Supplementary materials

Table S1 Baseline characteristics

	Tiotropium 5 µg	Tiotropium + olodaterol 5/5 µg
Participants	1033	1029
Male	755 (73.1)	733 (71.2)
Pre-bronchodilator FEV$_1$ mL	1200 ± 504	1180 ± 493
Post-bronchodilator FEV$_1$ mL	1370 ± 521	1344 ± 505
GOLD II	517 (50.0)	508 (48.8)
GOLD III	347 (37.5)	408 (39.7)
GOLD IV	128 (12.4)	119 (11.6)

FEV$_1$ mL: Forced Expiratory Volume in 1 second in milliliters

Table S2 Clinical input values by GOLD severity stage

	Annual tFEV$_1$ decline	Utility
GOLD II	37.1 mL	0.787 (0.771 - 0.802)
GOLD III	30.7 mL	0.750 (0.731 - 0.768)
GOLD IV	24.2 mL	0.647 (0.598 - 0.695)

mL: milliliter

Table S3 Moderate exacerbation risk logistic regression analysis

	Coef	Std. Error	Z	P>|z|	95% Conf	Interval
Moderate exacerbation in previous year	.2962704	.0328924	9.01	0.000	.2318024	.3607383
Hospitalization in previous year	.0421766	.040818	1.03	0.301	-.0378252	.1221784
FEV$_1$% predicted	-.0120495	.0016381	-7.36	0.000	-.0152602	-.0088388
Age in months	.000375	.0002307	1.63	0.104	-.0000772	.0008272
Constant	-3.2075	.1962957	-16.34	0.000	-3.592233	-2.822768

FEV$_1$ % predicted: Forced Expiratory Volume in 1 second of percent predicted

	Coef	Std. Error	Z	P>|z|	95% Conf	Interval
Moderate exacerbation in previous year	.2962704	.0328924	9.01	0.000	.2318024	.3607383

Table S4 Severe exacerbation risk logistic regression analysis

	Coef	Std. Error	Z	P>|z|	95% Conf	Interval
Moderate exacerbation in previous year	.1723609	.0345583	4.99	0.000	.1046279	.2400939
Hospitalization in previous year	.3673385	.0594212	6.18	0.000	.2508752	.4838019
FEV$_1$% predicted	-.0506315	.0035473	-14.27	0.000	-.0575841	-.043679
Age in months	.002943	.0004814	6.11	0.000	.0019993	.0038866
Constant	-5.272451	.4052518	-13.01	0.000	-6.06673	-4.478172

FEV$_1$ % predicted: Forced Expiratory Volume in 1 second of percent predicted

Table S5 Statistical distributions used in the PSA

Parameter	Statistical distribution
Lung function improvement	Lognormal
Lung function decline	Beta
Risk of exacerbation	Normal
Mortality	Lognormal
Costs	Gamma
Utility values	Beta

Table S6 Market share projections (with [lower table] and without [upper table] tiotropium-olodaterol) as provided by manufacturer

	Year 1	Year 2	Year 2	Year 4	Year 5
Tiotropium (5 /18 mcg)	33,1%	31,6%	30,6%	29,6%	29,1%
GLY/IND	4,2%	4,1%	5,0%	5,9%	6,3%
UMEC/VI	1,2%	2,3%	2,8%	3,3%	3,5%
ACL/FM	0,6%	2,7%	3,3%	3,9%	4,2%
TIO+SM	17,3%	16,7%	16,3%	15,9%	15,7%
FF/VI 100/25	0,7%	0,6%	0,6%	0,6%	0,6%
BUD/FM 320/90	13,9%	13,6%	13,4%	13,2%	13,1%
SFC 50/500	29,1%	28,5%	28,1%	27,7%	27,5%
TOTAL	100,0%	100,0%	100,0%	100,0%	100,0%

	Year 1	Year 2	Year 2	Year 4	Year 5
Tio + Olo FDC	0,6%	2,3%	6,1%	7,2%	7,7%
Tiotropium (5 /18 mcg)	33,1%	31,6%	30,6%	29,6%	29,1%
GLY/IND	4,0%	3,2%	2,5%	3,0%	3,2%
UMEC/VI	1,0%	1,6%	0,9%	1,1%	1,2%
ACL/FM	0,4%	2,0%	1,5%	1,8%	1,9%
TIO+SM	17,3%	16,7%	16,3%	15,9%	15,7%
FF/VI 100/25	0,7%	0,6%	0,6%	0,6%	0,6%
BUD/FM 320/90	13,9%	13,6%	13,4%	13,2%	13,1%
SFC 50/500	29,1%	28,5%	28,1%	27,7%	27,5%
TOTAL	100,0%	100,0%	100,0%	100,0%	100,0%

ACL/FM: aclidinium/formoterol; BUD/FM: budesonide/formoterol; FDC: fixed dose combination; FF/VI: fluticasone/vilanterol; GLY/IND: glycopyrronium/indacaterol; SFC: salmeterol/flucticasone combination; TIO+SM: tiotropium+salmeterol; UMEC/VI: umeclidinium/vilanterol