Supplementary tables

Table S1. Range of sample size calculations performed

		Calculated using pmsampsize command in Stata (Riley, RD, Snell, KIE, Ensor, J, et al. Minimum sample size for developing a multivariable prediction model: PART II - binary and time-to-event outcomes. *Statistics in Medicine*. 2019; 38: 1276–1296. https://doi.org/10.1002/sim.7992)		
		Minimum sample size to meet requirements with 10 parameters in model and model r2 = 0.15		
Prevalence	Expected number of events	Global shrinkage (0.9)	Difference between r2 and adjusted r2 <0.05	Precision of average outcome risk +/-0.05
0.12	66	549	349	163
0.15	83	549	318	198
0.18	99	549	298	227
0.21	116	549	283	255
0.24	132	549	270	281
0.27	149	549	263	303
Prevalence		Global shrinkage (0.89)	Difference between r2 and adjusted r2 <0.05	Precision of average outcome risk +/-0.05
0.12	60	493	349	163
0.15	74	493	318	198
0.18	89	493	298	227
0.21	104	493	283	255
0.24	119	493	270	281
0.27	134	493	263	303

Table S2. Sociodemographic and other characteristics on admission of the cohort who were admitted to hospital with SARS-COV-2 21 February 2020 until 30 June 2020

	Admission: Clinical diagnosis only	Admission: PCR positive
N	403	1040
Age (years) median (IQR)	77 (62, 85)	76 (60, 84)
Male	198 (49%)	553 (53%)
Other or not stated ethnic group	58 (14%)	197 (19%)
Black/Mixed ethnic group	10 (2%)	45 (4%)
Indian/Pakistani ethnic group	9 (2%)	47 (5%)
White ethnic group	326 (81%)	751 (72%)
30 day mortality	83 (21%)	282 (27%)
Died out of hospital	13 (3%)	28 (3%)
30 day ICU admission	21 (5%)	130 (12%)
Length of stay, days (IQR)	8 (4, 13)	8 (3, 18)
For escalation/CPR	153 (38%)	467 (45%)
NEWS2, median (IQR)	3 (2, 5)	3 (2, 5)
ISARIC-4C, median (IQR)	10 (7, 12)	10 (6, 12)
BMI <20, n, %	75 (19%)	184 (18%)
BMI >30, n, %	93 (23%)	289 (28%)
Smoking, n, %	73 (18%)	87 (8%)
Vaping, n, %	27 (7%)	40 (4%)
Alcohol risk, n, %	57 (14%)	145 (14%)
Charlson Index, median (IQR)	2 (1, 4)	2 (0, 3)

Table S3. Calculation of linear predictors for models used for validation in second wave

Linear predictor for next day escalation/death model for patients eligible for escalation =
-0.0125674 * (lag_Haemoglobin - 9.213636) +
0.8701899 * (log_Neutrophils - 1.537172) +
-0.6156576 * (log_Lymphocytes - 0.083262) +
-0.6018417 * (log_PlateletCount - 5.484431) +
0.8843517 * (Potassium - 4.132611) +
-0.4522988 * (log_Urea - 1.731216) +
0.2340765 * (TEMPERATURE - 37.189060) +
0.0531105 * (RESP_RATE - 21.033282) +
0.0225751 * (lag_HEART_RATE - 6.655470) +
0.0398151 * (FiO2 - 28.850724) +
0.1032351 * (AGE_AT_ADMISSION - 57.969800) +
-0.0007869 * (AGE_AT_ADMISSION^2 - 3824.085054)

Linear predictor for next day death model for patients ineligible for escalation =
0.4686100 * (log_Neutrophils - 1.6873937) +
-0.2822816 * (log_Lymphocytes - -0.0250936) +
-0.3771835 * (log_PlateletCount - 5.4290112) +
0.0330612 * (Sodium - 137.3990841) +
0.4325884 * (log_Urea - 2.0373875) +
-0.336089531 * (TEMPERATURE - 36.99199) +
0.0494824 * (RESP_RATE - 20.8943202) +
0.0081043 * (HEART_RATE - 90.2390630) +
0.0164881 * (delta_HEART_RATE - -0.1344529) +
0.0251410 * (FiO2 - 30.3385603) +
-0.0215520 * (sO2 - 93.3695048) +
0.0094745 * (AGE_AT_ADMISSION - 79.9594609)

Table S4 Positive and negative predictive values for different levels of the two scores

Threshold of Linear predictor in model for patients eligible for escalation to ICU	Positive predictive value (% next day escalation to ICU or death among patients with a score greater than threshold)	Negative predictive value (% not having next day escalation to ICU or death among patients with a score lower than threshold)
0	1.4%	99.8%
1	6.5%	99.5%
2	13.5%	99.2%
3	19.8%	99.0%
4	31.8%	98.8%
5	42.6%	98.7%
6	46.2%	98.6%
Threshold of linear predictor in model for patients ineligible for escalation to ICU	Positive predictive value (% next day death among patients with a score greater than threshold)	Negative predictive value (% not having next day death among patients with a score lower than threshold)
0	2.9%	99.1%
1	15.2%	98.2%
2	26.1%	97.7%
3	46.6%	97.3%
4	62.2%	97.1%