Supplementary

Table S1 Forward stepwise regression includes coding for screening variables

Variable	Classification	Coding			
Gender	F	1	–	–	–
	M	–1	–	–	–
Age	<1 month	1	0	0	0
	1–3 months	0	1	0	0
	3 months to 1 year old	0	0	1	0
	1–3 years	0	0	0	1
	>3 years	–1	–1	–1	–1
WBC	H	1	0		
	L	0	1		
	N	–1	–1		
Hemoglobin	H	1	0		
	L	0	1		
	N	–1	–1		
Mean corpuscular volume	H	1	0		
	L	0	1		
	N	–1	–1		
RBC	H	1			
	N	–1			
Albumin	H	1	0		
	L	0	1		
	N	–1	–1		
Calcium	H	1	0		
	L	0	1		
	N	–1	–1		
γ-glutamyl transferase	H	1			
	N	–1			
pCO_2	H	1	0		
	L	0	1		
	N	–1	–1		
pO_2	H	1	0		
	L	0	1		
	N	–1	–1		
pH	H	1	0		
	L	0	1		
	N	–1	–1		

H, Higher than normal; L, lower than normal; N, normal.

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Table S2 Forward stepwise regression variable enters the model timing

Step	Input effect variable	Model fitting statistics		
		AIC	SC	–2 Log L
Step 0	Intercept	–	–	–
Step 1	Hemoglobin	226.133	242.822	220.133
Step 2	Calcium	213.391	241.207	203.391
Step 3	Mean corpuscular volume	203.266	247.772	187.266
Step 4	Albumin	202.736	258.368	182.736
Step 5	pH	198.401	265.16	174.401
Step 6	Gender	196.149	268.471	170.149

AIC, Akaike Information Criterion; SC, Schwarz Criterion; –2 Log L, –2 ×Log Likelihood.

Table S3 Collinearity diagnostics for retained predictors in the multivariable logistic regression model

Variable	Tolerance	Variance inflation factor (VIF)
Intercept		0
Gender	0.98140	1.01895
Age	0.47157	2.12059
Hemoglobin	0.79333	1.26050
Mean corpuscular volume	0.57167	1.74925
Albumin	0.89255	1.12038
Calcium	0.87902	1.13763
pH	0.98686	1.01332

Tolerance values below 0.4 or VIF values above 2.5 were considered indicative of potential multicollinearity. All predictors in the final model demonstrated VIF <2.5, suggesting no significant collinearity concerns.

Table S4 In-hospital death of patients with different blood biochemical parameters levels

Variables	Class	Death in hospital, n (%)		Total	P
		No, n=1,957	Yes, n=25		
Globulin	H	4 (100.0)	0 (0.00)	4 (0.20)	0.053
	L	858 (98.06)	17 (1.94)	875 (44.15)	
	N	1095 (99.27)	8 (0.73)	1103 (55.65)	
Albumin	H	18 (94.74)	1 (5.26)	19 (0.96)	<0.001
	L	32 (91.43)	3 (8.57)	35 (1.77)	
	N	1907 (98.91)	21 (1.09)	1928 (97.28)	
Alkaline phosphatase	H	315 (99.06)	3 (0.94)	318 (16.04)	0.846
	L	2 (100.0)	0 (0.00)	2 (0.10)	
	N	315 (99.06)	3 (0.94)	318 (16.04)	
Alanine aminotransferase	H	120 (100.0)	0 (0.00)	120 (6.05)	0.397
	N	1837 (98.66)	25 (1.34)	1862 (93.95)	

Table S4 (*continued*)

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Table S4 (*continued*)

