Validation of the qSOFA and CRB-65 in SARS-CoV-2 infected community-acquired pneumonia

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Online supplementary material

Table S1. Comparison of characteristics in SARS-CoV-2 positive and negative CAP (community-acquired pneumonia) cases in the main cohort (after excluding unclear COVID status, transferred to another hospital and invasively ventilation on admission). Median together with the first and third quartiles (Q1, Q3) and absolute and relative frequencies (N, %), respectively, are provided. For the comparison of the two subgroups, p-values from the Mann-Whitney-U-test and Fisher's exact test, respectively, are provided. * all p-value < 0,001

Characteristic	SARS-CoV-2 positive CAP (N= 68,594)	SARS-CoV-2 negative CAP (N= 167,880)
hospital mortality; N (%)	15,540 (22.7%)*	26,309 (15.7%)*
ventilation rate; N (%)	10,198 (14.9%)*	15,587 (9.2%)*
age, in years; median (Q1, Q3)	72 (57, 82)*	78 (66, 85)*
males; N (%)	38,926 (56.7%)*	98,207 (58.5%)*
respiratory rate at admission, in breaths/min; median (Q1, Q3)	19 (16, 23)*	19 (16, 23)*
pneumonia-associated confusion; N (%)	4141 (16.0%)*	13,631 (8.1%)*
systolic blood pressure, in mmHg; median (Q1, Q3)	131 (120, 148)*	130 (115, 150)*
diastolic blood pressure, in mmHg; median (Q1, Q3)	78 (70, 85)*	75 (65, 85)*
chronically bedridden; N (%)	6708 (9.8%)*	30,837 (18.4%)*
admission from nursing home; N (%)	11,454 (16.7%)*	37,730 (22.5%)*
palliative treatment goal; N (%)	10,037 (14.6%)*	22,076 (13.1%)*
CRB-65 score; median (Q1, Q3)	1 (0, 1)*	1 (1, 2)*
CRB score; median (Q1, Q3)	0 (0, 0)*	0 (0, 1)*
itemized:		
confusion (C); N (%)	4141 (16.0%)*	13,631 (8.1%)*
respiratory rate at admission ≥ 30 breaths/min (R); N (%)	5538 (8.1%)*	13,416 (8.0%)*
systolic blood pressure < 90 mmHg or diastolic blood pressure ≤ 60 mmHg (B); N (%)	9638 (14.1%)*	33,169 (19.8%)*
age ≥ 65; N (%)	42,238 (61.6%)*	129,433 (77.1%)*
qSOFA-65 score; median (Q1, Q3)	1 (0, 2)*	1 (1, 2)*
qSOFA Score; median (Q1, Q3)	0 (0, 0)*	0 (0, 0)*
itemized (for items different from CRB-65):		
respiratory rate at admission ≥ 22 breaths/min; N (%)	22,178 (32.3%)*	53,631 (31.9%)*
systolic blood pressure ≤ 100 mmHg; N (%)	4715 (6.9%)*	18,839 (11.2%)*

Table S2. Characteristics of SARS-CoV-2 positive reduced cohort 1 (after excluding patients with chronically bedridden, admission from nursing home and palliative treatment goal). Median together with the first and third quartiles (Q1, Q3) and absolute and relative frequencies (N, %) are provided. For the comparison of the subgroups, p-values from the Fisher´s exact test or the Mann-Whitney-U-Test are provided. * p-value < 0,001; ** p-value < 0,5

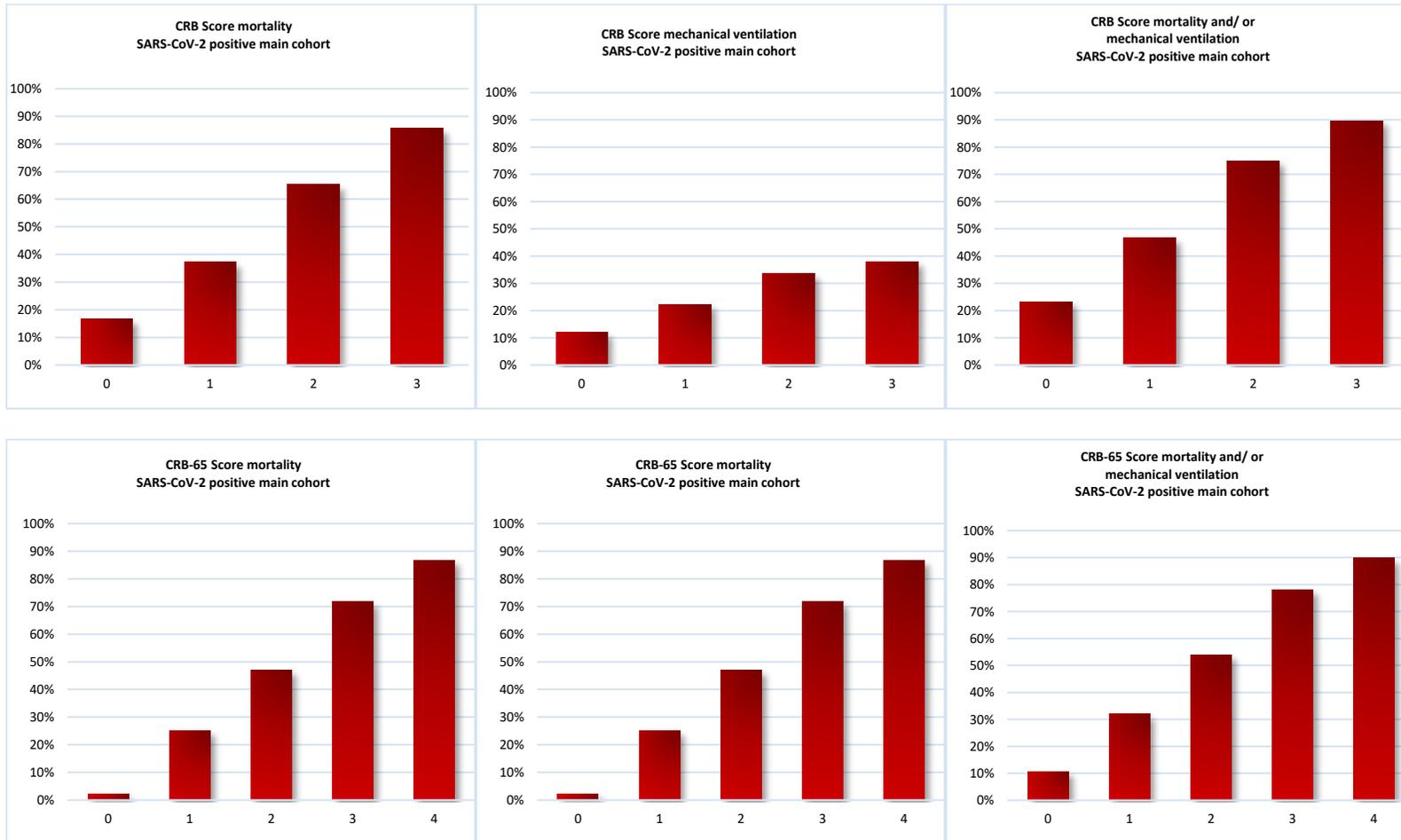| Characteristic	SARS-CoV-2 pos. mortality (N= 4,512)	SARS-CoV-2 pos. survivors (N= 46,503)	SARS-CoV-2 pos. mechanical ventilation (N= 7,119)	SARS-CoV-2 pos. non-ventilated (N= 43,896)	SARS-CoV-2 pos. mortality and/ or mechanical ventilation (N= 9,135)	SARS-CoV-2 pos. survivor and non-ventilated (N= 41,880)
age, in years; median (Q1, Q3)	80 (72, 85)*	63 (52, 76)*	68 (57, 78)*	64 (52, 77)*	73 (60, 81)*	63 (52, 76)*
males; N (%)	2,999 (66.5%)*	27,167 (58.4%)*	4,864 (68.3%)*	25,302 (57.6%)*	6,107 (66.9%)*	24,059 (57.4%)*
respiratory rate at admission, in breaths/min; median (Q1, Q3)	21 (18, 26)*	18 (16, 22)*	21 (18, 26)*	18 (16, 22)*	21 (18, 26)*	18 (16, 22)*
pneumonia-associated confusion; N (%)	582 (12.9%)*	1,329 (2.9%)*	615 (8.6%)*	1,296 (3.0%)*	877 (9.6%)*	1,034 (2.5%)*
systolic blood pressure, in mmHg; median (Q1, Q3)	132 (117, 150)	132 (120, 147)	133 (120, 150)**	132 (120, 147)**	133 (120, 150)**	132 (120, 147)**
diastolic blood pressure, in mmHg; median (Q1, Q3)	74 (64, 82)*	80 (70,86)*	77 (68, 85)*	80 (70, 85)*	76 (67, 84)*	80 (70, 86)*
CRB-65 score; median (Q1, Q3)	1 (1, 2)*	1 (0, 1)*	1 (0, 1)*	1 (0, 1)*	1 (1, 2)*	1 (0, 1)*
CRB score; median (Q1, Q3)	0 (0, 1)*	0 (0, 0)*	0 (0, 1)*	0 (0, 0)*	0 (0, 1)*	0 (0, 0)*
itemized:						
confusion (C); N (%)	582 (12.9%)*	1,329 (2.9%)*	615 (8.6%)*	1,296 (3.0%)*	877 (9.6%)*	1,034 (2.5%)*
respiratory rate at admission ≥ 30 breaths/min (R); N (%)	738 (16.4%)*	2,545 (5.5%)*	1,225 (17.2%)*	2,058 (4.7%)*	1,447 (15.8%)*	1,836 (4.4%)*
systolic blood pressure < 90 mmHg or diastolic blood pressure ≤ 60 mmHg (B); N (%)	981 (21.7%)*	4,505 (9.7%)*	1,150 (16.2%)*	4336 (9.9%)*	1,568 (17.2%)*	3,918 (9.4%)*
age ≥ 65; N (%)	3,994 (88.5%)*	21,617 (46.5%)*	4,142 (58.2%)*	21,469 (48.9%)*	6,086 (66.6%)*	19,525 (46.6%)*
qSOFA-65 score; median (Q1, Q3)	2 (1, 2)*	1 (0, 1)*	1 (1, 2)*	1 (0, 1)*	1 (1, 2)*	1 (0, 1)*
qSOFA Score; median (Q1, Q3)	1 (0, 1)*	0 (0, 1)*	1 (0, 1)*	0 (0, 1)*	1 (0, 1)*	0 (0, 1)*
itemized (for items different from CRB-65): respiratory rate at admission ≥ 22 breaths/min; N (%)	2,108 (46.7%)*	12,780 (27.5%)*	3,437 (48.3%)*	11,451 (26.1%)*	4,200 (46.0%)*	10,688 (25.5%)*
systolic blood pressure ≤ 100 mmHg; N (%)	471 (10.4%)*	1,886 (4.1%)*	496 (7.0%)*	1861 (4.2%)*	722 (7.9%)*	1635 (3.9%)*

