

Impact of Benralizumab on Asthma and COPD Exacerbation-Related Healthcare Resource Utilization in Patients with Asthma and Concomitant COPD

Donna Carstens,^{1*} Diego J. Maselli,² Jingyi Chen,³ Erin E. Cook,³ Fan Mu,³ Danni Yang,³ Yen Chung¹

¹AstraZeneca, Wilmington, DE USA; ²University of Texas Health San Antonio, TX; ³Analysis Group, Boston, MA USA; *Presenting Author

#EE442

Why did we perform this research?

Background

- Chronic obstructive pulmonary disease (COPD) is a common concomitant condition among patients with asthma^{1,2}
- Benralizumab has been proven to be effective in reducing asthma exacerbations in patients with asthma in clinical trials and real-world studies³⁻⁸
- However, the impact of benralizumab on exacerbation-related healthcare resource utilization (HRU) and costs among patients with asthma and concomitant COPD is unknown

Objective

- To assess the impact of benralizumab on exacerbation-related HRU and medical costs among patients with asthma and concomitant COPD

How did we perform this research?

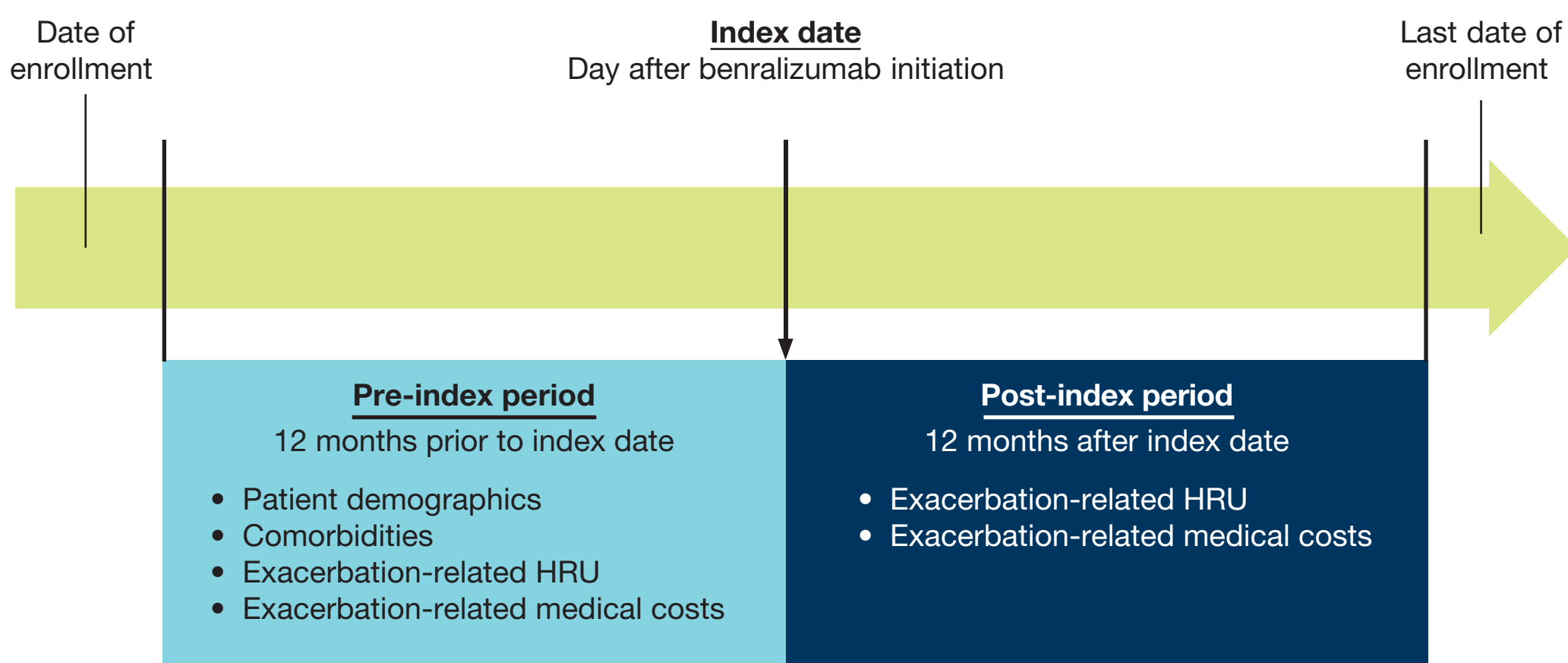
Data source

- Data from November 2016 to June 2020 were supplied by the PatientSource[®] database of Source Healthcare Analytics, LLC, a Symphony Health Solutions Corporation, which covers over 80% of the US population and includes commercial, Medicare, and Medicaid claims

