



Supplementary file 1: Flow chart depicting the analysis for mortality prediction at 30 days following hospital admission.

Variables analyzed in the univariate logistic regression for mortality were the following ones: Age (≥ 65 years), sex male, smoking, alcohol abuse, pneumococcal vaccine, influenza vaccine, oral steroids, inhaled steroids, antibiotic last month, cardiac disease, chronic renal failure, liver disease, diabetes mellitus, chronic pulmonary disease, neurological disease, initial ICU admission, CURB65 (≥ 3), virus, appropriate antibiotic, complications: (acute renal failure, pleural effusion, mechanical ventilation, ARDS, septic shock) neutrophils (cells/mm³), lymphocytes (cells/mm³), reactive C protein.

Variables yielding a $p < 0.1$ in the univariate regression analysis were further included in the multivariate one as adjusting variables: Multi-site (derivation) cohort (Cardiac disease, chronic renal failure, neurological disease, CURB65 (≥ 3), initial ICU admission, appropriate antibiotic, lymphocytes (cells/mm³)). Single-site (validation) cohort: (Smoking, cardiac disease, chronic renal failure, neurological disease, CURB65 (≥ 3), ARDS (complication), Virus, Initial ICU admission, Appropriate antibiotic, Lymphocytes (cells/mm³)).

Excluded variables, since they showed a significant correlation with another inclusive variable (Spearman correlation coefficient > 0.3) were: Multi-site (derivation) cohort: (Age (≥ 65 years), acute renal failure, ARDS, septic shock, mechanical ventilation). Single-site (validation) cohort: (Age (≥ 65 years), acute renal failure, septic shock, mechanical ventilation).

	Characteristics	Lymphocyte count (cell/mm ³)		<i>P</i> value
		< 724 (n=520)	≥ 724 (n=1030)	
Demographic data and treatment	Age (≥ 65 years)	196 (37.7)	428 (41.6)	0.143
	Sex male	342 (65.8)	620 (60.2)	0.033
	Current smoking	96 (19.9)	223 (22.9)	0.196
	Alcohol abuse	58 (11.2)	73 (7.1)	0.007
	Pneumococcal vaccine	59 (11.3)	119 (11.6)	0.904
	Influenza vaccine	213 (41)	422 (41)	0.997
	Oral steroids	27 (5.2)	45 (4.4)	0.465
	Inhaled steroids	111 (21.3)	253 (24.6)	0.158
	Antibiotic last month	106 (20.4)	278 (27)	0.018
Comorbidity	Cardiac disease	176 (34.2)	260 (25.4)	<0.001
	Chronic renal failure	54 (10.5)	84 (8.3)	0.141
	Liver disease	32 (6.3)	30 (2.9)	0.002
	Diabetes Mellitus	113 (22.2)	224 (22)	0.915
	Chronic pulmonary disease	139 (27.3)	282 (27.8)	0.854
	Neurological disease	108 (21.3)	146 (14.3)	0.001
Initial severity	Initial ICU admission	76 (14.6)	55 (5.3)	<0.001
	CURB65 (≥3)	110 (21.4)	109 (10.7)	<0.001
Complications and outcomes	Appropriate antibiotic	349 (84.7)	700 (86.3)	0.448
	Acute renal failure	36 (6.9)	51 (5)	0.111
	Pleural effusion	41 (7.9)	54 (5.2)	0.041
	Mechanical ventilation	48 (9.6)	47 (4.7)	<0.001
	ARDS	34 (6.5)	22 (2.1)	<0.001
	Septic shock	36 (6.9)	29 (2.8)	<0.001
	Mortality at 30 days	41 (7.9)	31 (3)	<0.001

Supplementary file 2: Clinical characteristics of patients in the multi-site (derivation) cohort depending on the lymphocyte count. Data presented as n (%). ICU: Intensive care unit, ARDS: Acute Respiratory Distress Syndrome.

	Characteristics	Lymphocyte count (cell/mm ³)		<i>P</i> value
		< 724 (n=1014)	≥ 724 (n=1832)	
Demographic data and treatment	Age (≥ 65 years)	695 (68.7)	1253 (68.6)	0.975
	Sex male	644 (63.5)	1089 (59.4)	0.033
	Current smoking	181 (18.1)	367 (20.2)	0.170
	Alcohol abuse	123 (12.3)	259 (14.3)	0.134
	Pneumococcal vaccine	149 (17)	318 (19.6)	0.118
	Influenza vaccine	370 (42.6)	834 (51.1)	<0.001
	Oral steroids	42 (4.2)	85 (4.7)	0.553
	Inhaled steroids	187 (18.8)	380 (21.2)	0.142
	Antibiotic last month	202 (21.2)	461 (26.6)	0.002
Comorbidity	Cardiac disease	129 (12.8)	280 (15.4)	0.064
	Chronic renal failure	78 (7.8)	140 (7.7)	0.928
	Liver disease	45 (4.5)	96 (5.3)	0.357
	Diabetes Mellitus	225 (22.6)	441 (22.7)	0.949
	Chronic pulmonary disease	350 (35.7)	740 (41.3)	0.004
	Neurological disease	208 (21.1)	366 (20.7)	0.814
Initial severity	Initial ICU admission	249 (24.6)	337 (18.4)	<0.001
	CURB65 (≥3)	181 (22.3)	307 (19.9)	0.173
Complications and outcomes	Appropriate antibiotic	814 (95.3)	1499 (96.1)	0.364
	Acute renal failure	303 (30.5)	457 (25.4)	0.004
	Pleural effusion	139 (14.2)	261 (14.6)	0.797
	Mechanical ventilation	126 (15.4)	175 (11.8)	0.014
	ARDS	56 (5.8)	67 (3.9)	0.024
	Septic shock	74 (7.5)	84 (4.7)	0.002
	Mortality at 30 days	116 (11.4)	118 (6.4)	<0.001

Supplementary file 3: Clinical characteristics of patients in the single-site (validation) cohort depending on the lymphocyte count. Data presented as n (%). ICU: Intensive care unit, ARDS: Acute Respiratory Distress Syndrome.