Table S3. Characteristics of SARS-CoV-2 negative reduced cohort 1 (after excluding patients with chronically bedridden, admission from nursing home and palliative treatment goal). Median together with the first and third quartiles (Q1, Q3) and absolute and relative frequencies (N, %) are provided. For the comparison of the subgroups, p-values from the Fisher´s exact test or the Mann-Whitney-U-Test are provided. * p-value < 0,001
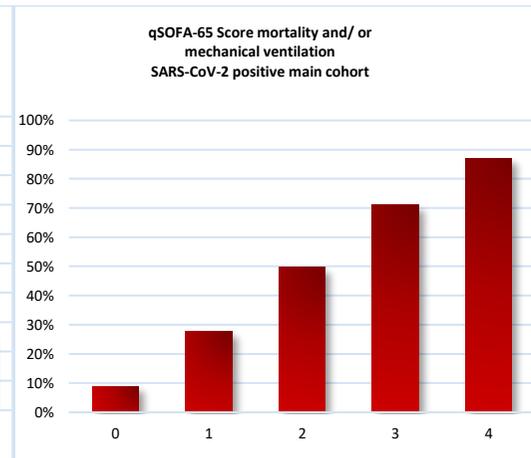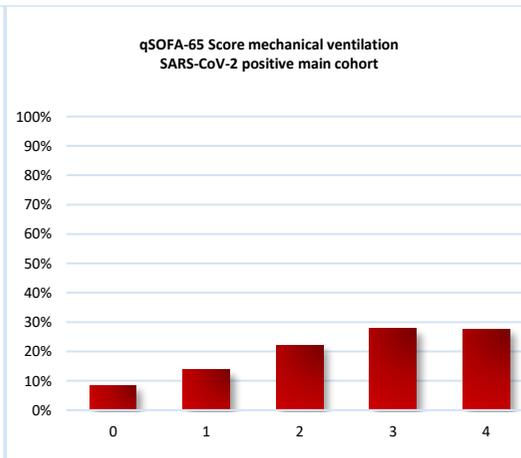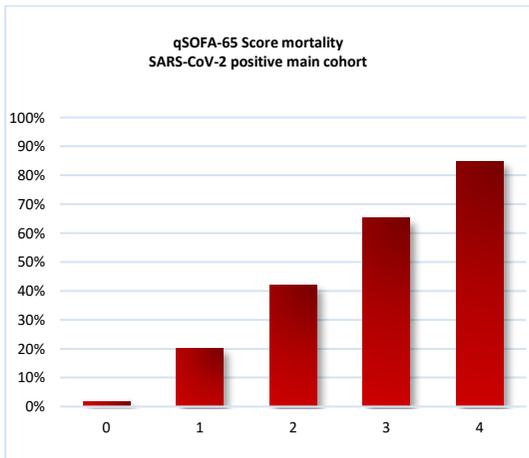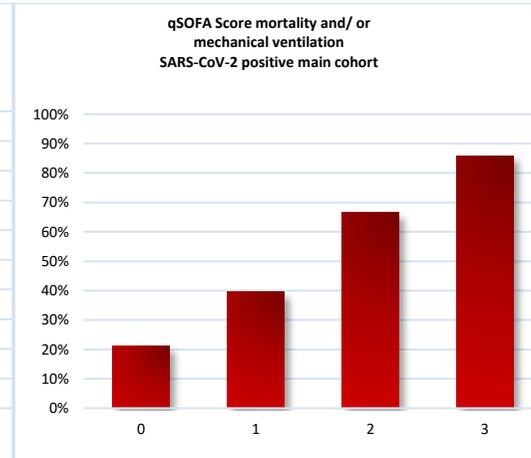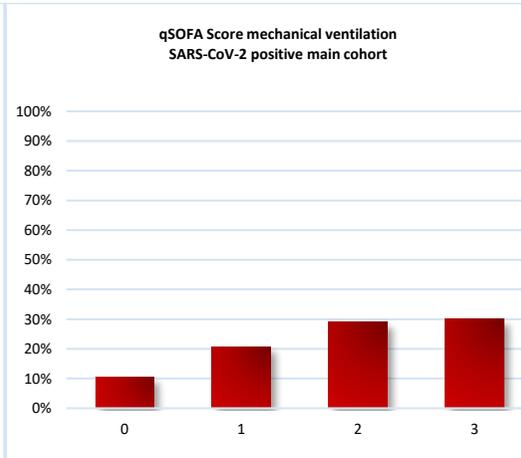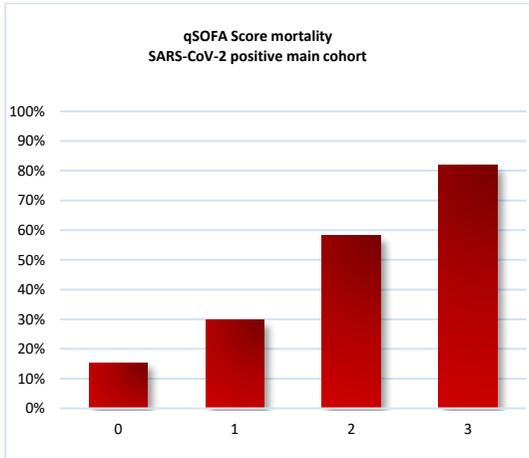
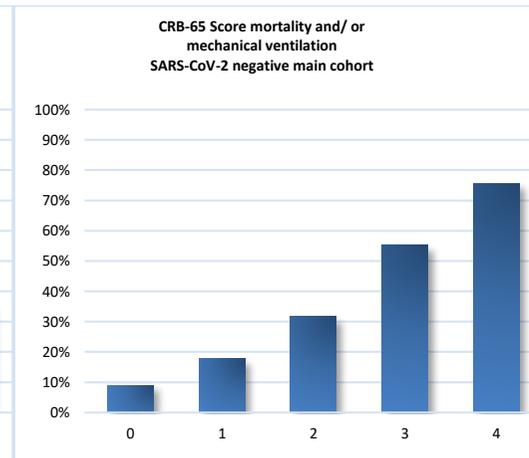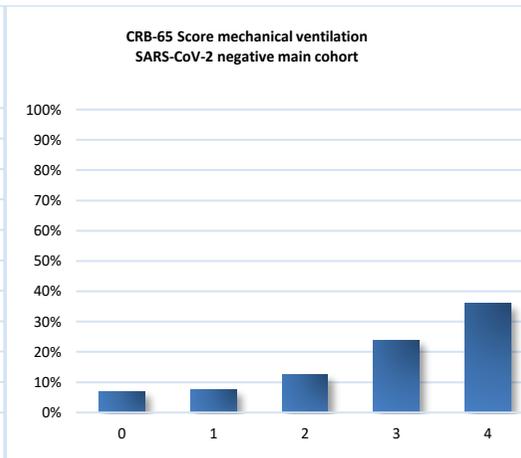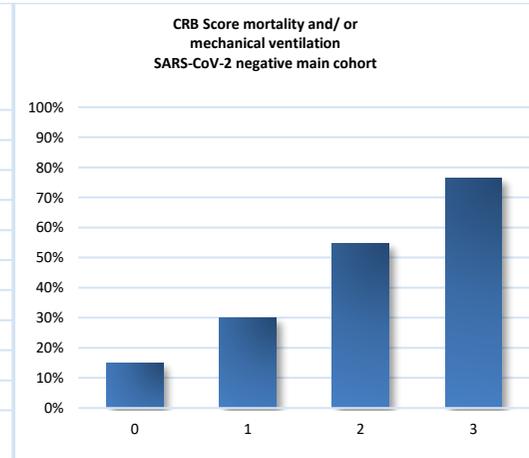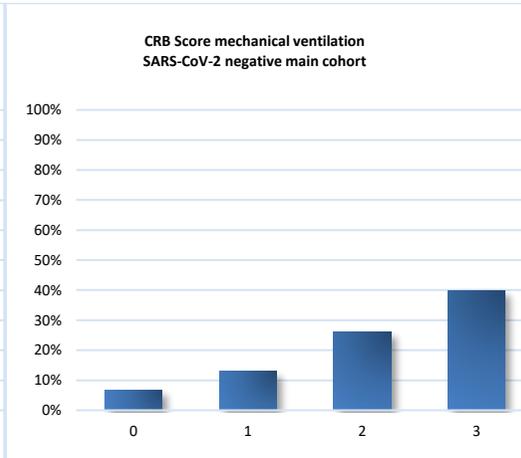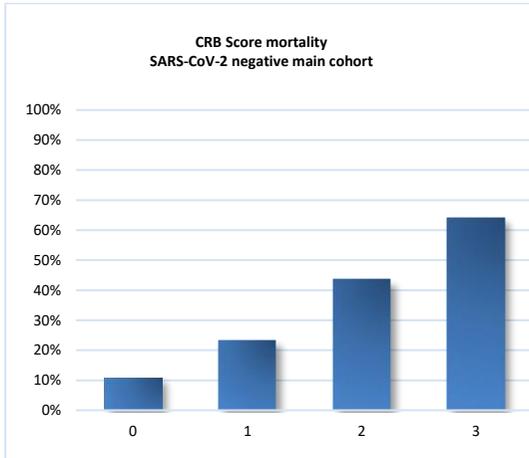| Characteristic	SARS-CoV-2 neg. mortality (N= 6,766)	SARS-CoV-2 neg. survivors (N= 104,271)	SARS-CoV-2 neg. mechanical ventilation (N= 9,214)	SARS-CoV-2 neg. non-ventilated (N= 101,823)	SARS-CoV-2 neg. mortality and/ or mechanical ventilation (N= 13,339)	SARS-CoV-2 neg. survivors and non-ventilated (N= 97,698)
age, in years; median (Q1, Q3)	80 (72, 86)*	74 (61, 82)*	72 (62, 82)*	75 (62, 83)*	76 (66, 83)*	75 (61, 82)*
males; N (%)	4,419 (65.3%)*	61,980 (59.4%)*	5,776 (62.7%)*	60,623 (59.5%)*	8,404 (63.0%)*	57,995 (59.4%)*
respiratory rate at admission, in breaths/min; median (Q1, Q3)	20 (17, 25)*	18 (16, 22)*	22 (18, 27)*	18 (16, 22)*	21 (17, 26)*	18 (16, 22)*
pneumonia-associated confusion; N (%)	1,128 (16.7%)*	5,209 (5.0%)*	1,484 (16.1%)*	4,853 (4.8%)*	2,057 (15.4%)*	4,280 (4.4%)*
systolic blood pressure, in mmHg; median (Q1, Q3)	125 (106, 144)*	135 (120, 150)*	130 (110, 150)*	135 (120, 150)*	130 (110, 149)*	135 (120, 150)*
diastolic blood pressure, in mmHg; median (Q1, Q3)	70 (60, 80)*	77 (68, 85)*	74 (62, 85)*	77 (68, 85)*	73 (60, 84)*	78 (69, 85)*
CRB-65 score; median (Q1, Q3)	1 (1, 2)*	1 (0, 1)*	1 (1, 2)*	1 (1, 1)*	1 (1, 2)*	1 (0, 1)*
CRB score; median (Q1, Q3)	0 (0, 1)*	0 (0, 0)*	0 (0, 1)*	0 (0, 0)*	0 (0, 1)*	0 (0, 0)*
itemized:						
confusion (C); N (%)	1,128 (16.7%)*	5,209 (5.0%)*	1,484 (16.1%)*	4,853 (4.8%)*	2,057 (15.4%)*	4,280 (4.4%)*
respiratory rate at admission ≥ 30 breaths/min (R); N (%)	984 (14.5%)*	57,60 (5.5%)*	1,655 (18.0%)*	5,089 (5.0%)*	2,093 (15.7%)*	4,651 (4.8%)*
systolic blood pressure < 90 mmHg or diastolic blood pressure ≤ 60 mmHg (B); N (%)	2,046 (30.2%)*	15,482 (14.8%)*	2,263 (24.6%)*	15,265 (15.0%)*	3,425 (25.7%)*	14,103 (14.4%)*
age ≥ 65; N (%)	5,919 (87.5%)*	72,722 (69.7%)*	6,380 (69.2%)*	72,261 (71.0%)*	10,242 (76.8%)*	68,399 (70.0%)*
qSOFA-65 score; median (Q1, Q3)	2 (1, 2)*	1 (1, 2)*	1 (1, 2)*	1 (1, 2)*	1 (1, 2)*	1 (1, 2)*
qSOFA Score; median (Q1, Q3)	1 (0, 1)*	0 (0, 1)*	1 (0, 1)*	0 (0, 1)*	1 (0, 1)*	0 (0, 1)*
itemized (for items different from CRB-65):						
respiratory rate at admission ≥ 22 breaths/min; N (%)	2,940 (43.5%)*	28,832 (27.7%)*	4,489 (48.7%)*	27,283 (26.8%)*	6,083 (45.6%)*	25,689 (26.3%)*
systolic blood pressure ≤ 100 mmHg; N (%)	1,421 (21.0%)*	7,152 (6.9%)*	1,463 (15.9%)*	7,110 (7.0%)*	2,249 (16.9%)*	6,324 (6.5%)*