Study design

- A retrospective cohort study with a pre-post design was implemented to descriptively analyze and compare asthma exacerbation- and COPD exacerbation-related HRU and medical costs between the 12-month pre-index and 12-month post-index periods

Study schema



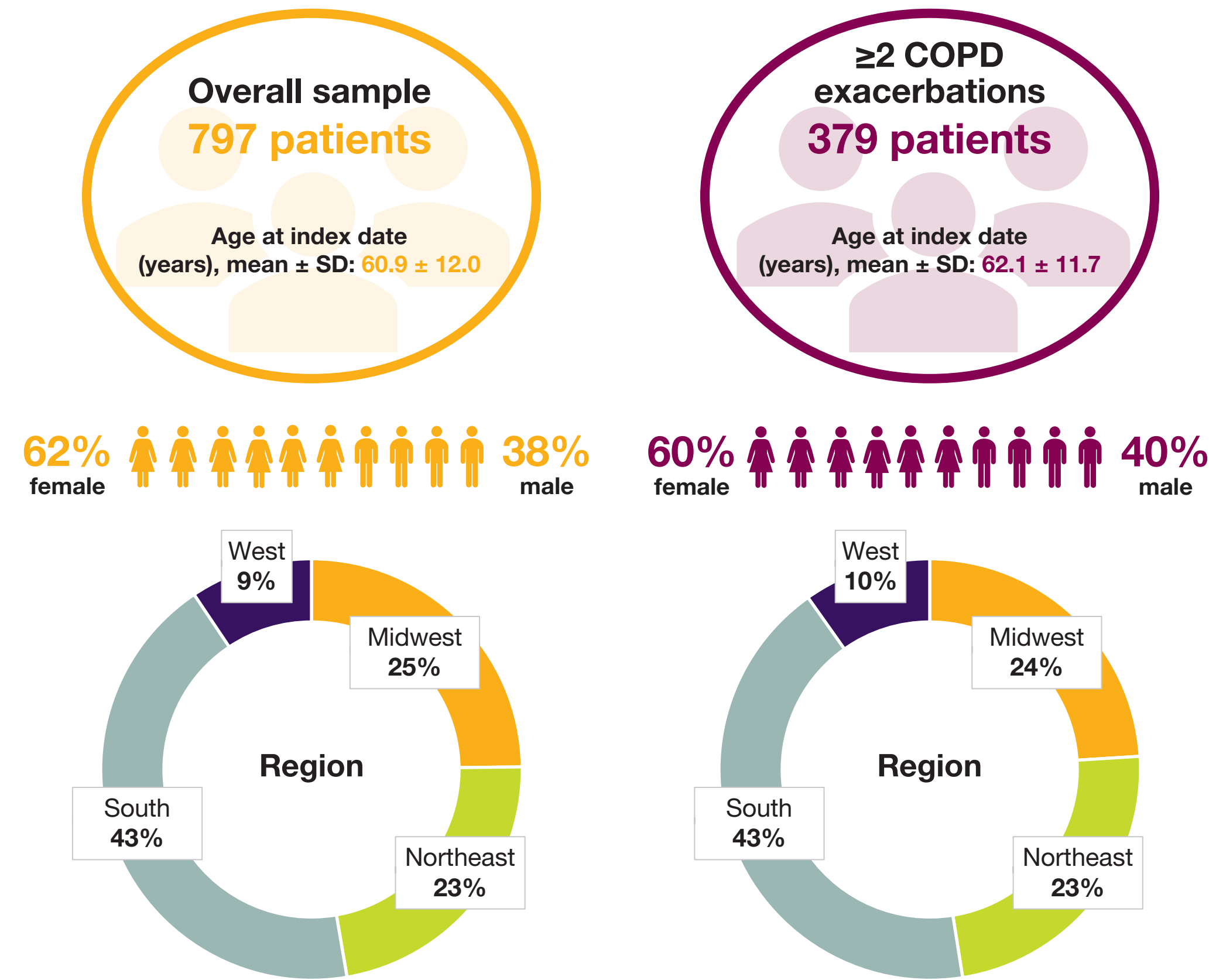
Study cohorts

- The overall sample included patients who were aged ≥ 12 years, with ≥ 2 records of