Variables	Class	Death in hospital, n (%)		Total	P
		No, n=1,957	Yes, n=25		
Aspartate aminotransferase	H	399 (99.25)	3 (0.75)	402 (20.28)	0.045
	L	34 (94.44)	2 (5.56)	36 (1.82)	
	N	1524 (98.70)	20 (1.30)	1544 (77.90)	
Urea	H	80 (95.24)	4 (4.76)	84 (4.24)	0.013
	L	162 (98.78)	2 (1.22)	164 (8.27)	
	N	1715 (98.90)	19 (1.10)	1734 (87.49)	
Calcium	H	89 (98.89)	1 (1.11)	90 (4.54)	<0.001
	L	123 (92.48)	10 (7.52)	133 (6.71)	
	N	1745 (99.20)	14 (0.80)	1759 (88.75)	
Cholesterol	H	44 (100.0)	0 (0.00)	44 (2.22)	<0.001
	L	486 (96.62)	17 (3.38)	503 (25.38)	
	N	1427 (99.44)	8 (0.56)	1435 (72.40)	
Creatine kinase	H	233 (98.73)	3 (1.27)	236 (11.91)	0.518
	L	26 (96.30)	1 (3.70)	27 (1.36)	
	N	1698 (98.78)	21 (1.22)	1719 (86.73)	
Creatinine	H	57 (87.69)	8 (12.31)	65 (3.28)	<0.001
	L	2 (100.0)	0 (0.00)	2 (0.10)	
	N	1898 (99.11)	17 (0.89)	1915 (96.62)	
Gamma-glutamyl transferase	H	209 (93.72)	14 (6.28)	223 (11.25)	<0.001
	L	76 (100.0)	0 (0.00)	76 (3.83)	
	N	1672 (99.35)	11 (0.65)	1683 (84.91)	
Indirect bilirubin	H	235 (95.53)	11 (4.47)	246 (12.41)	<0.001
	L	78 (98.73)	1 (1.27)	79 (3.99)	
	N	1644 (99.22)	13 (0.78)	1657 (83.60)	
Lactic dehydrogenase	H	544 (98.19)	10 (1.81)	554 (27.95)	0.393
	L	5 (100.0)	0 (0.00)	5 (0.25)	
	N	1408 (98.95)	15 (1.05)	1423 (71.80)	
Magnesium	H	51 (94.44)	3 (5.56)	54 (2.71)	0.001
	L	54 (94.74)	3 (5.26)	58 (2.91)	
	N	1852 (98.98)	19 (1.02)	1881 (94.38)	
Phosphorus	H	121 (93.08)	9 (6.92)	132 (6.62)	<0.001
	L	86 (97.73)	2 (2.27)	89 (4.47)	
	N	1750 (99.21)	14 (0.79)	1772 (88.91)	
Triglyceride	H	506 (98.64)	7 (1.36)	513 (25.88)	0.808
	N	1451 (98.77)	18 (1.23)	1469 (74.12)	
Total protein	H	13 (92.86)	1 (7.14)	14 (0.71)	0.067
	L	241 (97.97)	5 (2.03)	246 (12.41)	
	N	1703 (98.90)	19 (1.10)	1722 (86.88)	
Uric acid	H	193 (96.50)	7 (3.50)	200 (10.09)	0.010
	L	144 (98.63)	2 (1.37)	146 (7.37)	
	N	1620 (99.02)	16 (0.98)	1636 (82.54)	

H, higher than normal; L, lower than normal; N, normal.

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Table S5 In-hospital death of patients with different blood gas analysis parameters levels

Variables	Class	Death in hospital, n (%)		Total	P
		No, n=1957	Yes, n=25		
pCO_2	H	81 (93.10)	6 (6.90)	87 (4.39)	<0.001
	L	1140 (99.22)	9 (0.78)	1149 (57.97)	
	N	736 (98.66)	10 (1.34)	746 (37.64)	
pO_2	H	1564 (99.43)	9 (0.57)	1573 (79.36)	<0.001
	L	223 (94.49)	13 (5.51)	236 (11.91)	
	N	170 (98.27)	3 (1.73)	173 (8.73)	
sO_2	H	1205 (99.42)	7 (0.58)	1212 (61.18)	<0.001
	L	477 (96.75)	16 (3.25)	493 (24.89)	
	N	274 (99.28)	2 (0.72)	276 (13.93)	
HCO_3^-	H	58 (98.31)	1 (1.69)	59 (2.98)	0.944
	L	1157 (98.72)	15 (1.28)	1172 (59.16)	
	N	741 (98.80)	9 (1.20)	750 (37.86)	
Lactate	H	352 (96.17)	14 (3.83)	366 (18.47)	<0.001
	L	20 (95.24)	1 (4.76)	21 (1.06)	
	N	1585 (99.37)	10 (0.63)	1595 (80.47)	
pH	H	47 (95.92)	2 (4.08)	49 (2.47)	<0.001
	L	1197 (98.44)	19 (1.56)	1216 (61.35)	
	N	713 (99.44)	4 (0.56)	717 (36.18)	
Base excess	H	61 (96.83)	2 (3.17)	63 (3.18)	<0.001
	L	218 (96.46)	8 (3.54)	226 (11.41)	
	N	1676 (99.11)	15 (0.89)	1691 (85.40)	

H, Higher than normal; L, lower than normal; N, normal.