Table S4. Characteristics of SARS-CoV-2 negative CAP cohort. Median together with the first and third quartiles (Q1, Q3) and absolute and relative frequencies (N, %) are provided. For the comparison of the subgroups, p-values from the Fisher´s exact test or the Mann-Whitney-U-Test are provided. *all p-value < 0,001
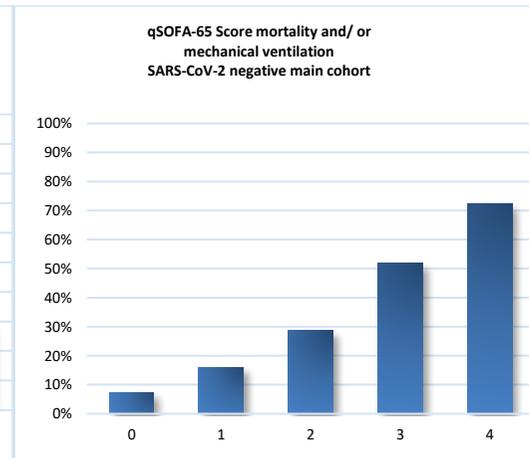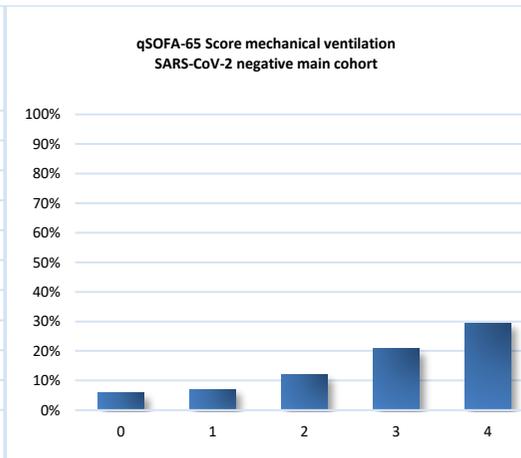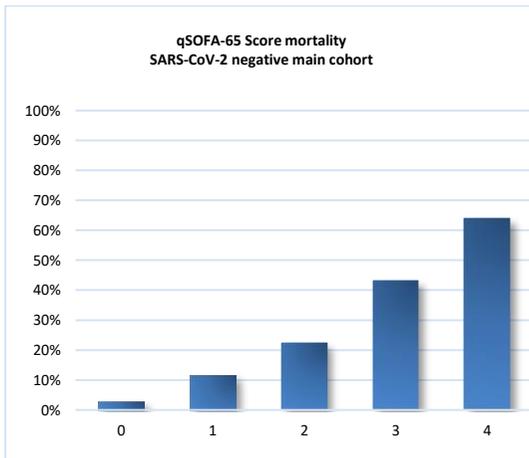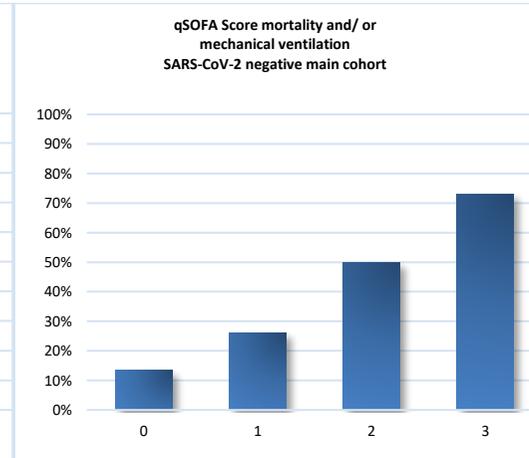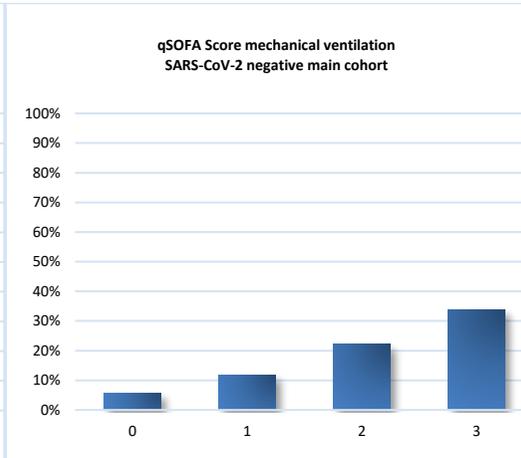
Characteristic	SARS-CoV-2 neg. mortality	SARS-CoV-2 neg. survivors	SARS-CoV-2 neg. mechanical ventilation	SARS-CoV-2 neg. non-ventilated	SARS-CoV-2 neg. mortality and/ or mechanical ventilation	SARS-CoV-2 neg. survivors and non-ventilated
	(N= 26,309)	(N= 141,571)	(N= 15,587)	(N= 152,293)	(N= 35,158)	(N= 132,722)
age, in years; median (Q1, Q3)	82 (76, 88)*	77 (64, 84)*	75 (64, 82)*	78 (66, 85)*	81 (71, 87)*	77 (64, 84)*
males; N (%)	15721 (59.8%)*	82486 (58.3%)*	9717 (62.3%)*	88490 (58.1%)*	21079 (60.0%)*	77128 (58.1%)*
respiratory rate at admission, in breaths/min; median (Q1, Q3)	21 (17, 26)*	18 (16, 22)*	22 (18, 28)*	18 (16, 22)*	21 (17, 26)*	18 (16, 22)*
pneumonia-associated confusion; N (%)	4930 (18.7%)*	8701 (6.1%)*	2928 (18.8%)*	10703 (7.0%)*	6264 (17.8%)*	7367 (5.6%)*
systolic blood pressure, in mmHg; median (Q1, Q3)	120 (102, 140)*	133 (118, 150)*	128 (110, 147)*	130 (116, 150)*	123 (105, 144)*	133 (119, 150)*
diastolic blood pressure, in mmHg; median (Q1, Q3)	70 (60, 80)*	76 (66, 85)*	71 (60, 83)*	75 (65, 85)*	70 (60, 81)*	76 (67, 85)*
chronically bedridden; N (%)	9799 (37.2%)*	21038 (14.9%)*	2543 (16.3%)*	28294 (18.6%)*	11101 (31.6%)*	19736 (14.9%)*
admission from nursing home; N (%)	10012 (38.1%)*	27718 (19.6%)*	2802 (18.0%)*	34928 (22.9%)*	11457 (32.6%)*	26273 (19.8%)*
palliative treatment goal; N (%)	14527 (55.2%)*	7549 (5.3%)*	3936 (25.3%)*	18140 (11.9%)*	15092 (42.9%)*	6984 (5.3%)*
CRB-65 score; median (Q1, Q3)	1 (1, 2)*	1 (1, 1)*	1 (1, 2)*	1 (1, 1)*	1 (1, 2)*	1 (1, 1)*
CRB score; median (Q1, Q3)	1 (0, 1)*	0 (0, 1)*	0 (0, 1)*	0 (0, 1)*	0 (0, 1)*	0 (0, 1)*
itemized:						
confusion (C); N (%)	4930 (18.7%)*	8701 (6.1%)*	2928 (18.8%)*	10703 (7.0%)*	6264 (17.8%)*	7367 (5.6%)*
respiratory rate at admission ≥ 30 breaths/min (R); N (%)	4327 (16.4%)*	9089 (6.4%)*	3016 (19.3%)*	10400 (6.8%)*	5878 (16.7%)*	7538 (5.7%)*
systolic blood pressure < 90 mmHg or diastolic blood pressure ≤ 60 mmHg (B); N (%)	8691 (33.0%)*	24478 (17.3%)*	4420 (28.4%)*	28749 (18.9%)*	10731 (30.5%)*	22438 (16.9%)*
age ≥ 65; N (%)	24138 (91.7%)*	105295 (74.4%)*	11599 (74.4%)*	117834 (77.4%)*	30135 (85.7%)*	99298 (74.8%)*
qSOFA-65 score; median (Q1, Q3)	2 (1, 2)*	1 (1, 2)*	2 (1, 2)*	1 (1, 2)*	2 (1, 2)*	1 (1, 2)*
qSOFA Score; median (Q1, Q3)	1 (0, 1)*	0 (0, 1)*	1 (0, 1)*	0 (0, 1)*	1 (0 , 1)*	0 (0, 1)*
itemized (for items different from CRB-65):						
respiratory rate at admission ≥ 22 breaths/min; N (%)	12210 (46.4%)*	41421 (29.3%)*	7778 (49.9%)*	45853 (30.1%)*	16475 (46.9%)*	37156 (28.0%)*
systolic blood pressure ≤ 100 mmHg; N (%)	6380 (24.3%)*	12459 (8.8%)*	2992 (19.2%)*	15847 (10.4%)*	7654 (21.8%)*	11185 (8.4%)*

Figure S1. Bar charts of risk scores in relation to single (hospital mortality, mechanical ventilation) and combined endpoints (hospital mortality and/ or mechanical ventilation). The percentage of patients with corresponding score values is shown. Red for the SARS-CoV-2 positive patients and blue for the SARS-CoV-2 negative patients.

qSOFA Score mortality
SARS-CoV-2 positive main cohort

qSOFA Score mechanical ventilation
SARS-CoV-2 positive main cohort

qSOFA Score mortality and/ or mechanical ventilation
SARS-CoV-2 positive main cohort

qSOFA-65 Score mortality
SARS-CoV-2 positive main cohort

qSOFA-65 Score mechanical ventilation
SARS-CoV-2 positive main cohort

qSOFA-65 Score mortality and/ or mechanical ventilation
SARS-CoV-2 positive main cohort

CRB Score mortality
SARS-CoV-2 negative main cohort

CRB Score mechanical ventilation
SARS-CoV-2 negative main cohort

CRB Score mortality and/ or
mechanical ventilation
SARS-CoV-2 negative main cohort

CRB-65 Score mortality
SARS-CoV-2 negative main cohort

CRB-65 Score mechanical ventilation
SARS-CoV-2 negative main cohort

CRB-65 Score mortality and/ or
mechanical ventilation
SARS-CoV-2 negative main cohort

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qSOFA Score mortality
SARS-CoV-2 negative main cohort

qSOFA Score mechanical ventilation
SARS-CoV-2 negative main cohort

qSOFA Score mortality and/ or
mechanical ventilation
SARS-CoV-2 negative main cohort

qSOFA-65 Score mortality
SARS-CoV-2 negative main cohort

qSOFA-65 Score mechanical ventilation
SARS-CoV-2 negative main cohort

qSOFA-65 Score mortality and/ or
mechanical ventilation
SARS-CoV-2 negative main cohort

Table S5. Performance measures of CRB, CRB-65, qSOFA and qSOFA-65 in terms of hospital mortality in the SARS-CoV-2 negative main cohort. Number of cases are provided together with absolute and relative frequencies (n, %) of died patients.

