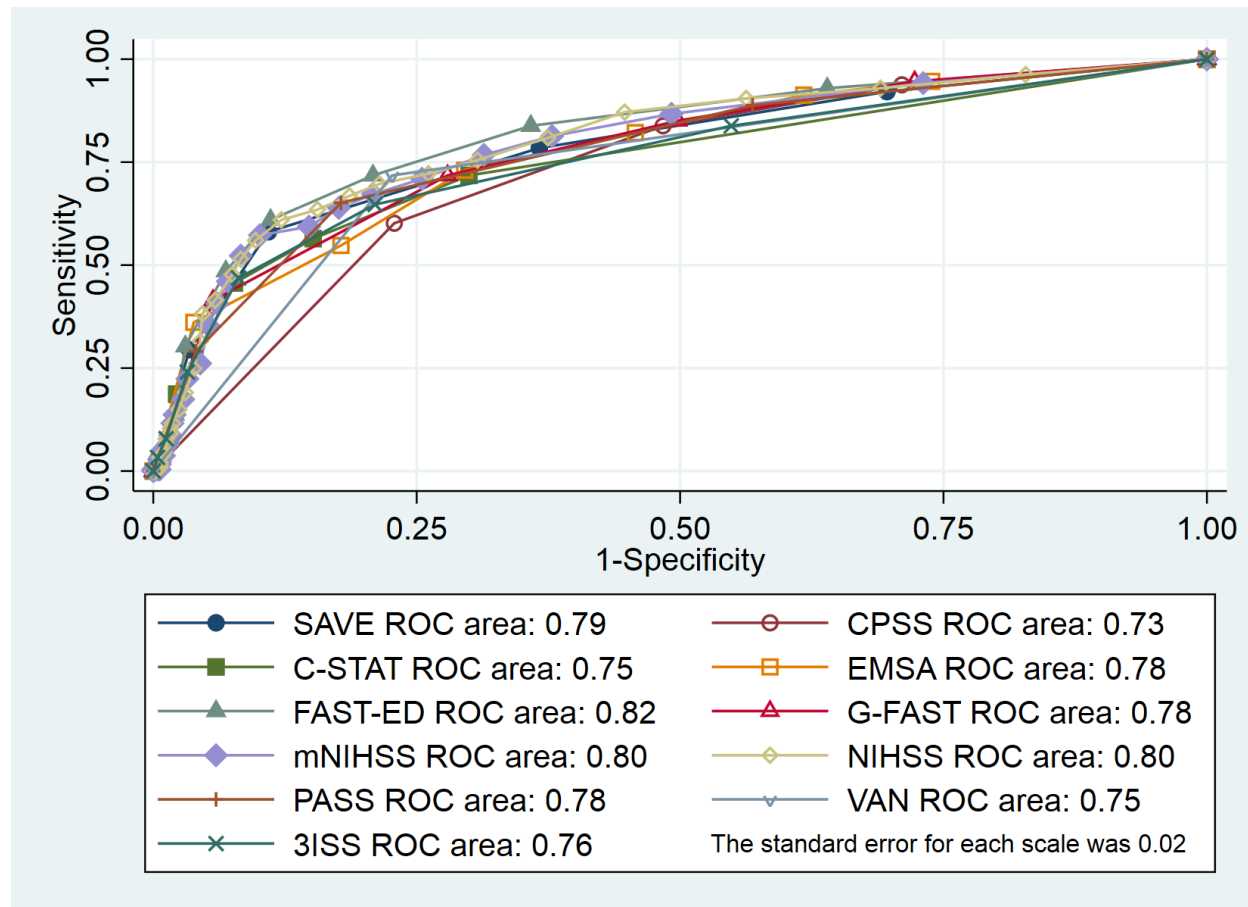


Supplemental Materials



Supplemental Figure 1. Receiver Operating Characteristic Curves for each tested scale.

