

Supplementary Table 1. General characteristics of the 1,750 patients admitted at hospital for AECOPD according to their status 48 months later: Dead, No (N=963; 55%) or Yes (N=787; 45%).

Characteristics	Dead		RR	Relative Risk [95% CI]	P value
	No N %	Yes N %			
Sex	963	787			
Female (n=406)	60.8	39.2	1*		
Male (n=1,344)	53.3	46.7	1.19	[1.0 - 1.41]	.05
Age	963	787			
<60 years (n=353)	74.8	25.2	1		
≥60 and <80 years (n=1,005)	55.4	44.6	2.04	[1.62 - 2.56]	<.0001
≥80 years (n=392)	36.2	63.8	3.54	[2.78 - 4.51]	<.0001
BMI	937	755			
≤20 kg/m ² (n=339)	48.4	51.6	1.42	[1.17 - 1.72]	.0004
20-25 kg/m ² (n=582)	54.1	45.9	1		
25-30 kg/m ² (n=456)	58.1	41.9	0.84	[0.70 - 1.01]	.07
≥30 kg/m ² (n=315)	61.3	38.7	0.87	[0.71 - 1.08]	.22
Smoking status	963	787			
Non smoker (n=116)	52.6	47.4	1		
Former smoker (n=1,060)	49.4	50.6	1.20	[0.90 - 1.59]	.22
Current smoke (n=574)	65.9	34.1	1.09	[0.79 - 1.49]	.59
Cumulative smoking	882	703			
Mean+/-SD (pack-year)	42.0+/-25.3	45.0+/-25.0	0.0137	[0.99 - 1.05]	.15
Comorbidities	963	787			
Asthma					
No (n=1,518)	53.9	46.1	1		
Yes (n=232)	62.5	37.5	0.81	[0.65 - 1.01]	.06

Bronchiectasis						
No (n=1,630)	55.2	44.8	1			
Yes (n=120)	53.3	46.7	1.06	[0.81 - 1.40]		.66
GERD						
No (n=1,670)	54.2	45.8	1			
Yes (n=80)	72.5	27.5	0.55	[0.36 - 0.84]		.006
Secondary pulmonary hypertension						
No (n=1,623)	56.8	43.3	1			
Yes (n=127)	33.1	66.9	1.93	[1.54 - 2.41]		<.0001
Chronic right ventricular failure						
No (n=1,676)	56.0	44.0	1			
Yes (n=74)	32.4	67.6	1.89	[1.42 - 2.52]		<.0001
Hypertension						
No (n=1,133)	57.5	42.5	1			
Yes (n=617)	50.6	49.4	1.05	[0.90 - 1.21]		.55
Sleep apnoea						
No (n=1,617)	54.5	45.5	1			
Yes (n=133)	61.6	38.4	0.86	[0.65 - 1.15]		.31
Obesity hypoventilation syndrome						
No (n=1,656)	55.0	45.0	1			
Yes (n=94)	55.3	44.7	1.18	[0.86 - 1.61]		.30
Lung cancer						
No (n=1,703)	55.7	44.3	1			
Yes (n=47)	29.8	70.2	1.66	[1.17 - 2.35]		.005
Cardiovascular comorbidity [†]						
No (n=1,224)	962	787	60.3			
Yes (n=525)	42.7	57.3	1.39	[1.20 - 1.62]		<.0001
COPD						
Unknown at inclusion (n=279)	963	787	76.7			
Known at inclusion (n=1,471)	50.9	49.1	2.25	[1.75 - 2.91]		<.0001

AECOPD=acute exacerbation of COPD; BMI=body mass index; CI=confidence interval; COPD=chronic obstructive pulmonary disease; GERD=gastro-oesophageal reflux; SD=standard deviation; RR=relative risk

* 1=reference; [†] Ischemic heart disease, congestive heart failure

Supplementary Table 2. Characteristics of the COPD of the 1,750 patients admitted at hospital for AECOPD, according to their status 48 months later: Dead, No (N=963; 55%) or Yes (N=787; 45%).