Score cut-off	Outcome present (n/N, %) with score values		Sensitivity [%]	Specificity [%]	PPV [%]	NPV [%]	Positive LR	Negative LR	AUC
	Larger than or equal to the cut-off	Smaller than the cut-off							
CRB									
≥ 0	26309/ 167880 (15.7%)	-	100 (100, 100)	0 (0, 0)	15.7 (15.5, 15.8)	-	1.00 (1.00, 1.00)	-	0.64 (0.64, 0.64)
≥ 1	13682/ 51165 (26.7%)	12627/ 116715 (10.8%)	52.0 (51.4, 52.6)	73.5 (73.3, 73.8)	26.7 (26.4, 27.1)	89.2 (89.0, 89.4)	1.96 (1.94, 1.99)	0.65 (0.65, 0.66)	
≥ 2	3753/ 8251 (45.5%)	22556/ 159629 (14.1%)	14.3 (13.8, 14.7)	96.8 (96.7, 96.9)	45.5 (45.2, 45.8)	85.9 (85.5, 86.2)	4.49 (4.32, 4.67)	0.89 (0.88, 0.89)	
3	513/ 800 (64.1%)	25796/ 167080 (15.4%)	1.9 (1.8, 2.1)	99.8 (99.8, 99.8)	64.1 (63.4, 64.4)	84.6 (83.7, 85.4)	9.62 (8.84, 10.47)	0.98 (0.94, 1.02)	
qSOFA									
≥ 0	26309/ 167880 (15.7%)	-	100 (100, 100)	0 (0, 0)	15.7 (15.5, 15.8)	-	1.00 (1.00, 1.00)	-	0.65 (0.65, 0.66)
≥ 1	16808/ 70998 (23.7%)	9501/ 96882 (9.8%)	63.9 (63.3, 64.5)	61.7 (61.5, 62.0)	23.7 (23.4, 24.0)	90.2 (90.0, 90.4)	1.67 (1.65, 1.69)	0.59 (0.58, 0.59)	
≥ 2	5731/ 13515 (42.4%)	20578/ 154365 (13.3%)	21.8 (21.3, 22.3)	94.5 (94.4, 94.6)	42.4 (41.9, 42.9)	86.7 (86.4, 86.9)	3.96 (3.85, 4.08)	0.83 (0.82, 0.83)	
3	981/ 1588 (61.8%)	25328/ 166292 (15.2%)	3.7 (3.5, 4.0)	99.6 (99.5, 99.6)	61.8 (61.5, 62.1)	84.8 (84.1, 85.4)	8.70 (8.21, 9.22)	0.97 (0.94, 0.99)	
CRB-65									
≥ 0	26309/ 167880 (15.7%)	-	100 (100, 100)	0 (0, 0)	15.7 (15.5, 15.8)	-	1.00 (1.00, 1.00)	-	0.68 (0.68, 0.68)
≥ 1	25273/ 137475 (18.4%)	1036/ 30405 (3.4%)	96.1 (95.8, 96.3)	20.7 (20.5, 21.0)	18.4 (18.2, 18.6)	96.7 (96.4, 96.8)	1.21 (1.21, 1.22)	0.19 (0.19, 0.19)	
≥ 2	12883/ 44199 (29.1%)	13426/ 123681 (10.9%)	49.0 (48.4, 49.6)	77.9 (77.7, 78.1)	29.1 (28.7, 29.6)	89.1 (88.9, 89.3)	2.21 (2.18, 2.25)	0.66 (0.65, 0.66)	
≥ 3	3469/ 7276 (47.7%)	22840/ 160604 (14.2%)	13.2 (12.8, 13.6)	97.3 (97.2, 97.49)	47.7 (47.1, 48.2)	85.8 (85.4, 86.1)	4.90 (4.71, 5.11)	0.89 (0.89, 0.90)	
4	461/ 699 (66.0%)	25848/ 167181 (15.5%)	1.8 (1.6, 1.9)	99.8 (99.8, 99.9)	66.0 (65.7, 66.2)	84.5 (83.7, 85.4)	10.42 (9.56, 11.36)	0.98 (0.95, 1.02)	
qSOFA-65									
≥ 0	26309/ 167880 (15.7%)	-	100 (100, 100)	0 (0, 0)	15.7 (15.5, 15.8)	-	1.00 (1.00, 1.00)	-	0.69 (0.69, 0.69)
≥ 1	25626/ 143437 (17.9%)	683/ 24443 (2.8%)	97.4 (97.2, 97.6)	16.8 (16.6, 17.0)	17.9 (17.7, 18.1)	97.2 (97.0, 97.4)	1.17 (1.17, 1.17)	0.15 (0.15, 0.16)	
≥ 2	15851/ 59068 (26.8%)	10458/ 108812 (9.6%)	60.2 (59.7, 60.8)	69.5 (69.2, 69.7)	26.8 (26.5, 27.2)	90.4 (90.2, 90.6)	1.97 (1.95, 2.00)	0.57 (0.57, 0.58)	
≥ 3	5302/ 11652 (45.5%)	21007/ 156228 (13.4%)	20.2 (19.7, 20.6)	95.5 (95.4, 95.6)	45.5 (44.6, 46.4)	86.6 (86.2, 86.9)	4.49 (4.35, 4.64)	0.84 (0.83, 0.84)	
4	879/ 1377 (63.8%)	25430/ 166503 (15.3%)	3.3 (3.1, 3.6)	99.6 (99.6, 99.7)	63.8 (61.3, 66.4)	84.7 (84.0, 85.4)	9.50 (8.56, 10.54)	0.97 (0.96, 0.98)	

Table S6. Multivariable analyses for hospital mortality, need for mechanical ventilation and combined endpoints hospital mortality or/ and mechanical ventilation for the SARS-CoV-2 negative main cohort. Risk ratio (RR) together with the 95% confidence interval (95% CI) and the corresponding p-value are provided. The results are based on Poisson regression modelling.

	SARS-CoV-2 neg. mortality		SARS-CoV-2 neg. mechanical ventilation		SARS-CoV-2 neg. mortality and/ or mechanical ventilation	
	RR (95% CI)	p-value	RR (95% CI)	p-value	RR (95% CI)	p-value
Primary mutlivariable model						
CRB-65 Score						
confusion (C)	1.92 (1.85, 1.98)	0.00	2.19 (2.10, 2.29)	0.00	1.90 (1.85, 1.96)	0.00
respiratory rate at admission ≥ 30 breaths/min (R)	1.45 (1.39, 1.50)	0.00	1.73 (1.65, 1.81)	0.00	1.49 (1.44, 1.54)	0.00
systolic blood pressure < 90 or diastolic blood pressure ≤ 60 mmHg (B)	1.28 (1.23, 1.32)	0.00	1.26 (1.21, 1.32)	0.00	1.24 (1.20, 1.27)	0.00
age ≥ 65 years (65)	2.99 (2.86, 3.13)	0.00	0.76 (0.73, 0.79)	0.00	1.60 (1.55, 1.65)	0.00
qSOFA						
respiratory rate at admission ≥ 22 breaths/min	1.49 (1.45, 1.53)	0.00	1.71 (1.64, 1.77)	0.00	1.54 (1.50, 1.57)	0.00
systolic blood pressure ≤ 100 mmHg	1.82 (1.76, 1.89)	0.00	1.31 (1.25, 1.38)	0.10	1.62 (1.57, 1.67)	0.00
Extended multivariable model						
CRB-65 Score						
confusion (C)	1.45 (1.41, 1.50)	0.00	2.00 (1.92, 2.09)	0.00	1.55 (1.51, 1.60)	0.00
respiratory rate at admission ≥ 30 breaths/min (R)	1.18 (1.14, 1.22)	0.00	1.67 (1.60, 1.75)	0.00	1.29 (1.25, 1.33)	0.00
systolic blood pressure < 90 or diastolic blood pressure ≤ 60 mmHg (B)	1.16 (1.12, 1.19)	0.00	1.26 (1.21, 1.32)	0.00	1.16 (1.12, 1.19)	0.00
age ≥ 65 years (65)	2.02 (1.93, 2.12)	0.00	0.74 (0.72, 0.77)	0.00	1.24 (1.20, 1.28)	0.00
qSOFA						
respiratory rate at admission ≥ 22 breaths/min	1.30 (1.27, 1.34)	0.00	1.69 (1.63, 1.75)	0.00	1.41 (1.37, 1.44)	0.00
systolic blood pressure ≤ 100 mmHg	1.34 (1.30, 1.39)	0.00	1.27 (1.21, 1.34)	0.00	1.30 (1.26, 1.34)	0.00
male sex	1.08 (1.05, 1.11)	0.00	1.11 (1.07, 1.15)	0.00	1.06 (1.04, 1.08)	0.00
admission from nursing home	1.05 (1.02, 1.08)	0.00	0.65 (0.62, 0.68)	0.00	0.97 (0.95, 1.00)	0.05
chronically bedridden	1.18 (1.15, 1.22)	0.00	0.72 (0.69, 0.76)	0.00	1.14 (1.11, 1.17)	0.00
palliative treatment goal	5.90 (5.70, 6.03)	0.00	2.08 (1.99, 2.17)	0.00	3.80 (3.70, 3.89)	0.00

Table S7. Performance measures of CRB, CRB-65, qSOFA and qSOFA-65 in terms of mechanical ventilation in the SARS-CoV-2 negative main cohort. Number of cases are provided together with absolute and relative frequencies (n, %) of ventilated patients.

Score cut-off	Outcome present (n/N, %) with score values		Sensitivity [%]	Specificity [%]	PPV [%]	NPV [%]	Positive LR	Negative LR	AUC
	Larger than or equal to the cut-off	Smaller than the cut-off							
CRB									
≥ 0	15587/ 167880 (9.3%)	-	100 (100, 100)	0 (0, 0)	9.3 (9.1, 9.4)	-	1.00 (1.00, 1.00)	-	0.62 (0.61, 0.62)
≥ 1	7788/ 51165 (15.2%)	7799/ 116715 (6.7 %)	50.0 (49.2, 50.7)	71.5 (71.3, 71.7)	15.2 (14.9, 15.5)	93.3 (93.2, 93.5)	1.75 (1.72, 1.79)	0.70 (0.69, 0.70)	
≥ 2	2258/ 8251 (27.4%)	13329/ 159629 (8.3%)	14.5 (13.9, 15.0)	96.1 (96.0, 96.2)	27.4 (27.1, 27.6)	91.7 (91.4, 91.9)	3.68 (3.53, 3.84)	0.89 (0.88, 0.90)	
3	318/ 800 (39.8%)	15269/ 167080 (9.1%)	2.0 (1.8, 2.3)	99.7 (99.7, 99.7)	39.8 (39.5, 40.0)	90.9 (90.2, 91.5)	6.45 (5.79, 7.18)	0.98 (0.94, 1.03)	
qSOFA									
≥ 0	15587/ 167880 (9.3%)	-	100 (100, 100)	0 (0, 0)	9.3 (9.1, 9.4)	-	1.00 (1.00, 1.00)	-	0.64 (0.64, 0.64)
≥ 1	9987/ 70998 (14.1%)	5600/ 96882 (5.8%)	64.1 (63.3, 64.8)	59.9 (59.7, 60.2)	14.1 (13.8, 14.3)	94.2 (94.1, 94.4)	1.60 (1.58, 1.62)	0.60 (0.59, 0.60)	
≥ 2	3174/ 13515 (23.5%)	12413/ 154365 (8.0%)	20.4 (19.7, 21.0)	93.2 (93.1, 93.3)	23.5 (23.1, 23.9)	91.6 (91.7, 92.2)	3.00 (2.90, 3.10)	0.85 (0.85, 0.86)	
3	537/ 1588 (33.8%)	15050/ 166292 (9.1%)	3.4 (3.2, 3.7)	99.3 (99.3, 99.4)	33.6 (33.5, 34.1)	90.9 (90.4, 91.5)	4.99 (4.61, 5.41)	0.97 (0.95, 1.00)	
CRB-65									
≥ 0	15587/ 167880 (9.3%)	-	100 (100, 100)	0 (0, 0)	9.3 (9.1, 9.4)	-	1.00 (1.00, 1.00)	-	0.59 (0.59, 0.60)
≥ 1	13449/ 137475 (9.8%)	2138/ 30405 (7.0%)	86.3 (85.7, 86.8)	18.6 (18.4, 18.8)	9.8 (9.6, 9.9)	93.0 (92.7, 93.3)	1.06 (1.05, 1.07)	0.74 (0.73, 0.75)	
≥ 2	6440/ 44199 (14.6%)	9147/ 123681 (7.4%)	41.3 (40.5, 42.1)	75.2 (75.0, 75.4)	14.6 (14.2, 14.9)	92.6 (92.4, 92.8)	1.67 (1.63, 1.70)	0.78 (0.77, 0.79)	
≥ 3	1823/ 7276 (25.1%)	13764/ 160604 (8.6%)	11.7 (11.2, 12.2)	96.4 (96.3, 96.5)	25.1 (24.6, 25.5)	91.4 (91.1, 91.7)	3.27 (3.12, 3.42)	0.92 (0.90, 0.92)	
4	251/ 699 (35.9%)	15336/ 167181 (9.2%)	1.6 (1.4, 1.8)	99.7 (99.7, 99.7)	35.9 (35.6, 36.2)	90.8 (90.1, 91.5)	5.47 (4.86, 6.17)	0.99 (0.95, 1.03)	
qSOFA-65									
≥ 0	15587/ 167880 (9.3%)	-	100 (100, 100)	0 (0, 0)	9.3 (9.1, 9.4)	-	1.00 (1.00, 1.00)	-	0.61 (0.61, 0.62)
≥ 1	14159/ 143437 (9.9%)	1428/ 24443 (5.8%)	90.8 (90.4, 91.3)	15.1 (14.9, 15.3)	9.9 (9.7, 10.0)	94.1 (93.9, 94.5)	1.07 (1.07, 1.08)	0.61 (0.59, 0.62)	
≥ 2	8194/ 59068 (13.9%)	7393/ 108812 (6.8%)	52.6 (51.8, 53.4)	66.6 (66.4, 66.8)	13.9 (13.6, 14.2)	93.2 (93.0, 93.4)	1.57 (1.55, 1.60)	0.71 (0.71, 0.72)	
≥ 3	2538/ 11652 (21.8%)	13049/ 156228 (8.4%)	16.3 (15.7, 16.9)	94.0 (93.9, 94.1)	21.8 (21.03, 22.53)	91.6 (91.4, 91.9)	2.72 (2.62, 2.82)	0.89 (0.88, 0.90)	
4	406/ 1377 (29.5%)	15181/ 166503 (9.1%)	2.6 (2.4, 2.9)	99.4 (99.4, 99.4)	0.29 (27.08, 31.89)	90.9 (90.3, 91.4)	4.09 (3.67, 4.55)	0.98 (0.97, 0.99)	

Table S8. Performance measures of CRB, CRB-65, qSOFA and qSOFA-65 in terms of combined endpoint hospital mortality and/ or ventilation in the SARS-CoV-2 positive main cohort. Number of cases are provided together with absolute and relative frequencies (n, %) of died and/ or ventilated patients.

