

Supplementary information

Supplementary Table 1 Comparison of personal and symptom information distribution [No. (%)] between training set and validation set.

Characteristic	Total (<i>N</i> =1030)	Training set (<i>N</i> =720)	Validation set (<i>N</i> =310)	<i>P</i>
Age				0.786
Mean ± SD	36.0 ±17.0	36.1 ±17.2	35.8 ±16.6	
Gender				0.087
Female	473 (45.9)	319 (44.3)	154 (49.7)	
Male	529 (51.4)	383 (53.2)	146 (47.1)	
Missing	28 (2.7)	18 (2.5)	10 (3.2)	
Mosquito bite history				0.521
No	798 (77.5)	556 (77.2)	242 (78.1)	
Yes	21 (2.0)	16 (2.2)	5 (1.6)	
Missing	211 (20.5)	148 (20.6)	63 (20.3)	
Sojourn in high incidence areas				0.750
No	783 (76.0)	546 (75.8)	237 (76.5)	
Yes	36 (3.5)	26 (3.6)	10 (3.2)	
Missing	211 (20.5)	148 (20.6)	63 (20.3)	
Contact history of patients				0.054
No	805 (78.2)	566 (78.6)	239 (77.1)	
Yes	14 (1.4)	6 (0.8)	8 (2.6)	
Missing	211 (20.5)	148 (20.6)	63 (20.3)	
Fever				0.900
No	605 (58.7)	422 (58.6)	183 (59.0)	
Yes	425 (41.3)	298 (41.4)	127 (41.0)	
Shiver				0.437
No	842 (81.7)	593 (82.4)	249 (80.3)	
Yes	188 (18.3)	127 (17.6)	61 (19.7)	
Nasal congestion/runny nose				0.282
No	861 (83.6)	596 (82.8)	265 (85.5)	
Yes	169 (16.4)	124 (17.2)	45 (14.5)	
Dry throat/sore throat/itchy throat				0.624
No	794 (77.1)	552 (76.7)	242 (78.1)	
Yes	236 (22.9)	168 (23.3)	68 (21.9)	
Cough/expectorations/dry cough				0.227
No	789 (76.6)	544 (75.6)	245 (79.0)	
Yes	241 (23.4)	176 (24.4)	65 (21.0)	
Blood in sputum/hemoptysis				0.558
No	1027 (99.7)	717 (99.6)	310 (100)	
Yes	3 (0.3)	3 (0.4)	0 (0)	

Shortness of breath/wheezing/dyspnea/chest tightness				0.239
No	985 (95.6)	685 (95.1)	300 (96.8)	
Yes	45 (4.4)	35 (4.9)	10 (3.2)	
Palpitation/rapid and weak pulse				0.834
No	1005 (97.6)	703 (97.6)	302 (97.4)	
Yes	25 (2.4)	17 (2.4)	8 (2.6)	
Abdominal pain				0.891
No	929 (90.2)	650 (90.3)	279 (90.0)	
Yes	101 (9.8)	70 (9.7)	31 (10.0)	
Diarrhea/loose stools/watery stools				0.906
No	942 (91.5)	658 (91.4)	284 (91.6)	
Yes	88 (8.5)	62 (8.6)	26 (8.4)	
Abdominal distension/poor appetite/acid reflux/belching				0.517
No	980 (95.1)	683 (94.9)	297 (95.8)	
Yes	50 (4.9)	37 (5.1)	13 (4.2)	
Nausea/vomiting				0.271
No	911 (88.4)	642 (89.2)	269 (86.8)	
Yes	119 (11.6)	78 (10.8)	41 (13.2)	
Headache/head fullness				0.972
No	810 (78.6)	566 (78.6)	244 (78.7)	
Yes	220 (21.4)	154 (21.4)	66 (21.3)	
Dizziness				0.512
No	843 (81.8)	593 (82.4)	250 (80.6)	
Yes	187 (18.2)	127 (17.6)	60 (19.4)	
Fatigue/general weakness/limb weakness				0.227
No	802 (77.9)	568 (78.9)	234 (75.5)	
Yes	228 (22.1)	152 (21.1)	76 (24.5)	
Muscle pain				0.248
No	852 (82.7)	602 (83.6)	250 (80.6)	
Yes	178 (17.3)	118 (16.4)	60 (19.4)	
Bone pain/joint pain				0.526
No	1009 (98.0)	704 (97.8)	305 (98.4)	
Yes	21 (2.0)	16 (2.2)	5 (1.6)	
General body aches				0.183
No	968 (94.0)	672 (93.3)	296 (95.5)	
Yes	62 (6.0)	48 (6.7)	14 (4.5)	
Backache				0.142
No	1010 (98.1)	709 (98.5)	301 (97.1)	
Yes	20 (1.9)	11 (1.5)	9 (2.9)	
Orbital pain/supraorbital bone soreness				1.000
No	1023 (99.3)	715 (99.3)	308 (99.4)	
Yes	7 (0.7)	5 (0.7)	2 (0.6)	
Rash/erythema/papules				0.436
No	993 (96.4)	692 (96.1)	301 (97.1)	

