

# Characteristics Of Patients Receiving Biologic Therapy for Poorly Controlled Asthma In An Inner-City Hospital

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## Background

Asthma is one of the most common chronic diseases that affects about 30 million in the United States. Asthma is a major cause of school and work absence and is often related to ED visits and hospitalizations.

The incidence of asthma is particularly high among minority inner-city minorities with the Bronx having the highest rate of asthma associated morbidity and mortality among the NY metropolitan Area.

Advancements in understanding “phenotypes” and “endotypes” of asthma in the past few years has led to the development of novel biological agents to treat “difficult to control asthma”. Using these therapies requires a comprehensive approach towards identifying patients and administering these agents. We describe the characteristics of asthmatic patients receiving such therapies at SBH Health System.

## Objectives

- Identify patients who received Biologic therapy (Omalizumab (Xolair™ or Mepolizumab (Nucala™) for “Difficult to Control) Asthma at the Comprehensive Care Center.
- Demographic characteristics, co-morbidities, baseline controller medications used, ED visits, hospitalizations before and after start of therapy are described.
- ED visits and hospitalizations before and after start of biologic therapy were measured

## Methods

Retrospective chart review of 4743 visits among 579 patients with ICD-10 diagnosis of asthma over a 12 month period was performed. Patients who received biologic therapy for asthma between December 2017 and December 2018 included in the study.

## Results

113 patients were included in the study. **Table -1** shows the baseline characteristics of these patients.

Table -1 (n= 113)	
<b>Demographics</b>	
Average Age	55 years
Women	89 (78.7%)
Ethnicity	Hispanic 62 (54.8%)
	African American 32 (28.3%)
	Caucasian (18.5%)
Average BMI	32 (18.4 to 55.1)
Smoking status	Current smokers: 17 (15.0%)
	Former : 40 (35.3%)
	Never Smokers: 56 (49.5%)
<b>Co morbidities</b>	
OSA	24 (21%)
GERD	43 (38%)
Eczema	5 (4%)
Rhinitis	80 (70%)
<b>Controller Medications</b>	
ICS + LABA	112 (99%)
LAMA	80 (70%)
Chronic Steroid Use	17 (15%)
Theophylline	16 (14%)
Montelukast	103 (91%)
<b>Environmental triggers</b>	
Pets	39 (34%)
Rodents	19 (16%)
Roaches	38 (33%)
Dust	34 (30%)

