

New Initiators to Asthma Biologics: A Pre/Post Analysis of Utilization Patterns, Total Cost of Care, and Asthma-related Events Among 14 Million Commercially Insured Members

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BACKGROUND

- Asthma affects approximately 25.2 million Americans and has an estimated societal cost of \$56 billion.^{1,2} Severe asthma phenotype is an important subset of asthma representing fewer than 5–10% of all asthma patients, but accounts for almost 50% of all asthma costs.³
- Global Initiative for Asthma 2019 guidelines recommended an asthma biologic: Cinqair® (reslizumab), Dupixent® (dupilumab), Fasenra® (benralizumab), Nucala® (mepolizumab), or Xolair® (omalizumab), for patients with a severe asthma phenotype.⁴
- The Institute for Clinical and Economic Review 2018 asthma final report determined that all five asthma biologics “exceed commonly accepted thresholds for cost-effectiveness.”³ The fair price to value was found to be between \$6,500 and \$10,100 annually (depending on the drug) for a \$100,000 investment per quality adjusted life year gained, representing a 73–80% discount from list price.³
- Little is known about the real-world utilization patterns and total cost of care for asthma biologic utilizers. A better understanding could assist insurers’ management strategies and value-based contract negotiations.

OBJECTIVE

Using 14 million commercially insured members integrated pharmacy and medical claims, describe the real world:

- Asthma biologic utilization trend and spend among all members.
- Persistence, average per member total cost of care (TCC), and asthma-related event rate among new initiators.

METHODS

All analyses were conducted using integrated pharmacy and medical claims from 14 million commercially insured members.

Assessment 1: Asthma Biologic Utilization Trend and Spend

- Pharmacy and medical claims data were queried from January 2017 through June 2019 (30 months) using Generic Product Identifier (GPI) and Healthcare Common Procedure Coding System (HCPCS) codes to identify asthma biologic claims: reslizumab, benralizumab, dupilumab, mepolizumab, or omalizumab.
- Omalizumab and dupilumab have additional indications beyond asthma. To limit trend and spend to asthma, medical claims were required to have a J45% (asthma) ICD-10 code in any field on the claim. For pharmacy claims to be included, member medical claims from January 2017 to June 2019 were queried and required to have 2 or more ICD-10 code J45%, 90 days or more apart in any field.
- Asthma biologic utilization per 10,000 members was calculated and reported quarterly.
- Asthma biologic per member per month (PMPM) cost was defined as monthly total paid (plan paid plus member paid) divided by average monthly membership count.

Assessment 2: Persistence, Pre/Post Total Cost of Care, and Asthma-related Event Rate in Asthma Biologic New Initiators

- Pharmacy and medical claims data were queried from July 2017 through December 2018 (18 months) using GPI and HCPCS codes to identify members with an asthma biologic claim for reslizumab, benralizumab, mepolizumab, or omalizumab. Dupilumab was excluded because it was not FDA approved for asthma until October 2018.
- Members’ earliest asthma biologic claim was used to define their index date and index drug.
- Members were required to be continuously enrolled 182 days prior (pre-period) and 182 days after (post-period) their index date.
- To limit the intended use to asthma, member medical claims were queried during the pre- and post-periods and required to have 2 or more J45% ICD-10 codes in any field at least 30 days apart.
- Members were required to be new starts, defined as no asthma biologic claims in the pre-period.
- Persistence was evaluated at days 90 and 182 after index date. Persistence was based on index drug and defined as member receiving drug in accordance with prescribing information:

→ Persistence between index date and 90 days post was defined as 3 or more claims.

→ Persistence between index date and 182 days post was defined as 4 or more benralizumab claims or 6 or more reslizumab, mepolizumab, or omalizumab claims.

TCC was defined as the sum of all pharmacy and medical claim costs (plan paid plus member paid) in the pre- and post-periods. Pre-period TCC was reported as pharmacy and medical costs. Post-period TCC was also broken out by:

→ Pharmacy benefit cost without asthma biologics.

→ Medical benefit cost without asthma biologics.

→ Asthma biologic cost from pharmacy and medical benefit.

- Facility medical claims were queried in the pre- and post-periods to identify asthma-related (J45% in primary field) hospitalizations and/or emergency room (ER) visits.