Characteristics	Dead		RR	Relative Risk	
	No N %	Yes N %		[95% CI]	P value
Dyspnoea score (MRC)	951	775			
0/1 (n=293)	75.8	24.2	1*		
2 (n=625)	62.9	37.2	1.37	[1.05 - 1.79]	.02
3 (n=595)	46.4	53.6	2.21	[1.71 - 2.87]	<.0001
4 (n=213)	28.2	71.8	3.94	[2.97 - 5.24]	<.0001
Last respiratory function test [†]					
FEV ₁ (% predicted value)	845	704			
≥80% (n=71)	73.2	26.8	1		
50%-80% (n=511)	61.5	38.5	1.00	[0.79 - 1.27]	.99
30%-50% (n=671)	52.5	47.5	1.42	[1.13 - 1.77]	.002
≤30% (n=296)	42.9	57.1	2.27	[1.76 - 2.92]	<.0001
FEV ₁ /FVC					
≥70% (n=174)	58.6	41.4	1		
<70% (n=1,347)	54.0	46.0	1.19	[0.93 - 1.53]	.16
PaCO ₂	705	669			
<45 mmHg (n=896)	55.9	44.1	1		
≥45 mmHg (n=478)	42.7	57.3	1.62	[1.38 - 1.89]	<.0001
PaO ₂	709	673			
≥60 mmHg (n=1,038)	56.1	43.9	1		
>60 mmHg (n=3,44)	36.9	63.1	1.84	[1.57 - 2.17]	<.0001
GOLD stage	726	619			
I (n=36)	72.2	27.8	0.25	[0.13 - 0.47]	<.0001
II (n=410)	61.2	38.8	0.43	[0.34 - 0.54]	<.0001
III (n=615)	53.2	46.8	0.60	[0.50 - 0.73]	<.0001
IV (n=284)	43.0	57.0	1		

Ongoing treatments						
Long term oxygen therapy	912	767				
No (n=1,130)	64.6	35.4	1			
Yes (n=549)	33.1	66.9	2.47	[2.14 - 2.85]	<.0001	
Ambulatory oxygen therapy	913	767				
No (n=1,468)	57.5	42.5	1			
Yes (n=212)	32.6	67.5	2.01	[1.68 - 2.41]	<.0001	
Non-invasive ventilation	913	767				
No (n=1,544)	55.5	44.5	1			
Yes (n=136)	41.2	58.8	1.67	[1.33 - 2.11]	<.0001	
Invasive ventilation	913	767				
No (n=1,672)	54.3	45.7	1			
Yes (n=8)	62.5	37.5	1.004	[0.32 - 3.12]	.99	
Inhaled corticosteroids	916	771				
No (n=559)	55.3	44.7	1			
Yes (n=1,128)	39.8	60.2	1.09	[0.93 - 1.26]	.29	
Long term oral corticosteroids	915	771				
No (n=986)	55.3	44.7	1			
Yes (n=72)	39.8	60.2	1.47	[1.14 - 1.90]	.003	
Bronchodilators	917	772				
No (n=310)	60.3	39.7	1			
Yes (n=1,379)	52.9	47.1	1.13	[0.93 - 1.37]	.22	
Acute exacerbation(s) within the previous year						
0 (n=634)	952	773	66.4	33.6	1	
1 (n=358)	54.5	45.5	1.42	[1.15 - 1.74]	.0009	
2 (n=344)	47.1	52.9	1.75	[1.43 - 2.13]	<.0001	
3 (n=170)	50.0	50.0	1.52	[1.18 - 1.96]	.001	
≥4 (n=219)	40.6	59.4	2.26	[1.82 - 2.81]	<.0001	

Hospital admission for acute exacerbation(s) within the previous year	952	773			
0 (n=889)	64.3	35.7	1		
1 (n=448)	52.5	47.5	1.41	[1.19 - 1.68]	.0001
2 (n=206)	41.8	58.2	1.97	[1.60 - 2.43]	<.0001
3 (n=87)	35.6	64.4	2.10	[1.58 - 2.79]	<.0001
≥4 (n=95)	29.5	70.3	2.52	[1.94 - 3.29]	<.0001

AECOPD=acute exacerbation of COPD; CI=confidence interval; COPD=chronic obstructive pulmonary disease; FEV₁=forced expiratory volume in one second; FVC=forced (expiratory) vital capacity; GOLD=Global Initiative for chronic Obstructive Lung Disease; MRC=Medical Research Council; PaCO₂=arterial carbon dioxide pressure; PaO₂=arterial oxygen pressure; RR=relative risk

* 1=reference; † last test performed before inclusion.

