

Table S1: three critical scores of included children

	Total(n=242)	Death(n=50)	Control(n=192)	p
Critical Scores[M(IQR)]				
PRISM III	6(1-16)	13.5(5-22)	5(0-15)	0.001*
PEWS	3(1-5)	3.5(1-6)	3(1-4)	0.175
PCIS	87(80-92)	82(73-90)	88(82-92)	0.011*

Abbreviations: ALB, albumin; ALT, alanine aminotransferase; AST, aspartate transaminase; Cephalosporin iii, the third generation of Cephalosporin; CRP, C-reactive protein; G+, gram-positive bacteria; G-, Gram-negative bacteria; ICU, intensive care unit; LDH, lactic dehydrogenase; N, neutrophil ratio; PCIS, Pediatric Critical Illness Score; PEWS, Pediatric Early Warning Score; PCT, procalcitonin; PLT, platelet; PRISM III, Pediatric Risk of Mortality III; TTFP, time to first positivity of blood cultures; WBC, white blood cell.

Table S2: Characteristics of children in training and validation sets

	Training set(n=157)			Validating set(n=85)		
	Death group (n=32)	Control group (n=125)	p	Death group (n=18)	Control group (n=67)	p
Demographic characteristics						
Age(months)	10.71(4.67-37.32)	9.4(3.1-22)	0.7	24.50(6.30-71.00)	5.84(2.8-17.50)	0.11
Gender[girls(boys),n]	12(20)	44(81)	0.81	6(12)	16(51)	0.61
Weight(kg)	7.5(6-13.75)	8(5-12)	0.73	12.0(7.50-17.50)	7.50(5.1-10.00)	0.12
Clinical presentations						
Dyspnea [n (%)]	25(78.1%)	91(72.8%)	0.54	8(44.4%)	49(73.1%)	0.02
Crackles[n (%)]	19(59.4%)	46(36.8%)	0.021	5(27.8%)	19(28.4%)	0.96
High fever[n (%)]	12(37.5%)	57(45.6%)	0.41	12(66.7%)	35(52.2%)	0.27
Days of illness[M(IQR),day]	8(6-10)	6(3-10)	0.79	7(4-12)	7(3-12)	0.86
Underlying disease[n (%)]						
Congenital heart disease	14(43.8%)	36(28.8%)	0.11	1(5.6%)	11(16.4%)	0.43
Primary immunodeficiency	1(3.1%)	2(1.6%)	0.5	2(11.1%)	2(1.6%)	0.81
Hematologic malignancy	4(12.5%)	8(6.4%)	0.43	2(11.1%)	2(1.6%)	0.2
Malnutrition(moderate-severe)	7(21.9%)	18(14.4%)	0.3	1(5.6%)	3(4.5%)	1
Laboratory values[M(IQR)]						
TTFP (hours)	14.45(9.89-19.75)	21.91(17.46-29.8)	<0.001	16.09(11-19.3)	21.47(16.1-28.4)	0.44
PCT(*10 ⁹ /L)	7.11(1.81-28.08)	1.05(0.1-12.5)	0.2	9.99(2.4-8-25.05)	0.91(0.1-6.87)	0.09
CRP (mg/L)	31(8-57)	9(8-38)	0.52	57.5(11-126)	13.04(8-56)	0.03

