Supplementary material

Supplementary Table 1: Cut-off values defining dose categories.

Generic drug name	Inhaler type	Low daily dose (mcg)	Medium daily dose (mcg)	High daily dose (mcg)
Beclomethasone				
	Aerosol	< 600	≥ 600 - < 900	≥ 900
	Powder	< 600	≥ 600 - < 1200	≥ 1200
	Aerosol (extra fine)	< 300	≥ 300 - < 600	≥ 600
Budesonide				
	Aerosol	< 600	≥ 600 - < 1200	≥ 1200
	Powder	< 600	≥ 600 - < 1200	≥ 1200
Fluticasone				
	Aerosol	< 375	≥ 375 - < 750	≥ 750
	Powder	< 350	≥ 350 - < 750	≥ 750
Ciclesonide				
	Aerosol	< 120	≥ 120 - < 400	≥ 400
Beclomethasone/formoterol				
	Aerosol/powder	≤ 200/12	≥ 300/12 - ≤500/30	≥ 600/18
Budesonide/formoterol				
	Aerosol/powder	≤ 400/24	≥ 480/13.5 - ≤ 900/27	≥ 1600/48
Fluticasone/salmeterol				
	Aerosol	≤ 300/150	≥ 375/50 - ≤ 625/225	≥ 750/75
	Powder	≤ 300/150	≥ 500/50 - ≤ 600/300	≥ 750/100
Fluticasone/vilanterol				
	Powder	≤ 92/22	≥ 184/22 - ≤ 184/44	≥ 368/44
Budesonide/salmeterol				
	Powder	≤ 240/40	≥ 480/40	-
Fluticasone/formoterol				
	Aerosol	≤ 250/20	≥ 375/15 - ≤ 500/20	≥ 750/30

Abbreviations: mcg, microgram.