Supplementary Table 3. Characteristics of the acute exacerbation which led to hospital admission in 1,750 patients, according to the status of the patients 48 months later: Dead, No (N=963; 55%) or Yes (N=787; 45%).

Characteristics	Dead		RR	Relative Risk	
	No N %	Yes N %		[95% CI]	P value
Aetiology					
Infectious cause	962	787			
No (n=358)	49.7	50.3	1*		
Yes (n=1,391)	56.4	43.6	0.79	[0.67 - 0.94]	.006
Left heart failure	962	787			
No (n=1,611)	56.7	43.3	1		
Yes (n=138)	35.5	64.5	1.63	[1.31 - 2.04]	<.0001
Dyspnoea score (MRC)					
	900	744			
1 (n=45)	82.2	17.8	1		
2 (n=143)	69.2	30.8	1.70	[0.80 - 3.62]	.17
3 (n=525)	61.3	38.7	2.13	[1.05 - 4.31]	.04
4 (n=931)	47.5	52.5	3.28	[1.63 - 6.60]	.0009
Functional symptoms					
Dyspnoea worsening	962	787			
No (n=76)	56.6	43.4	1		
Yes (n=1,673)	54.9	45.1	1.05	[0.74 - 1.49]	.79
Increased cough	962	787			
No (n=596)	51.2	48.3	1		
Yes (n=1,153)	57.0	43.0	0.87	[0.75 - 1.01]	.06
Sputum change	962	787			
No (n=783)	56.3	43.7	1		
Yes (n=966)	53.9	46.1	1.06	[0.92 - 1.22]	.42

Severity signs within the first 24 hours	962	787			
- Number					
0 (n=215)	66.1	33.9	1		
1 (n=355)	60.3	39.7	1.24	[0.93 - 1.64]	.14
2 (n=333)	59.5	40.5	1.19	[0.89 - 1.58]	.24
≥3 (n=846)	48.2	51.8	1.95	[1.52 - 2.50]	<.0001
- Nature					
Dyspnoea at rest	962	787			
No (n=429)	62.0	38.0	1		
Yes (n=1,320)	52.7	47.3	1.35	[1.14 - 1.61]	.0006
Cyanosis	962	787			
No (n=1,367)	57.1	42.9	1		
Yes (n=382)	47.4	52.6	1.39	[1.18 - 1.63]	<.0001
SpO2 <90	962	787			
No (n=988)	58.5	41.5	1		
Yes (n=761)	50.5	49.5	1.35	[1.17 - 1.55]	<.0001
Use of secondary respiratory muscles	962	787			
No (n=1,273)	57.9	42.1	1		
Yes (n=476)	47.3	52.7	1.45	[1.25 - 1.69]	<.0001
Paradoxal abdominal respiration	962	787			
No (n=1,603)	56.0	44.0	1		
Yes (n=146)	43.8	56.2	1.61	[1.28 - 2.03]	<.0001
Respiratory rate >25/min	962	787			
No (n=1,166)	57.3	42.7	1		
Yes (n=583)	50.4	49.6	1.27	[1.10 - 1.47]	.001
Ineffective cough	962	787			
No (n=1,514)	54.6	45.4	1		
Yes (n=235)	57.5	42.5	0.99	[0.80 - 1.22]	.89
Tachycardia >110/min	962	787			
No (n=1,353)	56.4	43.6	1		
Yes (n=396)	50.3	49.8	1.34	[1.14 - 1.58]	.0004

