

# Reliever-Triggered Inhaled Glucocorticoid in Black and Latinx Adults with Asthma

AD, Colon, MPH, on behalf of the PREPARE Study Investigators (E Israel, MD; JC, Cardet, MD; JK Carroll, MD; AL Fuhlbrigge, MD; L She, PhD; FW Rockhold PhD; NE Maher MPH; M Fagan, DNP; VE Forth, MA; BP Yawn, MD; PA Hernandez, MSW; JM Kruse, BA; BK Manning, MPH; J Rodriguez-Louis, MPH; JB Shields, MA; B Ericson, MPH; AD Colon-Moya, MPH; S Madison, PhD; T Coyne-Beasley, MD; GM Hammer, MPH; BM Kaplan, MPH; CS Rand, PhD; J Robles; O Thompson; ME Wechsler, MD; JP Wisnivesky, MD; MD McKee, MD; SP Jariwala, MD; E Jerschow, MD; PJ Busse, MD; DC Kaelber, MD; S Nazario, MD; ML Hernandez, MD; AJ Apter, MD; KL Chang, MD; V Pinto-Plata, MD; PM Stranges, PharmD; LP Hurley, MD; J Trevor, MD; TB Casale, MD; G Chupp, MD; IL Riley, MD; K Shenoy, MD; M Pasarica, MD; RA Calderon-Candelario, MD; H Tapp, PhD; Ahmet Baydur, MD; WD Pace, MD)

## Abstract

**Background:** African American/Black (AA/B) and Hispanic/Latinx (H/L) patients have a disproportionate burden of asthma in comparison to other populations.

**Methods:** PREPARE study, a pragmatic study, randomized 1201 adults with moderate-to-severe asthma to an open-label Patient-Activated Reliever-Triggered Inhaled Corticosteroid Strategy (PARTICS) added to their usual asthma care (PARTICS+UC) or to continue usual care (UC). The endpoints were severe asthma exacerbations, monthly asthma control tests (ACT), preference-based quality of life measured by the Asthma Symptom Utility Index and participant-reported days lost from work, school, or usual activities.

