

# Changes in Oral Corticosteroid (OCS) Use Following Initiation of Mepolizumab Therapy in Patients with Asthma

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## Background

- OCS is often used as daily maintenance therapy for patients with severe asthma, but chronic OCS use has been associated with severe side effects; therefore, physicians strive to reduce dosage.<sup>1</sup>
- Mepolizumab has proven to be efficacious in the reduction in OCS use as well as exacerbations for these patients in clinical trials,<sup>2</sup> although there is limited real world data to extend clinical trial findings to a managed care setting.
- This study characterizes the changes in OCS use, using a variety of measures, and exacerbations after initiation of mepolizumab therapy in the IBM MarketScan<sup>®</sup> insurance claims database.

## Methods

**Study Design:** Retrospective cohort study of US patients with commercial insurance and medical or pharmacy claims indicating Mepolizumab between 11/1/2015 and 9/30/2017.

### Inclusion/Exclusion Criteria



- Aged ≥12 years with a diagnosis of asthma
- ≥12 months of continuous enrollment with medical and pharmacy benefits before (baseline period) and after (follow-up period) the index date which was the 1<sup>st</sup> injection of Mepolizumab
- ≥2 doses of Mepolizumab in the first 180 days of follow-up
- No evidence of Mepolizumab use during the baseline period
- Patients with missing demographic information were excluded

### Outcomes

#### Oral Corticosteroid Utilization

- OCS Mean Daily Dose:** was calculated among all patients as prednisone equivalents over the 12-month period
- Chronic OCS Use:** mean daily dose ≥10mg/day prednisone equivalents in the 90 days prior to the index date
- Number of OCS Bursts:** average daily dose ≥20 mg prednisone equivalents for a duration of 3-28 days AND an outpatient or Emergency Department (ED) claim with a diagnosis of asthma within 7 days of the pharmacy claim

#### Asthma Exacerbations



- Mean rate of exacerbations:** hospitalization with primary diagnosis of asthma OR an outpatient/ED visit with an asthma diagnosis AND a dispensing of a systemic corticosteroid within 5 days
- Mean rate of exacerbations resulting in hospitalizations:** inpatient hospital admissions with a diagnosis of asthma as a primary diagnosis

#### References

- Price DB, Trudo F, Voorham J, et al. Adverse outcomes from initiation of systemic corticosteroids for asthma: long-term. *Journal of Asthma and Allergy*. 2018;11:193-204.
- Bel EH, Wenzel SE, Thompson PJ, et al. Oral glucocorticoid-sparing effect of mepolizumab in eosinophilic asthma. *N Engl J Med*. 2014;371(13):1189-1197.

## Results

### 527 patients met eligibility criteria

**Table 1. Baseline Demographic and Clinical Characteristics of Patients Treated with Mepolizumab**

Characteristics	N = 527
<b>Age Category, %</b>	
12 – 17	3.6
18 – 34	7.0
35 – 44	15.2
45 – 54	33.0
55 – 64	41.2
<b>Female, %</b>	60.7
<b>Geographic Region, %</b>	
Northeast	22.0
North Central	23.3
South	40.2
West	14.0
<b>Asthma-related Comorbidities, %</b>	
Allergic Rhinitis	68.9
Sinusitis	56.5
Respiratory Infections	46.5
Nasal Polyps	20.7

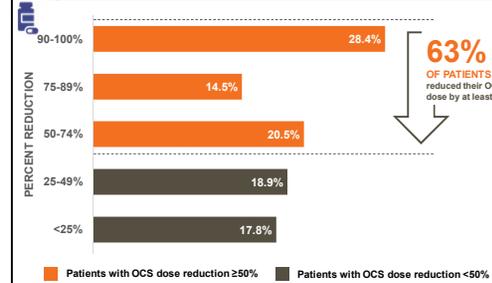
**Figure 1. Mean Number of OCS Bursts 12-Months Before and After Initiation of Mepolizumab (N = 527)**



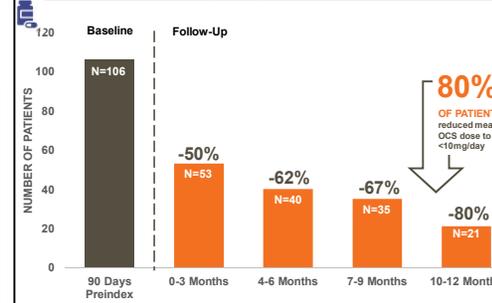
#### Acknowledgements

- Editorial support was provided by Benjamin Wu, PharmD, who is a UNC/GSK Fellow.

**Figure 2. Percent Reduction in OCS Mean Daily Dose in the Follow-up Period Among Patients with a Reduction (N = 366)**



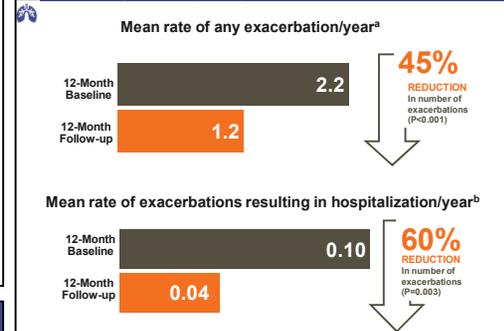
**Figure 3. Subgroup of Patients with Chronic OCS Use (≥10mgs) Before and After Initiation of Mepolizumab (N = 106)**



#### Disclosures

- BH, MM and JS are GSK employees and hold stocks/shares. LMS, JW, and EP are current employees of IBM Watson Health, a consulting company that has received research funds from GSK.
- This study was funded by GlaxoSmithKline (GSK ID HC-19-19597/20642).

**Figure 4. Mean Number of Asthma Exacerbations 12-Months Before and After Initiation with Mepolizumab (N = 527)**



<sup>a</sup>Outpatient encounters with a HCPCS code for administration of mepolizumab and the first outpatient encounter with CPT administration codes 96372 & 96401 in the 28 days following an NDC claim of mepolizumab or prior to the next NDC claim were excluded from the definition of exacerbations.

<sup>b</sup>Exacerbations resulting in a hospitalization were defined as inpatient hospital admissions with a primary diagnosis of asthma.

## Conclusions

- Across all OCS measures, including patients with chronic use, Mepolizumab significantly reduced the use of OCS in patients with asthma in a real world setting.
- Consistent with clinical trial findings, Mepolizumab significantly reduced the rate of exacerbations and exacerbations resulting in hospitalizations in this real world sample of patients with commercial insurance.

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