RESULTS

Assessment 1: Asthma Biologic Utilization Trend and Spend (Figure 1)

- There was a 78% increase in asthma biologic utilization over 2.5 years, from 3.3 utilizers per 10,000 members in 1Q2017 to 5.8 utilizers per 10,000 members in 2Q2019 among 14 million commercially insured members.
- During the same period, asthma biologic PMPM cost increased 85%, from \$0.45 to \$0.84.

Assessment 2: Persistence, Pre/Post Total Cost of Care, and Asthma-related Event Rate in Asthma Biologic New Initiators (Figure 2)

- Between July 2017 and December 2018, 1,492 members were identified as asthma biologic new starts.
- Thirty (2.0%) members newly started reslizumab, 84 (5.6%) benralizumab, 432 (29.0%) mepolizumab, and 946 (63.4%) omalizumab.

Persistence and Asthma-related Event Rate in Asthma Biologic New Initiators (Table 1)

- At 3 months after index date, persistence was highest in reslizumab users with 86.7% meeting persistence definition, and lowest in benralizumab users at 59.5%.
- At 6 months after index date, persistence was highest in reslizumab users with 70% meeting persistence definition, and lowest in omalizumab users at 49.5%.
- In the pre-period, 3.2% of all asthma biologic new start members experienced one or more asthma-related events. In the post-period, asthma-related event rate was 1.6% among all new starts, a 50% decrease from the pre-period.
- Table 1 shows asthma-related event results broken out by index drug. In the pre-period, event rate was highest in benralizumab users at 4.8% and lowest in omalizumab users at 2.5%. In the post-period, event rate was highest in reslizumab users at 3.3% and lowest in benralizumab users at 0%.

Average 6-month Pre/Post Total Cost of Care in Asthma Biologic New Initiators (Figure 3)

- In the pre-period, average per member TCC was \$10,913. Pharmacy cost accounted for \$3,692 and medical cost was \$7,221.
- In the post-period, average per member TCC was \$28,233, a 2.6-fold increase from the pre-period TCC.
- Average pharmacy cost without asthma biologic was \$4,337, accounting for 4% of the pre/post TCC increase.
- Average medical cost without asthma biologic was \$7,436, accounting for 1% of the pre/post TCC increase.
- Average asthma biologic cost (pharmacy plus medical) was \$16,460, accounting for 95% of the pre/post TCC increase.
- Figure 3 shows the TCC break out by index drug. TCC increased more than 2-fold for all asthma biologics, ranging from 2.4 to 3.1-fold.

FIGURE 1

Asthma biologic utilization per 10,000 members, January 2017 to June 2019, among 14 million commercially insured lives

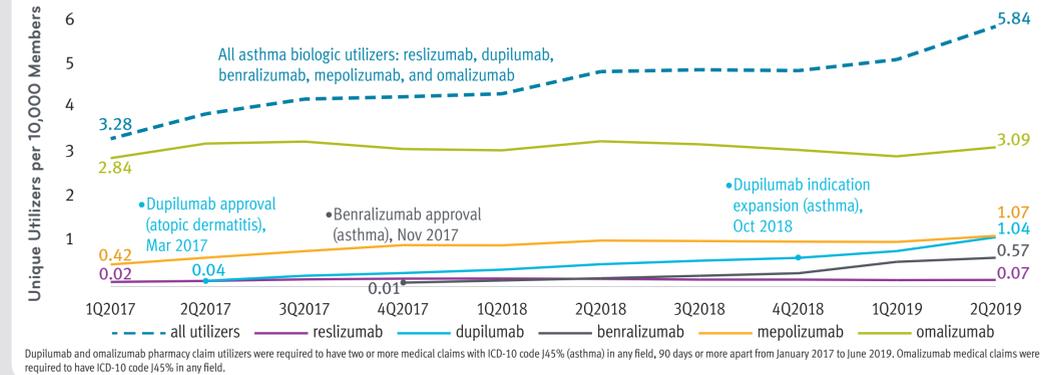


TABLE 1

Persistence and asthma-related event rate in asthma biologic new start members

Outcome	Overall N = 1,492	Cinqair® (reslizumab) N = 30	Fasenra® (benralizumab) N = 84	Nucala® (mepolizumab) N = 432	Xolair® (omalizumab) N = 946
3-month persistence	73.5% (1,096)	86.7% (26)	59.5% (50)	80.1% (346)	71.2% (674)
6-month persistence	51.5% (769)	70.0% (21)	58.3% (49)	53.5% (231)	49.5% (468)
6-month pre-period hosp/ER visits	3.2% (47)	3.3% (1)	4.8% (4)	4.2% (18)	2.5% (24)
6-month post-period hosp/ER visits	1.6% (24)	3.3% (1)	0%	2.5% (11)	1.3% (12)