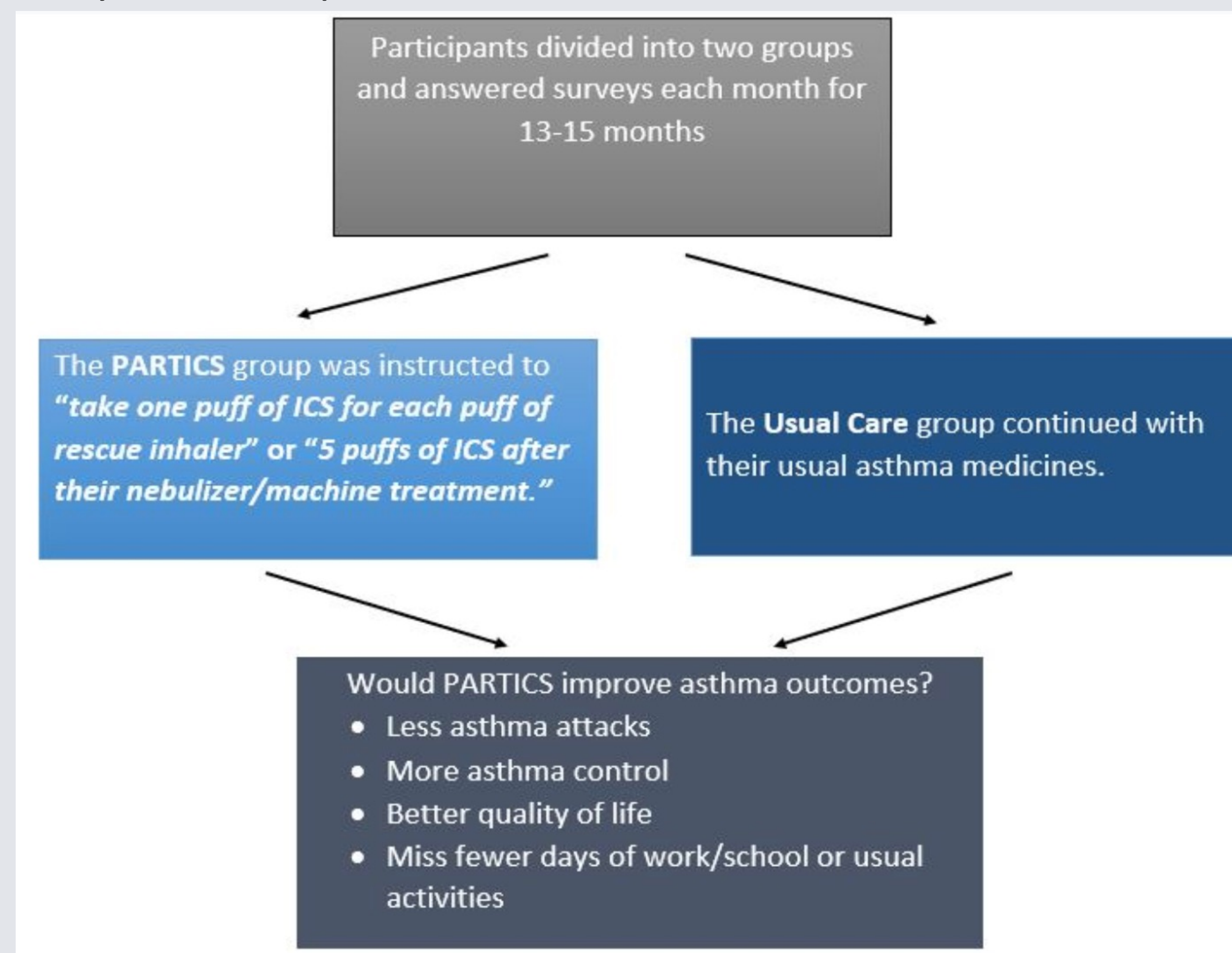
**Results:** Annualized rate of severe asthma exacerbations in PARTICS+UC was 0.69 and in UC was 0.82. ACT scores increased from baseline by a difference of 0.9. ASUI scores increased from baseline with by a difference of 0.04. Annualized rates of days missed of work/school/usual activities reduced by 3-4 days.

**Conclusions:** In AA/B and H/L adults with moderate-to-severe asthma, providing ICS and one-time instruction on PARTICS, in addition to existing therapy, reduced severe asthma exacerbations.