Yes	37 (3.6)	28 (3.9)	9 (2.9)	
Hemorrhagic rash/subcutaneous subcutaneous hemorrhage		petechiae/ecchymosis/		1.000
No	1027 (99.7)	718 (99.7)	309 (99.7)	
Yes	3 (0.3)	2 (0.3)	1 (0.3)	
Blood in stools/black stools				1.000
No	1024 (99.4)	716 (99.4)	308 (99.4)	
Yes	6 (0.6)	4 (0.6)	2 (0.6)	
Hematuria				0.996
No	1025 (99.5)	716 (99.4)	309 (99.7)	
Yes	5 (0.5)	4 (0.6)	1 (0.3)	
Frequent urination/urgent urination/painful urination				0.565
No	1015 (98.5)	708 (98.3)	307 (99.0)	
Yes	15 (1.5)	12 (1.7)	3 (1.0)	
Skin itching/itchy rash				0.170
No	1011 (98.2)	704 (97.8)	307 (99.0)	
Yes	19 (1.8)	16 (2.2)	3 (1.0)	

SD: standard deviation

P for t-test or chi-square test

Supplementary Table 2 Comparison of complete blood count parameters distribution [Median (min, max)] between training set and validation set.

Characteristic (Unit)	Total (<i>N</i> =256)	Training set (<i>N</i> =185)	Validation set (<i>N</i> =71)	<i>P</i>
Red Blood Cell Count ($\times 10^{12}/L$)	4.66 (3.40, 7.10)	4.67 (3.49, 7.10)	4.63 (3.40, 5.67)	0.268
Mean Corpuscular Hemoglobin (pg)	30.0 (18.4, 39.1)	30.0 (18.4, 34.0)	29.8 (23.2, 39.1)	0.917
Hematocrit value (%)	0.418 (0.285, 49.1)	0.425 (0.285, 48.7)	0.398 (0.330, 49.1)	0.009
Mean Corpuscular Volume (fl)	88.9 (57.0, 98.9)	89.1 (57.0, 98.8)	87.9 (68.3, 98.9)	0.447
Mean Corpuscular Hemoglobin Concentration (g/L)	337 (286, 357)	337 (299, 357)	338 (286, 354)	0.125
Hemoglobin (g/L)	136 (84.0, 182)	136 (84.0, 182)	134 (113, 172)	0.397
Platelet Count ($\times 10^9/L$)	222 (17.0, 515)	223 (17.0, 430)	219 (74.0, 515)	0.808
White Blood Cell Count ($\times 10^9/L$)	7.17 (1.01, 24.6)	7.37 (1.01, 24.6)	6.94 (1.49, 23.6)	0.943
Neutrophil Percentage (%)	70.0 (20.0, 92.2)	70.0 (20.0, 92.2)	68.1 (28.0, 91.8)	0.472
Neutrophil Absolute Value ($\times 10^9/L$)	4.82 (0.560, 21.9)	4.87 (0.560, 21.9)	4.71 (0.820, 19.1)	0.763
Monocyte Percentage (%)	7.00 (1.60, 17.7)	6.90 (1.80, 17.7)	7.10 (1.60, 15.9)	0.311
Monocyte Absolute Value ($\times 10^9/L$)	0.500 (0.0900, 2.15)	0.500 (0.0900, 1.95)	0.490 (0.0900, 2.15)	0.559
Lymphocyte Percentage (%)	20.5 (3.20, 69.2)	20.4 (3.70, 69.2)	20.7 (3.20, 61.7)	0.578
Lymphocyte Absolute Value ($\times 10^9/L$)	1.40 (0.250, 8.30)	1.33 (0.250, 8.30)	1.53 (0.320, 6.64)	0.507
Eosinophil Percentage (%)	0.800 (0, 36.3)	0.700 (0, 36.3)	1.00 (0, 9.10)	0.480
Eosinophil Absolute Value ($\times 10^9/L$)	0.0600 (0, 3.08)	0.0600 (0, 3.08)	0.0700 (0, 0.620)	0.501
Basophil Percentage (%)	0.200 (0, 2.00)	0.200 (0, 1.10)	0.200 (0, 2.00)	0.926
Basophil Absolute Value ($\times 10^9/L$)	0.0200 (0, 0.250)	0.0200 (0, 0.250)	0.0200 (0, 0.140)	0.674

Max: maximum; Min: minimum

P Mann-Whitney U test

Supplementary Table 3 Distribution of personal and symptom information [No. (%)] and its association with dengue diagnosis (Training set).