WBC(*10 ⁹ /L)	10.63(5.56-16.61)	11.94(7.59-19.91)	0.44	7.78(4.93-11.58)	10.78(8.21-14.73)	0.34
N(%)	68(52-81)	65(52-81)	0.97	67.5(30-83)	62(35-73)	0.97
PLT(*10 ⁹ /L)	130(67.5-279)	335(195-483)	0.003	98(84-251)	347(197-496)	<0.001
ALT(U/L)	38.25(27.85-99.35)	39.7(25.9-72.8)	0.29	57.9(27.8-75.6)	34(22.65-45.8)	0.1
AST(U/L)	96.15(47.45-179.1)	54(37.5-97.7)	0.14	69.8(35.1-127.6)	42.3(31.3-63.3)	0.01
ALB(g/L)	28.65(26.35-34.85)	35(30.1-39.7)	<0.001	26.6(22.9-30.7)	35(28.6-38)	0.02
LDH(U/L)	788.05(403.15-1439.55)	370.1(275.9-580.7)	<0.001	521.2(357.1-792)	319.6(260.6-429.2)	0.002
Microorganism species						
G+/G-	24(8)	96(29)	0.83	8(10)	49(18)	0.02
Accompanied with virus infection[n (%)]	9(28.1%)	37(29.6%)	0.87	2(11.1%)	19(28.4%)	0.23
Accompanied with MP infection[n (%)]	4(12.5%)	11(8.8%)	0.77	0(0%)	2(3%)	1
Complications [n (%)]						
Empyema	1(3.1%)	7(5.6%)	0.91	0(0%)	6(9%)	0.42
Atelectasis	1(3.1%)	17(13.6%)	0.18	1(5.6%)	9(13.4%)	0.61
Pneumothorax	3(9.4%)	8(6.4%)	0.84	3(16.7%)	4(6%)	0.33
Necrotic pneumonia	1(3.1%)	1(0.8%)	0.37	0(0%)	4(6%)	0.57
Meningitis	3(9.4%)	6(4.8%)	0.57	3(16.7%)	5(7.5%)	0.46
Osteomyelitis	0(0%)	2(1.6%)	1	0(0%)	3(4.5%)	1
Prior antibiotic treatment[n (%)]	30(93.8%)	117(93.6%)	1	15(83.3%)	64(95.5%)	0.2

β-lactam[n (%)]	29(90.6%)	111(88.8%)	1	15(83.3%)	60(89.6%)	0.75
Macrolide[n (%)]	5(15.6%)	9(7.2%)	0.25	3(16.7%)	12(17.9%)	1
Appropriate empiric treatment[n (%)]	11(34.4%)	52(41.6%)	0.46	9(50%)	30(44.8%)	0.69
Penicillin-resistant[n (%)]	18(56.3%)	74(59.2%)	0.76	6(33.3%)	42(62.7%)	0.03
Cephalosporin iii-resistant[n (%)]	7(21.9%)	18(14.4%)	0.3	5(27.8%)	14(20.9%)	0.76
Carbapenem-resistant[n (%)]	3(9.4%)	13(10.4%)	1	3(16.7%)	7(10.4%)	0.75
Critical Scores[M(IQR)]						
PRISM III	16.5(5.5-22.5)	6(1-16)	0.00	8(3-15)	5(0-10.5)	0.12
PEWS	4(2-5.5)	3(1-4)	0.03	0(2-6)	1.5(3-5)	0.59
PCIS	82(73-90)	87(82-93)	0.06	83(74-91)	89(82-91.5)	0.09
Severe clinical outcomes[n (%)]						
Admission to ICU	31(96.9%)	64(51.2%)	<0.001	18(100%)	27(40.3%)	<0.001
Invasive mechanical ventilation	28(87.5%)	52(41.6%)	<0.001	15(83.3%)	26(18.8%)	0.001
Septic shock	26(81.3%)	19(15.2%)	<0.001	15(83.3%)	13(19.4%)	<0.001

Abbreviations: ALB, albumin; ALT, alanine aminotransferase; AST, aspartate transaminase; Cephalosporin iii, the third generation of Cephalosporin; CRP, C-reactive protein; G+, gram-positive bacteria; G-, Gram-negative bacteria; ICU, intensive care unit; LDH, lactic dehydrogenase; N, neutrophil ratio; PCIS, Pediatric Critical Illness Score; PEWS, Pediatric Early Warning Score; PCT, procalcitonin; PLT, platelet; PRISM III, Pediatric Risk of Mortality III; TTFP, time to first positivity of blood cultures; WBC, white blood cell.

Definition

Pneumonia: Pneumonia is commonly defined as the presence of fever or acute respiratory symptoms and evidence of parenchymal infiltrates on a chest radiograph.

Pneumonia-related bacteremia: children had a positive blood culture with systemic inflammation reaction syndrome status resulting in pneumonia.

High fever: temperature $\geq 39^{\circ}\text{C}$ and more than three times a day.

Congenital heart disease: It was defined by American Heart Association Statistics Committee and Stroke Statistics Subcommittee[1].

TTFP: It was defined as the time period between the start of incubation and the first signal of positive blood cultures.

Empyema, atelectasis, pneumothorax and necrotic pneumonia: They were diagnosed by clinical symptoms, signs, chest ultrasound and computed tomography(CT) testing.