benralizumab, and had ≥ 1 asthma diagnosis, ≥ 1 COPD diagnosis and ≥ 1 COPD exacerbation in the 12-months pre-index
 - Subgroup analyses were conducted among patients with ≥ 2 COPD exacerbations in the 12-months pre-index
 - Asthma and COPD exacerbations were defined via a claims-based algorithm

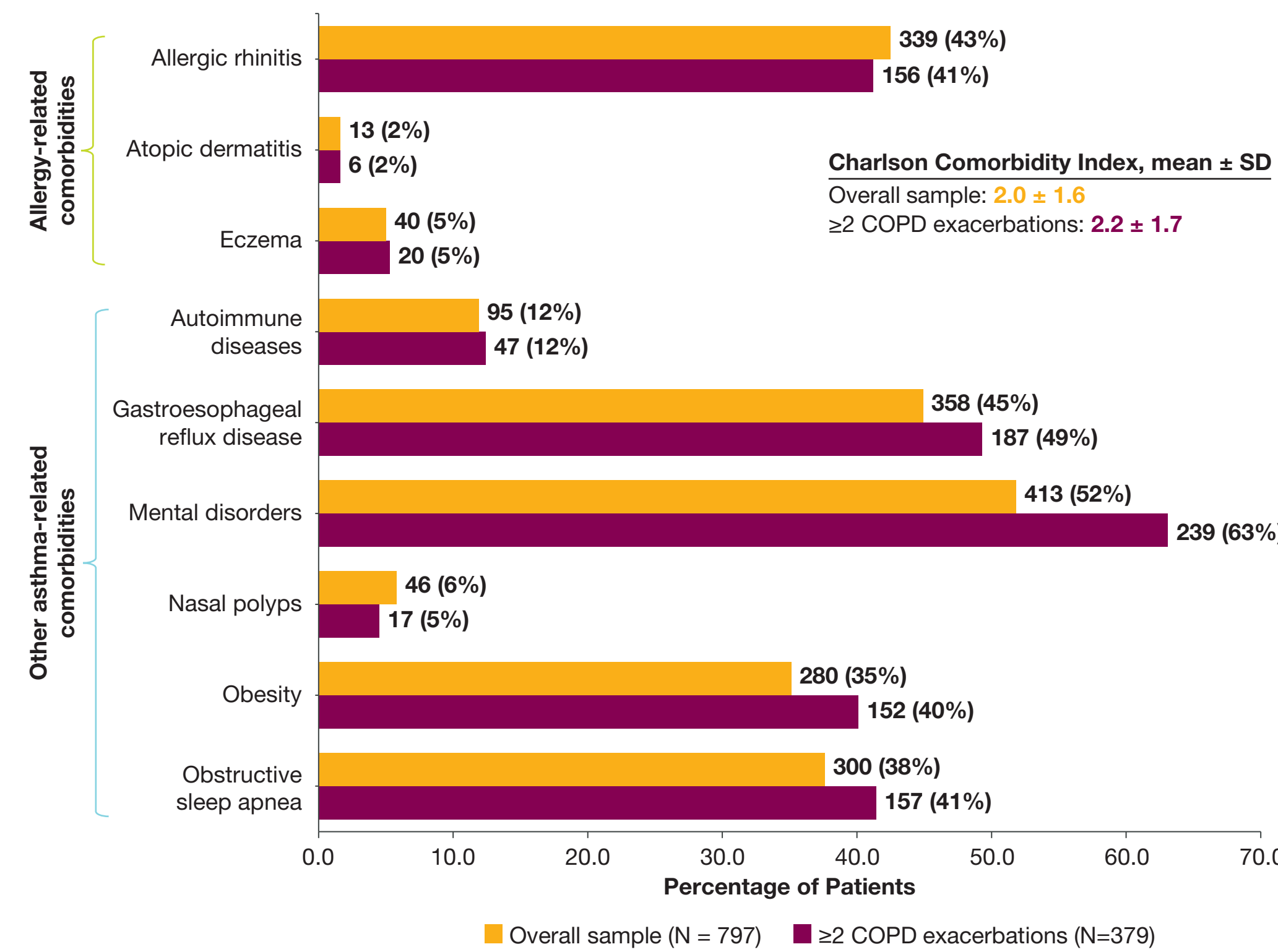
Additional details on study methods are available in the Supplementary Materials.

