

## Online supplement:

Table S1: Microbiological findings of patients with emergency CAP within 72 h

Microbiology	Emergency 72h (N=140)	Non-emergency (N=3287)	p-value
Pathogen detected, N (%)	51 (36)	595 (18)	<b>&lt;0.001</b>
<i>S. pneumoniae</i> , N (%)	23 (45)	227 (38)	0.33
<i>Mycoplasma pneumoniae</i> , N (%)	7 (14)	178 (30)	<b>0.014</b>
<i>Legionella spp.</i> , N (%)	7 (14)	87 (15)	0.86
<i>Enterobacteriaceae</i> , N (%)	4 (8)	73 (12)	0.35
<i>H. influenzae</i> , N (%)	6 (12)	21 (4)	<b>0.005</b>
<i>S. aureus</i> , N (%)	2 (4)	17 (3)	0.67
Influenza, N (%)	2 (4)	14 (2)	0.49
Mixed etiology, N (%)	3 (6)	43 (7)	0.72

Table S2: Characteristics and clinical findings of patients presenting with emergency CAP within 72 h versus patients with death / MV / VS within day 4-30

Characteristic	Emergency 72h (N=140)	Death / MV / VS within day 4-30 (N=102)	p-value
<b>Demographics</b>			
Age, median (range)	69 (19-90)	77 (18-102)	<b>&lt;0.001</b>
Male sex, N (%)	92 (66)	78 (77)	0.071
Height in cm, median (range)	170 (147-198)	170 (146-191)	0.6
Weight in kg, median (range)	75 (37-180)	72 (43-217)	0.053
Body mass index, median (range)	25 (12-61)	24 (17-85)	<b>0.038</b>
Smoker, N (%)	41 (30)	14 (14)	<b>0.003</b>
Antibiotics within 4 weeks, N (%)	21 (15)	27 (27)	<b>0.027</b>
Influenza vaccination, N (%)	47 (36)	44 (44)	0.17

Pneumococcal vaccination, N (%)	14 (11)	17 (17)	0.14
<b>Clinical findings at presentation</b>			
Focal chest signs, N (%)	127 (91)	86 (84)	0.09
Cough, N (%)	123 (88)	91 (89)	0.74
Purulent Sputum, N (%)	76 (54)	57 (56)	0.81
Fever, N (%)	82 (59)	48 (47)	0.08
<b>Comorbidities</b>			
Chronic respiratory disease, N (%)	46 (33)	36 (35)	0.69
Home oxygen therapy, N (%)	32 (23)	15 (15)	0.11
Extra-pulmonary comorbidity, N (%)	98 (70)	81 (79)	0.1
Congestive heart failure, N (%)	41 (29)	38 (37)	0.19
Other chronic heart disease, N (%)	54 (39)	64 (63)	<b>&lt;0.001</b>
Chronic renal disease, N (%)	24 (17)	21 (21)	0.5
Chronic liver disease, N (%)	5 (4)	2 (2)	0.7
Malignant disease, N (%)	13 (9)	20 (20)	<b>0.021</b>
Cerebrovascular disease, N (%)	11 (8)	13 (13)	0.21
Other chronic neurologic disease, N (%)	11 (8)	8 (8)	1
Diabetes mellitus, N (%)	34 (24)	28 (28)	0.58
Gastric tube feeding, N (%)	5 (4)	1 (1)	0.41
Nursing home residency, N (%)	11 (8)	8 (8)	1
<b>Vital signs</b>			
Systolic Blood pressure in mmHg, median (IQR)	123 (35)	130 (33)	0.33
Diastolic blood pressure in mmHg, median (IQR)	70 (22)	70 (20)	0.06
Respiratory rate, median (IQR)	24 (8)	23 (8)	0.6
Heart rate, median (IQR)	98 (28)	87 (22)	<b>0.001</b>
Temperature in °C, median (IQR)	37.5 (1.6)	37.2 (1.3)	0.16
Multilobar infiltrate, N (%)	61 (45)	38 (39)	0.38
Pleural effusion, N (%)	31 (22)	33 (33)	0.07

Altered mental status, N (%)	25 (18)	11 (11)	0.11
<b>CRB-65 score, mean</b>	1.5	1.4	0.8
<b>CURB-65 score, mean</b>	2.1	2.0	0.8
<b>PSI score risk class, mean</b>	3.3	3.8	<b>0.037</b>
<b>Microbiology</b>			
Pathogen detected, N (%)	51 (36)	22 (22)	<b>0.021</b>
<i>S. pneumoniae</i> , N (%)	23 (45)	4 (18)	<b>0.029</b>
<i>Mycoplasma pneumoniae</i> , N (%)	7 (14)	8 (36)	<b>0.028</b>
<i>Legionella spp.</i> , N (%)	7 (14)	6 (27)	0.17
<i>Enterobacteriaceae</i> , N (%)	4 (8)	5 (23)	0.076
<i>H. influenzae</i> , N (%)	6 (12)	0 (0)	0.17
<i>S. aureus</i> , N (%)	2 (4)	0 (0)	1
Influenza, N (%)	2 (4)	0 (0)	1
Mixed etiology, N (%)	3 (6)	2 (9)	0.63