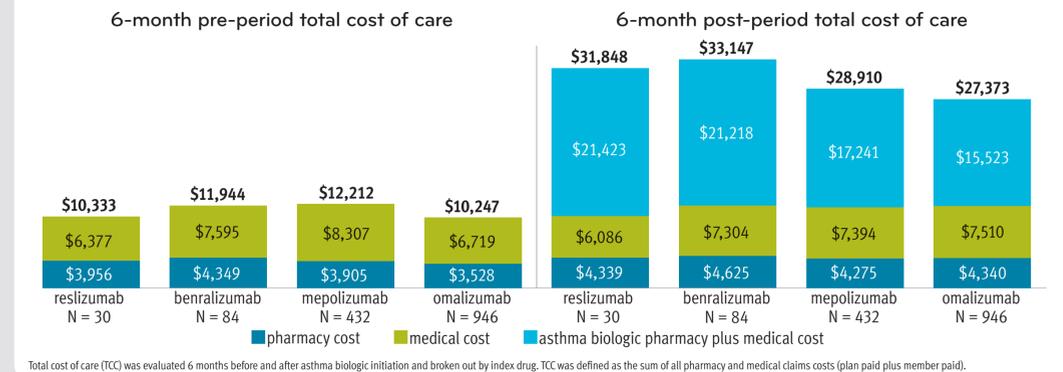
Hosp/ER = hospitalizations or emergency room visits. During the 18-month period, between July 2017 and December 2018, member’s first asthma biologic claim was identified as the index claim and defined as new start if no asthma biologic claim was found within 6 months before (pre-period) index date. Persistence was defined as dosing received in accordance with prescribing information. 3-month persistence was defined as 3 or more claims between index date and 3 months post. 6-month persistence was defined as 4 or more benralizumab claims or 6 or more reslizumab, mepolizumab, or omalizumab claims between index date and 6 months post. Hosp/ER visits were identified by a facility medical claims query in the 6-month pre-period and 6-month post-period to identify asthma-related (J45% in primary field) hospitalizations and/or emergency room visits.

LIMITATIONS

- Administrative pharmacy and medical claims have the potential to be miscoded and include assumptions of members’ actual drug use and diagnoses.
- No statistical comparisons were made, and no assessment of members’ disease severity was performed. Therefore, comparisons between products should not be made. This analysis was intended as an exploratory assessment. Some asthma biologic products had low utilization, potentially confounding the results.
- Claim costs were not adjusted for site of care (e.g. facility, professional, or pharmacy), which can contribute to differing cost markups.
- The data used in this analysis was limited to a commercial population and not generalizable to Medicare or Medicaid.

FIGURE 3

Average total cost of care for 1,492 asthma biologic new start members between July 2017 and December 2018



CONCLUSIONS

- Among 14 million commercially insured members, there were 8,447 members with an asthma biologic claim in 2Q2019 resulting in \$0.84 PMPM cost, a near doubling of asthma biologic utilization and drug expenditure over 2.5 years.
- 48.5% of asthma biologic new start members did not receive all recommended doses within the first 6 months, indicating the need to explore and address barriers to asthma biologic persistence and value-based contracting to obtain lack of persistence remuneration.
- After asthma biologic initiation, total cost of care increased by 2.6-fold, with asthma biologics driving 95% of the cost increase. Medical costs did not decline, dispelling the conventional wisdom that these agents decrease cost in the first 6 months of treatment.
- This real-world asthma biologic therapy assessment found in a large commercially insured population a substantial increase in total cost of care, poor persistence, and a small decrease in hospitalization/ER visits after therapy initiation. The results provide further evidence for insurers to consider implementing value-based agreements to ensure fair pricing to value, and clinical programs to improve persistence.

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