

Supplementary Material

The supporting data for oral corticosteroid (OCS) and antibiotic drug use in the hospital environment are reported in Table 5. The CDM database does not include retail pharmacy fills or fills upon discharge, and therefore under report actual medication use. However, OCS and antibiotic information during a hospital visit (inpatient, outpatient or ER departments) in the 30 days following index provides additional data in context of our study findings.

Table 5. Post-index OCS and antibiotics use

Supplemental outcome	Aerobika OPEP		Matched controls		P value
	N=405		N=405		
Medication use during a hospital visit within 30 days of index					
OCS (n, %)	0	(0.0)	21	(5.2)	<0.0001
Antibiotics (n, %)	16	(4.0)	49	(12.1)	<0.0001

Table 6. Covariate adjustments in the GLM of moderate-to-severe exacerbation cost at 30 days

Parameter	Parameter estimate	Exp (β)	Standard error	P value
Cost of moderate-to-severe exacerbation per patient (<i>reference: controls</i>)	-0.42	0.6570	0.1667	0.012
Other covariate adjustments in the model:				
Age groups (<i>reference: 35-44 years</i>)				
45-54 years	0.10	1.1080	0.0550	0.062

Parameter	Parameter estimate	Exp (β)	Standard error	P value
55-64 years	0.38	1.4649	0.0533	<0.0001
65-74 years	0.52	1.6803	0.0540	<0.0001
74+ years	0.53	1.6933	0.0543	<0.0001
Gender (<i>reference: male</i>)				
Female	-0.14	0.8674	0.0189	<0.0001
Payer type (<i>reference: commercial</i>)				
Medicaid	0.35	1.4260	0.0432	<0.0001
Medicare	0.16	1.1455	0.0325	<0.0001
Other/unknown	-0.06	0.9381	0.0331	0.053
CCI score (<i>reference: 1</i>)				
2	0.17	1.1884	0.0293	<0.0001
3	0.42	1.5204	0.0318	<0.0001
4+	0.59	1.8040	0.0317	<0.0001
Comorbid conditions (Yes Vs. No)				
Acute respiratory tract infections	-0.23	0.7946	0.0240	<0.0001
Anxiety/ depression	0.08	1.0809	0.0193	<0.0001
Asthma	-0.24	0.7838	0.0217	<0.0001
Bronchiectasis	-0.13	0.8825	0.0578	0.031
Cardiovascular disease	0.08	1.0844	0.0207	<0.0001

Parameter	Parameter estimate	Exp (β)	Standard error	P value
Diabetes	-0.12	0.8854	0.0220	<0.0001
Emphysema	0.18	1.1997	0.0285	<0.0001
Hyperlipidemia	-0.13	0.8804	0.0205	<0.0001
Hypothyroidism	0.05	1.0534	0.0235	0.027
Malignancy	0.02	1.0160	0.0223	0.478
Stroke or TIA	-0.07	0.9336	0.0372	0.065
Time from first CDM record to index (continuous)	-0.00	0.9997	0	<0.0001
History of medication use (Yes Vs. No)				
ICS/LABA	-0.06	0.9413	0.0283	0.032
LAMA	0.18	1.1915	0.0286	<0.0001
SABA	0.04	1.0368	0.0246	0.143
SABA/ SAMA	0.04	1.0384	0.0262	0.151
SAMA	0.23	1.2634	0.0267	<0.0001
Xanthines	0.19	1.2201	0.0480	<0.0001
OCS	-0.01	0.9948	0.0250	0.835
Antibiotics	0.12	1.1284	0.0216	<0.0001