What did we find?

Patient demographics

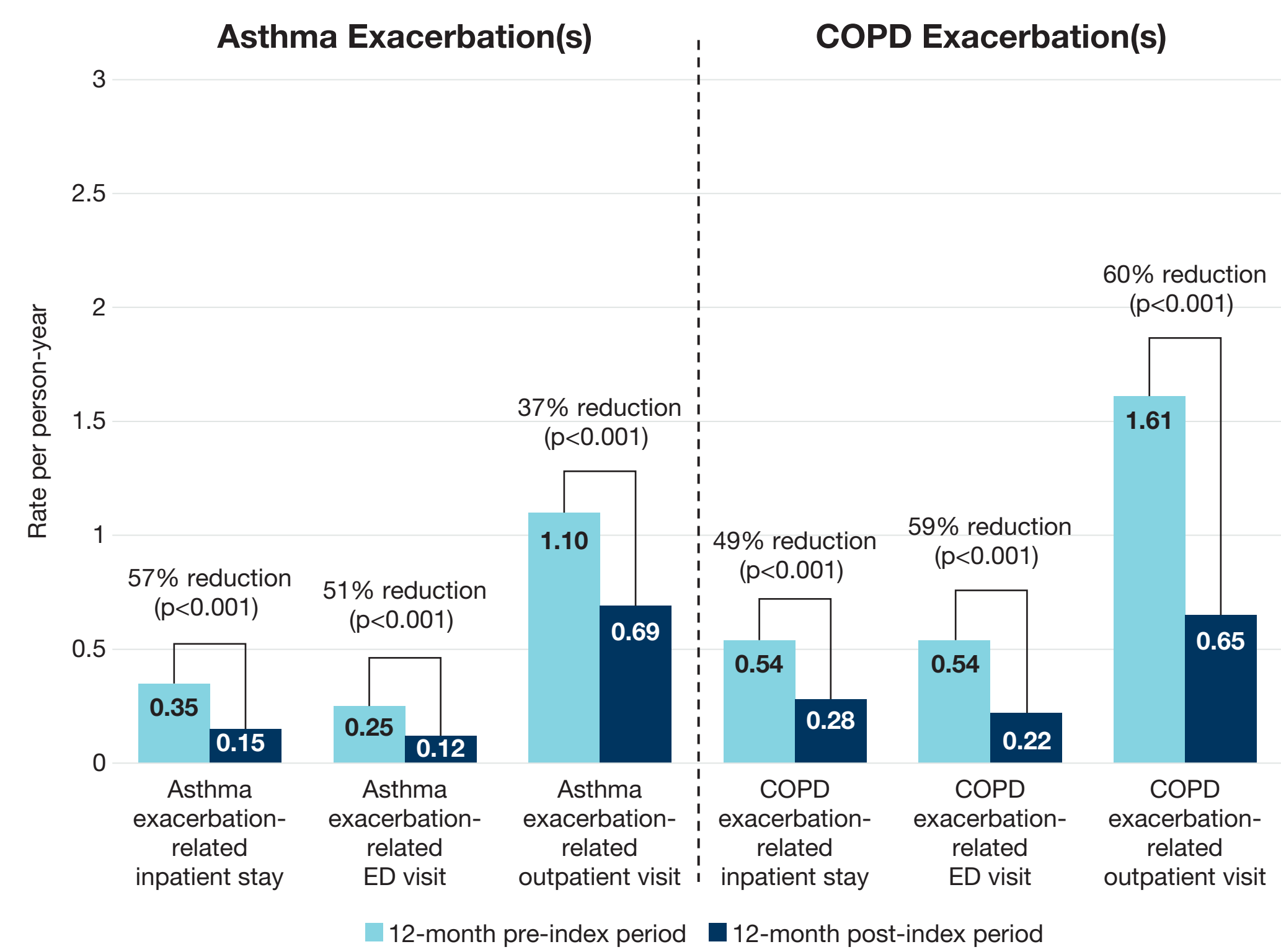


Comorbidities during the 12 months pre-benralizumab initiation

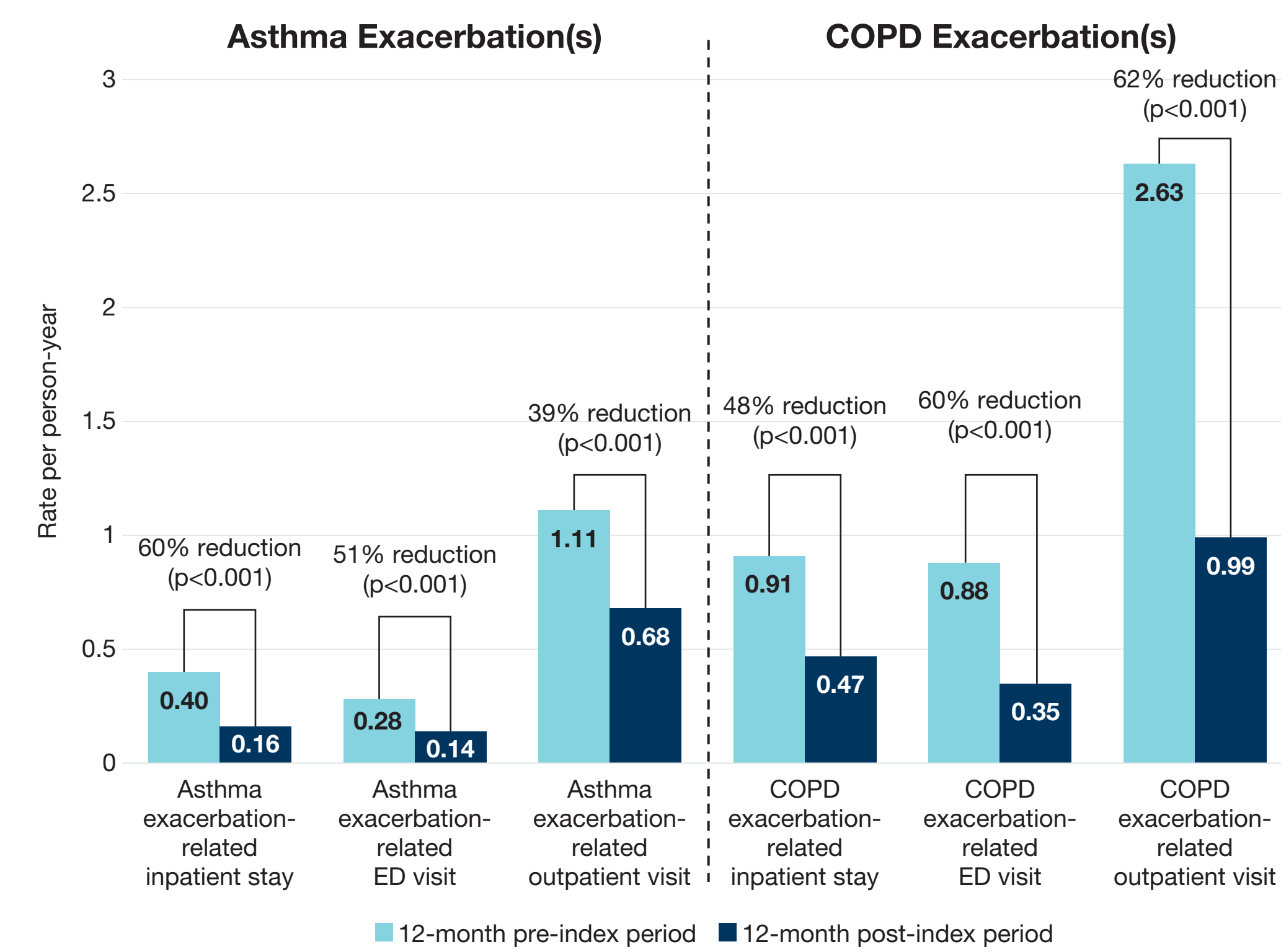


