

Supplementary Table 1. Risk scores used in the study.

CURB-65 • Confusion • Uremia >19 mg/ml • Respiratory rate >30 rpm • Blood pressure: Systolic blood pressure < 90 mmHg or diastolic < 60 mmHg • ≥ 65 years	CRB-65 • Confusion • Respiratory rate >30 rpm • Blood pressure: Systolic blood pressure < 90 mmHg or diastolic < 60 mmHg • ≥ 65 years
SMART-COP • Systolic blood pressure < 90 mmHg • Multilobar or bilateral infiltrates chest x-ray • Albumin < 3.5 g/dL • Respiratory rate ≥25 bepm if ≤50 years or ≥30 bepm if >50 years • Tachycardia ≥125 bpm • Confusion • Low Oxygen ○ ≤50 years: pO₂ <70 mmHg or SaO₂ < 94% or PaO₂/FiO₂ <333 ○ >50 years: pO₂ <60 mmHg or SpO₂ < 90% or PaO₂/FiO₂ <250 • PH <7.35	Risk of Early Admission to ICU (REA-ICU) • Male • Age < 80 years • Comorbidities • Respiratory rate ≥30 bepm • Heart rate ≥125 bpm • Multilobar infiltrates or pleural effusion • Hypoxemia (SaO₂ < 90% or PaO₂ < 60 mmHg) • Blood urea nitrogen ≥ 11 mmol/L or ≥ 30 mg/dl • pH < 7.35 • Sodium <130 mEq/L
ADROP • Age (Male ≥70 years, female ≥75 years) • Dehydration (Blood urea nitrogen ≥21 mg/dL) • Respiratory failure (arterial oxygen saturation ≤90% or paO₂ ≤60 mmHg) • Orientation disturbance • Systolic Blood Pressure ≤90 mmHg	Systemic Inflammatory Response Syndrome (SIRS) • Temperature >38°C or <36°C • Heart rate >90 bpm • Respiratory rate >20 bepm or PaCO₂ <32 mmHg • White blood cell <4000/mm³ or >12000/mm³

Quick Sequential Organ Failure Assessment (qSOFA) - Systolic blood pressure <100 mmHg - Respiratory rate >20 bpm - Glasgow coma scale ≤14 points	CORB - Confusion - Oxygen saturation ≤90% - Respiratory rate ≥30 bpm - Blood pressure: Systolic blood pressure <90 mmHg or diastolic ≤60 mmHg
National Early Warning Score (NEWS) - Respiratory rate ≥25 bpm - Oxygen saturation <92% - Requirement of supplementary oxygen - Temperature < 35°C - Systolic blood pressure < 90 or > 140 mmHg - Heart rate <40 or >130 bpm - AVPU (Alert, Voice, Pain, Unresponsive)	Severe Community Acquired Pneumonia (SCAP) Score - Arterial pH <7.30 - Systolic blood pressure < 90mmhg - Respiratory rate >30 bpm - Blood urea nitrogen >30mg/dL - Altered consciousness - PaO₂<54mmhg or PaO₂/FiO₂ <250mmhg - Age ≥ 80 years - Multilobar or bilateral infiltrates chest x-ray
Pneumonia Shock - Age ≥ 75 years - Heart rate ≥ 110 bpm - Hematocrit ≤38% - White blood cell ≥15000/mm³ - Sodium ≥ 145 mEq/L - FiO₂ ≥ 30% - Requirement of vasopressors - Altered consciousness	SOAR - Systolic blood pressure <90 mmHg - Oxygenation PaO₂/FiO₂ <250 - Age ≥65 years - Respiratory rate ≥30 bpm
Pneumonia Severity Index (PSI) - Age - Sex - Nursing home resident - Neoplastic disease - Liver disease history - Congestive heart failure history - Cerebrovascular disease history	CAPSI - Age > 80 years - Congestive heart failure - Dementia - Heart rate ≥ 30 bpm - Blood urea nitrogen > 30 mg/dL

• Renal disease history • Altered consciousness • Respiratory rate ≥ 30 bepm • Systolic blood pressure < 90 mmHg • Temperature $< 35^{\circ}\text{C}$ (95°F) or $> 39.9^{\circ}\text{C}$ (103.8°F) • Heart rate ≥ 125 bpm • pH < 7.35 • Blood urea nitrogen ≥ 30 mg/dL or ≥ 11 mmol/L • Sodium < 130 mmol/L • Glucose ≥ 250 mg/dL or ≥ 14 mmol/L • Hematocrit $< 30\%$ • Partial pressure of oxygen < 60 mmHg • Pleural effusion on X-ray	
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Notes: mmHg: millimeters of mercury; bepm: breaths per minute; bpm: beats per minute; PaO₂: blood oxygen pressure; SaO₂: oxygen saturation; FiO₂: inspired fraction of oxygen; PaO₂: partial pressure of oxygen; PaO₂/FiO₂: ratio of arterial oxygen partial pressure to fractional inspired oxygen.

