

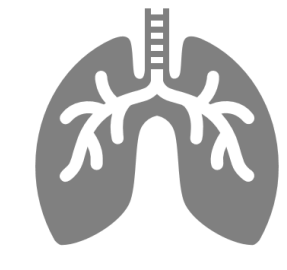
# Real World Peak Inspiratory Flow Rate Assessment by the In-Check DIAL (set to Ellipta Resistance) Demonstrates All Asthma and COPD Patients Achieved $\geq 30$ L/min



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## Introduction



Adequate peak inspiratory flow rate (PIFR) is necessary for sufficient drug delivery in dry powder inhalers (DPIs). There is currently limited information regarding PIFR measured by the In-Check DIAL G16 in real-world practice settings for the asthma and chronic obstructive pulmonary disease (COPD) population.

## Objective



Evaluate the proportion of patients who achieved a PIFR  $\geq 30$  L/min required for DPIs

## Methods



**Study Design:** Prospective, cross-sectional study conducted at Baylor Scott and White Health, a large integrated delivery network in Texas from July 2019 to Feb 2020.

The study objective was addressed as part of a larger study that evaluated pharmacy education for inhaler use. The baseline characteristics collected at Session 1 of the educational initiative are reported in this poster.



### Inclusion Criteria

- $\geq 18$  years with a self-reported asthma and/or COPD diagnosis
- $\geq 1$  prescription for an asthma or COPD maintenance inhaler\* from Jan 2017 to July 2019



### Exclusion Criteria

- Reported use of a spacer device
- Non-English speakers

\*Inhalers included Handihaler DPI, Inhub DPI, Respiclick DPI, Respimat MDI, Symbicort MDI, Asmanex HFA, Alvesco, Bevespi Aerosphere, Dulera, Qvar Inhalation Aerosol

### Patient Cohorts:

Asthma Only (A)

COPD or Combined Asthma/COPD (C/AC)

### PIFR Measurement:

PIFR was assessed with the In-Check DIAL G16 set at the low-medium resistance DPI setting to simulate the Ellipta inhaler

The In-Check DIAL G16 is an inhaler technique assessment tool that can be adjusted to accurately simulate the resistance of inhaler devices

## Results

Table 1. Baseline Characteristics

Characteristic	A Cohort N=53	C/AC Cohort N=95*
Age, mean (SD)	55.8 (15.0)	68.6 (10.3)
Age groups, n (%)		
18-40 years old	8 (15.1%)	0 (0.0%)
41-64 years old	30 (56.6%)	31 (32.6%)
65+ years old	15 (28.3%)	64 (67.4%)
Female, n (%)	33 (62.3%)	44 (46.3%)
Race, n (%)		
Caucasian	43 (81.1%)	84 (88.4%)
Black or African American	4 (7.5%)	7 (7.4%)
Other	6 (11.3%)	4 (4.2%)
Ethnicity, n(%)		
Hispanic/Latino	9 (17.0%)	4 (4.2%)
Not Hispanic/Latino	42 (79.2%)	88 (92.6%)
Missing/Did not answer	2 (3.8%)	3 (3.2%)
Duration of Asthma, in years, n(%)		
Less than 1 year	4 (7.5%)	1 (1.1%)
1 – 5 years	8 (15.1%)	6 (6.3%)
Greater than 5 years	41 (77.4%)	39 (41.1%)
Duration of COPD, in years, n(%)		
Less than 1 year	-	4 (4.2%)
1 – 5 years	-	30 (31.6%)
Greater than 5 years	-	61 (64.2%)
Exacerbations, within past year		
Overall exacerbations, mean (SD)	0.83 (1.27)	1.24 (2.33)
$\geq 1$ overall exacerbation, n (%)	21 (39.6%)	39 (41.1%)
$\geq 1$ moderate exacerbation, n (%)	19 (35.8%)	34 (35.8%)
$\geq 1$ severe exacerbation, n (%)	4 (7.5%)	16 (16.8%)
Smoking Status		
Current Smoker	1 (1.9%)	21 (22.1%)
Former Smoker	15 (28.3%)	64 (67.4%)
Never Smoker	37 (69.8%)	9 (9.5%)
No information	0 (0.0%)	1 (1.1%)

Moderate exacerbations were defined as requiring steroid or an ER visit, but no hospital stay; Severe exacerbations were defined as requiring an overnight hospital stay

\*Of the 95 COPD or Combined Asthma/COPD patients, 46 reported having asthma, of which 39 patients reported having active asthma

Table 2. Baseline Asthma Control Test

	A Cohort (N = 53)	C/AC Cohort with Active Asthma* (N = 39)
ACT, mean (SD)	18.5 (4.3)	16.1 (6.1)
ACT, n(%)		
$\leq 19$	30 (56.6%)	25 (64.1%)
$> 19$	23 (43.4%)	14 (35.9%)

