

SUPPLEMENTARY MATERIAL

Table S1. Unit costs of resource use in individual countries.

Costs (€)	France	Germany	Italy	Spain	UK
COPD treatments					
SABA	5.8	3.0	3.0	2.2	4.1
SAMA	2.4	40.4	15.3	17.1	11.9
LABA	19.6	39.0	25.5	29.3	31.7
ICS/LABA	35.3	71.6	39.5	44.4	39.6
Xanthines	0.8	2.3	1.7	1.8	5.3
ICS	18.4	16.5	7.9	14.0	22.4
PDE-4 Inhibitor	.	25.1	4.3	37.4	42.5
LAMA	12.9	50.2	20.2	25.5	26.3
Exacerbation treatments					
OCS only	33.7	47.0	30.7	62.7	90.3
Antibiotic only	35.9	68.1	32.2	64.2	92.7
OCS + antibiotic	38.4	69.9	37.4	65.5	96.3
Consultations					
PCP consultation	24.1	20.5	13.5	57.2	77.1
Pulmonologist consultation	40.6	40.2	22.9	169.1	275.0
Other COPD therapeutic options					
Influenza vaccination	6.1	15.1	5.8	6.1	6.5
Pneumococcal vaccination	15.0	21.5	47.7	14.7	10.8
Lung transplant	18,000.0	49,137.0	72,572.0	117,948.2	3,150.7
Lung volume reduction surgery	63,000.0	5,701.5	2,270.0	1,314.7	3,150.7
Long term oxygen therapy	3,868.8	2,604.6	2,847.7	2,000.2	1,701.7
Hospitalizations					
Hospitalization and A&E admission	8,413.5	7,174.2	3,344.0	6,564.1	1,766.4
Emergency department (no hospital stay)	148.5	190.4	241.0	264.9	132.5

A&E Accident and emergency, *COPD* Chronic obstructive pulmonary disease, *ICS* Inhaled corticosteroid, *LABA* Long-acting β -agonist, *LAMA* Long-acting muscarinic antagonist, *OCS* Oral corticosteroid, *PCP* Primary care physician, *PDE-4* Phosphodiesterase-4, *SABA* Short-acting β -agonist, *SAMA* Short-acting muscarinic antagonist.

Table S2. Patient disposition and demographic characteristics in each country (based on weighted data).

Patient variable, n (%)	France		Germany		Italy		Spain		UK	
	mMRC < 2 (n=312)	mMRC ≥ 2 (n=227)	mMRC < 2 (n=546)	mMRC ≥ 2 (n=431)	mMRC < 2 (n=126)	mMRC ≥ 2 (n=123)	mMRC < 2 (n=244)	mMRC ≥ 2 (n=286)	mMRC < 2 (n=104)	mMRC ≥ 2 (n=132)
COPD patients	312 (60.5)	227 (39.5)	546 (56.4)	431 (43.6)	126 (49.3)	123 (50.7)	244 (47.5)	286 (52.5)	104 (39.8)	132 (60.2)
Age, mean (SD)	61.6 (9.7)	66.8 (8.8)*	60.3 (9.7)	66.3 (9.3)*	66.1 (11.1)	73.4 (8.6)§	65.7 (8.5)	71.3 (8.0)*	65.6 (9.2)	65.5 (9.7)
Gender, Female	99 (31.0)	76 (34.8)	184 (30.6)	148 (34.4)	47 (37.8)	41 (31.8)	45 (17.3)	35 (11.7)	39 (36.6)	50 (34.2)
Time since diagnosis in months, mean (SD)	66.6 (53.4)	82.9 (66.4)	63.4 (51.1)	94.2 (86.8)§	64.4 (59.8)	98.8 (74.5)¶	76.9 (51.7)	96.6 (71.8)	64.8 (47.0)	86.9 (73.8)
Current smokers	141 (47.1)	86 (37.7)	228 (43.4)	162 (36.1)	41 (29.1)	29 (20.6)	51 (15.6)	51 (13.1)	28 (24.0)	27 (18.8)
Currently on ICS treatment	177 (51.2)	168 (76.8)*	282 (45.7)	236 (57.5)#	87 (68.5)	94 (77.5)	143 (52.1)	211 (66.7)¶	61 (55.2)	119 (88.7)§
Currently on triple therapy	97 (32.0)	108 (53.2)§	122 (18.5)	141 (33.5)*	25 (22.0)	61 (50.7)#	93 (31.0)	166 (54.7)*	37 (40.3)	91 (66.5)#
Number of comorbidities, mean (SD)	0.8 (1.0)	1.4 (1.2)*	0.7 (1.0)	1.3 (1.3)*	1.0 (1.3)	1.4 (1.4)¶	0.9 (1.2)	1.4 (1.7)#	0.8 (1.0)	1.2 (1.1)¶
Serious CV comorbidity	75 (21.4)	113 (49.4)*	116 (18.8)	221 (53.8)*	26 (22.8)	51 (36.2)	65 (28.3)	104 (43.0)¶	20 (22.3)	61 (54.5)§

* $P < 0.0001$.