## Results

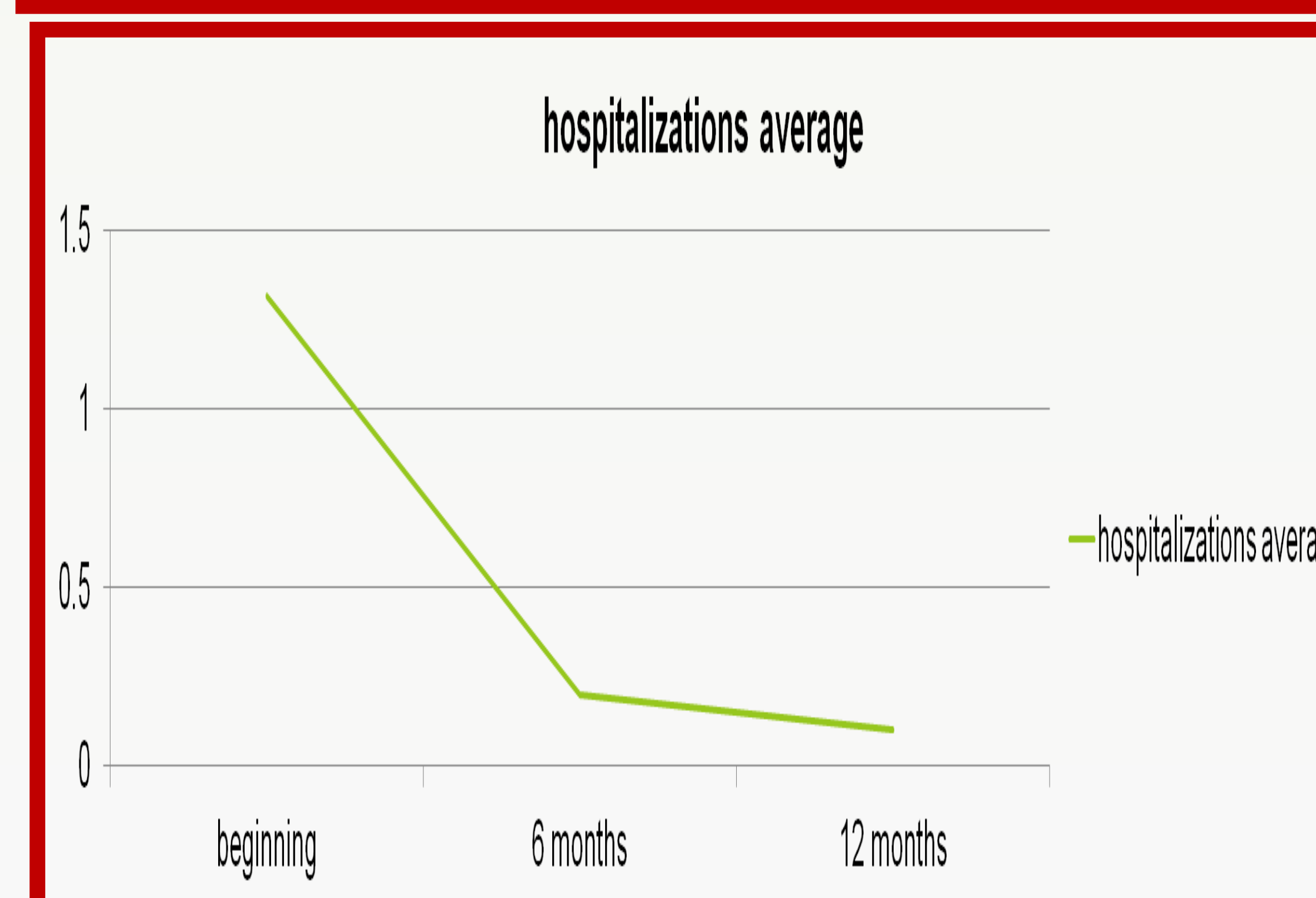
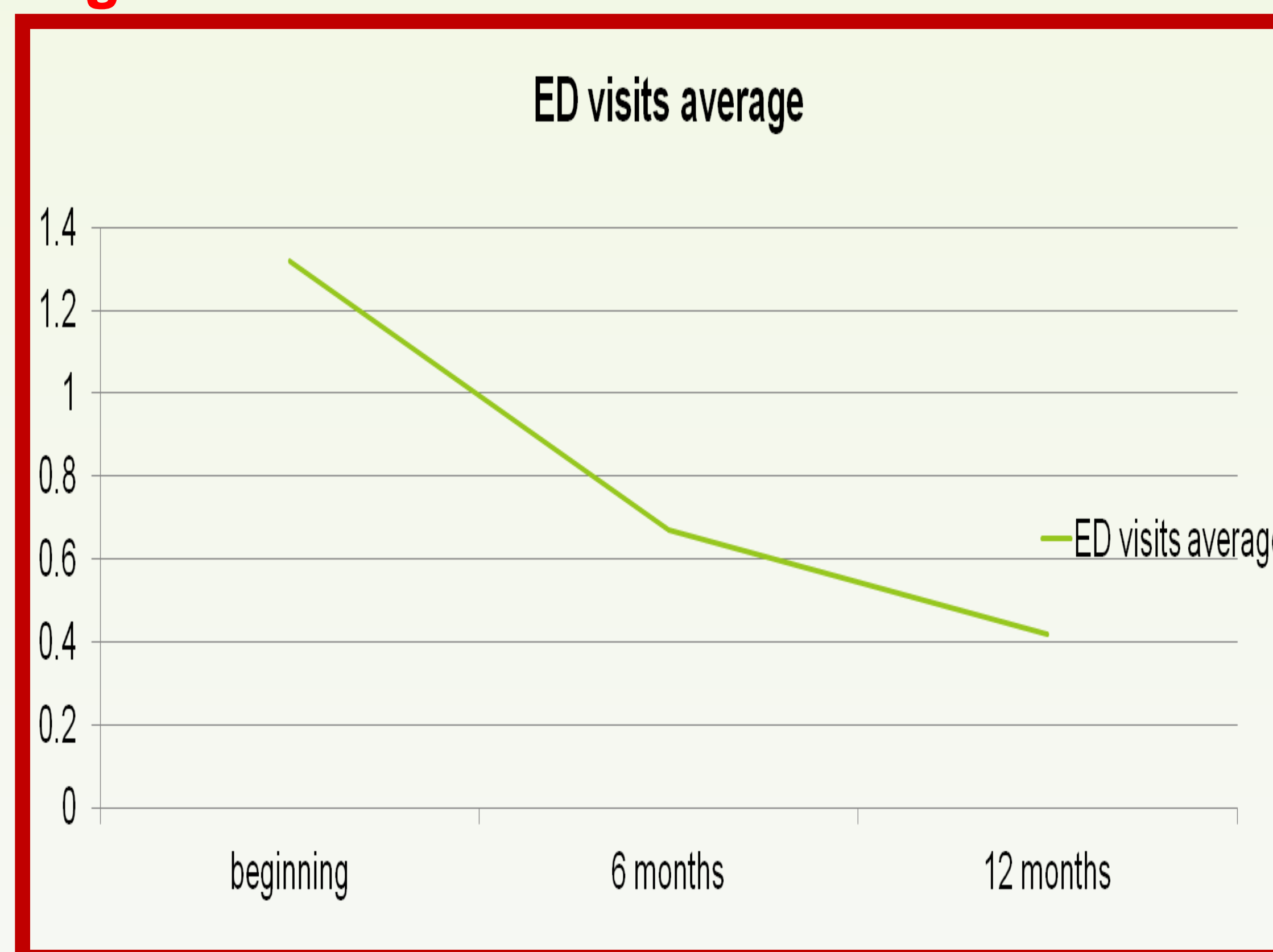
At baseline, 43 (38.05%) had normal spirometry, with a majority showing no evidence of positive bronchodilator reversibility.

108 among the 113 had Ig-E testing performed, with an **average Ig-E level of 619** (range: 13 to 5534).

Among 99/ 113 who underwent blood eosinophil testing, **69 (61.2%)** had absolute eosinophil counts > 150 (range 10 to 980).

At least **70 (61.9%)** patients had at least 1 ED visit (range 0 to 13), while **46 (40.7%)** had 1 or more hospitalization in the preceding 6 months before start of biologic therapy.

Results of the 2 outcome measures 6 & 12 months after start of therapy are shown in **figures below**.



## Conclusion

- We describe the characteristics of **one of the largest biologic therapy programs** for “difficult to control” asthma in the New York Metropolitan area. Systematic identification of poorly controlled “allergic asthma” and initiation of novel biologic therapy agents is feasible in an inner-city minority population.
- As noted in published trials, there was a statistically significant decrease in ED visits (**30% decrease**) and hospitalizations (**50% decrease**) after 12 months of therapy in our population.
- Interesting baseline characteristics among patients who received biologic agents include higher baseline values of Total Ig-E and absolute eosinophil counts. This **“eosinophilic endotype”** of asthma warrants further investigation with comparison with patients who did not meet criteria for biologic agents.

## References

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