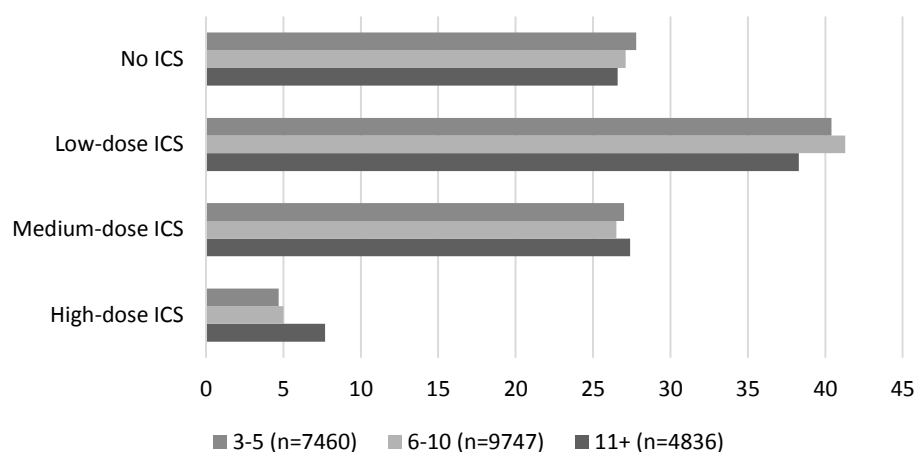


Supplementary data

Figure S1. Proportion of patients on ICS therapy in different SABA overuse groups, according to continuous overuse of SABA during the baseline year (top panel) and after 3 years follow-up (lower panel)

ICS and SABA use during baseline year



ICS and SABA use during year 3

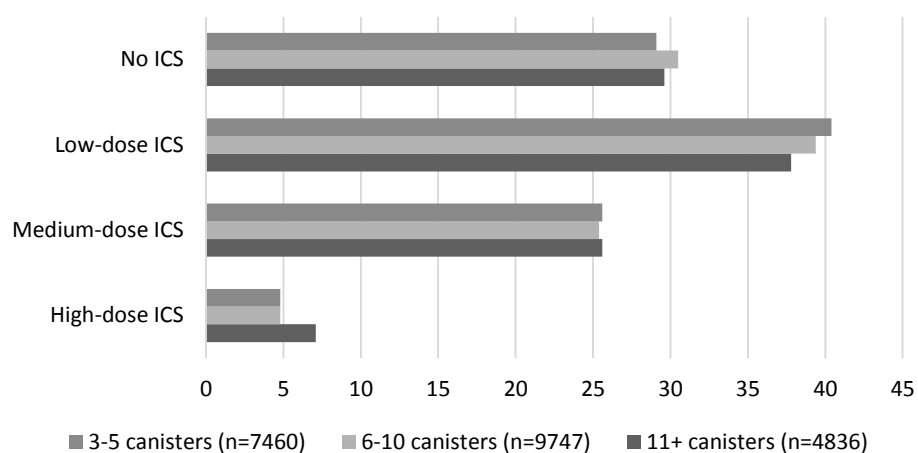


Table S1. Definition of treatment steps

Treatment step	Definition
Step 0	- No dispensing of SABA, LABA, LTRA or ICS
Step 1	- SABA monotherapy
Step 2	- Low-dose ICS - LTRA monotherapy
Step 3	- Medium-/high-dose ICS - Low-dose ICS + LABA or LTRA
Step 4	- Medium-/high-dose ICS + LABA - Medium-/high-dose ICS + LABA or tiotropium - Medium-/high-dose ICS + LTRA
Step 5	- Continuous use of oral steroids (OCS)* - Continuous use of anti-IgE or anti-IL5

*Equivalent to a cumulative dosage of ≥ 1000 mg prednisolone per year

Table S2. SABA and ICS use during study period

	Baseline year (n=365,324)	Follow-up year 1 (n=365,324)	Follow-up year 2 (n=365,073)	Follow-up year 3 (n=334,847)
SABA canisters, n (%)				
0-2	254,500 (69.7%)	301,413 (82.5%)	306,849 (84.1%)	283,385 (84.6%)
3-5	76,619 (21.0%)	41,846 (11.5%)	37,540 (10.3%)	32,589 (9.7%)
6-10	27,065 (7.4%)	16,575 (4.5%)	15,304 (4.2%)	13,861 (4.1%)
11+	7,140 (2.0%)	5,490 (1.5%)	5,380 (1.5%)	5,012 (1.5%)
ICS dose, n (%)				
No ICS	100,587 (27.5%)	203,484 (55.7%)	214,575 (58.8%)	205,755 (61.4%)
Low dose	149,925 (41.0%)	94,964 (26.0%)	90,310 (24.7%)	79,185 (23.6%)
Medium dose	98,449 (26.9%)	57,820 (15.8%)	51,987 (14.2%)	43,126 (12.9%)
High dose	16,363 (4.5%)	9,056 (2.5%)	8,201 (2.2%)	6,781 (2.0%)

Table S3. Risk of exacerbation after baseline period stratified by history of exacerbation during baseline period

	Crude		Adjusted	
	HR (95% CI)	P value	HR (95% CI)	P value
No exacerbation at baseline				
Baseline SABA use				
≤2 canisters	1.00		1.00	
3-5 canisters	1.16 (1.14-1.18)	<0.001	1.20 (1.18-1.22)	<0.001
6-10 canisters	1.34 (1.31-1.37)	<0.001	1.33 (1.30-1.36)	<0.001
11+ canisters	1.72 (1.65-1.79)	<0.001	1.62 (1.55-1.69)	<0.001
Exacerbation at baseline				
Baseline SABA use				
≤2 canisters	1.00		1.00	
3-5 canisters	1.21 (1.18-1.24)	<0.001	1.19 (1.16-1.22)	<0.001
6-10 canisters	1.37 (1.32-1.42)	<0.001	1.33 (1.29-1.38)	<0.001
11+ canisters	1.60 (1.51-1.69)	<0.001	1.53 (1.45-1.61)	<0.001

Adjusted for treatment step (GINA 2018), gender, age, and Charlson Comorbidity Index.