Characteristic	Total (<i>N</i> =720)	Control (<i>N</i> =576)	Case (<i>N</i> =144)	<i>OR</i> (95% <i>CI</i>)	<i>P</i>
Age					<0.001
Mean ± SD	36.1 ±17.2	34.9 ±17.4	41.2 ±15.2	1.02 (1.01, 1.03)	
Gender					0.001
Female	319 (44.3)	271 (47.0)	48 (33.3)	Reference	
Male	383 (53.2)	287 (49.8)	96 (66.7)	1.89 (1.29, 2.77)	
Missing	18 (2.5)	18 (3.1)	0 (0)		
Mosquito bite history					<0.001
No	556 (77.2)	455 (79.0)	101 (70.1)	Reference	
Yes	16 (2.2)	1 (0.2)	15 (10.4)	67.57 (8.83, 517.45)	
Missing	148 (20.6)	120 (20.8)	28 (19.4)		
Sojourn in high incidence areas					<0.001
No	546 (75.8)	451 (78.3)	95 (66.0)	Reference	
Yes	26 (3.6)	5 (0.9)	21 (14.6)	19.94 (7.33, 54.2)	
Missing	148 (20.6)	120 (20.8)	28 (19.4)		
Contact history of patients					0.006
No	566 (78.6)	455 (79.0)	111 (77.1)	Reference	
Yes	6 (0.8)	1 (0.2)	5 (3.5)	20.5 (2.37, 177.19)	
Missing	148 (20.6)	120 (20.8)	28 (19.4)		
Fever					<0.001
No	422 (58.6)	379 (65.8)	43 (29.9)	Reference	
Yes	298 (41.4)	197 (34.2)	101 (70.1)	4.52 (3.04, 6.72)	
Shiver					<0.001
No	593 (82.4)	502 (87.2)	91 (63.2)	Reference	
Yes	127 (17.6)	74 (12.8)	53 (36.8)	3.95 (2.6, 6.00)	
Nasal congestion/runny nose					0.001
No	596 (82.8)	463 (80.4)	133 (92.4)	Reference	
Yes	124 (17.2)	113 (19.6)	11 (7.6)	0.34 (0.18, 0.65)	
Dry throat/sore throat/itchy throat					0.312
No	552 (76.7)	437 (75.9)	115 (79.9)	Reference	
Yes	168 (23.3)	139 (24.1)	29 (20.1)	0.79 (0.51, 1.24)	
Cough/expectoration/dry cough					0.260
No	544 (75.6)	430 (74.7)	114 (79.2)	Reference	
Yes	176 (24.4)	146 (25.3)	30 (20.8)	0.78 (0.5, 1.21)	
Blood in sputum/hemoptysis					0.089
No	717 (99.6)	575 (99.8)	142 (98.6)	Reference	
Yes	3 (0.4)	1 (0.2)	2 (1.4)	8.10 (0.73, 89.94)	
Shortness of breath/wheezing/dyspnea/chest tightness					1.000
No	685 (95.1)	548 (95.1)	137 (95.1)	Reference	
Yes	35 (4.9)	28 (4.9)	7 (4.9)	1.00 (0.43, 2.34)	