Score cut-off	Outcome present (n/N, %) with score values		Sensitivity [%]	Specificity [%]	PPV [%]	NPV [%]	Positive LR	Negative LR	AUC
	Larger than or equal to the cut-off	Smaller than the cut-off							
CRB									
≥ 0	20528/ 68594 (29.9%)	-	100 (100, 100)	0 (0, 0)	29.9 (29.6, 30.3)	-	1.00 (1.00, 1.00)	-	0.63 (0.62, 0.63)
≥ 1	8485/ 16655 (51.0%)	12043 /51939 (23.2%)	41.3 (40.7, 42.0)	83.0 (82.7, 83.3)	51.0 (50.2, 51.7)	76.8 (76.5, 77.2)	2.43 (2.37, 2.49)	0.71 (0.70, 0.71)	
≥ 2	1841/ 2404 (76.6%)	18687/ 66190 (28.2%)	9.0 (8.6, 9.4)	98.8 (98.7, 98.9)	76.6 (74.9, 78.3)	71.8 (71.4, 72.1)	7.66 (7.00, 8.37)	0.92 (0.92, 0.92)	
3	231/ 258 (89.5%)	20297/ 68336 (29.7%)	1.1 (1.0, 1.3)	99.9 (99.9, 100)	89.5 (85.8, 93.3)	70.3 (70.0, 70.6)	20.03 (13.45, 29.83)	0.99 (0.99, 0.99)	
qSOFA									
≥ 0	20528/ 68594 (29.9%)	-	100 (100, 100)	0 (0, 0)	29.9 (29.6, 30.3)	-	1.00 (1.00, 1.00)	-	0.64 (0.64, 0.65)
≥ 1	11696/ 26713 (43.8%)	8832/ 41881 (21.1%)	57.0 (56.3, 57.7)	68.8 (68.3, 69.2)	43.8 (43.2, 44.4)	78.9 (78.5, 79.3)	1.82 (1.79, 1.86)	0.63 (0.62, 0.63)	
≥ 2	2686/ 3918 (68.6%)	17842/ 64676 (27.6%)	13.1 (12.6, 13.5)	97.4 (97.3, 97.6)	68.6 (67.1, 70.0)	72.4 (72.1, 72.8)	5.10 (4.79, 5.44)	0.89 (0.89, 0.89)	
3	346/ 403 (85.9%)	20182/ 68191 (29.6%)	1.7 (1.5, 1.9)	99.9 (99.9, 99.9)	85.9 (82.5, 89.3)	70.4 (70.1, 70.7)	14.21 (10.75, 18.80)	0.98 (0.98, 0.99)	
CRB-65									
≥ 0	20528/ 68594 (29.9%)	-	100 (100, 100)	0 (0, 0)	29.9 (29.6, 30.3)	-	1.00 (1.00, 1.00)	-	0.71 (0.71, 0.71)
≥ 1	18153/ 46201 (39.3%)	2375/ 22393 (10.6%)	88.4 (88.0, 88.9)	41.6 (41.2, 42.1)	39.3 (38.8, 39.7)	89.4 (89.0, 89.8)	1.52 (1.50, 1.53)	0.28 (0.27, 0.29)	
≥ 2	7552/ 12993 (58.1%)	12976/ 55601 (23.3%)	36.8 (36.1, 37.4)	88.7 (88.4, 89.0)	58.1 (57.3, 59.0)	76.7 (76.3, 77.0)	3.25 (3.15, 3.35)	0.71 (0.71, 0.72)	
≥ 3	1679/ 2114 (79.4%)	18849/ 66480 (28.4%)	8.2 (7.8, 8.6)	99.1 (99.0, 99.2)	79.4 (77.5, 81.3)	71.7 (71.3, 72.0)	9.04 (8.16, 10.01)	0.93 (0.92, 0.93)	
4	222/ 247 (89.9%)	20306/ 68347 (29.7%)	1.1 (0.9, 1.2)	99.9 (99.9, 100)	89.9 (86.1, 93.6)	70.3 (70.0, 70.6)	20.79 (13.76, 31.43)	0.99 (0.98, 0.99)	
qSOFA-65									
≥ 0	20528/ 68594 (29.9%)	-	100 (100, 100)	0 (0, 0)	29.9 (29.6, 30.3)	-	1.00 (1.00, 1.00)	-	0.72 (0.71, 0.72)
≥ 1	18954/ 50833 (37.3%)	1574/ 17761 (8.9%)	92.3 (92.0, 92.7)	33.7 (33.3, 34.1)	37.3 (36.9, 37.7)	91.1 (90.7, 91.6)	1.39 (1.38, 1.40)	0.23 (0.22, 0.24)	
≥ 2	10063/ 18720 (53.8%)	10465/ 49874 (21.0%)	49.0 (48.3, 49.7)	82.0 (81.6, 82.3)	53.8 (53.0, 54.5)	79.0 (78.7, 79.4)	2.72 (2.66, 2.79)	0.62 (0.61, 0.63)	
≥ 3	2435/ 3345 (72.8%)	18093/ 65249 (27.7%)	11.9 (11.4, 12.3)	98.1 (98.0, 98.2)	72.8 (71.0, 74.5)	72.3 (71.9, 72.6)	6.27 (5.83, 6.73)	0.90 (0.89, 0.90)	
4	325/ 374 (86.9%)	20203/ 68220 (29.6%)	1.6 (1.4, 1.8)	99.9 (99.9, 99.9)	86.9 (83.5, 90.3)	70.4 (70.1, 70.7)	15.53 (11.51, 20.96)	0.99 (0.98, 0.99)	

Table S9. Performance measures of CRB, CRB-65, qSOFA and qSOFA-65 in terms of combined endpoint hospital mortality and/ or ventilation in the SARS-CoV-2 negative main cohort. Number of cases are provided together with absolute and relative frequencies (n, %) of died and/ or ventilated patients.

Score cut-off	Outcome present (n/N, %) with score values		Sensitivity [%]	Specificity [%]	PPV [%]	NPV [%]	Positive LR	Negative LR	AUC
	Larger than or equal to the cut-off	Smaller than the cut-off							
CRB									
≥ 0	35158/ 167880 (20.9%)	-	100 (100, 100)	0 (0, 0)	20.9 (20.7, 21.1)	-	1.00 (1.00, 1.00)	-	0.63 (0.63, 0.64)
≥ 1	17568/ 51165 (34.3%)	17590/ 116715 (15.1%)	50.0 (49.9, 50.5)	74.7 (74.5, 74.9)	34.3 (33.9, 34.7)	84.9 (84.7, 85.1)	1.97 (1.95, 2.00)	0.67 (0.67, 0.67)	
≥ 2	4693/ 8251 (56.9%)	30465/ 159629 (19.1%)	13.3 (13.0, 13.7)	97.3 (97.2, 97.4)	56.9 (56.6, 57.2)	80.96 (80.5, 81.3)	4.98 (4.79, 5.18)	0.89 (0.89, 0.89)	
3	612/ 800 (76.5%)	34546/ 167080 (20.7%)	1.7 (1.6, 1.9)	99.9 (99.8, 99.9)	76.5 (76.3, 76.7)	79.3 (78.4, 80.2)	12.29 (11.37, 13.28)	0.98 (0.94, 1.03)	
qSOFA									
≥ 0	35158/ 167880 (20.9%)	-	100 (100, 100)	0 (0, 0)	20.9 (20.7, 21.1)	-	1.00 (1.00, 1.00)	-	0.65 (0.65, 0.66)
≥ 1	22111/ 70998 (31.1%)	13047/ 96882 (13.5%)	62.9 (62.4, 63,4)	63.2 (62.9, 63.4)	31.1 (30.8, 31.5)	86.5 (86.3, 86.7)	1.71 (1.69, 1.73)	0.59 (0.58, 0.59)	
≥ 2	7123/ 13515 (52.7%)	28035/ 154365 (18.2%)	20.3 (19.8, 20.7)	95.2 (95.1, 95.3)	52.7 (52.2, 53.2)	81.8 (81.5, 82.2)	4.21 (4.08, 4.33)	0.84 (0.83, 0.84)	
3	1159/ 1588 (73.0%)	33999/ 166292 (20.4%)	3.3 (3.1, 3.5)	99.7 (99.6, 99.7)	73.0 (72.7, 73.3)	79.6 (78.8, 80.3)	10.20 (9.66, 10.77)	0.97 (0.95, 1.00)	
CRB-65									
≥ 0	35158/ 167880 (20.9%)	-	100 (100, 100)	0 (0, 0)	20.9 (20.7, 21.1)	-	1.00 (1.00, 1.00)	-	0.65 (0.65, 0.66)
≥ 1	32454/ 137475 (23.6%)	2704/ 30405 (8.9%)	92.3 (92.0, 92.6)	20.9 (20.7, 21.1)	23.6 (23.4, 23.8)	91.1 (90.8, 91.4)	1.17 (1.16, 1.17)	0.37 (0.36, 0.37)	
≥ 2	15862/ 44199 (35.9%)	19296/ 123681 (15.6%)	45.1 (44.6, 45.6)	78.6 (78.4, 78.9)	35.9 (35.4, 36.3)	84.4 (84.2, 84.6)	2.11 (2.08, 2.14)	0.70 (0.69, 0.70)	
≥ 3	4164/ 7276 (57.2%)	30994/ 160604 (19.3%)	11.8 (11.5, 12.2)	97.7 (97.6, 97.7)	57.2 (56.7, 57.8)	80.7 (80.3, 81.1)	5.05 (4.84, 5.27)	0.90 (0.90, 0.91)	
4	528/ 699 (75.5%)	34630/ 167181 (20.7%)	1.5 (1.4, 1.6)	99.9 (99.9, 99.9)	75.5 (75.3, 75.8)	79.3 (78.3, 80.3)	11.66 (10.74, 12.65)	0.99 (0.95, 1.02)	
qSOFA-65									
≥ 0	35158/ 167880 (20.9%)	-	100 (100, 100)	0 (0, 0)	20.9 (20.7, 21.1)	-	1.00 (1.00, 1.00)	-	0.67 (0.67, 0.67)
≥ 1	33351/ 143437 (23.3%)	1807/ 24453 (7.4%)	94.9 (94.6, 95.1)	17.1 (16.9, 17.3)	23.3 (23.0, 23.5)	92.6 (92.3, 92.9)	1.14 (1.14, 1.15)	0.30 (0.30, 0.31)	
≥ 2	19871/ 59068 (33.6%)	15287/ 108812 (14.0%)	56.5 (56.0, 57.0)	70.5 (70.2, 70.7)	33.6 (33.3, 34.0)	86.0 (85.7, 86.2)	1.91 (1.89, 1.94)	0.62 (0.61, 0.62)	
≥ 3	6312/ 11652 (54.2%)	28846/ 156228 (18.5%)	18.0 (17.6, 18.4)	96.0 (95.9, 96.1)	54.2 (53.3, 55.1)	81.5 (81.2, 81.9)	4.46 (4.32, 4.61)	0.85 (0.85, 0.86)	
4	994/ 1377 (72.2%)	34164/ 166503 (20.5%)	2.8 (2.7, 3.0)	99.7 (99.7, 99.7)	0.72 (69.8, 74.6)	79.5 (78.7, 80.3)	9.80 (8.76, 10.96)	0.97 (0.97, 0.98)	