Supplementary Table 2: Treatment trajectories stratified by first step, with a discontinuation cut-off value (tPDC) of 0.25.
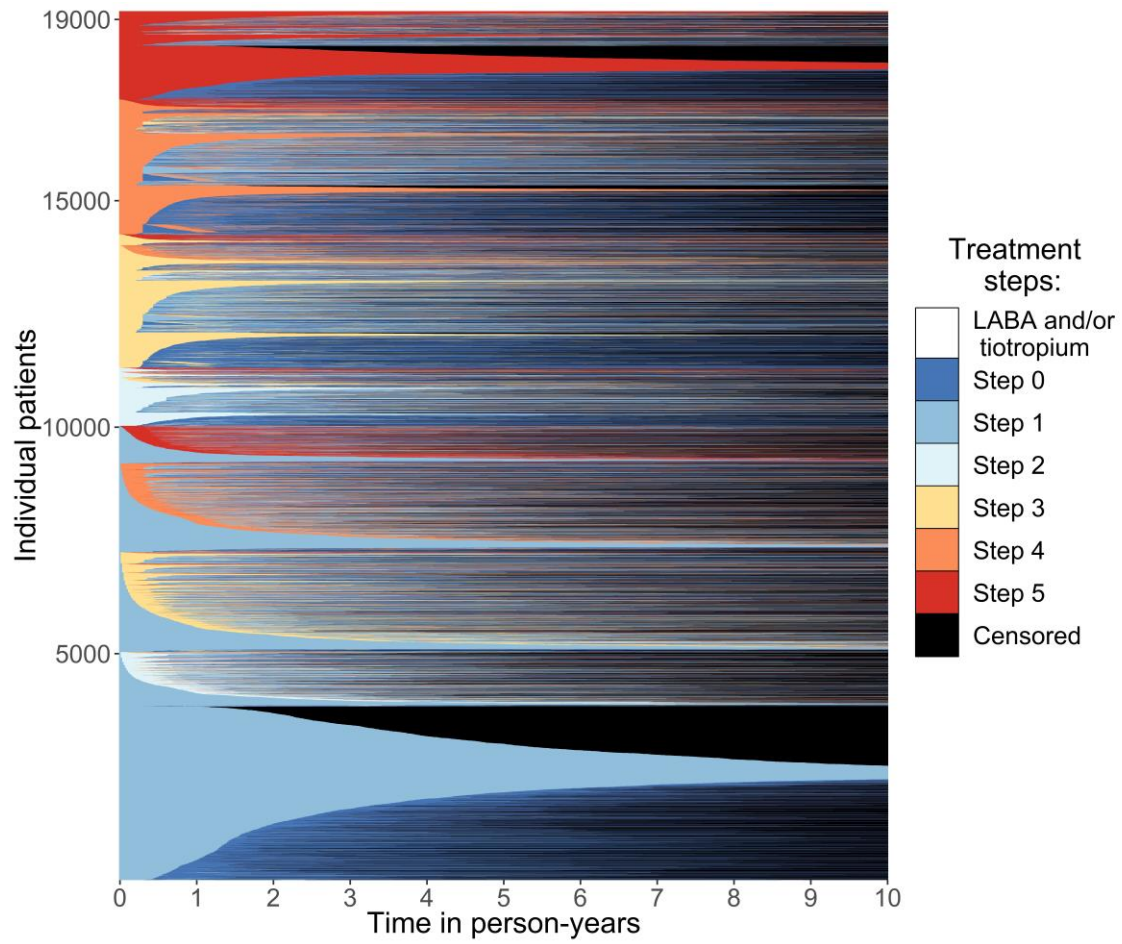
First step Variables	1 n = 10,028	2 n = 1,282	3 n = 2,946	4 n = 2,977	5 n = 1,951	Total n = 19,184
Follow-up time in years, median (IQR)	2.8 (1.1 – 6.9)	3.4 (1.2 – 8.2)	3.4 (1.3 – 8.1)	3.6 (1.2 – 7.8)	3.3 (1.3 – 7.7)	3.1 (1.2 – 7.4)
Number of switches, median (IQR)	2 (0 – 4)	1 (1 – 4)	1 (0 – 3)	1 (0 – 3)	0 (0 – 1)	1 (0 – 3)
Null switches, n (column %)	3,829 (38.2)	295 (23.0)	779 (26.4)	1,082 (36.3)	1,186 (60.8)	7,171 (37.4)
First step switched to, n (column %)						
1	-	547 (42.7)	1,152 (39.1)	1,147 (38.5)	251 (12.9)	3,097 (16.1)
2	1,207 (12.0)	-	218 (7.4)	73 (2.5)	54 (2.8)	1,552 (8.1)
3	2,205 (22.0)	234 (18.3)	-	372 (12.5)	132 (6.8)	2,943 (15.3)
4	1,961 (19.6)	119 (9.3)	554 (18.8)	-	328 (16.8)	2,962 (15.4)
5	826 (8.2)	87 (6.8)	243 (8.2)	303 (10.2)	-	1,459 (7.6)
Last step, n (column %)						
1	7,602 (75.8)	595 (46.4)	1,212 (41.1)	1,070 (35.9)	300 (15.4)	10,779 (56.2)
2	299 (3.0)	367 (28.6)	122 (4.1)	49 (1.6)	48 (2.5)	885 (4.6)
3	557 (5.6)	107 (8.3)	1,038 (35.2)	197 (6.6)	96 (4.9)	1,995 (10.4)
4	926 (9.2)	129 (10.1)	359 (12.2)	1,425 (47.9)	246 (12.6)	3,085 (16.1)
5	644 (6.4)	84 (6.6)	215 (7.3)	236 (7.9)	1,261 (64.6)	2,440 (12.7)
Last step compared to first, n (column %)						
Step-down	-	595 (46.4)	1,334 (45.3)	1,316 (44.2)	690 (35.4)	3,935 (20.5)
Same step	7,602 (75.8)	367 (28.6)	1,038 (35.2)	1,425 (47.9)	1,261 (64.6)	11,693 (61.0)
Step-up	2,426 (24.2)	320 (25.0)	574 (19.5)	236 (7.9)	-	3 ,556 (18.5)
Step difference, mean (SD)	0.67 (1.29)	0.02 (1.24)	-0.60 (1.32)	-1.10 (1.50)	-0.91 (1.47)	-0.00 (1.54)
Step size, mean (SD)	0.67 (1.29)	0.95 (0.80)	1.13 (0.91)	1.26 (1.37)	0.91 (1.47)	0.88 (1.26)