Meningitis: It was diagnosed by manifestations such as sudden onset of fever $\geq 38.5^{\circ}\text{C}$ with neck stiffness, altered consciousness, or other meningeal signs (including flaccid neck, bulging fontanel, or convulsions in young children) and abnormality in cerebrospinal fluid(CSF).

Osteomyelitis: It was diagnosed based on symptoms as pain in a specific bone with overlying redness, fever, and weakness, accompanied with blood test, medical imaging, or bone biopsy.

Prior antibiotic treatment: It was defined as antibiotic treatment before the blood cultures during this course of disease, regardless of administration time and dosage, appropriateness judged by latter susceptibility results.

Appropriate empiric treatment: It was defined as the antibiotic use that was susceptible to the isolate in the blood cultures. Septic shock was defined based on International Pediatric Sepsis Consensus and the American College of Critical Care Medicine[2,3].

In-hospital mortality: it was defined as the incidence of death before discharging from hospital.

Reference

1. Go AS, Mozaffarian D, Roger VL, et al; American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics-2013 update: a report from the American Heart Association. *Circulation* 2013;127(01):e6–e245.
2. Goldstein B, Giroir B, Randolph A. International Consensus Conference on Pediatric Sepsis. International pediatric sepsis consensus conference: definitions for sepsis and organ dysfunction in pediatrics. *Pediatr Crit Care Med*. 2005;6(1):2–8.
3. Brierley J, Carcillo JA, Choong K, et al. Clinical practice parameters for hemodynamic support of pediatric and neonatal septic shock: 2007 update from the American College of Critical Care Medicine. *Crit Care Med*. 2009;37(2):666–688.

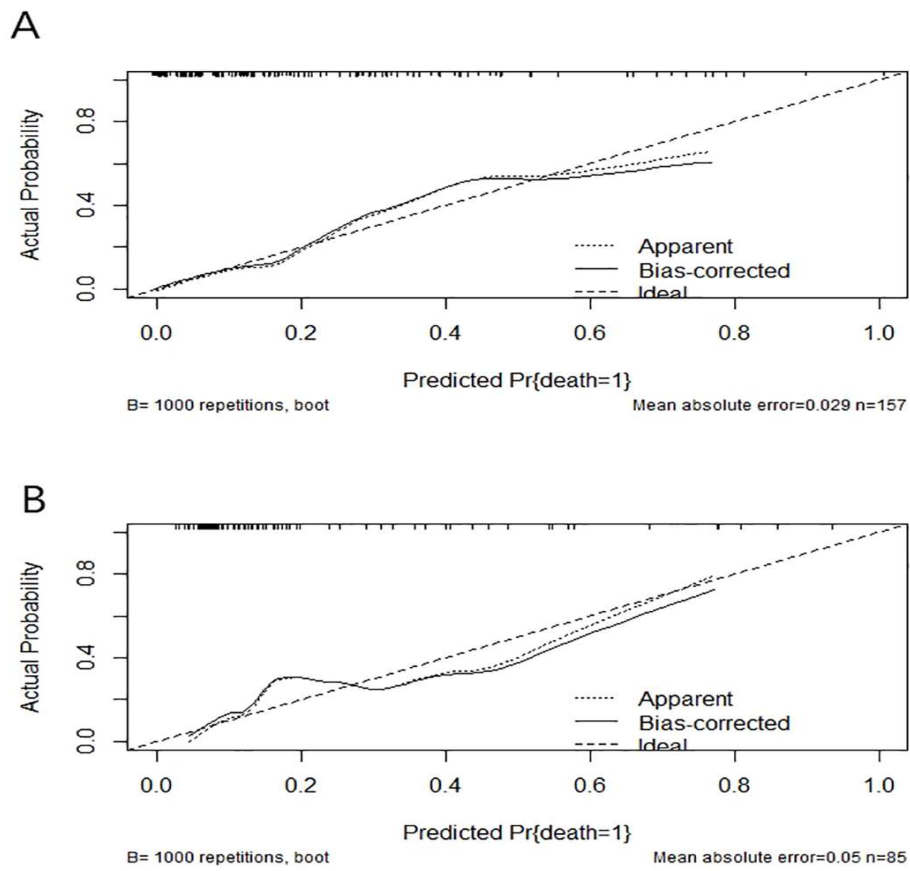


Figure S1: (A) Calibration curve for the nomogram in training set; (B) Calibration curve for the nomogram in validating set.

