

## **Supplement**

### **Defining Asthma COPD Overlap Syndrome (ACOS): a population based study**

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**Supplemental table S1**

**Supplemental table S2**

**Supplemental table S3**

**Supplemental table S4**

**Supplemental table S1.** Text words to search for ACOS patients in the electronic medical record

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Persistent obstruction, Asthma component, mixed clinical presentation, persisting obstruction, COPD component, asthma with COPD, COPD with asthma, CARA, COPD with reversibility, ACOS, overlap syndrome, emphysema with asthma, COPD and asthma.

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**Supplemental table S2.** Exacerbation frequency according to different ACOS definitions

ACOS definition	Mean number of exacerbations per year (SD)	≥1 exacerbation per year (%)
1 COPD + Asthma in registry	0.56 (0.81)	22.7
2 COPD + Asthma in registry OR ACOS as text in EMR*	0.56 (0.81)	22.7
3 COPD + Asthma self-reported	0.39 (0.63)	11.4
4 FEV1/FVC <0.7 + ≥10 pack-years + asthma <40 years	0.34 (0.45)	12.2
5 COPD in registry OR Self-reported AND FEV1/FVC < 0.7 + Asthma in registry OR Self-reported	0.33 (0.54)	10.5
6 COPD in registry OR Self-reported AND FEV1/FVC < 0.7 + Asthma in registry OR Self-reported OR FENO ≥ 45	0.39 (0.64)	13.5

\* EMR: electronic medical record

**Supplemental table S3.** Incidence rate ratios of exacerbations of ACOS patients according to different definitions versus asthma patients

ACOS definition	Crude Incidence rate ratio (95% CI)	Adjusted* Incidence rate ratio (95% CI)
Asthma in registry OR self-reported	ref.	ref.
ACOS definition		
1 COPD + Asthma in registry	1.7 (1.3-2.2)	1.6 (1.2-2.1)
2 COPD + Asthma in registry OR ACOS as text in EMR <sup>§</sup>	1.7 (1.3-2.2)	1.6 (1.2-2.1)
3 COPD + Asthma self-reported	1.2 (0.8-1.7)	1.1 (0.8-1.6)
4 FEV1/FVC <0.7 + ≥10 pack-years + asthma <40 years	1.1 (0.7-1.6)	1.0 (0.6-1.6)
5 COPD in registry OR Self-reported AND FEV1/FVC < 0.7 + Asthma in registry OR Self-reported	1.1 (0.8-1.5)	0.9 (0.6-1.4)
6 COPD in registry OR Self-reported AND FEV1/FVC < 0.7 + Asthma in registry OR Self-reported OR FENO ≥ 45	1.2 (1.0-1.5)	1.4 (1.1-1.7)

\* adjusted for: age, sex, BMI, current smoking, FEV<sub>1</sub>/FVC ratio at baseline, ICS use, number of exacerbations in previous year

§ EMR: electronic medical record

**Supplemental table S4.** Incidence rate ratios of exacerbations of ACOS patients according to different definitions versus COPD patients

ACOS definition	Crude Incidence rate ratio (95% CI)	Adjusted* Incidence rate ratio (95% CI)
COPD in registry OR self-reported	ref.	ref.
ACOS definition		
1 COPD + Asthma in registry	1.0 (0.8-1.3)	0.9 (0.7-1.1)
2 COPD + Asthma in registry OR ACOS as text in EMR <sup>§</sup>	1.0 (0.8-1.3)	0.9 (0.7-1.1)
3 COPD + Asthma self-reported	0.7 (0.5-1.0)	0.7 (0.5-1.0)
4 FEV1/FVC <0.7 + ≥10 pack-years + asthma <40 years	0.6 (0.4-0.9)	0.5 (0.4-0.8)
5 COPD in registry OR Self-reported AND FEV1/FVC < 0.7 + Asthma in registry OR Self-reported	0.6 (0.5-0.9)	0.5 (0.4-0.7)
6 COPD in registry OR Self-reported AND FEV1/FVC < 0.7 + Asthma in registry OR Self-reported OR FENO ≥ 45	0.8 (0.7-0.9)	0.8 (0.6-0.9)

\* adjusted for: age, sex, BMI, current smoking, FEV<sub>1</sub>/FVC ratio at baseline, ICS use, number of exacerbations in previous year

§ EMR: electronic medical record