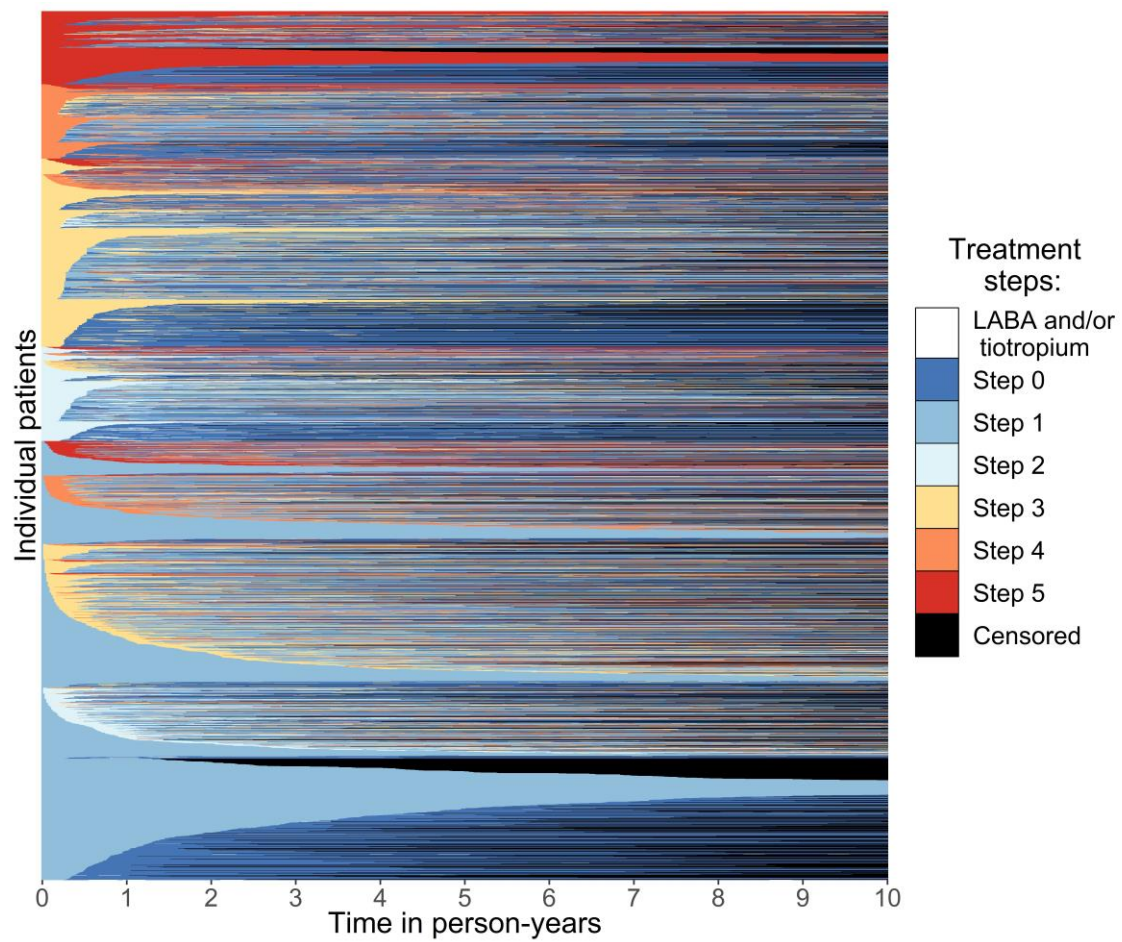**Abbreviations:** n, number; IQR, inter quartile range; SD, standard deviation.