Reductions in the rate of exacerbation-related HRU after benralizumab initiation

Overall sample

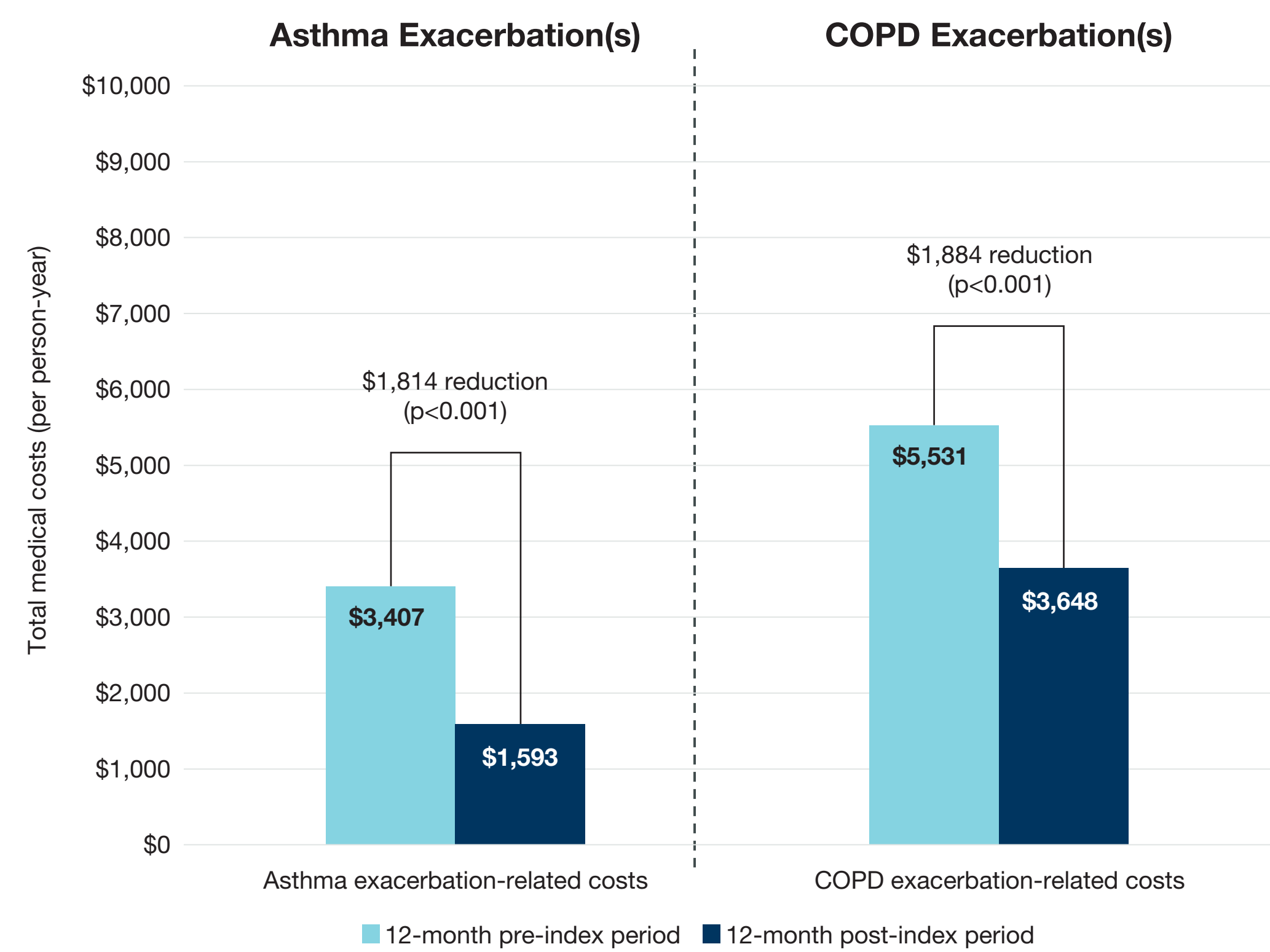


≥ 2 COPD exacerbations

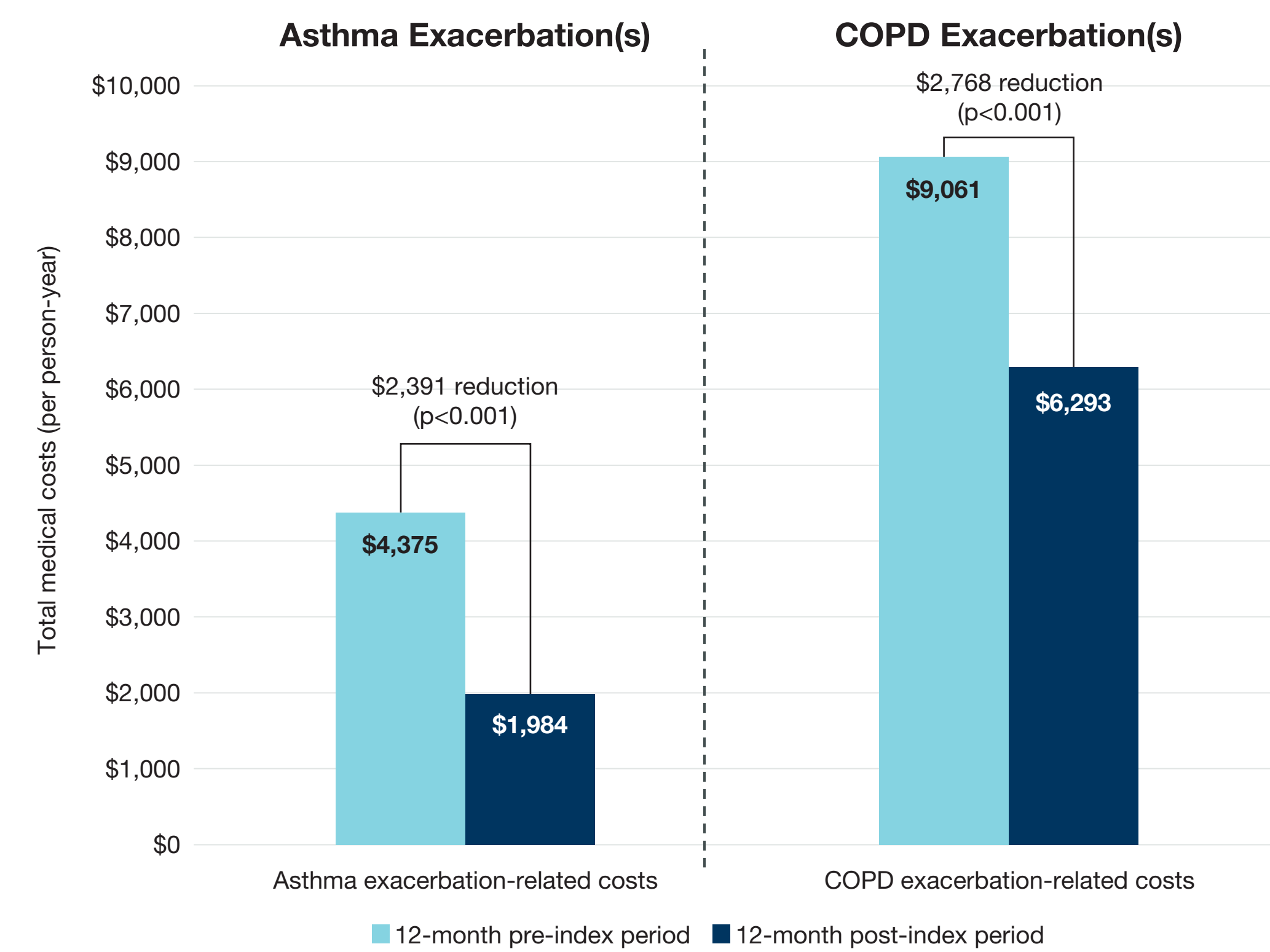


Reductions in exacerbation-related medical costs after benralizumab initiation*

Overall sample



≥ 2 COPD exacerbations



*Exacerbation-related medical costs included costs incurred from asthma or COPD exacerbation-related HRU, which was defined as a unique encounter in the inpatient, ED, or outpatient setting containing a day that met the asthma or COPD exacerbation criteria.

How might this impact current clinical practice?