Palpitation/rapid and weak pulse					0.398
No	703 (97.6)	561 (97.4)	142 (98.6)	Reference	
Yes	17 (2.4)	15 (2.6)	2 (1.4)	0.53 (0.12, 2.33)	
Abdominal pain					0.008
No	650 (90.3)	511 (88.7)	139 (96.5)	Reference	
Yes	70 (9.7)	65 (11.3)	5 (3.5)	0.28 (0.11, 0.72)	
Diarrhea/loose stools/watery stools					0.234
No	658 (91.4)	530 (92.0)	128 (88.9)	Reference	
Yes	62 (8.6)	46 (8.0)	16 (11.1)	1.44 (0.79, 2.63)	
Abdominal distension/poor appetite/acid reflux/belching					0.161
No	683 (94.9)	543 (94.3)	140 (97.2)	Reference	
Yes	37 (5.1)	33 (5.7)	4 (2.8)	0.47 (0.16, 1.35)	
Nausea/vomiting					0.057
No	642 (89.2)	520 (90.3)	122 (84.7)	Reference	
Yes	78 (10.8)	56 (9.7)	22 (15.3)	1.67 (0.99, 2.85)	
Headache/head fullness					<0.001
No	566 (78.6)	477 (82.8)	89 (61.8)	Reference	
Yes	154 (21.4)	99 (17.2)	55 (38.2)	2.98 (2.00, 4.44)	
Dizziness					0.108
No	593 (82.4)	481 (83.5)	112 (77.8)	Reference	
Yes	127 (17.6)	95 (16.5)	32 (22.2)	1.45 (0.92, 2.27)	
Fatigue/general weakness/limb weakness					0.009
No	568 (78.9)	466 (80.9)	102 (70.8)	Reference	
Yes	152 (21.1)	110 (19.1)	42 (29.2)	1.74 (1.15, 2.64)	
Muscle pain					<0.001
No	602 (83.6)	502 (87.2)	100 (69.4)	Reference	
Yes	118 (16.4)	74 (12.8)	44 (30.6)	2.99 (1.94, 4.59)	
Bone pain/joint pain					0.001
No	704 (97.8)	569 (98.8)	135 (93.8)	Reference	
Yes	16 (2.2)	7 (1.2)	9 (6.3)	5.42 (1.98, 14.81)	
General body aches					<0.001
No	672 (93.3)	549 (95.3)	123 (85.4)	Reference	
Yes	48 (6.7)	27 (4.7)	21 (14.6)	3.47 (1.90, 6.34)	
Backache					0.009
No	709 (98.5)	571 (99.1)	138 (95.8)	Reference	
Yes	11 (1.5)	5 (0.9)	6 (4.2)	4.97 (1.49, 16.51)	
Orbital pain/supraorbital bone soreness					0.281
No	715 (99.3)	573 (99.5)	142 (98.6)	Reference	
Yes	5 (0.7)	3 (0.5)	2 (1.4)	2.69 (0.45, 16.25)	
Rash/erythema/papules					0.501
No	692 (96.1)	555 (96.4)	137 (95.1)	Reference	
Yes	28 (3.9)	21 (3.6)	7 (4.9)	1.35 (0.56, 3.24)	

Hemorrhagic rash/subcutaneous subcutaneous hemorrhage					0.326
No	718 (99.7)	575 (99.8)	143 (99.3)	Reference	
Yes	2 (0.3)	1 (0.2)	1 (0.7)	4.02 (0.25, 64.68)	
Blood in stools/black stools					0.803
No	716 (99.4)	573 (99.5)	143 (99.3)	Reference	
Yes	4 (0.6)	3 (0.5)	1 (0.7)	1.34 (0.14, 12.94)	
Hematuria					0.803
No	716 (99.4)	573 (99.5)	143 (99.3)	Reference	
Yes	4 (0.6)	3 (0.5)	1 (0.7)	1.34 (0.14, 12.94)	
Frequent urination/urgent urination/painful urination					0.771
No	708 (98.3)	566 (98.3)	142 (98.6)	Reference	
Yes	12 (1.7)	10 (1.7)	2 (1.4)	0.80 (0.17, 3.68)	
Skin itching/itchy rash					0.454
No	704 (97.8)	562 (97.6)	142 (98.6)	Reference	
Yes	16 (2.2)	14 (2.4)	2 (1.4)	0.57 (0.13, 2.52)	

CI: confidence interval; OR: odds ratio; SD: standard deviation

Supplementary Table 4 Distribution of complete blood count parameters [Median (min, max)] and its association with dengue diagnosis (Training set).