ROC: Receiver Operating Characteristic; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value; SAVE: Speech Arm Vision Eyes; EMSA Emergency Medical Stroke Assessment; FAST-ED: Field Assessment Stroke Triage for Emergency Destination; Modified National Institutes of Health Stroke Scale; NIHSS: National Institutes of Health Stroke Scale; RACE: Rapid Arterial Occlusion Evaluation; CPSS: Cincinnati Prehospital Stroke Scale; C-STAT: Cincinnati Stroke Triage Assessment Tool; G-FAST: Gaze-face-arm-speech-time; PASS: Prehospital Acute Stroke Severity Scale; VAN: Vision Aphasia Neglect; 3ISS: 3-Item Stroke Scale

Supplemental Table 1. Diagnostic test parameters of previously specified potential scale thresholds.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
CPSS ≥ 1	94 90-96	29 25-3	1.32 1.24-1.41	0.22 0.13-0.36	39 35-43	91 85-95	79
C-STAT ≥ 2	56 50-63	85 81-88	3.72 2.94-4.71	0.51 0.44-0.60	65 58-71	80 76-83	29
EMSA ≥ 3	82 77-87	54 50-59	1.80 1.60-2.01	0.33 0.25-0.44	47 42-52	86 82-90	58
FAST-ED ≥ 3	72 66-77	79 75-83	3.44 2.85-4.16	0.36 0.29-0.44	63 57-68	85 82-88	38
FAST-ED ≥ 4	61 55-67	89 86-92	5.48 4.19-7.17	0.44 0.37-0.52	73 66-79	82 79-86	27
G-FAST ≥ 3	72 66-77	72 68-76	2.57 2.18-3.02	0.39 0.32-48	56 50-61	84 80-87	42
G-FAST = 4	42 35-48	94 92-96	7.32 4.96-10.80	0.62 0.56-0.69	78 70-85	77 73-80	17
mNIHSS ≥ 5	71 65-77	75 70-78	2.78 2.34-3.30	0.39 0.32-0.48	58 52-63	84 80-87	40
NIHSS ≥ 6	76 70-81	69 65-73	2.45 2.11-2.85	0.35 0.28-0.45	55 49-60	85 81-89	45
NIHSS ≥ 10	64 57-70	84 81-88	4.07 3.25-5.11	0.43 0.37-0.51	67 60-73	83 79-86	31
PASS ≥ 2	65 59-71	82 79-86	3.66 2.96-4.51	0.42 0.36-0.51	64 58-70	83 79-86	33
RACE ≥ 5	54 47-60	87 84-90	4.26 3.29-5.54	0.53 0.46-0.61	68 60-74	79 76-83	26
VAN = 1	72 66-77	77 73-81	3.17 2.64-3.79	0.37 0.30-0.45	61 55-66	85 81-88	39
3I-SS ≥ 4	24 19-30	97 95-98	7.43 4.37-12.60	78 67-87	72 69-87	72 69-76	10

CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value; CPSS: Cincinnati Prehospital Stroke Scale; C-STAT: Cincinnati Stroke Triage Assessment Tool; EMSA: Emergency Medical Stroke Assessment; FAST-ED: Field Assessment Stroke Triage for Emergency Destination; G-FAST: Gaze-face-arm-speech-time; mNIHSS: Modified National Institutes of Health Stroke Scale; NIHSS: National Institutes of Health Stroke Scale; PASS: Prehospital Acute Stroke Severity; RACE: Rapid Arterial Occlusion Evaluation; VAN: Vision Aphasia Neglect; 3I-SS: 3-Item Stroke Scale

Supplemental Table 2. Diagnostic test parameters of each CPSS scale threshold.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
CPSS ≥ 1*	94 90-96	29 25-3	1.32 1.24-1.41	0.22 0.13-0.36	39 35-43	91 85-95	79
CPSS ≥ 2	84 79-88	52 47-56	1.73 1.56-1.93	0.31 0.23-0.42	46 41-51	87 82-90	60
CPSS = 3	60 54-66	77 73-81	2.63 2.17-3.19	0.52 0.44-0.61	56 50-62	80 76-83	35

*In practice, positive is ≥ 1 . CPSS: Cincinnati Prehospital Stroke Scale; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value

Supplemental Table 3. Diagnostic test parameters of each C-STAT scale threshold.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
C-STAT ≥ 1	72 66-77	70 66-74	2.40 2.05-2.80	0.40 0.33-0.50	54 48-59	84 80-87	44
C-STAT ≥ 2	56 50-63	85 81-88	3.72 2.94-4.71	0.51 0.44-0.60	65 58-71	80 76-83	29
C-STAT ≥ 3	46 39-52	92 90-95	5.93 4.24-8.30	0.60 0.52-0.66	74 67-81	78 74-81	20
C-STAT = 4	19 14-24	98 96-99	8.39 4.42-15.90	0.83 0.78-0.89	80 68-90	71 68-75	8