Table S3: Multivariate cox regression analysis of risk factors (significant in univariate analysis) for CAP as an emergency within 72 h when compared to patients with death / MV / VS within day 4-30

Characteristic	HR (95% CI)	p-value
<b>Demographics</b>		
Age	<b>0.99 (0.98-0.996)</b>	<b>0.004</b>
Body mass index		0.18
Smoker		0.09
Antibiotics within 4 weeks		0.13
<b>Comorbidities</b>		
Other chronic heart disease		0.11
Malignant disease		0.33
<b>Vital signs</b>		
Heart rate	<b>1.01 (1.001-1.02)</b>	<b>0.026</b>

Table S4: Characteristics and clinical findings of emergency CAP within 7 days

Characteristic	Emergency 7d (N=173)	Non-emergency (N=3254)	p-value
<b>Demographics</b>			
Age, median (range)	70 (18-93)	67 (18-102)	<b>&lt;0.001</b>
Male sex, N (%)	118 (68)	1976 (61)	<b>0.049</b>
Height in cm, median (range)	170 (146-198)	172 (133-202)	0.26
Weight in kg, median (range)	75 (37-180)	76 (30-217)	0.66
Body mass index, median (range)	25 (12-61)	26 (12-85)	0.87
Smoker, N (%)	43 (26)	903 (28)	0.54
Antibiotics within 4 weeks, N (%)	29 (17)	758 (23)	<b>0.047</b>
Influenza vaccination, N (%)	56 (34)	1182 (37)	0.57
Pneumococcal vaccination, N (%)	16 (10)	436 (14)	0.18
<b>Clinical findings at presentation</b>			
Focal chest signs, N (%)	157 (91)	2625 (81)	<b>0.001</b>
Cough, N (%)	151 (87)	2923 (90)	0.28
Purulent Sputum, N (%)	94 (54)	1725 (53)	0.74
Fever, N (%)	103 (60)	2124 (65)	0.12
<b>Comorbidities</b>			
Chronic respiratory disease, N (%)	58 (34)	929 (29)	0.16
Home oxygen therapy, N (%)	37 (21)	209 (6)	<b>&lt;0.001</b>
Extra-pulmonary comorbidity, N (%)	125 (72)	1947 (60)	<b>0.001</b>
Congestive heart failure, N (%)	55 (32)	605 (19)	<b>&lt;0.001</b>
Other Chronic heart disease, N (%)	77 (45)	1273 (39)	0.16
Chronic renal disease, N (%)	31 (18)	314 (10)	<b>&lt;0.001</b>
Chronic liver disease, N (%)	6 (4)	89 (3)	0.57
Malignant disease, N (%)	18 (10)	326 (10)	0.87

Cerebrovascular disease, N (%)	15 (9)	204 (6)	0.21
Other chronic neurologic disease, N (%)	13 (8)	143 (4)	0.055
Diabetes mellitus, N (%)	38 (22)	597 (18)	0.23
Gastric tube feeding, N (%)	5 (3)	6 (0)	<b>&lt;0.001</b>
Nursing home, N (%)	13 (8)	98 (3)	<b>0.001</b>
<b>Vital signs</b>			
Systolic Blood pressure in mmHg, median (IQR)	130 (37)	130 (29)	0.47
Diastolic blood pressure in mmHg, median (IQR)	70 (20)	73 (15)	<b>&lt;0.001</b>
Respiratory rate, median (IQR)	23 (8)	20 (6)	<b>&lt;0.001</b>
Heart rate, median (IQR)	94 (28)	90 (22)	<b>0.003</b>
Temperature in °C, median (IQR)	37.5 (1.6)	37.8 (1.7)	<b>0.006</b>
Multilobar infiltrate, N (%)	78 (46)	792 (25)	<b>&lt;0.001</b>
Pleural effusion, N (%)	39 (23)	550 (17)	0.053
Altered mental status, N (%)	30 (18)	174 (5)	<b>&lt;0.001</b>
<b>CRB-65 score, mean</b>	1.5	0.9	<b>&lt;0.001</b>
<b>CURB-65 score, mean</b>	2.1	1.2	<b>&lt;0.001</b>
<b>PSI score risk class, mean</b>	3.4	2.5	<b>&lt;0.001</b>
<b>30-day mortality, N (%)</b>	46 (28)	65 (2)	<b>&lt;0.001</b>
<b>180-day mortality, N (%)</b>	58 (35)	172 (5.4)	<b>&lt;0.001</b>