\*ACT was only conducted on the 39 patients that reported having active asthma

Table 3. Baseline COPD Assessment Test

	C/AC Cohort (N = 95)
CAT, mean (SD)	18.8 (9.2)
CAT, n(%)	
0 - <10	18 (18.9%)
10 - <20	31 (32.6%)
20 - <30	31 (32.6%)
$\geq 30$	14 (14.7%)
Missing	1 (1.1%)

Figure 1. Baseline Controller Medication Use

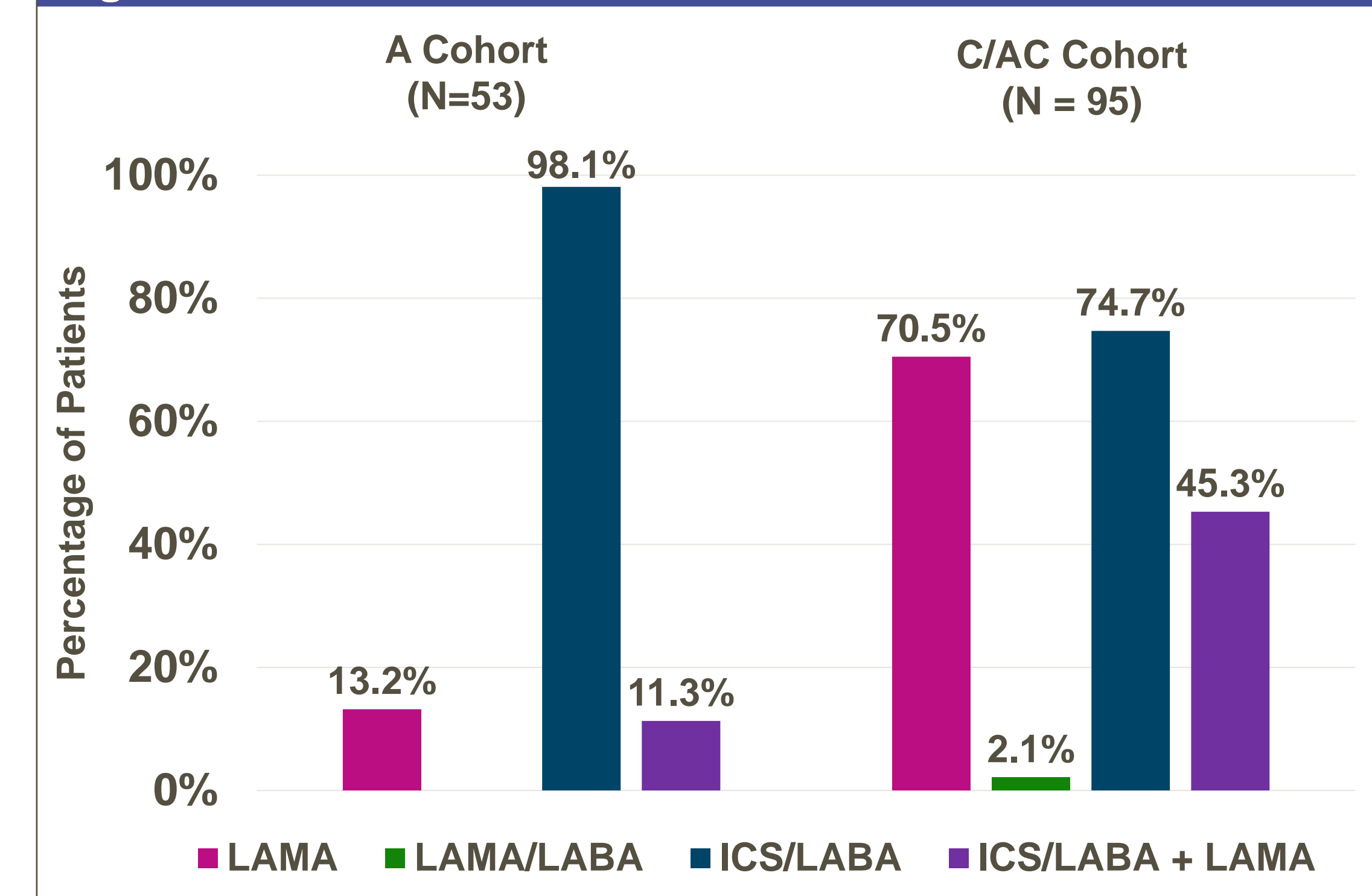
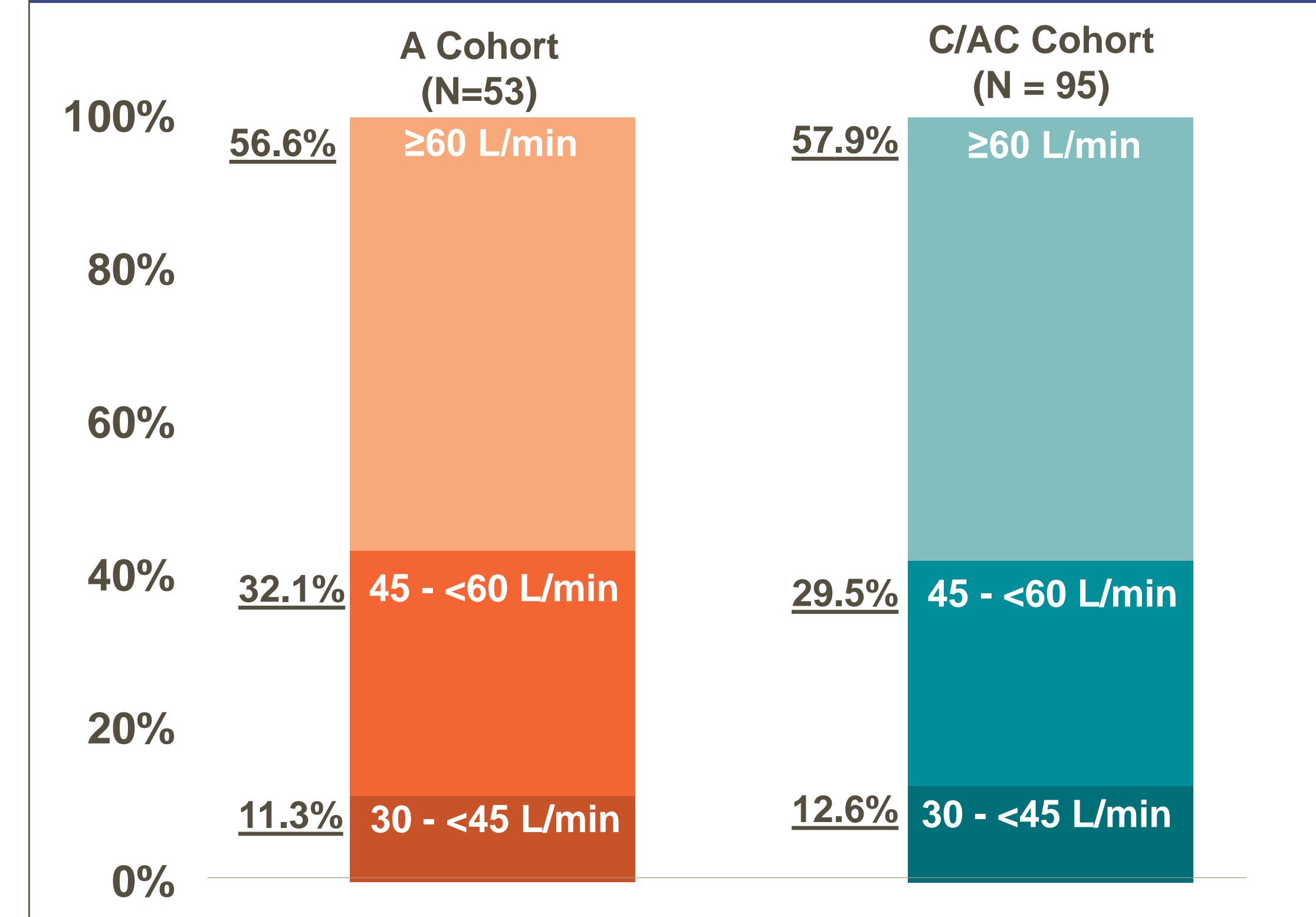