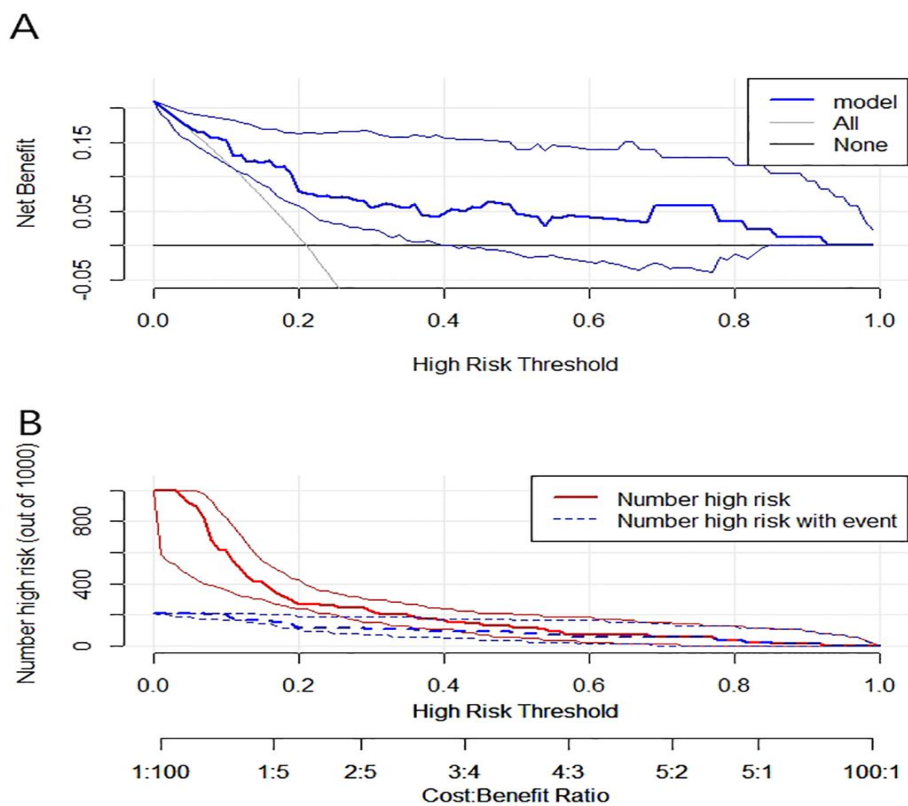


Figure S2. (A) DCA curves for the nomogram in validating set; (B) CIC for the nomogram in validating set.

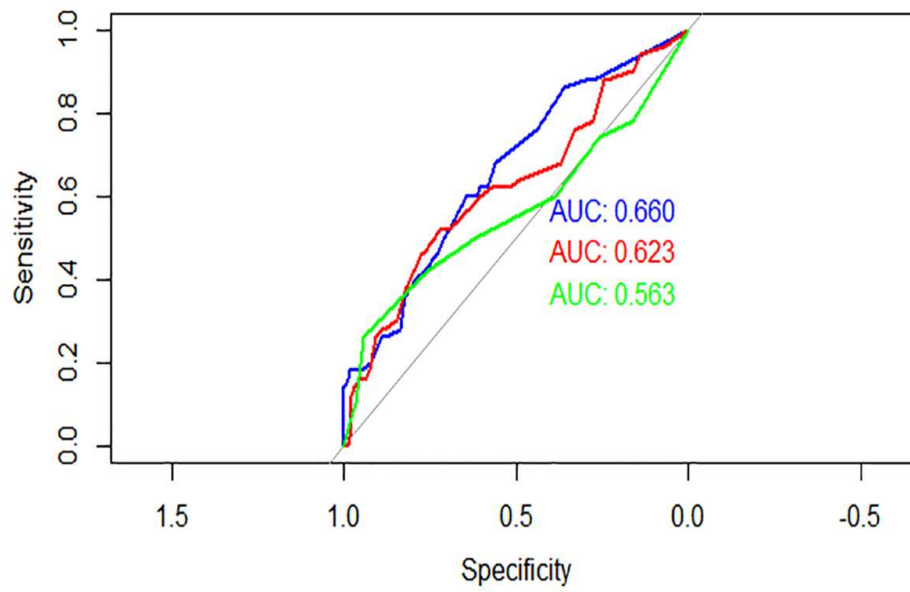


Figure S3: ROC of the three critical scores(PRISM III, PEWS and PCIS) in all included children.