Table S6 Internal validation results using Bootstrap resampling (500 repetitions)

Source	C-statistics	Brier score	Sensitivity	Specificity
Simplified scoring model	0.889269	0.011001	0.8	0.89269
Corrected	0.88896	0.011005	0.79994	0.89272

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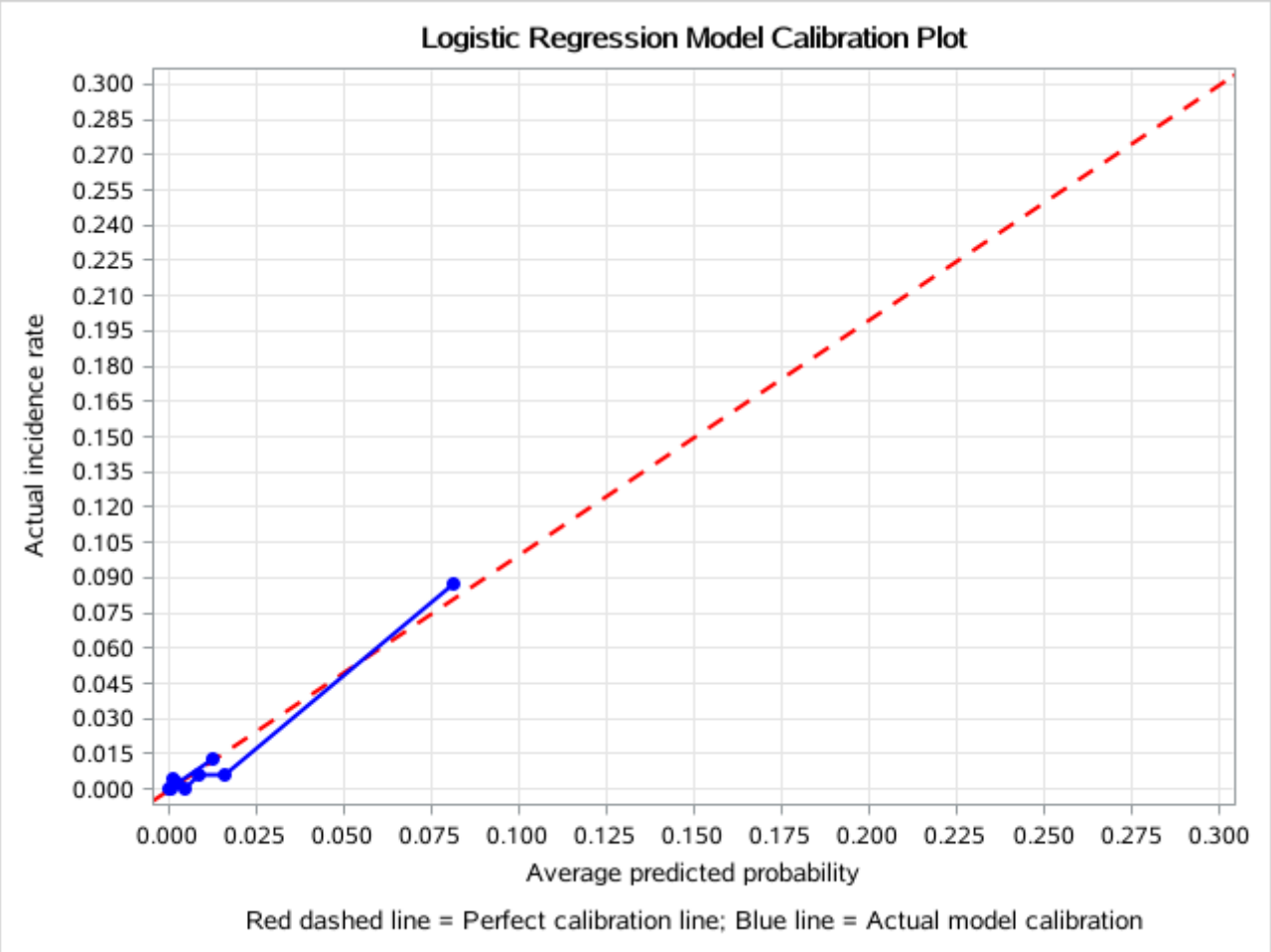

Figure S1 Calibration plot of the predicted versus observed risk of postoperative mortality. The diagonal dashed line represents perfect calibration (ideal prediction). The solid line indicates the observed calibration of the model. A calibration slope close to 1 and intercept close to 0 indicate good calibration.

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