

ABSTRACT

Rationale: Little is known about the use of the monoclonal antibodies approved for the treatment of asthma. We quantified trends and patterns of utilization of these biologics.

Methods: We used the IQVIA National Disease and Therapeutic Index™ (NDTI), a nationally representative survey of over 4000 office-based physicians in the US. We focused on ambulatory visits where asthma was diagnosed and treated with one or more of the biologics (“treatment visit”).

Results: From 2003 to 2019, annual asthma-related visits plateaued between 12 and 14 million. Biologic treatment visits ranged from 0.4% of 14,167,830 asthma-related visits in 2004, the first full year with a biologic available, to 1.1% of 14,343,305 visits in 2018, the most recent year with complete data [trend, p=0.03]. Omalizumab was the most used biologic, accounting for 53% of the visits in 2018, followed by mepolizumab (26%), benralizumab (21%), and reslizumab (0.7%). Data on dupilumab use is limited given its recent introduction. Of these biologic treatment visits, 58% were female, 48.6% 40-59 years of age, 21% 60-74 years, 17% 20-39, 9% 6-19, and <5% >75 years of age. 66.8% were white, 14% black, and 12% Hispanic. These visits were mostly to allergists [55%] and pulmonologists [32%]. Internists, family practitioners, and pediatricians accounted for 9%, 2%, and 0.5% of these visits respectively.

Conclusions: There is an overall increasing trend in the use of biologics for asthma with omalizumab remaining the most commonly prescribed biologic for asthma. Use of mepolizumab and benralizumab is increasing.

RATIONALE & STUDY OBJECTIVE

- Five monoclonal antibodies (mAb) are now available for the treatment of asthma,¹ but little is known about their utilization patterns.
- Emerging evidence suggests there may be differences in use across age groups, race, and insurance type.²
- We sought to describe trends of biologic use between 2003 and 2019, and to identify patterns of use by subpopulations.

METHODS

Data Source: IQVIA’s National Disease and Therapeutic Index (NDTI), a survey of ambulatory care providers across the US.³

Study Population: Clinic visits with asthma as a primary diagnosis, during which one of the following biologics was recorded for asthma treatment:

- Omalizumab
- Mepolizumab
- Reslizumab
- Benralizumab
- Dupilumab

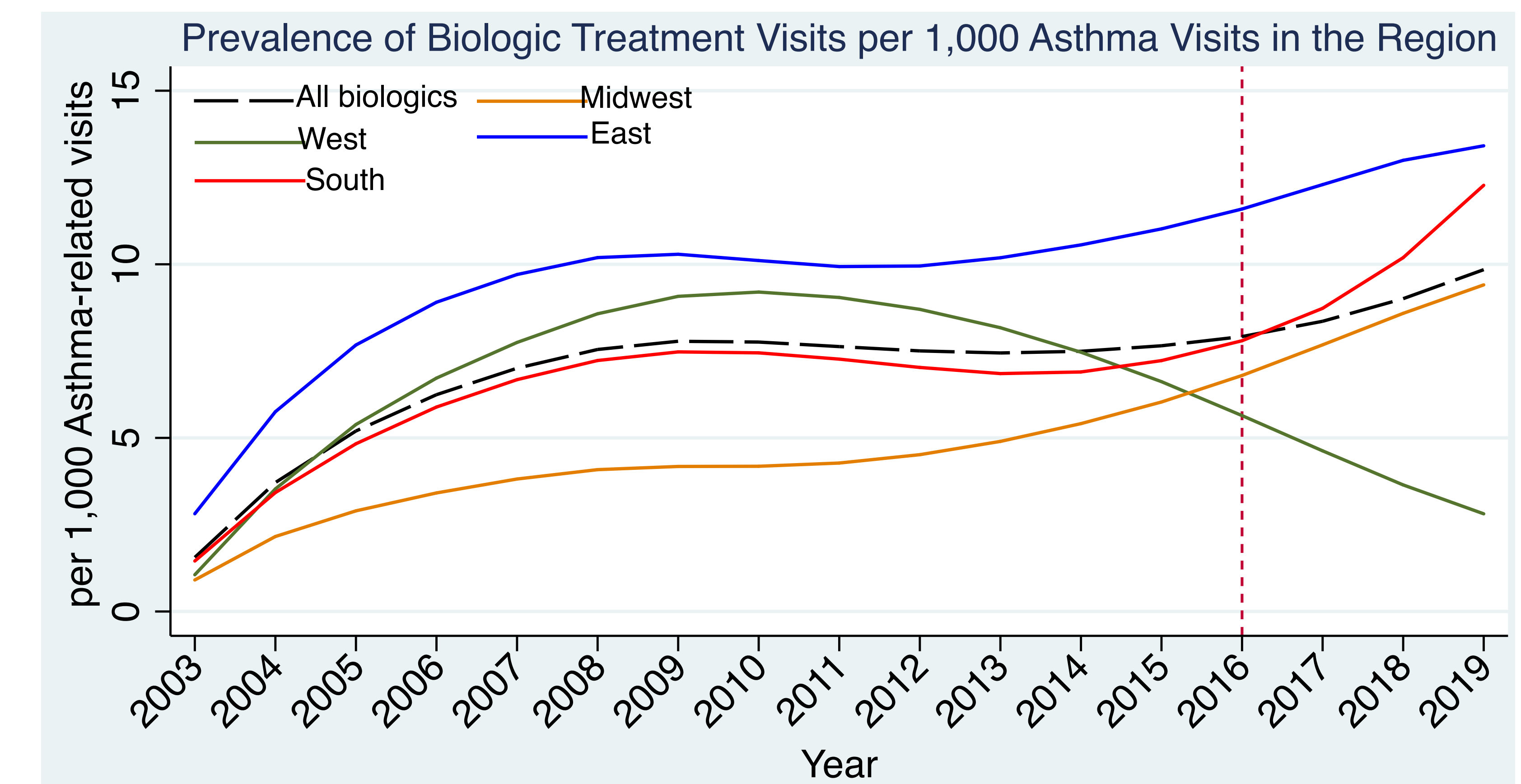
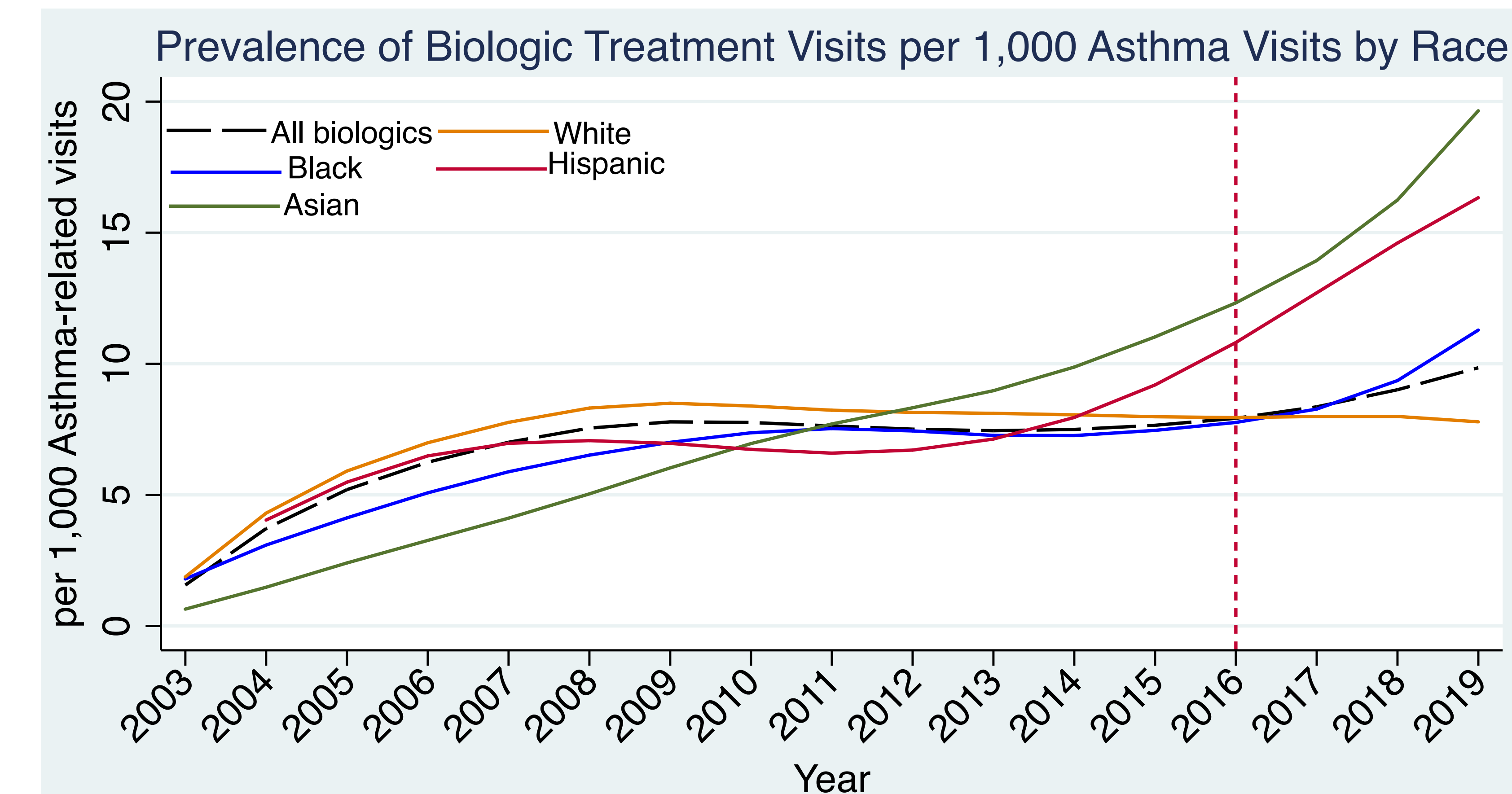
Statistical Analysis: Descriptive statistics. For trends, time periods were considered to be in 2 phases: 2003-2015 (anti-IgE only), 2016-2019 (anti-IgE + other biologics). To smooth curves, we used LOWESS (Locally Weighted Scatterplot Smoothing) using moving averages and in regression analysis, we included these phases as covariates to assess the relationship of the time period with the prevalence of biologic use.