Strengths

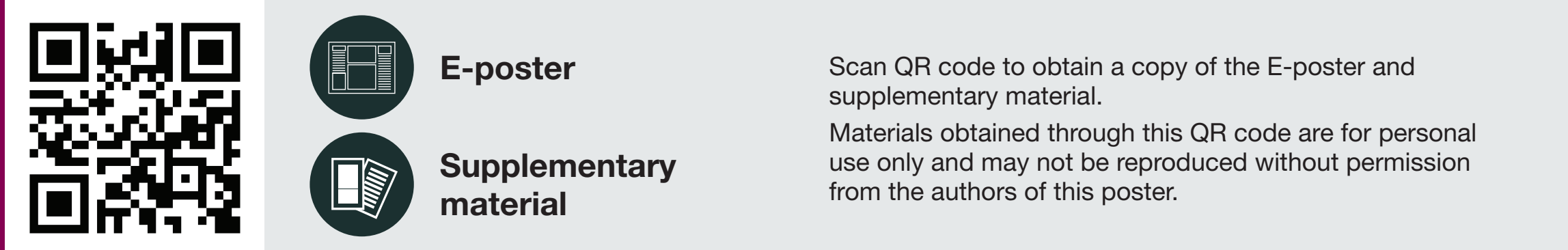
- This is the first study to evaluate the impact of benralizumab on asthma exacerbation and COPD exacerbation-related HRU and medical costs among patients with asthma and concomitant COPD, thus providing insights into the limited breadth of literature involving this patient population
- The study includes a large sample size from a data source that covers 80% of the US population; therefore, this study sample is likely to be representative of patients with asthma and concomitant COPD in the US

Limitations

- This study used a pre-post study design and did not include a control arm to adjust for potential temporal changes
- While any free doses of benralizumab obtained would not be visible in the claims data, this would be rare and unlikely to affect the results we observed
- A claims-based algorithm was used to identify asthma and COPD exacerbations, which may be subject to misclassification

Conclusions

- Significant and consistent reductions in asthma and COPD exacerbation-related HRU and medical costs were observed in the 12 months after benralizumab initiation among patients with asthma and comorbid COPD who had prior COPD exacerbations**
- Our real-world findings provide new insights into the impact of benralizumab on reducing exacerbation-related economic burden in patients with asthma and comorbid COPD**



Abbreviations

COPD: chronic obstructive pulmonary disease; **ED:** emergency department; **HRU:** healthcare resource utilization; **N:** number; **SD:** standard deviation.

References

- Guerra S. *Curr Opin Pulm Med* 2005;11:7-13.
- Kankaanranta H, Kauppi P, Tuomisto LE, Ilmarinen P. *Mediators Inflamm*. 2016;2016:3690628. doi: 10.1155/2016/3690628.
- US Food and Drug Administration. Prescribing information for Fasenna (benralizumab). https://www.accessdata.fda.gov/drugsatfda_docs/label/2017/761070s000lbl.pdf. Accessed April 20, 2020. National Institute for Health and Human Services (NIH) receives US FDA approval for severe eosinophilic asthma [press release]. November 14 2017.
- Care Excellence. Benralizumab for treating severe eosinophilic asthma: Technology appraisal guidance [TA565]. <https://www.nice.org.uk/guidance/ta565>. Updated September 3, 2019. Accessed April 20, 2020.

- Chung Y, Katial R, Mu F, Cook EE, Young J, Yang D, Betts KA, Carstens DD. *Annals of Allergy, Asthma & Immunology*. 2022 Jun 1;128(6):669-76.
- Carstens D, Maselli DJ, Mu F, Cook EE, Yang D, Young JA, Betts KA, Genofre E, Chung Y. *The Journal of Allergy and Clinical Immunology: In Practice*. 2023 Jul 1;11(7):2150-61.
- Chung Y, Maselli DJ, Mu F, Cook EE, Yang D, Young JA, Betts KA, Genofre E, Carstens D. *Journal of Medical Economics*. 2023 Dec 31;26(1):954-62.

Disclosures

D.J. Maselli received funding from AstraZeneca to conduct this study. D. Carstens and Y. Chung are employees and shareholders of AstraZeneca.

F. Mu, D. Yang, E.E. Cook, and J. Chen are employees of Analysis Group, which was contracted by AstraZeneca to conduct this study.