

# Continuity of Care Assessment Within a Vertically Integrated Care Management Organization Before and After COPD-related Exacerbations

Poster No. 276

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## Background

- Examining care for chronic obstructive pulmonary disease (COPD) patients before and after an acute exacerbation of COPD (AECOPD) within an **integrated delivery network** could yield information to aid system-level quality improvements.<sup>1,2</sup>

## Methods

- A **retrospective longitudinal analysis** was conducted using linked electronic health records, medical claims, and pharmacy dispensing data within the Kaiser Permanente Northwest (KPNW) Health System from January 1, 2015 to December 31, 2017.

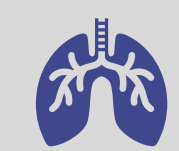
## Key Inclusion Criteria

- ≥ 40 years of age as of index
- ≥ 2 independent encounters (separated by ≥ 1 day) within 12 months of each other or ≥ 1 hospitalization with a primary or secondary diagnosis of COPD, chronic bronchitis, or emphysema during study period
- Patients enrolled in the health plan for ≥ 10 months during baseline period
- ≥ 1 AECOPD during study period
- Continuous non-gapped enrollment during the AECOPD utilization evaluation (90 days pre-index through 90 days post-index)

## Key Exclusion Criteria

- Patients on KPNW's exclusion database

## Outcomes



### Treatment Patterns

Examine **treatment patterns** of COPD patients within 90 days prior to, at time of, and 90 days following an AECOPD



### COPD-related Ambulatory Visits

Examine **COPD-related Ambulatory Visits** within 90 days prior to, at time of, and 90 days following an AECOPD