RESULTS

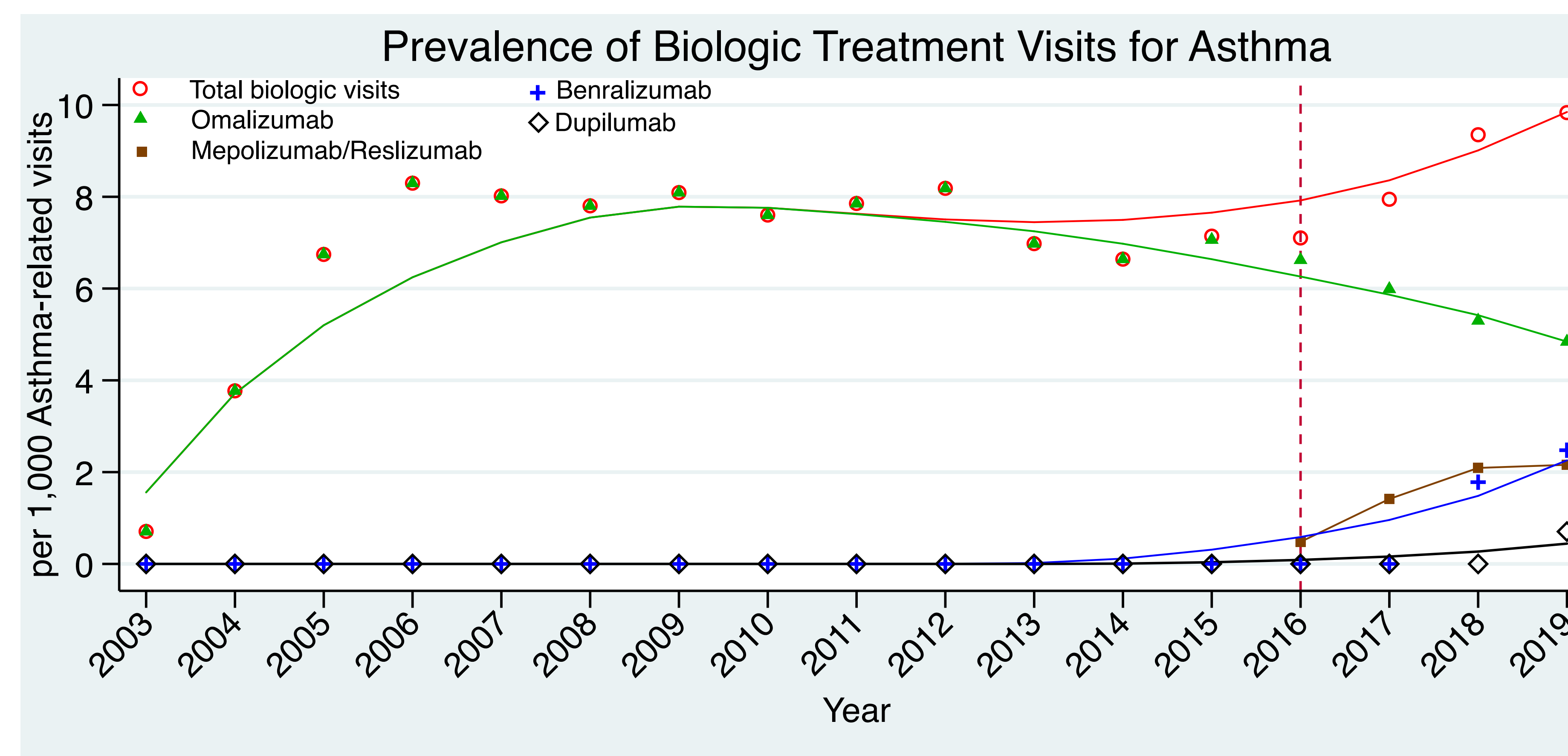
Characteristics of Patients with Asthma Treatment Visits in 2019		
	Biologic	No Biologic
N	205,690	11,214,530
Age category, n (%)		
6-19	12,938 (0.5)	2823232 (99.5)
20-39	70,847 (2.5)	2,761,864 (97.5)
40-59	74739 (2.1)	3402937 (97.9)
60-74	26,388 (1.5)	1,676,563 (98.5)
≥75	20,778 (3.6)	549,934 (96.4)
Female, n (%)	110,135 (1.9)	5,770,055 (98.1)
Race and Ethnicity, n (%)		
White	125,326 (1.7)	7,163,818 (98.3)
Black	26,462 (1.4)	1,897,232 (98.6)
Asian	17,059 (2.2)	769,642 (97.8)
Hispanic	33,393 (2.8)	1,163,198 (97.2)
Insurance type, n (%)		
Public	123,203 (1.9)	6,477,295 (98.1)
Private	63,476 (2.1)	2,984,361 (97.9)
Other	19,011 (1.5)	1,275,640 (98.5)
No insurance/unspecified	0	477234 (100)
Physician Specialty, n (%)		
Allergy/Immunology	94,688 (6.0)	1,488,574 (94.0)
Pulmonology	60,710 (3.3)	1,768,206 (96.7)
Other specialties	50292 (0.6)	7958050 (99.4)
Region, n(%)		
East	81,414 (3.3)	2,405,510 (96.7)
Midwest	28,162 (1.2)	2,263,376 (98.8)
South	59,506 (1.8)	3,277,952 (98.2)
West	36,608 (1.1)	3,267,792 (98.9)

DIFFERING TRENDS ACROSS SUBGROUPS

- Trends stable/decreasing in whites but increasing across other racial and ethnic groups.
- Use highest in East and South which have higher disease severity. However, decreasing in the West



OVERALL TRENDS IN BIOLOGIC USE



LOWESS-Smoothed curves

CONCLUSIONS

- About 1 in 100 asthma-related visits are associated with mAb use.
- Since 2016, total biologic use, which had plateaued between 2006 and 2014, has been steadily increasing, with omalizumab-related visits decreasing.
- Omalizumab remains the most commonly used biologic
- Trends in biologic use appear to differ by race/ethnicity, and region, and not explained by racial or regional trends in asthma prevalence
- Further studies are needed to explore these patterns of use

REFERENCES

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3. Higashi A, Zhu S, Stafford RS, Alexander GC. National trends in ambulatory asthma treatment, 1997-2009. *J Gen Intern Med.* 2011;26(12):1465-70.