Table S5: presence of ATS/IDAS minor criteria and additional suggested predictive parameters according to emergency status within 7 days (after exclusion of all patients presenting with major-criteria)

Criteria	Emergency 7 days w/o immediate MV/VS (N=78)	Non- emergency (N=3254)	Univariate p-value	Multivariate HR (Cox) (95% CI)	Multivariate p-value (Cox)
<b>ATS/IDSA minor criteria, N/N with data (%)</b>					
PaO <sub>2</sub> /FiO <sub>2</sub> ratio ≤ 250	30/78 (39)	647/3254 (20)	<b>&lt;0.001</b>	1.86 (1.13-3.05)	<b>0.014</b>
Respiratory rate ≥ 30	13/78 (17)	299/3254 (9)	<b>0.025</b>		0.21
Multilobar infiltrate	34/75 (45)	792/3143 (25)	<b>&lt;0.001</b>	2.37 (1.47-3.81)	<b>&lt;0.001</b>
Confusion	14/78 (18)	174/3252 (5)	<b>&lt;0.001</b>	2.76 (1.44-5.29)	<b>0.002</b>
Hypotension	26/78 (33)	695/3244 (21)	<b>0.012</b>		0.09
Urea ≥ 20mg/dl	45/73 (62)	986/3029 (33)	<b>&lt;0.001</b>	2.52 (1.54-4.12)	<b>&lt;0.001</b>
White cell count <4000 cells/mm <sup>3</sup>	0/78 (0)	42/3248 (1)	0.31		0.26
Platelets <100,000 cells/mm <sup>3</sup>	3/77 (4)	58/3225 (2)	0.18		0.44
Hypothermia <36°C	3/78 (4)	38/3240 (1)	<b>0.035</b>		0.053
<b>Additional criteria, N/N with data (%)</b>					
pH < 7.35	7/64 (11)	74/2358 (3)	<b>0.001</b>	2.81 (1.19-6.65)	<b>0.018</b>
Sodium < 130 mmol/l	9/76 (12)	220/3226 (7)	0.088		0.73
Glucose < 4.4 mmol/l	4/75 (5)	74/3084 (2)	0.11		0.23
Glucose > 14 mmol/l	3/75 (4)	112/3084 (4)	0.87		0.19

Table S6: ROC characteristics and prognostic properties of minor criteria for emergency CAP within 7 days **presenting without immediate need of MV/VS** (bold: optimal cut-off according to Youdens Index)

criteria	AUC (95% CI)	Cut off	Sensitivity (95% CI)	Specificity (95% CI)	PPV (95% CI)	NPV (95% CI)	+LR (95% CI)	-LR (95% CI)
ATS/IDSA minor criteria 1-9	0.73 (0.71-0.74)	1	93 (84-98)	31 (30-33)	3.1 (2.4-4)	99.4 (99-100)	1.35 (1.3- 1.4)	0.23 (0.1-0.5)
		2	<b>68</b> <b>(56-79)</b>	<b>67</b> <b>(65-69)</b>	<b>4.7</b> <b>(3.4-6.2)</b>	<b>98.9</b> <b>(98-99)</b>	<b>2.05</b> <b>(1.7-2.4)</b>	<b>0.48</b> <b>(0.3-0.7)</b>
ATS/IDSA minor criteria 1-6	0.73 (0.71-0.74)	1	93 (84-98)	32 (30-34)	3.2 (2.4-4)	99.5 (99-100)	1.36 (1.3-1.5)	0.22 (0.1-0.5)
		2	<b>67</b> <b>(66-70)</b>	<b>68</b> <b>(66-70)</b>	<b>4.8</b> <b>(3.5-6.3)</b>	<b>98.9</b> <b>(98-99)</b>	<b>2.10</b> <b>(1.8-2.5)</b>	<b>0.48</b> <b>(0.3-0.7)</b>
ATS/IDSA minor criteria 1-6 and pH	0.72 (0.70-0.74)	1	95 (86-99)	28 (26-30)	3.5 (2.6-4.5)	99.5 (99-100)	1.32 (1.2-1.4)	0.18 (0.06-0.6)
		2	<b>67</b> <b>(54-79)</b>	<b>63</b> <b>(61-65)</b>	<b>4.7</b> <b>(3.4-6.4)</b>	<b>98.6</b> <b>(98-99)</b>	<b>1.84</b> <b>(1.5-2.2)</b>	<b>0.52</b> <b>(0.4-0.7)</b>

N Minor criteria 1-9: 3049; N minor criteria 1-6: 3084; N minor criteria 1-6 + pH: 2268