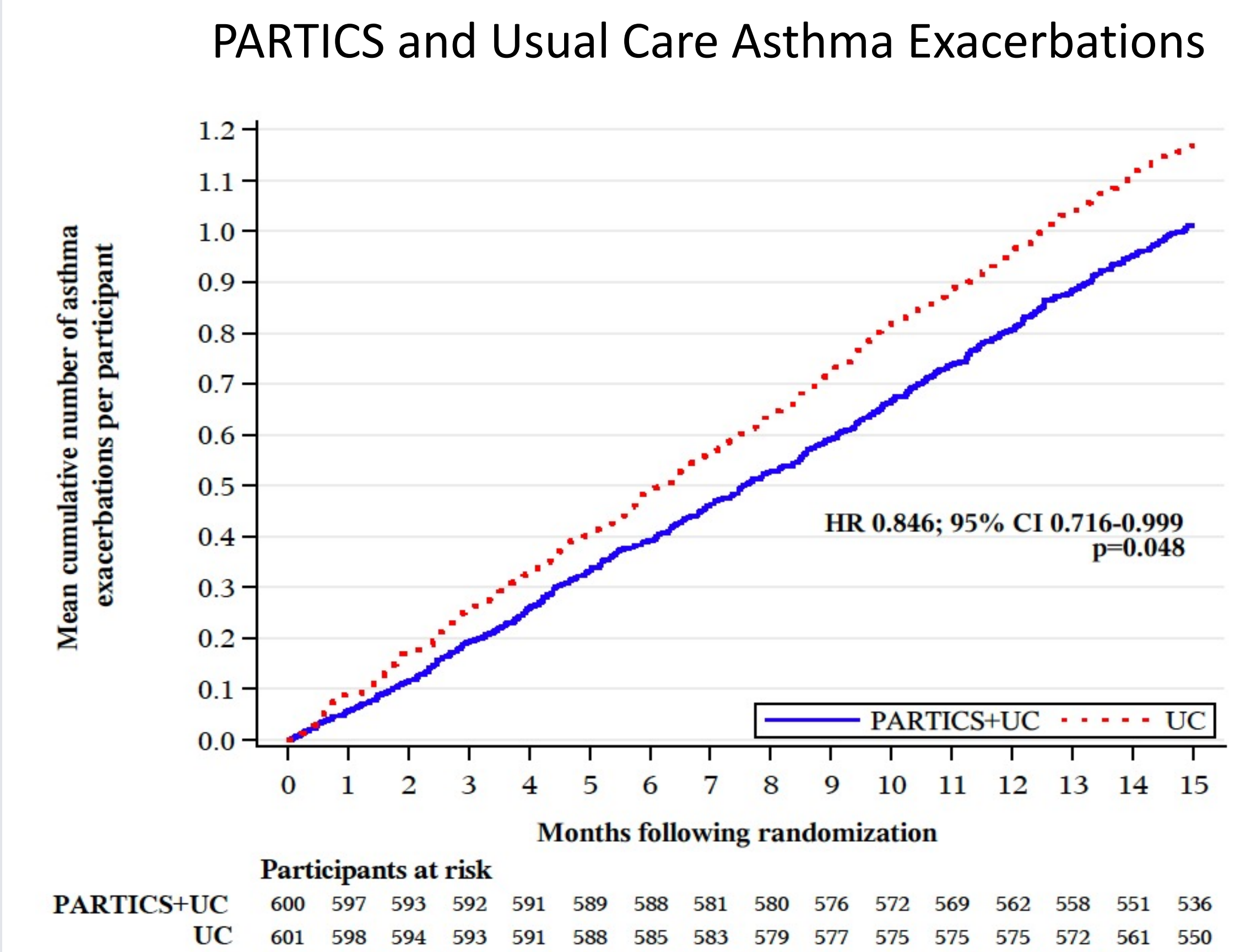


## Overview

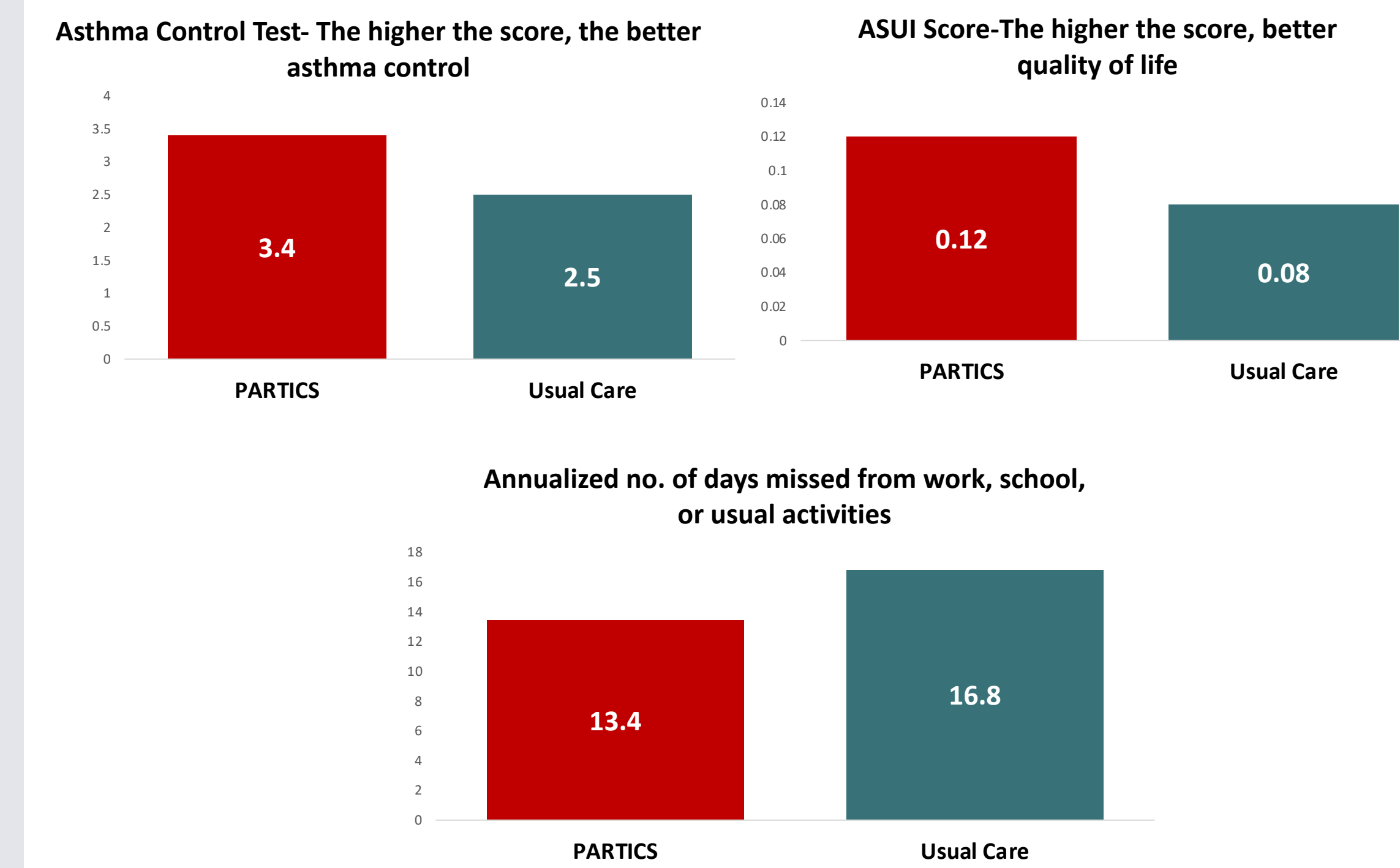
- Design: Randomized, open-label, pragmatic trial
- Intervention: Addition of patient-activated, reliever-triggered inhaled glucocorticoid strategy (PARTICS) vs Usual care in Black and Latinx patients with moderate -to severe asthma
- Sample of 1201 participants (600 in PARTICS and 601 in usual-care group)
- Participants had only one instructional visit followed from 13-15 monthly questionnaires.
- Collaboration with African American/Black and Hispanic/Latinx adults with asthma and with caregivers (Patient Partners) for Study Design, Data Analysis and Implementation.



## Results Cont.



Annualized rate of asthma exacerbations was **0.69 in PARTICS** and 0.82 in Usual-care Group. Meaning a reduction of 13 asthma exacerbations per 100 patients per year.



PARTICS reduced 3-4 days missed from school/work or daily activities compared to the Usual-Care group.