Figure 2. Baseline PIFR



No patients had a baseline PIFR of less than 30 L/min

Mean (SD) PIFR were similar in both cohorts:

A Cohort **62.7 (19.4) L/min**

C/AC Cohort **61.3 (15.0) L/min**

## Conclusions

In this real-world sample, 100% of patients with asthma and/or COPD achieved baseline PIFR of  $\geq 30$  L/min. This value is shown to be adequate for sufficient drug delivery using a DPI set to the Ellipta resistance.<sup>1,2</sup>

### Study Limitations

This study was terminated early due to COVID-19, which resulted in a smaller sample size. Patients were categorized into cohorts based on self-reported diagnoses. Seasonal variability was not accounted for, which could influence lung function in patients with chronic respiratory conditions.

## References

1. Hamilton M, et al. *J Aerosol Med Pulm Drug Deliv* 2015;28:498–506.
2. Prime D, et al. E1133 Presented at American College of Chest Physicians Congress, New Orleans, LA, USA, October 19–23, 2019.

## Abbreviations

Chronic obstructive pulmonary disease (COPD), dry powder inhaler (DPI), peak inspiratory flow rate (PIFR), standard deviation (SD), long-acting muscarinic antagonist (LAMA), long-acting beta-agonist (LABA), ICS (inhaled corticosteroid)

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