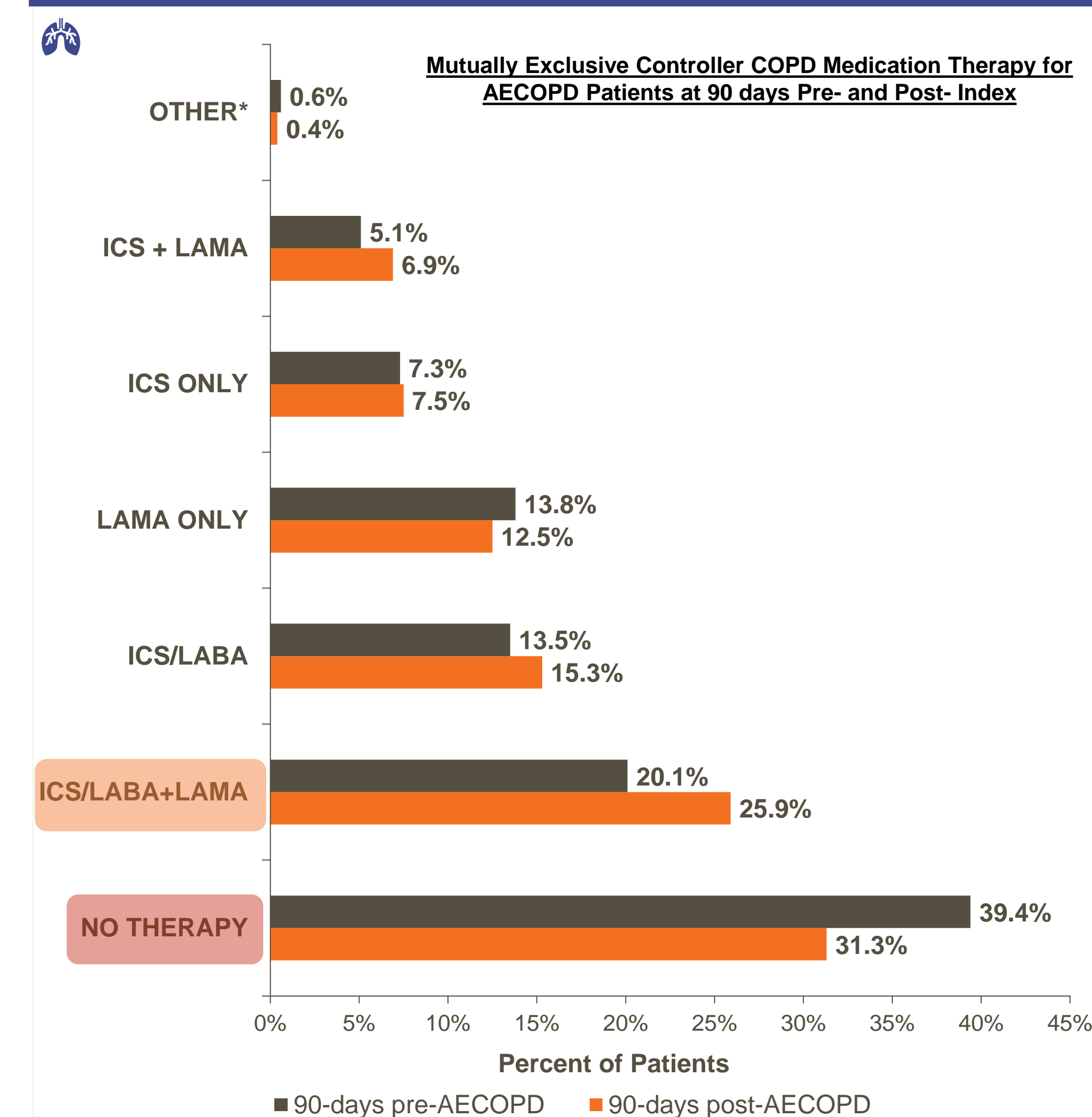
## Results

**Table 1. Patient Demographics and Clinical Characteristics**

Baseline Characteristics	Overall (N = 2,829)	Moderate AECOPD (N = 2,639)	Severe AECOPD (N = 190)
<b>Age – years, mean (SD)</b>	69.02 (10.5)	69.08 (10.4)	68.18 (11.7)
<b>Female, (%)</b>	52.9	52.6	57.4
<b>BMI – kg/m<sup>2</sup>, mean (SD)</b>	29.64 (7.8)	29.57 (7.5)	30.51 (10.5)
<b>Duration of COPD - years, mean (SD)</b>	4.81 (3.2)	4.84 (3.2)	4.46 (3.4)
<1 year, (%)	8.4	8.0	13.2
1-5 years, (%)	42.6	42.6	43.2
>5 years, (%)	49.0	49.4	43.7
<b>Deyo-Charlson Comorbidity Index, mean (SD)</b>	2.94 (2.3)	2.92 (2.3)	3.19 (2.4)
<b>Smoking Status, (%)</b>			
Current	27.3	26.7	35.3
Former	64.5	65.2	54.7
Never	7.9	7.8	9.0
<b>Vaccinations, (%)</b>			
Pneumococcal (≥ 50 years of age)	77.9	78.3	72.6
Influenza (past year)	72.2	72.0	75.3
<b>Eosinophil Count<sup>a</sup> – cells/μL, mean (SD)</b>	217.09 (236.2)	215.59 (237.8)	234.55 (216.7)
<150, (%)	26.2	26.2	26.8
150-300, (%)	20.9	20.8	23.2
>300, (%)	12.8	12.2	20.5
Patient has no data, (%)	40.1	40.9	29.5
<b>Comorbidities,<sup>b</sup> (%)</b>			
CHF	18.1	17.5	25.8
Diabetes	27.4	27.1	31.6
Asthma	26.0	26.1	24.7
<b>Rescue Dispensing<sup>c</sup>, (%)</b>	52.4	50.6	77.4
<b>OCS Dispensing<sup>c</sup>, (%)</b>	32.5	31.9	41.6

a: most recent value reported. b: within one year prior to exacerbation diagnosis. c: in the 90-days pre-index period. Abbreviations: AECOPD, acute exacerbation of COPD; BMI, body mass index; CHF, congestive heart failure; OCS, oral corticosteroid