Table S10. Multivariable analyses for hospital mortality, need for mechanical ventilation and combined endpoints hospital mortality or/ and ventilation in the SARS-CoV-2 positive reduced cohort 1 (after excluding patients with chronically bedridden, admission from nursing home and palliative treatment goal). Risk ratio (RR) together with the 95% confidence interval (95% CI) and the corresponding p-value are provided. The results are based on Poisson regression modelling

	SARS-CoV-2 pos. mortality		SARS-CoV-2 pos. mechanical ventilation		SARS-CoV-2 pos. mortality and/ or mechanical ventilation	
	RR (95% CI)	p-value	RR (95% CI)	p-value	RR (95% CI)	p-value
Primary mutlivariable model						
CRB-65 Score						
confusion (C)	2.0 (1.83, 2.19)	0.00	1.74 (1.59, 1.90)	0.00	1.82 (1.69, 1.96)	0.00
respiratory rate at admission ≥ 30 breaths/min (R)	1.73 (1.58, 1.89)	0.00	1.87 (1.74, 2.01)	0.00	1.75 (1.64, 1.87)	0.00
systolic blood pressure < 90 or diastolic blood pressure ≤ 60 mmHg (B)	1.49 (1.37, 1.62)	0.00	1.35 (1.26, 1.45)	0.00	1.34 (1.26, 1.43)	0.00
age ≥ 65 years (65)	6.85 (6.24, 7.53)	0.00	1.27 (1.21 1.33)	0.00	1.81 (1.73, 1.89)	0.00
qSOFA						
respiratory rate at admission ≥ 22 breaths/min	1.71 (1.6, 1.83)	0.00	1.86 (1.76, 1.96)	0.00	1.71 (1.63, 1.79)	0.00
systolic blood pressure ≤ 100 mmHg	1.47 (1.32, 1.65)	0.00	1.09 (0.98, 1.20)	0.12	1.25 (1.14, 1.36)	0.00

Table S11. Performance measures of CRB, CRB-65, qSOFA and qSOFA-65 in terms of hospital mortality in the SARS-CoV-2 positive reduced cohort 1 (after excluding patients with chronically bedridden, admission from nursing home and palliative treatment goal). Number of cases are provided together with absolute and relative frequencies (n, %) of died patients.

Score cut-off	Outcome present (n/N, %) with score values		Sensitivity [%]	Specificity [%]	PPV [%]	NPV [%]	Positive LR	Negative LR	AUC
	Larger than or equal to the cut-off	Smaller than the cut-off							
CRB									
≥ 0	4512/ 51015 (8.8%)	-	100 (100, 100)	0 (0, 0)	8.8 (8.0, 9.7)	-	1.00 (1.00, 1.00)	-	0.63 (0.62, 0.63)
≥ 1	1849/ 9649 (19.2%)	2663/ 41366 (6.4%)	41.0 (39.5, 42.4)	83.2 (82.9, 83.6)	19.2 (17.4, 21.0)	93.6 (93.3, 93.8)	2.44 (2.35, 2.54)	0.71 (0.70, 0.72)	
≥ 2	398/ 957 (41.6%)	4114/ 50058 (8.2%)	8.8 (8.0, 9.6)	98.8 (98.7, 98.9)	41.6 (36.8, 46.4)	91.8 (91.2, 92.4)	7.34 (6.52, 8.26)	0.92 (0.91, 0.93)	
3	54/ 74 (73.0%)	4458/ 50941 (8.8%)	1.2 (0.9, 1.5)	100 (99.9, 100)	73.0 (61.3, 84.7)	91.2 (89.4, 93.1)	27.83 (21.38, 36.22)	0.99 (0.87, 1.12)	
qSOFA									
≥ 0	4512/ 51015 (8.8%)	-	100 (100, 100)	0 (0, 0)	8.8 (8.2, 9.7)	-	1.00 (1.00, 1.00)	-	0.63 (0.63, 0.64)
≥ 1	2541/ 17372 (14.6%)	1971/ 33643 (5.9%)	56.3 (54.9, 57.8)	68.1 (67.7, 68.5)	14.6 (13.3, 16.0)	94.1 (93.9, 94.4)	1.77 (1.72, 1.82)	0.64 (0.63, 0.65)	
≥ 2	547/ 1672 (32.7%)	3965/ 49343 (8.0%)	12.1 (11.2, 13.1)	97.6 (97.4, 97.7)	32.7 (28.8, 36.6)	92.0 (91.5, 92.4)	5.01 (4.57, 5.50)	0.90 (0.89, 0.91)	
3	73/ 112 (65.2%)	4439/ 50903 (8.7%)	1.6 (1.2, 2.0)	99.9 (99.9, 99.9)	65.2 (54.4, 76.0)	91.3 (89.9, 92.7)	19.29 (15.49, 24.03)	0.98 (0.91, 1.06)	
CRB-65									
≥ 0	4512/ 51015 (8.8%)	-	100 (100, 100)	0 (0, 0)	8.8 (8.2, 9.7)	-	1.00 (1.00, 1.00)	-	0.75 (0.75, 0.76)
≥ 1	4195/ 2940 (14.3%)	317/ 21775 (1.5%)	93.0 (92.2, 93.7)	46.1 (45.7, 46.6)	14.3 (13.3, 15.4)	98.5 (98.4, 98.7)	1.73 (1.71, 1.75)	0.15 (0.15, 0.16)	
≥ 2	1693/ 6267 (27.0%)	2819/ 44748 (6.3%)	37.5 (36.1, 38.9)	90.2 (89.9, 90.4)	27.0 (24.9, 29.1)	93.7 (93.4, 94.0)	3.81 (3.65, 3.99)	0.69 (0.69, 0.70)	
≥ 3	356/ 716 (49.7%)	4156/ 50299 (8.3%)	7.9 (7.1, 8.7)	99.2 (99.1, 99.3)	49.7 (44.5, 54.9)	91.7 (91.0, 92.5)	10.19 (8.90, 11.67)	0.93 (0.92, 0.94)	
4	51/ 68 (75.0%)	4461/ 50947 (8.8%)	1.1 (0.8, 1.4)	100 (99.9, 100)	75.0 (63.3, 86.8)	91.2 (89.1, 93.4)	30.92 (23.80, 40.16)	0.99 (0.88, 1.12)	
qSOFA-65									
≥ 0	4512/ 51015 (8.8%)	-	100 (100, 100)	0 (0, 0)	8.8 (8.2, 9.7)	-	1.00 (1.00, 1.00)	-	0.75 (0.74, 0.76)
≥ 1	4312/ 33706 (12.8%)	200/ 17309 (1.2%)	95.6 (95.0, 96.2)	36.8 (36.4, 37.2)	12.8 (11.8, 13.8)	98.8 (98.7, 99.0)	1.51 (1.50, 1.53)	0.12 (0.12, 0.12)	
≥ 2	2292/ 9783 (23.4%)	2220/ 41232 (5.4%)	50.8 (49.3, 52.3)	83.9 (83.6, 84.2)	23.4 (21.7, 25.2)	94.6 (94.3, 94.9)	3.15 (3.05, 3.26)	0.59 (0.58, 0.59)	
≥ 3	485/ 1186 (40.9%)	4027/ 49829 (8.1%)	10.7 (9.8, 11.7)	98.5 (98.4, 98.6)	40.9 (36.5, 45.3)	91.9 (91.3, 92.5)	7.13 (6.41, 7.93)	0.91 (0.90, 0.92)	
4	66/ 92 (71.7%)	4446/ 50923 (8.7%)	1.5 (1.1, 1.8)	99.9 (99.9, 100)	71.7 (61.0, 82.5)	91.3 (89.6, 92.9)	26.16 (16.87, 40.57)	0.99 (0.97, 1.00)	

Table S12. Performance measures of CRB, CRB-65, qSOFA and qSOFA-65 in terms of mechanical ventilation in the SARS-CoV-2 positive reduced cohort 1 (after excluding patients with chronically bedridden, admission from nursing home and palliative treatment goal). Number of cases are provided together with absolute and relative frequencies (n, %) of ventilated patients.

Score cut-off	Outcome present (n/N, %) with score values		Sensitivity [%]	Specificity [%]	PPV [%]	NPV [%]	Positive LR	Negative LR	AUC
	Larger than or equal to the cut-off	Smaller than the cut-off							
CRB									
≥ 0	7119/ 51015(14.0%)	-	100 (100, 100)	0 (0, 0)	14.0 (13.7, 14.3)	-	1.00 (1.00, 1.00)	-	0.60 (0.59, 0.60)
≥ 1	2504/ 9649 (26.0%)	4615/ 41366 (11.2%)	35.2 (34.1, 36.3)	83.7 (83.4, 84.1)	26.0 (25.1, 26.8)	88.8 (88.5, 89.1)	2.16 (2.08 2.24)	0.77 (0.77, 0.78)	
≥ 2	443/ 957 (46.3%)	6676/ 50058 (13.3%)	6.2 (5.7, 6.8)	98.8 (98.7, 98.9)	46.3 (45.7, 46.8)	86.7 (85.9, 87.4)	5.31 (4.72, 5.98)	0.95 (0.94, 0.96)	
3	43/ 74 (58.1%)	7076/ 50941 (13.9%)	0.6 (0.4, 0.8)	99.9 (99.9, 100)	58.1 (57.6, 58.6)	86.1 (83.8, 88.4)	8.55 (6.35, 11.51)	0.99 (0.88, 1.13)	
qSOFA									
≥ 0	7119/ 51015 (14.0%)	-	100 (100, 100)	0 (0, 0)	14.0 (13.7, 14.3)	-	1.00 (1.00, 1.00)	-	0.63 (0.62, 0.63)
≥ 1	3887/ 17372 (22.4%)	3232/ 33643 (9.6%)	54.6 (53.4, 55.8)	69.3 (68.8, 69.7)	22.4 (21.8, 23.0)	90.4 (90.1, 90.7)	1.78 (1.73, 1.82)	0.66 (0.65, 0.66)	
≥ 2	607/ 1672 (36.3%)	6512/ 49343 (13.2%)	8.5 (7.9, 9.2)	97.6 (97.4, 97.7)	36.3 (35.7, 36.9)	86.8 (86.3, 87.3)	3.51 (3.20, 3.86)	0.94 (0.93, 0.94)	
3	54/ 112 (48.2%)	7065/ 50903 (13.9%)	0.8 (0.6, 1.0)	99.9 (99.8, 99.9)	48.2 (47.7, 48.7)	86.1 (84.4, 87.8)	5.74 (4.41, 7.48)	0.99 (0.91, 1.09)	
CRB-65									
≥ 0	7119/ 51015 (14.0%)	-	100 (100, 100)	0 (0, 0)	14.0 (13.7, 14.3)	-	1.00 (1.00, 1.00)	-	0.61 (0.60, 0.62)
≥ 1	5026/ 29240 (17.2%)	2093/ 21775 (9.6%)	70.6 (69.5, 71.7)	44.8 (44.4, 45.3)	17.2 (16.8, 17.6)	90.4 (90.0, 90.8)	1.28 (1.26, 1.30)	0.66 (0.64, 0.67)	
≥ 2	1750/ 6267 (27.9%)	5369/ 44748 (12.0%)	24.6 (23.6, 25.6)	89.7 (89.4, 90.0)	27.9 (26.8, 29.0)	88.0 (87.6, 88.4)	2.39 (2.28, 2.50)	0.84 (0.83, 0.85)	
≥ 3	318/ 716 (44.4%)	6801/ 50299 (13.5%)	4.5 (4.0, 4.9)	99.1 (99.0, 99.2)	44.4 (43.7, 45.2)	86.5 (85.6, 87.4)	4.93 (4.30, 5.65)	0.96 (0.95, 0.98)	
4	38/ 68 (55.9%)	7081/ 50947 (13.9%)	0.5 (0.4, 0.7)	99.9 (99.9, 100)	55.9 (55.4, 56.4)	86.1 (86.4, 88.8)	7.81 (5.70, 10.70)	1.00 (0.86, 1.15)	
qSOFA-65									
≥ 0	7119/ 51015 (14.0%)	-	100 (100, 100)	0 (0, 0)	14.0 (13.7, 14.3)	-	1.00 (1.00, 1.00)	-	0.63 (0.62, 0.64)
≥ 1	5734/ 33706 (17.0%)	1385/ 17309 (8.0%)	80.5 (79.6, 81.5)	36.3 (35.8, 36.7)	17.0 (16.6, 17.4)	92.0 (91.6, 92.4)	1.26 (1.25, 1.28)	0.54 (0.53, 0.55)	
≥ 2	2492/ 9783 (25.5%)	4627/ 41232 (11.2%)	35.0 (33.9, 36.1)	83.4 (83.0, 83.7)	25.5 (24.6, 26.3)	88.8 (88.4, 89.2)	2.11 (2.03, 2.18)	0.78 (0.77, 0.79)	
≥ 3	424/ 1186 (35.8%)	6695/ 49829 (13.4%)	6.0 (5.4, 6.5)	98.3 (98.1, 98.4)	35.8 (33.0, 38.5)	86.6 (85.8, 87.3)	3.43 (3.07, 3.83)	0.96 (0.95, 0.97)	
4	40/ 92 (43.4%)	7079/ 50923 (13.9%)	0.6 (0.4, 0.7)	99.9 (99.8, 99.9)	43.5 (33.3, 53.6)	86.1 (84.0, 88.1)	4.74 (3.20, 7.04)	1.00 (0.98, 1.01)	

Table S13. Performance measures of CRB, CRB-65, qSOFA and qSOFA-65 in terms of combined endpoint hospital mortality and/ or mechanical ventilation in the SARS-CoV-2 positive reduced cohort 1 (after excluding patients with chronically bedridden, admission from nursing home and palliative treatment goal). Number of cases are provided together with absolute and relative frequencies (n, %) of died and/ or ventilated patients.

