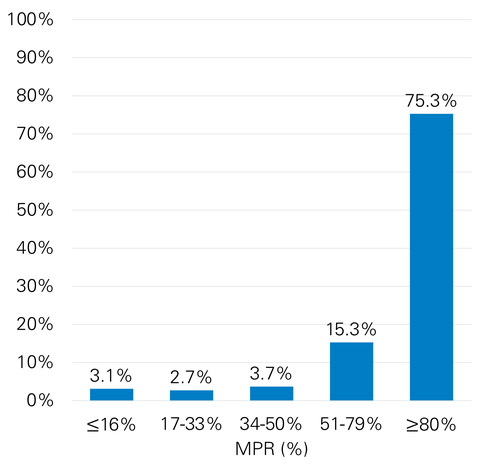


Figure 2. Secondary Adherence to Biologic Therapy: Distribution of MPR on Rx Benefit



Results

- A total of 1,479 members with both an asthma diagnosis and a biologic prescription were included. Among those covered under the pharmacy benefit, 99.7% (1,201/1,205) demonstrated primary adherence, while under the medical benefit, 100% of members (274) were adherent.
- When expanding to all members prescribed a biologic regardless of diagnosis (n = 3,139), primary adherence was observed in 83.9%(2,214/2,638) of pharmacy benefit members and 84.2% (422/501) of medical benefit members.
- Sustained use (≥3 claims) was observed in 85.8% of pharmacy benefit members and 87.6% of medical benefit members who initiated therapy.
- Among pharmacy benefit members who initiated biologic therapy, 75.3% had secondary adherence (MPR ≥80%), 15.3% had MPR of 51–79%, and fewer than 5% had MPR of <50%.

Discussion and Limitations

- Primary adherence was higher in patients with an asthma diagnosis compared with other diagnoses. However, the reasons for this difference were not assessed and warrant further investigation. Adherence rates did not differ between pharmacy and medical benefits.
- For members who initiated therapy, the majority remained on treatment 6 months post-PA approval.
- The health plan's policy requires members to demonstrate inhaler adherence for at least 3 months prior to approval, which may have resulted in a positively selected pool of patients who were already adherent. The high adherence may be attributed to the health plan's clinical support program, which provides asthma education to members. Additionally, specialty pharmacies often offer copay assistance programs, which may reduce cost barriers.
- While primary adherence reflects whether the first fill occurred, it does not guarantee continued adherence. Some members had claims for multiple biologics, indicating that initiation alone does not ensure persistence.
- The relatively short study duration may limit generalizability.

Conclusions

- In this study, prior authorization was not a barrier to primary adherence, as nearly all approved members initiated therapy.
- These findings provide insight into real-world adherence patterns with asthma biologics. High sustained use was observed, but opportunities remain for health plans to strengthen continuation beyond initiation.
- Further studies are needed to evaluate secondary adherence and strategies to support long-term treatment success.

References

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Contact Info: joh2@umaryland.edu | This research was completed as part of the 2025 AMCP Foundation Internship, sponsored by Sanofi.