Supplementary Table 2. Cohort points in risk questionnaires

Score	Points	Classification	Management	Cohort points ROC curve
CURB 65	0-1	Low risk	Outpatient treatment	≥ 2
	2	Moderate risk	Hospital admission versus observation admission	
	>/3	High risk	Inpatient treatment	
PSI	<51	Class I	Outpatient treatment	$\geq 91\%$
	51 - 70	Class II	Outpatient treatment	
	71 - 90	Class III	Short hospitalization	
	91 - 130	Class IV	Hospitalization	
	> 131	Class V	Management in ICU	
SCAP	Group 0 to 1	Low risk		≥ 20
	Group 2	Intermediate risk		
	Group 3 to 4	High risk		
SOAR	0 to 1	<8% of 30-day mortality risk	Outpatient treatment	≥ 2
	>/2	33% of 30-day mortality risk	Inpatient treatment	
CRB 65	0 to 1	Outpatient treatment		≥ 2
	2	Short hospitalization		
	3	Hospitalization		
	4	ICU		

SMART COP	0 to 2	Low risk of requiring MV and/or VS		
	3 to 4	Moderate risk of requiring MV and/or VS		≥ 2
	5 to 6	High risk of requiring MV and/or VS		
	7 or higher	Very high risk of requiring MV and/or VS		
ADROP	0 to 1	Low risk	Outpatient treatment	≥ 3
NEWS	2	Intermediate risk	Hospitalization	
	3 to 5	High risk	ICU admission	
	0	Low risk	Continue observation	
	1 to 4	Low risk	Continue observation	≥ 7
	3 in any parameter	Low – moderate risk	Urgent review by a clinician	
	5 to 6	Moderate risk	Urgent review by a clinician	
	7	High risk	Emergency assessment	
SIRS	0 to 1	SIRS absent		SIRS present
	2 to 4	SIRS present		
qSOFA	>1	Sepsis	10% of mortality risk	≥ 2
REA ICU	≤ 3	Class I	1.2% of mortality risk	
	4 to 6	Class II	6% of mortality risk	≥ 7
	7 to 8	Class III	9.1% of mortality risk	

	≥ 9	Class IV	15.1% of mortality risk	
PNEUMONIA SHOCK	≤ 2	NS	9.3% of mortality risk	
	≥ 3	NS	>26% of mortality risk	≥ 3
CORB	0 to 1	Mild	NS	
	2	Moderate	NS	≥ 2
	3 to 5	Severe	NS	
CAPSI	0-3	Mild	3.35%-4.21%	
	4-5	Moderate	10.33%-12.5%	≥ 4
	>5	Severe	25%-28.38%	

Notes: ROC: Receiver Operating Characteristic curve; MV: Mechanical ventilation; VS: Vasopressor support; ICU: Intensive care unit; SIRS: Systemic inflammatory response syndrome; NS: Non specified

Supplementary Table 3. Laboratory tests

	Total population n= 3688	Alive n= 3086	Deaths n= 602	p value
pH, m(SD)	7.42 (0.06)	7.42 (0.06)	7.43 (0.07)	0.002
PO ₂ , m(SD)	62.1 (19.32)	61.8 (18.09)	63.3 (23.79)	0.138
PCO ₂ , m(SD)	33 (8.32)	33 (8.29)	32.7 (8.45)	0.329
HCO ₃ , m(SD)	21 (4.02)	20.9 (3.9)	21.4 (4.45)	0.009
BE, m(SD)	88.7 (7.79)	88.7 (7.83)	88.8 (7.63)	0.823
Lactate, m(SD)	28.5 (12.34)	28.1 (11.59)	30.3 (14.98)	<0.001
PaO ₂ /FiO ₂ , m(SD)	233 (69.7)	233.8 (69)	229.5 (72.55)	0.163
White cells count cell x 10 ³ , m(SD)	12281.4 (6204.46)	12410.7 (6235.79)	11632.8 (6008.02)	0.005
Hemoglobin g/dL, m(SD)	13.5 (2.39)	13.7 (2.27)	13 (2.83)	<0.001
Hematocrit %, m(SD)	40.4 (6.78)	40.7 (6.55)	38.8 (7.66)	<0.001
Platelets microliters, m(SD)	259.6 (102.24)	259.4 (100.93)	260.7 (108.52)	0.779
Sodium meq/L, m(SD)	137.2 (5.86)	137 (5.44)	138.1 (7.32)	<0.001
Glucose mg/dL, m(SD)	134.1 (67.66)	133.9 (67.25)	135.2 (69.48)	0.654
Albumin mg/dL, m(SD)	3.1 (1.29)	3.3 (0.86)	3.0 (2.12)	0.680
Creatinine mg/dL, m(SD)	1.3 (3.2)	1.3 (3.46)	1.4 (1.45)	0.370
BUN mg/dL, m(SD)	23.3 (16.83)	22.5 (16.25)	27.2 (18.83)	<0.001

Notes: SD: Standard deviation; PO₂: Partial pressure of oxygen; PCO₂: Partial Pressure of Carbon Dioxide; HCO₃: Bicarbonate; BE: Base excess; PaO₂/FiO₂: The ratio of partial pressure of oxygen in arterial blood to the fraction of inspiratory oxygen concentration; BUN: Blood urea nitrogen.

Supplementary table 4. Medical treatment and complications.

	Total population n= 3688	alive n= 3086	deaths n= 602	<i>valor p</i>
Septic shock, n(%)	271 (7.3)	198 (6.4)	73 (12.1)	<0.001
Vasopressor support, n(%)	260 (7.3)	182 (6.4)	78 (12.3)	<0.001
Use of corticosteroid, n(%)	767 (20.8)	577 (18.7)	190 (31.6)	<0.001
ICU requirement, n(%)	414 (11.2)	308 (10)	106 (17.6)	<0.001
Days of stay in ICU, m(SD)	11.6 (20.25)	9.6 (11.93)	17.5 (34.47)	<0.001
IMV, n(%)	266 (7.2)	200 (6.5)	66 (11)	<0.001
NIMV, n(%)	132 (3.6)	94 (3)	38 (6.3)	<0.001
Hospitalization requirement, n(%)	3172 (86)	2621 (84.9)	551 (91.5)	<0.001
Days of stay in Hospitalization, m(SD)	10.7 (83.25)	10.3 (90.71)	12.7 (16.19)	0.180

Notes: n: number; SD: Standard deviation; ICU: intensive care unit; IMV: invasive mechanical ventilation; NIMV: Non-invasive mechanical ventilation.