Characteristic (Unit)	Total (N=185)	Control (N=137)	Case (N=48)	OR (95% CI)	P
Red Blood Cell Count ($\times 10^{12}/L$)	4.67 (3.49, 7.10)	4.67 (3.49, 6.52)	4.69 (3.55, 7.10)	1.20 (0.69, 2.10)	0.524
Mean Corpuscular Hemoglobin (pg)	30.0 (18.4, 34.0)	30.0 (18.4, 34.0)	30.4 (19.5, 33.5)	1.12 (0.98, 1.29)	0.096
Hematocrit value (%)	0.425 (0.285, 48.7)	0.430 (0.285, 48.7)	0.419 (0.341, 48.6)	1.00 (0.98, 1.02)	0.934
Mean Corpuscular Volume (fl)	89.1 (57.0, 98.8)	88.9 (57.0, 98.8)	90.0 (59.7, 96.3)	1.04 (0.99, 1.09)	0.133
Mean Corpuscular Hemoglobin Concentration (g/L)	337 (299, 357)	336 (299, 357)	338 (316, 349)	1.02 (0.98, 1.06)	0.264
Hemoglobin (g/L)	136 (84.0, 182)	136 (84.0, 168)	139 (118, 182)	1.02 (1.00, 1.04)	0.054
Platelet Count ($\times 10^9/L$)	223 (17.0, 430)	242 (93.0, 430)	149 (17.0, 390)	0.98 (0.97, 0.99)	<0.001
White Blood Cell Count ($\times 10^9/L$)	7.37 (1.01, 24.6)	8.47 (2.01, 24.6)	3.72 (1.01, 11.0)	0.45 (0.35, 0.58)	<0.001
Neutrophil Percentage (%)	70.0 (20.0, 92.2)	70.7 (31.0, 92.2)	68.3 (20.0, 87.5)	0.99 (0.96, 1.01)	0.221
Neutrophil Absolute Value ($\times 10^9/L$)	4.87 (0.560, 21.9)	6.02 (1.06, 21.9)	2.26 (0.560, 8.04)	0.48 (0.38, 0.62)	<0.001
Monocyte Percentage (%)	6.90 (1.80, 17.7)	6.20 (1.80, 17.4)	8.45 (4.20, 17.7)	1.37 (1.21, 1.55)	<0.001
Monocyte Absolute Value ($\times 10^9/L$)	0.500 (0.0900, 1.95)	0.540 (0.100, 1.69)	0.355 (0.0900, 1.95)	0.04 (0.01, 0.22)	<0.001
Lymphocyte Percentage (%)	20.4 (3.70, 69.2)	20.3 (4.60, 47.3)	20.6 (3.70, 69.2)	1.01 (0.98, 1.04)	0.580
Lymphocyte Absolute Value ($\times 10^9/L$)	1.33 (0.250, 8.30)	1.74 (0.300, 8.30)	0.650 (0.250, 3.26)	0.07 (0.03, 0.18)	<0.001
Eosinophil Percentage (%)	0.700 (0, 36.3)	1.00 (0, 36.3)	0.300 (0, 4.90)	0.58 (0.40, 0.85)	0.005
Eosinophil Absolute Value ($\times 10^9/L$)	0.0600 (0, 3.08)	0.0800 (0, 3.08)	0.0100 (0, 0.340)	-	
Basophil Percentage (%)	0.200 (0, 1.10)	0.200 (0, 1.10)	0.200 (0, 0.700)	0.81 (0.15, 4.34)	0.801
Basophil Absolute Value ($\times 10^9/L$)	0.0200 (0, 0.250)	0.0200 (0, 0.250)	0.0100 (0, 0.0400)	-	

CI: confidence interval; Max: maximum; Min: minimum; OR: odds ratio

Supplementary Table 5 Spearman's rank correlation coefficients between complete blood count parameters.

	Hemoglobin (g/L)	Platelet Count ($\times 10^9/L$)	White Blood Cell Count ($\times 10^9/L$)	Neutrophil Absolute Value ($\times 10^9/L$)	Monocyte Percentage (%)	Monocyte Absolute Value ($\times 10^9/L$)	Lymphocyte Absolute Value ($\times 10^9/L$)	Eosinophil Percentage (%)
Hemoglobin (g/L)	1.000							
Platelet Count ($\times 10^9/L$)	-0.253**	1.000						
White Blood Cell Count ($\times 10^9/L$)	-0.074	0.560**	1.000					
Neutrophil Absolute Value ($\times 10^9/L$)	-0.020	0.449**	0.946**	1.000				
Monocyte Percentage (%)	0.064	-0.327**	-0.410**	-0.407**	1.000			
Monocyte Absolute Value ($\times 10^9/L$)	-0.044	0.316**	0.675**	0.627**	0.314**	1.000		
Lymphocyte Absolute Value ($\times 10^9/L$)	-0.179*	0.552**	0.520**	0.277**	-0.219**	0.393**	1.000	
Eosinophil Percentage (%)	-0.045	0.304**	0.069	-0.087	-0.079	0.030	0.457**	1.000

** $: P < 0.01$; * $: P < 0.05$

Supplementary Table 6 Evaluation indicators of the models (Validation set).