Score cut-off	Outcome present (n/N, %) with score values		Sensitivity [%]	Specificity [%]	PPV [%]	NPV [%]	Positive LR	Negative LR	AUC
	Larger than or equal to the cut-off	Smaller than the cut-off							
CRB									
≥ 0	9135/ 51015 (17.9%)	-	100 (100, 100)	0 (0, 0)	17.9 (17.6, 18.2)	-	1.00 (1.00, 1.00)	-	0.60 (0.60, 0.61)
≥ 1	3242/ 9649 (33.6%)	5893/ 41366 (14.2%)	35.5 (34.5, 36.5)	84.7 (84.4, 85.0)	33.6 (32.7, 34.5)	85.8 (85.4, 86.1)	2.32 (2.24, 2.40)	0.76 (0.76, 0.77)	
≥ 2	589/ 957 (61.5%)	8546/ 50058 (17.1%)	6.4 (5.9, 7.0)	99.1 (99.0, 99.2)	61.5 (58.5, 64.6)	82.9 (82.6, 83.3)	7.34 (6.49, 8.30)	0.94 (0.94, 0.95)	
3	61/ 74 (82.4%)	9074/ 50941 (17.8%)	0.7 (0.5, 0.8)	100 (100, 100)	82.4 (73.8, 91.1)	82.2 (81.9, 82.5)	21.51 (11.83, 39.13)	0.99 (0.99, 1.00)	
qSOFA									
≥ 0	9135/ 51015 (17.9%)	-	100 (100, 100)	0 (0, 0)	17.9 (17.6, 18.2)	-	1.00 (1.00, 1.00)	-	0.63 (0.62, 0.63)
≥ 1	4892/ 17372 (28.2%)	4243/ 33643 (12.6%)	53.6 (52.5, 54.6)	70.2 (69.8, 70.6)	28.2 (27.5, 28.8)	87.4 (87.0, 87.7)	1.80 (1.75, 1.84)	0.66 (0.66, 0.67)	
≥ 2	822/ 1672 (49.2%)	8313/ 49343 (16.8%)	9.0 (8.4, 9.6)	98.0 (97.8, 98.1)	49.2 (46.8, 51.6)	83.2 (82.8, 83.5)	4.43 (4.05, 4.85)	0.93 (0.93, 0.93)	
3	85/ 112 (75.9%)	9050/ 50903 (17.8%)	0.9 (0.7, 1.1)	99.9 (99.9, 100)	75.9 (68.0, 83.8)	82.2 (81.9, 82.6)	14.43 (9.37, 22.24)	0.99 (0.99, 0.99)	
CRB-65									
≥ 0	9135/ 51015 (17.9%)	-	100 (100, 100)	0 (0, 0)	17.9 (17.6, 18.2)	-	1.00 (1.00, 1.00)	-	0.66 (0.65, 0.66)
≥ 1	6996/ 26240 (23.9%)	2139/ 21775 (9.8%)	76.6 (75.5, 77.5)	46.9 (46.4, 47.4)	23.9 (23.4, 24.4)	90.2 (89.8, 90.6)	1.44 (1.42, 1.46)	0.50 (0.48, 0.52)	
≥ 2	2465/ 6267 (39.9%)	6670/ 44748 (14.9%)	27.0 (26.1, 27.9)	90.9 (90.6, 91.2)	39.3 (38.1, 40.5)	85.1 (84.8 85.4)	2.97 (2.84, 3.11)	0.80 (0.79, 0.81)	
≥ 3	461/ 716 (64.4%)	8674/ 50299 (17.2%)	5.0 (4.6, 5.5)	99.4 (99.3, 99.5)	64.4 (60.1, 68.7)	82.6 (82.4, 83.1)	8.29 (7.16, 9.60)	0.96 (0.95, 0.96)	
4	56/ 68 (82.4%)	9079/ 50947 (17.8%)	0.61 (0.5, 0.8)	100 (100, 100)	82.4 (73.3, 91.4)	82.2 (81.8, 82.5)	21.39 (11.47, 39.89)	0.99 (0.99, 1.00)	
qSOFA-65									
≥ 0	9135/ 51015 (17.9%)	-	100 (100, 100)	0 (0, 0)	17.9 (17.6, 18.2)	-	1.00 (1.00, 1.00)	-	0.67 (0.66, 0.67)
≥ 1	7714/ 33706 (22.9%)	1421/ 17309 (8.2%)	84.4 (83.7, 85.2)	37.9 (37.5, 38.4)	22.9 (22.4, 23.3)	91.8 (91.4, 92.2)	1.36 (1.34, 1.38)	0.41 (0.39, 0.43)	
≥ 2	3467/ 9783 (35.4%)	5668/ 41323 (13.7%)	38.0 (37.0, 85.2)	84.9 (84.6, 85.3)	35.4 (34.5, 36.4)	86.3 (85.9, 86.6)	2.51 (2.43, 2.61)	0.73 (0.72, 0.74)	
≥ 3	634/ 1186 (53.5%)	8501/ 49829 (17.1%)	6.9 (6.4, 7.5)	98.7 (98.6, 98.8)	53.5 (49.6, 57.3)	82.9 (82.6, 83.3)	5.27 (4.73, 5.86)	0.94 (0.94, 0.95)	
4	70/ 92 (76.1%)	9065/ 50923 (17.8%)	0.8 (0.6, 0.9)	99.9 (99.9, 100)	76.1 (67.4, 84.8)	82.2 (81.9, 82.5)	14.59 (9.04, 23.54)	0.99 (0.99, 0.99)	

Table S14. Performance measures of CRB, CRB-65, qSOFA and qSOFA-65 in terms of hospital mortality in the SARS-CoV-2 negative reduced cohort 1 (after excluding patients with chronically bedridden, admission from nursing home and palliative treatment goal). Number of cases are provided together with absolute and relative frequencies (n, %) of died patients.

Score cut-off	Outcome present (n/N, %) with score values		Sensitivity [%]	Specificity [%]	PPV [%]	NPV [%]	Positive LR	Negative LR	AUC
	Larger than or equal to the cut-off	Smaller than the cut-off							
CRB									
≥ 0	6766/ 111037 (6.1%)	-	100 (100, 100)	0 (0, 0)	6.1 (6.0, 6.2)	-	1.00 (1.00, 1.00)	-	0.63 (0.63, 0.64)
≥ 1	3216/ 27050 (11.9%)	3550/ 83987 (4.2%)	47.5 (46.3, 48.7)	77.1 (76.9, 77.4)	11.9 (11.5, 12.3)	95.8 (95.6, 95.9)	2.08 (2.02, 2.14)	0.68 (0.67, 0.69)	
≥ 2	821/ 3285 (25.0%)	5945/ 107752 (5.5%)	12.1 (11.4, 12.9)	97.6 (97.5, 97.7)	25.0 (24.7, 25.3)	94.5 (94.2, 94.8)	5.13 (4.79, 5.51)	0.90 (0.89, 0.90)	
3	121/ 274 (44.2%)	6645/ 110763 (6.0%)	1.8 (1.5, 2.1)	99.9 (99.8, 99.9)	44.2 (43.9, 44,5)	94.0 (93.2, 94.8)	12.19 (10.23, 14.52)	0.98 (0.92 1.06)	
qSOFA									
≥ 0	6766/ 111037 (6.1%)	-	100 (100, 100)	0 (0, 0)	6.1 (6.0, 6.2)	-	1.00 (1.00, 1.00)	-	0.64 (0.64, 0.65)
≥ 1	4032/ 40580 (9,9%)	2734/ 70457 (3.9%)	59.6 (58.4, 60.8)	64.9 (64.7, 65.2)	9.9 (9.6, 10.2)	96.1 (96.0, 96.3)	1.70 (1.66, 1.74)	0.62 (0.61, 0.63)	
≥ 2	1229/ 5566 (22.1%)	5537/ 105471 (5.2%)	18.2 (17.2, 19.1)	95.8 (95.7, 96.0)	22.1 (21.6, 22.5)	94.8 (94.5, 95.0)	4.37 (4.14, 4.61)	0.85 (0.85, 0.86)	
3	228/ 536 (42.5%)	6538/ 110501 (5.9%)	3.4 (2.9, 3.8)	99.7 (99.7, 99.7)	42.5 (42.2, 42.9)	94.1 (93.4, 94.7)	11.41 (10.11, 12.87)	0.97 (0.93, 1.00)	
CRB-65									
≥ 0	6766/ 111037 (6.1%)	-	100 (100, 100)	0 (0, 0)	6.1 (6.0, 6.2)	-	1.00 (1.00, 1.00)	-	0.68 (0.67, 0.68)
≥ 1	6352/ 84366 (7.5%)	414/ 26787 (1.5%)	93.9 (93.3, 94.5)	25.2 (24.9, 25.4)	7.5 (7.4, 7.7)	98.4 (98.3, 98.6)	1.25 (1.25, 1.26)	0.24 (0.23, 0.25)	
≥ 2	2926/ 21978 (13.3%)	3840/ 89175 (4.3%)	43.2 (42.1, 44.4)	81.7 (81.5, 82.0)	13.3 (12.9, 13.8)	95.7 (95.5, 95.8)	2.37 (2.30, 2.44)	0.69 (0.69, 0.70)	
≥ 3	698/ 2689 (26.0%)	6068/ 108464 (5.6%)	10.3 (9.6, 11.0)	98.1 (98.0, 98.2)	26.0 (25.4, 26.5)	94.4 (94.1, 94.7)	5.40 (5.00, 5.83)	0.91 (0.91, 0.92)	
4	101/ 217 (46.5%)	6665/ 110936 (6.0%)	1.5 (1.2, 1.8)	99.9 (99.9, 99.9)	46.5 (46.2, 46.9)	94.0 (93.0, 94.9)	13.42 (11.16, 16.14)	0.99 (0.93, 1.05)	
qSOFA-65									
≥ 0	6766/ 111037 (6.1%)	-	100 (100, 100)	0 (0, 0)	6.1 (6.0, 6.2)	-	1.00 (1.00, 1.00)	-	0.68 (0.68, 0.69)
≥ 1	6498/ 89351 (7.3%)	268/ 21686 (1.2%)	96.0 (95.6, 96.5)	20.5 (20.3, 20.8)	7.3 (7.1, 7.4)	98.8 (98.6, 98.9)	1.21 (1.20, 1.21)	0.19 (0.19, 0.20)	
≥ 2	3649/ 31137 (11.7%)	3117/ 79900 (3.9%)	53.9 (52.7, 55.1)	73.6 (73.4, 73.9)	11.7 (11.4, 12.1)	96.1 (95.9, 96.3)	2.05 (2.00, 2.09)	0.63 (0.62, 0.63)	
≥ 3	1073/ 4414 (24.3%)	5693/ 106623 (5.3%)	15.9 (15.0, 16.7)	96.8 (96.7, 96.9)	24.3 (23.0, 25.6)	94.7 (94.4, 94.9)	4.95 (4.66, 5.25)	0.87 (0.86, 0.88)	
4	188/ 421 (44.7%)	6578/ 110616 (5.9%)	2.8 (2.4, 3.2)	99.8 (99.7, 99.8)	44.7 (39.9, 49.4)	94.1 (93.3, 94.8)	12.43 (10.39, 14.88)	0.97 (0.97, 0.98)	

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Table S15. Performance measures of CRB, CRB-65, qSOFA and qSOFA-65 in terms of mechanical ventilation in the SARS-CoV-2 negative reduced cohort 1 (after excluding patients with chronically bedridden, admission from nursing home and palliative treatment goal). Number of cases are provided together with absolute and relative frequencies (n, %) of ventilated patients.

