Table S1: COVID-19 modified early warning score

	3	2	1	0	1	2	3
Age				<65			≥65
Respiration rate	≤8		9-11	12-20		21-24	≥25
Oxygen saturation	≤91	92-93	94-95	≥96			
Any supplemental oxygen		Yes		No			
Systolic blood pressure	≤90	91-100	101-110	111-219			≥220
Heart rate	≤40		41-50	51-90	91-110	111-130	≥131
Consciousness				Alert			Drowsiness, lethargy, coma, confusion
Temperature	≤35.0		35.1-36.0	36.1-38.0	38.1-39.0	≥39.1	

COVID-19: Coronavirus disease 2019

Table S2: COVID-19 modified early warning score interpretation

score	Risk grading	Warning level	Monitoring frequency	Clinical response	Solution
0	/		Q12h	Routine monitoring	/
1-4	Low	Yellow	Q6h	Bedside evaluation by nurse	Maintain existing monitoring/increase monitoring frequency/inform doctor
5-6	Medium	Orange	Q1-2h	Bedside nurse notifies doctor for evaluation	Maintain existing treatment/adjust treatment plan/ CCRRT remote consultation
≥7	High	Red	Continuous	Bedside nurse notifies doctor for emergency bedside evaluation CCRRT remote consultation	CCRRT on-site consultation
≥7	High	Black	Continuous	• Patients are extremely severe with irreversible end-stage disease facing death, such as serious irreversible brain injury, irreversible multiple organ failure, end-stage chronic liver or ling disease, metastatic tumors, etc. • Should be discussed urgently by the expert group about the admission decision.	

Abbreviations: COVID-19: Coronavirus disease 2019; CCRT: critical care rapid response team

Table S3: Disease severity classification in accordance with the NIH guidelines

Abbreviations: NIH: national institutes of health

Asymptomatic/presymptomatic	Individuals who test positive for SARS-CoV-2 by virologic testing using a molecular diagnostic (e.g., polymerase chain reaction) or antigen test, but have no symptoms.
Mild Illness	Individuals who have any of the various signs and symptoms of COVID 19 (e.g., fever, cough, sore throat, malaise, headache, muscle pain) without shortness of breath, dyspnea, or abnormal chest imaging.
Moderate Illness	Individuals who have evidence of lower respiratory disease by clinical assessment or imaging and a saturation of oxygen (SpO2) ≥94% on room air at sea level.
Severe Illness	individuals who have respiratory frequency >30 breaths per minute, SpO2 <94% on room air at sea level, ratio of arterial partial pressure of oxygen to fraction of inspired oxygen (PaO2/FiO2) <300 mmHg, or lung infiltrates >50%
Critical Illness	individuals who have respiratory failure, septic shock, and/or multiple organ dysfunction.

Abbreviations: NIH: national institutes of health

Table S4: Baseline echocardiographic characteristics of hospitalized patients with COVID-19

Variable	Reference value	All N=186	p	first wave N=131	second wave N=55	p
EF, %	M 62±5 F 64±5	57.7±5.5	<0.001	57.8±5	57.5±6.6	0.825
EF <50%		11 (6)		6 (4.6)	5 (9.8)	0.186
LVEDD, mm	M 50.2±4.1 F 45.0±3.6	43.4±6.7	<0.001	43.2±6.7	43.9±6.5	0.535
LVESD, mm	M 32.4±3.7 F 28.2±3.3	28.4±6	0.001	28.2±6.1	28.9±5.7	0.477
Heart rate, (beat/min)	60-100	78.8±17	0.349	79±17	77±15	0.463
Stroke volume index, mL/m²	33-47	31.1±9.9	<0.001	31.2±9.8	30.7±10.5	0.785
Cardiac output index, L/min/min	2.5-4	2.4±0.8	<0.001	2.4±0.8	2.3±0.6	0.45
LA volume index, mL/m²	M 25.1±7 F 24.5±6.4	30.6±12	<0.001	29.1±12.3	35.2±12.2	0.009
E wave, m/s	0.67±0.14	0.66±0.2	0.76	0.65±0.22	0.69±0.21	0.36
A wave, m/s	0.60+0.17	0.65±0.2	0.001	0.64±0.21	0.68±0.22	0.358
E/A	1.3 [0.8, 2.0]	0.91 [0.8-1.2]	<0.001	0.9 [0.8-1.2]	1 [0.7-1.4]	0.845
e' Septal, cm/s	10.3+3.0	6.4±2.1	<0.001	6.5±2.1	6.3±2.1	0.575
e' Lateral, cm/s	13.5+4.0	8.3±2.9	<0.001	8.4±2.8	8.2±3.2	0.78
E/e' average	6.8+2.1	10.4±5.7	<0.001	10.3±5.9	10.6±5.1	0.715
E/e' >14		30 (16.8)		23 (18)	7 (14)	0.658
PAT, ms	137±24	88.96±30	<0.001	90.6±29.5	84.3±31.4	0.258
PAT <100ms		98 (67.1)		67 (63.2)	31 (77.5)	0.117
RVEDA, cm²	M 17±3.5 F 14±3	21.2±5.4	<0.001	21.1±5.4	21.5±5.4	0.644
RVESA, cm²	M 9±3 F 7±2	12.4±4.2	<0.001	12.4±4.4	12.6±4	0.765
RVEDA Index (cm²/m²)	M 8.8±1.9 F 8.0±1.7	11.3±2.6	<0.001	11.3±2.6	11.3±2.7	0.989
RVEDA Index >12 cm²/m²)		56 (37.5)		41 (37.3)	15 (38.5)	1
RVESA Index (cm²/m²)	M 4.7±1.3 F 4.0±1.2	6.6±2.2	<0.001	6.6±2.3	6.7±2.1	0.884
RVESA Index >7 (cm²/m²), n (%)		48 (32.2)		34 (30.6)	14 (36.8)	0.547
RVFAC, %	49±7	41.5±12	<0.001	41.5±11.9	41.6±12.3	0.966
RVFAC<35%, n (%)		50 (31)		34 (30.6)	16 (32)	0.856
TAPSE, mm	24±3.5	22±5	<0.001	23±6	21±5	0.118
TAPSE <17 mm		27 (15.6)		21 (17.1)	6 (12)	0.493

Pulsed RV S' (cm/s)	14.1±2.3	11.1±3.1	<0.001	11.5±3.3	10.2±2.3	0.009
Pulsed RV S' <9.5(cm/s)		50 (28.9)		30 (24.6)	20 (39.2)	0.066

Abbreviations: EF, ejection fraction; F, female; LA, left atrium; LV, left ventricle; LVEDD, left ventricular end-diastolic diameter; LVESD, left ventricular end-systolic diameter; M, male; PAT, pulmonic acceleration time; RV, right ventricle; RVEDA, right ventricular end-diastolic area; RVESA, right ventricular end-systolic area; RVFAC, right ventricular fractional area change; TAPSE, Tricuspid Annular Plane Systolic Excursion