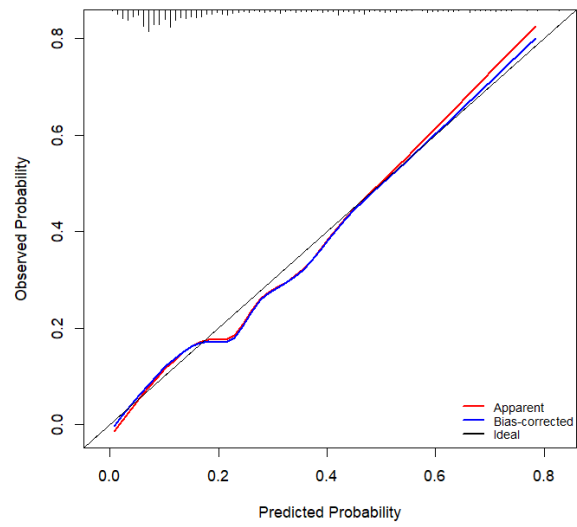
Model	C-index	Sensitivity	Specificity	Cutoff value
Model 1	0.779 (0.732, 0.826)	0.613	0.853	0.323
Model 2	0.867 (0.824, 0.909)	0.717	0.938	0.390
Model 3	0.957 (0.909, 1.0)	0.933	0.852	0.108

Model 1 incorporated age, gender, and symptoms (fever, nasal congestion/runny nose, abdominal pain, bone pain/joint pain, backache);

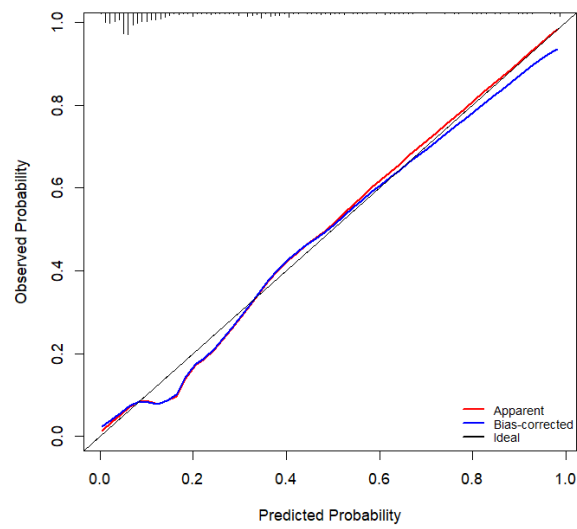
Model 2 incorporated age, symptoms (fever, nasal congestion/runny nose, abdominal pain, backache), and epidemiological risk factors (mosquito bite history, sojourn in high incidence areas, contact history of patients);

Model 3 incorporated gender, symptoms (nasal congestion/runny nose, general body aches), and complete blood count parameters (white blood cell count, monocyte percentage, lymphocyte absolute value)

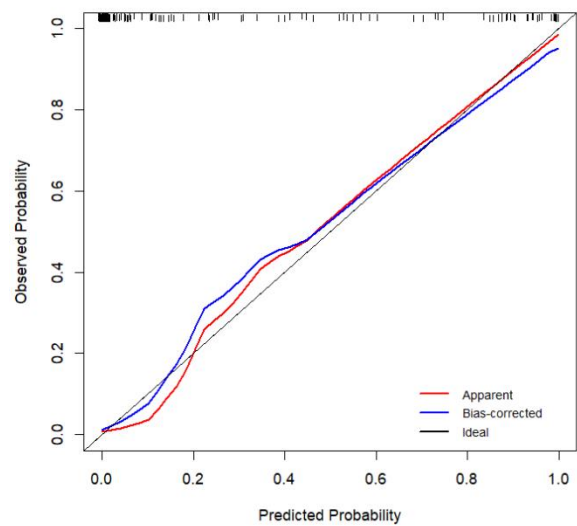
Model 1



Model 2



Model 3



Supplementary Fig. 1. Calibration plot depicting the agreement between predicted and observed probabilities of models 1-3. The x-axis shows the model's predicted probability, and the y-axis shows the actual probability. The black line represents that under ideal conditions the predicted probability is always equal to the actual probability. The solid red line is the agreement between the predicted probability calculated once and the actual probability based on the model. The solid blue line indicates the average agreement after bootstrap-resampling (1000 times).