## Introduction

- Around 25 million of Americans in the United States have asthma, with a mortality rate of more than 3,300 deaths per year. Leading to annual asthma costs to more than \$67 billion dollars. **Asthma patients have a disproportionate burden within AA/B and H/Latinx population in comparison to Whites.**
- AA/B population present 2 times greater and Puerto Ricans 4 times greater of emergency room visits and death related to asthma compared to white population.
- Both populations have higher hospitalization costs, mobility and mortality rates regarding to asthma. In addition, lack of data among the Black and Latinx population becomes an obstacle to overcome these disproportions.
- **The PREPARE (Person Empowered Asthma Relief) study was created to decrease these differences between Black and Latinx patients**

## Results

Baseline Characteristic	PARTICS+UC (n=600)	UC (n=601)	Total (N=1201)
Race and ethnicity, %			
African American/Black (AA/B)	50.5	49.9	50.2
Hispanic/Latinx (H/L)	49.5	50.1	49.8
Both AA/B and H/L	6.3	4.3	5.3
Age (years), mean (SD)	48.3 (13.5)	47.0 (13.9)	47.7 (13.7)
Sex assigned at birth, % female	84.7	82.7	83.7
BMI in obese range (≥30.0), %	70.2	67.1	68.8
Smoking status, %			
Current smoker	11.5	12.3	11.9
Former smoker	9.0	7.7	8.3
In smoking environment	27.5	30.1	28.8
Maintenance asthma medications, %			
ICS without ICS/LABA	28.5	28.1	28.3
ICS/LABA	71.3	71.7	71.5
Biologic	2.8	3.2	3.0
Nebulizer use			
Reported use of nebulizer, %	68.0	65.9	66.9
# Quick-reliever nebs/week in those using nebs, mean (SD)	2.7 (4.6)	3.0 (4.8)	2.9 (4.7)
Number of comorbid conditions, %			
0	27.7	31.8	29.7
≥1	72.4	68.2	70.0
FeNO, ≥30 ppb, % of subset	29.5	30.7	30.1
Abs eos ≥300 cells/μL, % subset	25.5	27.7	26.6
Hx asthma exacerbation in past yr, %	73.3	71.0	72.2
Asthma Control Test (ACT), mean (SD)	14.7 (4.4)	14.5 (4.5)	14.6 (4.4)
≤15, %	55.3	56.2	55.8
Asthma Symptom Utility Index (ASUI), mean (SD)	0.67 (0.22)	0.67 (0.21)	0.67 (0.21)
Patient Health Questionnaire (PHQ-2) mean (SD)	1.6 (1.7)	1.8 (1.8)	1.7 (1.8)
Depressive (PHQ-2 score ≥3), %	24.8	28.1	26.5

- 84% women
- Majority were obese
- Approximately 20% were current or former smokers.
- 70% of participants have two or more comorbidities.
- 66.9% used nebulizers as quick-reliever therapy.

**Acknowledgements:** Research reported in this presentation was funded through Patient-Centered Outcomes Research Institute® (PCORI®) Award PCS-1504-30283.v

## Discussion

- In the PREPARE trial PARTICS led to a 15.4% lower risk of severe asthma exacerbations, a reduction in asthma symptoms and number of days of impairment in Black and Latinx participants with moderate to severe asthma.
- A reduction of quick-reliever inhaler usage with the addition of glucocorticoid inhaler reported a mean net increase of 1.1 inhaler per year per patient. This represent a low-cost burden to the health care system in comparison to potential benefits, including reduce ER visits, hospitalizations and less symptomatic days.

## References

- Centers for Disease Control and Prevention. Most recent national asthma data ([https://www.cdc.gov/asthma/most\\_recent\\_national\\_asthma\\_data.htm](https://www.cdc.gov/asthma/most_recent_national_asthma_data.htm)).
- Nurmagambetov T, Kuwahara R, Garbe P. The economic burden of asthma in the United States, 2008–2013. *Ann Am Thorac Soc* 2018;15:348-56.
- Sullivan SD, Wenzel SE, Bresnahan BW, et al. Association of control and risk of severe asthma-related events in severe or difficult-to-treat asthma patients. *Allergy* 2007;62:655-60.
- E. Israel, et al. Reliever-Triggered Inhaled Glucocorticoid in Black and Latinx Adults with Asthma. *New England Journal of Medicine*, 2022. DOI: 10.1056/NEJMoa2118813