Arrhythmias	962	787				
No (n=1,687)	55.3	44.7	1			
Yes (n=62)	48.4	51.6	1.15	[0.81 - 1.64]		.43
Hypotension	962	787				
No (n=1,709)	55.1	44.9	1			
Yes (n=40)	50.0	50.0	1.44	[0.92 - 2.25]		.11
Blotches	962	787				
No (n=1,722)	55.1	44.9	1			
Yes (n=27)	48.2	51.8	1.81	[1.06 - 3.08]		.03
Lower-limb oedema	962	787				
No (n=1,517)	58.1	41.9	1			
Yes (n=232)	34.9	65.1	1.91	[1.60 - 2.28]		<.0001

CI=confidence interval; MRC=Medical Research Council; RR=relative risk; SpO₂= pulse oxygen haemoglobin saturation

* 1=reference

Supplementary Table 4. Characteristics of hospitalization for 1,750 patients admitted at hospital for AECOPD according to their status 48 months later: Dead, No (N=963; 55%) or Yes (N=787; 45%).

Characteristics	Dead		RR	Relative Risk	
	No N % or mean+/-SD	Yes N % or mean+/-SD		[95% CI]	P value
First admission	960	787			
Emergency department (n=1,368)	56.4	43.6	1*		
ICU (n=110)	43.6	56.4	1.63	[1.25 - 2.12]	.0003
Pneumology department (n=209)	52.2	47.8	1.18	[0.95 - 1.45]	.13
Other department (n=23)	47.8	52.2	1.31	[0.74 - 2.32]	.36
Other hospital (n=37)	54.0	46.0	1.20	[0.74 - 1.94]	.47
Reanimation	962	787			
No (n=1,452)	56.8	43.2	1		
Yes (n=297)	46.1	53.9	1.51	[1.27 - 1.80]	<.0001
In hospital treatment					
Oxygen therapy	962	787			
No (n=229)	67.7	32.3	1		
Yes (n=1,520)	53.1	46.9	1.62	[1.28 - 2.06]	<.0001
Ventilation	962	787			
No (n=1,539)	56.4	43.6	1		
Yes (n=210)	44.8	55.2	1.63	[1.33 - 1.98]	<.0001
Antibiotics	960	786			
No (n=393)	54.5	45.5	1		
Yes (n=1,353)	55.1	44.9	0.94	[0.80 - 1.11]	.49
Bronchodilators	961	786			
No (n=41)	65.9	34.1	1		
Yes (n=1,706)	54.8	45.2	1.44	[0.85 - 2.45]	.17
Corticosteroids [†]	961	786			
No (n=641)	55.1	44.9	1		
Yes (n=1,106)	55.0	45.0	1.07	[0.93 - 1.24]	.37

Hospital stay: duration (days) mean+/-SD	956 10.9+/-8.4	779 13.4+/- 10.0	0.0214+/- 0.0032		<.0001
Treatment at discharge					
Oxygen therapy	956	778			
No (n=1,080)	66.9	33.1	1		
Yes (n=654)	35.8	64.2	2.51	[2.18 - 2.89]	<.0001
Non-invasive ventilation	956	778			
No (n=1,560)	56.0	44.0	1		
Yes (n=174)	47.1	52.9	1.42	[1.14 - 1.76]	.002
Bronchodilators	956	778			
No (n=105)	57.1	42.9	1		
Yes (n=1,629)	55.0	45.0	1.05	[0.77 - 1.41]	.78
Inhaled corticosteroids	956	778			
No (n=476)	55.3	44.7	1		
Yes (n=1,258)	55.1	44.9	0.98	[0.83 - 1.14]	.77
Systemic corticosteroids [‡]	956	778			
No (n=1,225)	55.8	44.2	1		
Yes (n=509)	53.4	46.6	1.19	[1.02 - 1.39]	.03
Antibiotics	956	778			
No (n=1,267)	53.1	46.9	1		
Yes (n=467)	60.6	39.4	0.79	[0.67 - 0.94]	.006
Physiotherapy	956	778			
No (n=1,387)	57.0	43.0	1		
Yes (n=347)	47.8	52.2	1.39	[1.17 - 1.64]	.0001

AECOPD=acute exacerbation of COPD; CI=confidence interval; COPD=Chronic obstructive pulmonary disease; ICU=intensive care unit; RR=relative risk; SD=standard deviation

* 1= reference; [†] *per os* or intravenous; [‡] *per os*