$P < 0.01$.

§ $P < 0.001$.

¶ $P < 0.05$.

COPD Chronic obstructive pulmonary disease, *CV* Cardiovascular, *ICS* Inhaled corticosteroid, *mMRC* Modified Medical Research Council dyspnoea scale, *SD* Standard deviation.

Table S3. Impact of COPD on sleep and health status by dyspnoea in European countries (based on weighted data).

	France		Germany		Italy		Spain		UK	
	mMRC < 2 (n=312)	mMRC ≥ 2 (n=227)	mMRC < 2 (n=546)	mMRC ≥ 2 (n=431)	mMRC < 2 (n=126)	mMRC ≥ 2 (n=123)	mMRC < 2 (n=244)	mMRC ≥ 2 (n=286)	mMRC < 2 (n=104)	mMRC ≥ 2 (n=132)
Impact on sleep (JSEQ score)	3.5 (3.0, 4.0)	7.2 (6.2, 8.3)	3.8 (3.4, 4.1)	7.3 (6.8, 7.8)	3.6 (2.5, 4.6)	6.1 (4.9, 7.4)	3.9 (3.3, 4.5)	6.8 (6.0, 7.6)	4.8 (2.9, 6.8)	8.2 (6.9, 9.5)
Impact on COPD specific health status (CAT)	14.8 (13.7, 15.9)	24.1 (22.7, 25.5)	16.6 (15.7, 17.4)	25.0 (24.0, 26.0)	16.9 (14.8, 19.0)	23.4 (21.3, 25.5)	17.1 (15.7, 18.6)	25.3 (24.2, 26.5)	16.2 (13.8, 18.6)	27.6 (25.9, 29.3)
Impact on general health status (EQ- 5D)	0.9 (0.8, 0.9)	0.5 (0.4, 0.6)	0.9 (0.9, 0.9)	0.8 (0.8, 0.8)	0.9 (0.9, 0.9)	0.8 (0.7, 0.8)	0.8 (0.8, 0.9)	0.6 (0.6, 0.7)	0.8 (0.8, 0.9)	0.6 (0.5, 0.7)

CAT COPD Assessment Test, *COPD* Chronic obstructive pulmonary disease, *EQ-5D* EuroQol Questionnaire, *JSEQ* Jenkins Sleep Evaluation Questionnaire, *mMRC* Modified Medical Research Council dyspnoea scale.

Table S4. Annual per patient costs of chronic obstructive pulmonary disease management by dyspnoea in European countries (in Euros; based on weighted data).

Costs	France		Germany		Italy		Spain		UK	
	mMRC < 2 (n=312)	mMRC ≥ 2 (n=227)	mMRC < 2 (n=546)	mMRC ≥ 2 (n=431)	mMRC < 2 (n=126)	mMRC ≥ 2 (n=123)	mMRC < 2 (n=244)	mMRC ≥ 2 (n=286)	mMRC < 2 (n=104)	mMRC ≥ 2 (n=132)
Exacerbation/ hospitalization costs	778 (331, 1225)	3491 (2345, 4636)	590 (297, 882)	3343 (2596, 4090)	124 (0, 248)	1264 (768, 1761)	416 (159, 673)	2862 (2033, 3690)	466 (-47, 979)	1177 (607, 1747)
Medication costs	127 (112, 142)	172 (150, 195)	344 (318, 371)	531 (463, 600)	278 (211, 344)	467 (381, 553)	486 (425, 547)	650 (598, 703)	452 (321, 584)	673 (584, 761)
Consultation costs	121 (113, 129)	176 (159,192)	159 (149, 169)	207 (194, 220)	85 (75, 94)	123 (98, 149)	366 (313, 420)	707 (641, 774)	428 (323, 532)	803 (677, 929)
Other costs	171 (-19, 361)	1216 (83, 2349)	52 (24, 80)	229 (144, 314)	121 (3, 240)	821 (509, 1133)	18 (5, 31)	159 (76, 242)	90 (-34, 215)	183 (55, 312)
Total costs	1312 (700, 1925)	5126 (3251, 7001)	1199 (873, 1524)	4436 (3603, 5269)	473 (332, 613)	2687 (1930, 3343)	1132 (913, 1350)	4489 (3487, 5491)	1194 (753, 1635)	2783 (2053, 3513)

mMRC Modified Medical Research Council dyspnoea scale.