Supplementary Table 3: Descriptives of treatment trajectories if periods without treatment dispenses are considered to be step 0.

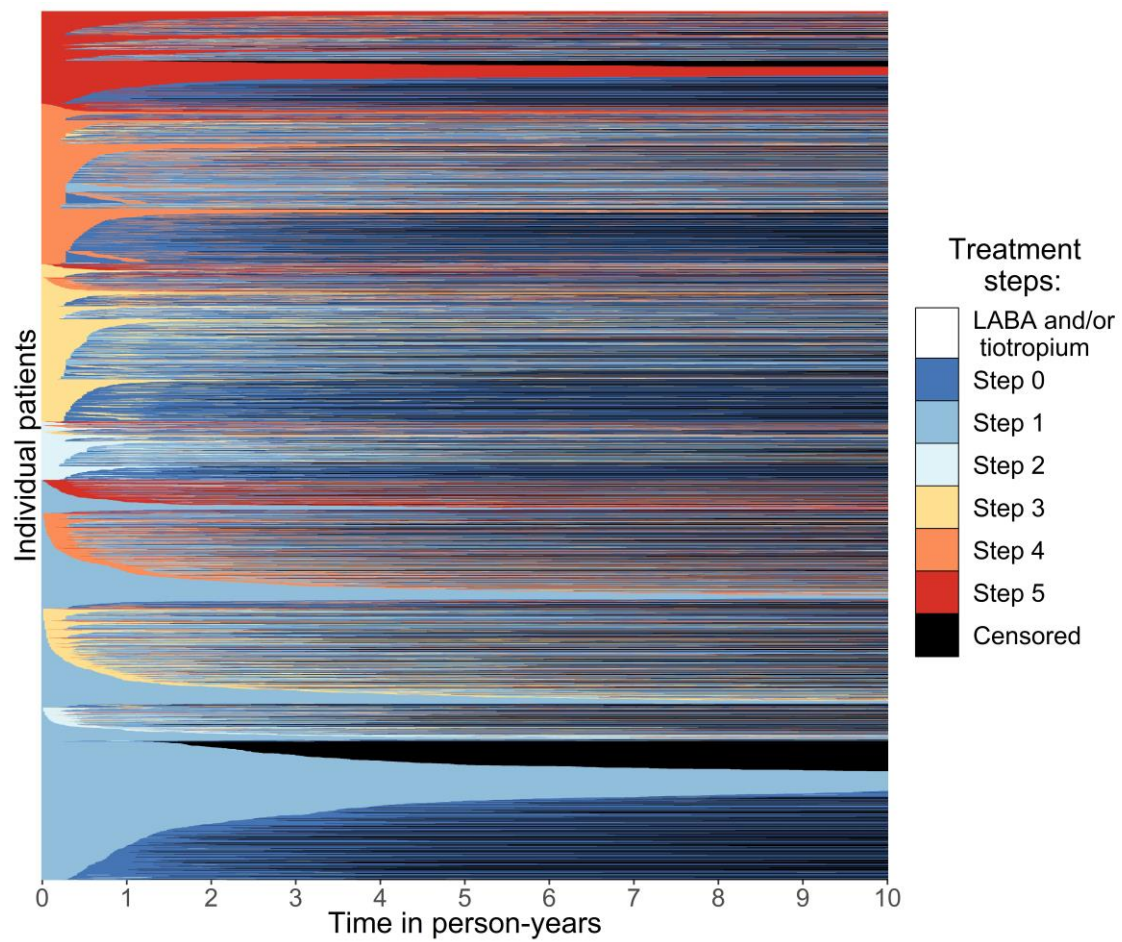| Variables	At start	End of follow-up	Overall
Step, n (column %)			
0	-	10,968 (57.2)	
1	10,028 (52.3)	4,282 (22.3)	
2	1,282 (6.7)	377 (2.0)	
3	2,946 (15.4)	773 (4.0)	
4	2,977 (15.5)	1,605 (8.4)	
5	1,951 (10.2)	1,179 (6.1)	
Number of switches, median (IQR)			3 (1 – 6)
Last step compared to first, n (column %)			
Step-down			12,779 (66.6)
Same step			4,293 (22.4)
Step-up			2,112 (11.0)
Null switches, n (column %)			(8.9)
Step difference, median (IQR)			-1 (-3 – -1)