**Figure 1. Overall Treatment Patterns (N = 2,829)**

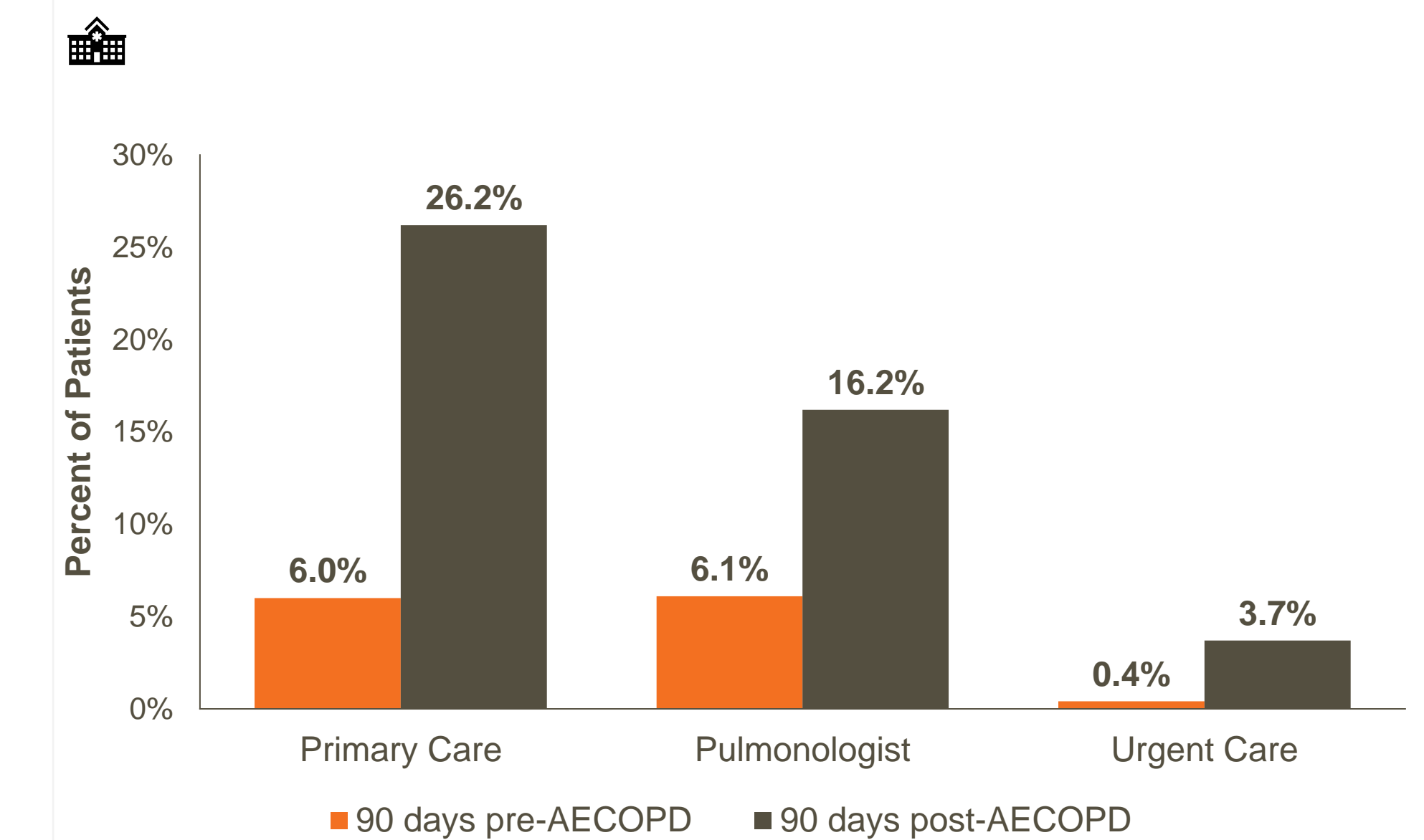


\*Other: simultaneous dispensing of ICS monotherapy + LABA monotherapy or LABA monotherapy + LAMA monotherapy, LABA only, or LAMA/LABA combination

**25.9%** On multiple inhaler triple therapy 90 days after an AECOPD

**31.3%** Not on any maintenance therapy after moderate or severe AECOPD

**Figure 2. COPD-Related Ambulatory Visits (N = 2,829)**



## Strengths and Limitations

- A major strength of the study is obtaining data on a population of patients served by an integrated delivery network.
- Electronic medical records and administrative claims may still contain limitations as the data are not originally collected for research purposes.
- There is potential for missing, miscoded, or incomplete variables not reflective of actual care.

## Conclusions

- Despite experiencing an AECOPD, there were still a **third of patients not on maintenance therapy**, indicating an improvement opportunity in pharmacotherapy management
- There was a **5.8% increase in multiple inhaler triple therapy** use 90 days after an exacerbation
- The percent of patients having COPD-related ambulatory visits **increased more than four-fold for primary care visits and two-fold for pulmonologist visits** from pre- to post-AECOPD

## References

- Mularski RA, et al. *J Comp Eff Res.* 2012;1(1):71-82
- Krishnan JA, et al. *Am J Respir Crit Care Med.* 2013;187(3):320-326

## Disclosures

- This study was funded by GlaxoSmithKline (HO-18-18806)
- CM and RS were employees of GSK at the time of abstract submission. BW is a current fellow with UNC/GSK. DG was a current fellow with UNC/GSK. RM, MF, MM, PC, and BS are current employees of Kaiser Permanente Northwest and have received research funds from GSK

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