eTable 1: Variables included in the final model

Variable Name	Source of data	Unit
Age	Patient	years
Gender	Patient	
Length of stay	Visit	days
Admission type	Visit	
Admission Source	Visit	
Respiratory rate	Vitals Flowsheet	rate per minute
Pulse	Vitals Flowsheet	rate per minute
Diastolic blood pressure	Vitals Flowsheet	mmHg
Percutaneous oxygen saturation	Vitals Flowsheet	%
Systolic blood pressure	Vitals Flowsheet	mmHg
Temperature	Vitals Flowsheet	degree Fahrenheit
Blood urea nitrogen	Laboratory	mg/dL
Serum Creatinine	Laboratory	mg/dL
Platelet count	Laboratory	$\times 10^3/\mu L$
Serum chloride	Laboratory	mmol/L
Anion gap	Laboratory	mEq/L
Serum sodium	Laboratory	mEq/L
Corrected WBC count	Laboratory	$\times 10^3/\mu L$
C-reactive protein	Laboratory	mg/L
Red blood cell count	Laboratory	$\times 10^6/\mu L$
Partial pressure of carbon dioxide in arterial blood (PACO2)	Laboratory	mmHg
Partial pressure of oxygen in arterial blood (PAO2)	Laboratory	mmHg
Partial pressure of carbon dioxide in venous blood (PVCO2)	Laboratory	mmHg
Partial pressure of oxygen in venous blood (PVO2)	Laboratory	mmHg
Serum potassium	Laboratory	mEq/L
Activated partial thromboplastin time	Laboratory	seconds
Serum lactate	Laboratory	mmol/L
pH of arterial blood	Laboratory	
Serum total protein	Laboratory	g/dL
Hemoglobin	Laboratory	g/dL
Complement C3	Laboratory	mg/dL
Complement C4	Laboratory	mg/dL

Interleukin 1 beta	Laboratory	pg/ml
Interleukin 6	Laboratory	pg/ml
Interleukin 17	Laboratory	pg/ml
D-dimer	Laboratory	mg/mL fibrinogen equivalent units
Aspartate aminotransferase	Laboratory	IU/L
Alanine aminotransferase	Laboratory	IU/L
Serum calcium	Laboratory	mg/dL
Serum ferritin	Laboratory	ng/mL
Lymphocyte count	Laboratory	$\times 10^9$/L
Lactate dehydrogenase	Laboratory	U/L
Serum albumin	Laboratory	g/dL
NT-pro hormone B-type natriuretic peptide	Laboratory	pg/mL
pH of venous blood	Laboratory	
Bicarbonates by arterial blood gas analysis	Laboratory	mEq/L
Serum direct bilirubin	Laboratory	mg/dL
Serum total bilirubin	Laboratory	mg/dL
T wave axis	Electrocardiogram	angle in degrees
P wave axis	Electrocardiogram	angle in degrees
R wave axis	Electrocardiogram	angle in degrees
Atrial rate	Electrocardiogram	rate per minute
Ventricular rate	Electrocardiogram	rate per minute
PR interval	Electrocardiogram	milliseconds
QRS duration	Electrocardiogram	milliseconds

eTable 2: Model hyperparameters

Hyperparameter	Search Space	Optimal value used in the final model
Number of trees to train	["500,600"]	600
Maximum depth of the tree	["3, 5,7,9,11"]	3
Maximum number of bins for discretizing continuous features	["10,15,20,25,30"]	10
Number of features to consider for splits at each tree node	["onethird,sqrt,log2"]	One third