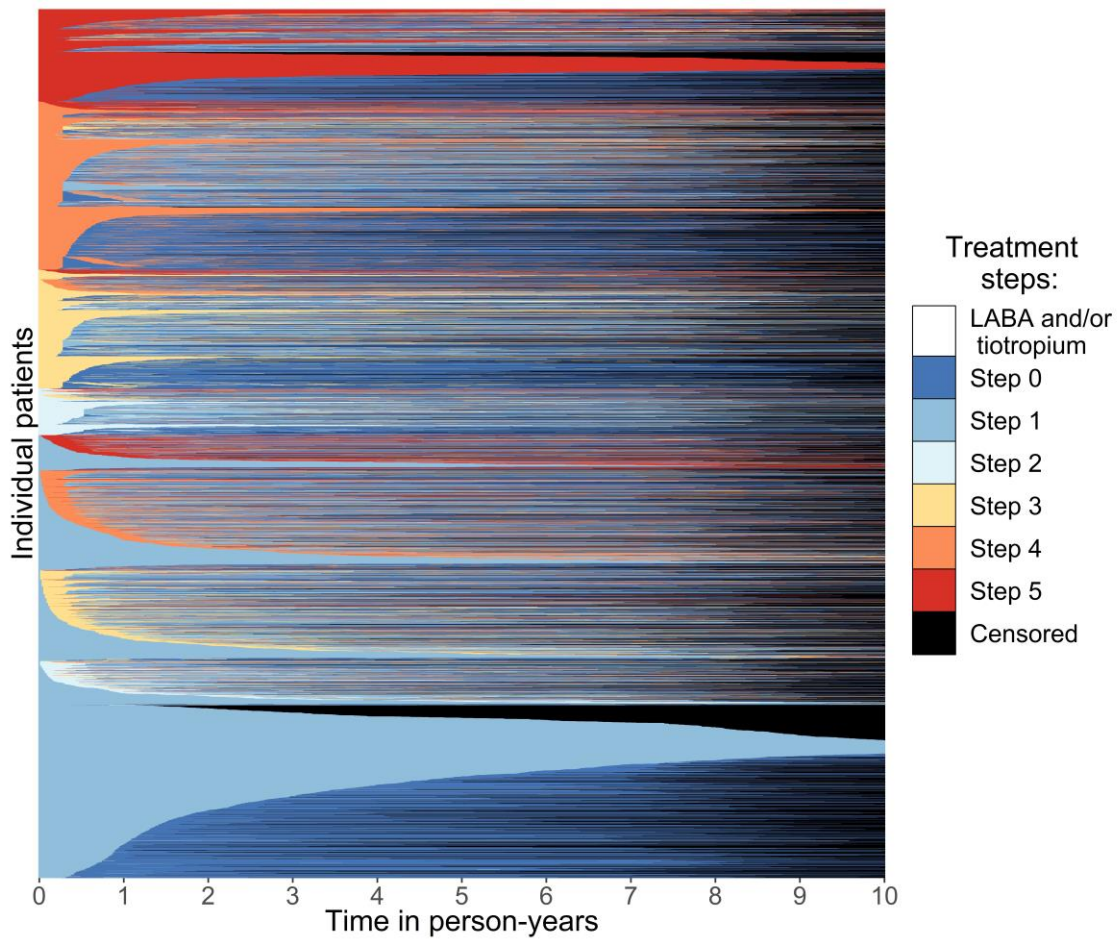**Abbreviations:** n, number; IQR, inter quartile range; SD, standard deviation.