Score cut-off	Outcome present (n/N, %) with score values		Sensitivity [%]	Specificity [%]	PPV [%]	NPV [%]	Positive LR	Negative LR	AUC
	Larger than or equal to the cut-off	Smaller than the cut-off							
CRB									
≥ 0	9214/ 111037 (8.3%)	-	100 (100, 100)	0 (0, 0)	8.3 (8.1, 8.5)	-	1.00 (1.00, 1.00)	-	0.62 (0.62, 0.63)
≥ 1	4158/ 27050 (15.4%)	5056/ 83987 (6.0%)	45.1 (44.1, 46.1)	77.5 (77.3, 77.8)	15.4 (14.9, 15.8)	94.0 (93.8, 94.1)	2.01 (1.96, 2.06)	0.71 (0.70, 0.71)	
≥ 2	1104/ 3285 (33.6%)	8110/ 107752 (7.5%)	12.0 (11.3, 12.6)	97.9 (97.8, 97.9)	33.6 (33.3, 34.0)	92.5 (92.1, 92.8)	5.59 (5.24, 5.97)	0.90 (0.89, 0.91)	
3	140/ 274 (51.1%)	9074/ 110763 (8.2%)	1.5 (1.3, 1.8)	99.9 (99.8, 99.9)	51.1 (50.8, 51.4)	91.8 (90.8, 92.8)	11.55 (9.81, 13.59)	0.99 (0.92, 1.05)	
qSOFA									
≥ 0	9214/ 111037 (8.3%)	-	100 (100, 100)	0 (0, 0)	8.3 (8.1, 8.5)	-	1.00 (1.00, 1.00)	-	0.65 (0.65, 0.66)
≥ 1	5631/ 40580 (13.9%)	3583/ 70457 (5.1%)	61.1 (60.1, 62.1)	65.7 (65.4, 66.0)	13.9 (13.5, 14.2)	94.9 (94.8, 95.1)	1.78 (1.75, 1.81)	0.59 (0.59, 0.60)	
≥ 2	1550/ 5566 (27.8%)	7664/ 105471 (7.3%)	16.8 (16.1, 17.6)	96.1 (95.9, 96.2)	27.8 (27.3, 28.3)	92.7 (92.5, 93.0)	4.27 (4.05, 4.49)	0.87 (0.86, 0.87)	
3	255/ 536 (47.6%)	8959/ 110501 (8.1%)	2.8 (2.4, 3.1)	99.7 (99.7, 99.8)	47.6 (47.2, 47.9)	91.9 (91.1, 92.6)	10.03 (8.91, 11.28)	0.98 (0.93, 1.02)	
CRB-65									
≥ 0	9214/ 111037 (8.3%)	-	100 (100, 100)	0 (0, 0)	8.3 (8.1, 8.5)	-	1.00 (1.00, 1.00)	-	0.60 (0.60, 0.60)
≥ 1	7613/ 84366 (9.0%)	1601/ 26671 (6.0%)	82.6 (81.9, 83.4)	24.6 (24.4, 24.9)	9.0 (8.8, 9.2)	94.0 (93.7, 94.3)	1.10 (1.09, 1.11)	0.71 (0.69, 0.72)	
≥ 2	3261/ 21978 (14.8%)	5953/ 89059 (6.7%)	35.4 (34.4, 36.4)	81.6 (81.4, 81.9)	14.8 (14.4, 15.3)	93.3 (93.1, 93.5)	1.93 (1.87, 1.98)	0.79 (0.78, 0.80)	
≥ 3	812/ 2689 (30.2%)	8402/ 108348 (7.8%)	8.8 (8.2, 9.4)	98.2 (98.1, 98.2)	30.2 (29.6, 30.8)	92.2 (91.9, 92.6)	4.78 (4.44, 5.15)	0.93 (0.92, 0.94)	
4	96/ 217 (44.2%)	9118/ 110820 (8.2%)	1.0 (0.8, 1.2)	99.9 (99.9, 99.9)	44.2 (43.9, 44.6)	91.8 (90.7, 92.9)	8.77 (7.22, 10.65)	0.99 (0.93, 1.1)	
qSOFA-65									
≥ 0	9214/ 111037 (8.3%)	-	100 (100, 100)	0 (0, 0)	8.3 (8.1, 8.5)	-	1.00 (1.00, 1.00)	-	0.62 (0.62, 0.63)
≥ 1	8169/ 89351 (9.1%)	1045/ 21686 (4.8%)	88.7 (88.0, 89.3)	20.3 (20.0, 20.5)	9.1 (9.0, 9.3)	95.2 (94.9, 95.5)	1.11 (1.10, 1.12)	0.56 (0.55, 0.57)	
≥ 2	4331/ 31137 (13.9%)	4883/ 79900 (6.1%)	47.0 (46.0, 48.0)	73.7 (73.4, 73.9)	13.9 (13.5, 14.3)	93.9 (93.7, 94.1)	1.79 (1.75, 1.83)	0.72 (0.71, 0.73)	
≥ 3	1144/ 4414 (25.9%)	8070/ 106623 (7.6%)	12.4 (11.7, 13.1)	96.8 (96.7, 96.9)	25.9 (24.6, 27.2)	92.4 (92.1, 92.7)	3.87 (3.64, 4.10)	0.90 (0.90, 0.91)	
4	172/ 421 (40.9%)	9042/ 110616 (8.2%)	1.9 (1.6, 2.1)	99.8 (99.7, 99.8)	40.9 (36.2, 45.6)	91.8 (91.0, 92.7)	7.63 (6.36, 9.16)	0.98 (0.97, 0.99)	

Table S16. Performance measures of CRB, CRB-65, qSOFA and qSOFA-65 in terms of combined endpoint hospital mortality and/ or mechanical ventilation in the SARS-CoV-2 negative reduced cohort 1 (after excluding patients with chronically bedridden, admission from nursing home and palliative treatment goal). Number of cases are provided together with absolute and relative frequencies (n, %) of died and/ or ventilated patients.

Score cut-off	Outcome present (n/N, %) with score values		Sensitivity [%]	Specificity [%]	PPV [%]	NPV [%]	Positive LR	Negative LR	AUC
	Larger than or equal to the cut-off	Smaller than the cut-off							
CRB									
≥ 0	13339/ 111037 (12.0%)	-	100 (100, 100)	0 (0, 0)	12.0 (11.8, 12.2)	-	1.00 (1.00, 1.00)	-	0.62 (0.62, 0.63)
≥ 1	5929/ 27050 (21.9%)	7410/ 83987 (8.8%)	44.4 (43.6, 45.3)	78.4 (78.1, 78.6)	21.9 (21.4, 22.4)	91.2 (91.0, 91.4)	2.06 (2.01, 2.10)	0.71 (0.70, 0.71)	
≥ 2	1456/ 3285 (44.3%)	11883/ 107752 (11.0%)	10.9 (10.4, 11.4)	98.1 (98.0, 98.2)	44.3 (44.0, 44.7)	89.0 (88.6, 89.4)	5.83 (5.48, 6.21)	0.91 (0.90, 0.91)	
3	190/ 274 (69.3%)	13149/ 110763 (11.9%)	1.4 (1.2, 1.6)	99.9 (99.9, 99.9)	69.3 (69.0, 69.6)	88.1 (87.0, 89.3)	16.57 (14.40, 19.06)	0.99 (0.92, 1.05)	
qSOFA									
≥ 0	13339/ 111037 (12.0%)	-	100 (100, 100)	0 (0, 0)	12.0 (11.8, 12.2)	-	1.00 (1.00, 1.00)	-	0.64 (0.64, 0.65)
≥ 1	7870/ 40580 (19.4%)	5469/ 70457 (7.8%)	59.0 (58.2, 59.8)	66.5 (66.2, 66.8)	19.4 (19.0, 19.8)	92.2 (92.0, 92.4)	1.76 (1.73, 1.79)	0.62 (0.61, 0.62)	
≥ 2	2165/ 5566 (38.9%)	11174/ 105471 (10.6%)	16.2 (15.6, 16.9)	96.5 (96.4, 96.6)	38.9 (38.3, 39.4)	89.4 (89.1, 89.7)	4.66 (4.44, 4.89)	0.87 (0.86, 0.87)	
3	354/ 536 (66.0%)	12985/ 110501 (11.8%)	2.7 (2.4, 2.9)	99.8 (99.8, 99.8)	66.0 (65.7, 66.4)	88.2 (87.4, 89.1)	14.25 (12.90, 15.74)	0.98 (0.93, 1.02)	
CRB-65									
≥ 0	13339/ 111037 (12.0%)	-	100 (100, 100)	0 (0, 0)	12.0 (11.8, 12.2)	-	1.00 (1.00, 1.00)	-	0.63 (0.62, 0.63)
≥ 1	11578/ 84366 (13.7%)	1761/ 26671 (6.6%)	86.8 (86.2, 87.4)	25.5 (25.2, 25.8)	13.7 (13.5, 14.0)	93.4 (93.1, 93.7)	1.17 (1.16, 1.17)	0.52 (0.51, 0.53)	
≥ 2	4949/ 21978 (22.5%)	8390/ 89059 (9.4%)	37.1 (36.3, 37.9)	82.6 (82.3, 82.8)	22.5 (22.0, 23.1)	90.6 (90.4 90.8)	2.13 (2.08, 2.18)	0.76 (0.76, 0.77)	
≥ 3	1147/ 2689 (42.7%)	12192/ 108348 (11.3%)	8.8 (8.1, 9.1)	98.4 (98.3, 98.5)	42.7 (42.0, 43.3)	88.7 (88.3, 89.2)	5.45 (5.08, 5.84)	0.93 (0.92, 0.93)	
4	143/ 217 (65.9%)	13196/ 110820 (11.9%)	1.1 (0.9, 1.2)	99.9 (99.9, 99.9)	65.9 (65.6, 66.2)	88.1 (86.8, 89.4)	14.15 (12.08, 16.59)	0.99 (0.93, 1.06)	
qSOFA-65									
≥ 0	13339/ 111037 (12.0%)	-	100 (100, 100)	0 (0, 0)	12.0 (11.8, 12.2)	-	1.00 (1.00, 1.00)	-	0.65 (0.64, 0.65)
≥ 1	12177/ 89351 (13.6%)	1162/ 21686 (5.4%)	91.3 (90.8, 91.8)	21.0 (20.8, 21.3)	13.6 (13.4, 13.9)	94.6 (94.3, 94.9)	1.16 (1.15, 1.16)	0.41 (0.41, 0.42)	
≥ 2	6465/ 31137 (20.8%)	6874/ 79900 (8.6%)	48.5 (47.6, 49.3)	74.7 (74.5, 75.0)	20.8 (20.3, 21.2)	91.4 (91.2, 91.6)	1.92 (1.88, 1.96)	0.69 (0.68, 0.70)	
≥ 3	1726/ 4414 (39.1%)	11613/ 106623 (10.9%)	12.9 (12.4, 13.5)	97.2 (97.1, 97.4)	39.1 (37.7, 40.5)	89.1 (88.7, 89.5)	4.70 (4.46, 4.96)	0.90 (0.89, 0.90)	
4	263/ 421 (62.5%)	13076/ 110616 (11.8%)	2.0 (1.7, 2.2)	99.8 (99.8, 99.9)	62.5 (57.8, 67.1)	88.2 (87.2, 89.2)	12.19 (10.10, 14.71)	0.98 (0.97, 0.99)	