Supplementary Figure 1: Treatment steps of individuals over a period of 10 person-years with a
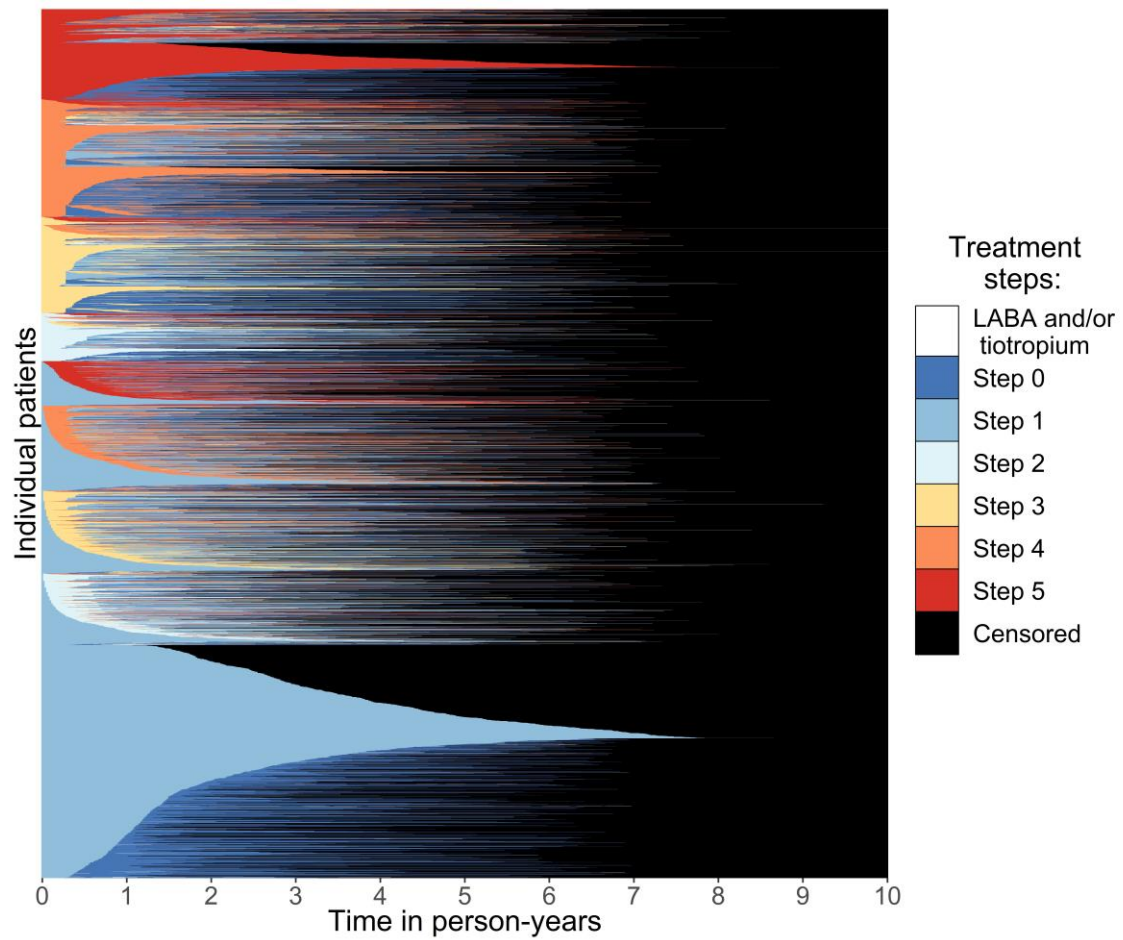
tPDC of 0.25.

Supplementary Figure 2: Treatment steps of individuals who initiated treatment between 1995-01-01 and 2001-12-31.

Supplementary Figure 3: Treatment steps of individuals who initiated treatment between 2002-01-01 and 2007-12-31.

Supplementary Figure 4: Treatment steps of individuals who initiated treatment between 2008-01-01 and 2013-12-31.

Supplementary Figure 5: Treatment steps of individuals who initiated treatment between 2014-01-01 and 2020-12-31.