Cincinnati Stroke Assessment Triage; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value

Supplemental Table 4. Diagnostic test parameters of each EMSA scale threshold.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
EMSA ≥ 1	95 91-97	26 22-30	1.28 1.21-1.36	0.21 0.12-0.36	38 35-43	91 85-95	81
EMSA ≥ 2	91 87-95	38 34-43	1.48 1.37-1.60	0.23 0.15-0.35	42 38-46	90 85-94	71
EMSA ≥ 3	82 77-87	54 50-59	1.80 1.60-2.01	0.33 0.25-0.44	47 42-52	86 82-90	58
EMSA ≥ 4	73 67-79	70 66-74	2.47 2.11-2.89	0.38 0.31-0.48	55 49-60	84 80-88	44
EMSA ≥ 5	55 48-61	82 79-86	3.07 2.46-3.84	0.55 0.48-0.64	60 53-67	79 75-82	30
EMSA = 6	36 30-43	96 94-98	9.39 5.86-15.00	0.67 0.60-0.73	82 73-89	76 72-79	14

Emergency Medical Stroke Assessment; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value

Supplemental Table 5. Diagnostic test parameters of each FAST-ED scale threshold.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
FAST-ED ≥ 1	93 89-96	36 32-40	1.45 1.35-1.57	0.20 0.12-0.31	42 37-46	91 86-95	73
FAST-ED ≥ 2	84 79-88	64 60-68	2.34 2.05-2.67	0.25 0.19-0.34	53 48-58	89 85-92	52
FAST-ED ≥ 3	72 66-77	79 75-83	3.44 2.85-4.16	0.36 0.29-0.44	63 57-68	85 82-88	38
FAST-ED ≥ 4	61 55-67	89 86-92	5.48 4.19-7.17	0.44 0.37-0.52	73 66-79	82 79-86	27
FAST-ED ≥ 5	49 42-55	93 91-95	7.05 4.97-10.00	0.55 0.49-0.63	76 70-84	79 75-82	21
FAST-ED ≥ 6	30 25-37	97 95-98	9.98 5.58-17.00	0.72 0.66-0.78	83 73-90	74 71-77	12
FAST-ED ≥ 7	14 10-19	98 96-99	6.76 3.39-13.50	0.88 0.84-0.93	77 61-88	70 66-73	6
FAST-ED ≥ 8	4 2-8	100 99-100	10.20 2.26-46.40	0.96 0.94-0.99	83 52-98	68 65-71	2
FAST-ED = 9	2 0-4	100 99-100	8.2 0.92-73.00	0.99 0.97-1	80 28-100	68 64-71	1

FAST-ED: Field Assessment Stroke Triage for Emergency Destination; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value

Supplemental Table 6. Diagnostic test parameters of each G-FAST scale threshold.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
G-FAST ≥ 1	95 91-97	28 24-32	1.31 1.23-1.39	0.20 0.11-0.34	39 35-43	91 86-95	80
G-FAST ≥ 2	85 80-89	50 46-55	1.71 1.54-1.89	0.30 0.22-0.41	46 41-50	87 83-91	61
G-FAST ≥ 3	72 66-77	72 68-76	2.57 2.18-3.02	0.39 0.32-48	56 50-61	84 80-87	42
G-FAST = 4	42 35-48	94 92-96	7.32 4.96-10.80	0.62 0.56-0.69	78 70-85	77 73-80	17

G-FAST: Gaze-face-arm-speech-time; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value

Supplemental Table 7. Diagnostic test parameters of each mNIHSS threshold up to 20.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
mNIHSS ≥ 1	94 90-97	27 23-31	1.29 1.21-1.37	0.22 0.13-0.37	39 35-43	91 85-95	80
mNIHSS ≥ 2	87 82-91	51 46-55	1.76 1.59-1.95	0.26 0.19-0.37	46 42-51	89 84-92	61
mNIHSS ≥ 3	81 76-86	62 58-66	2.15 1.89-2.44	0.30 0.23-0.40	51 46-56	87 83-91	52
mNIHSS ≥ 4	77 71-82	69 64-73	2.45 2.11-2.84	0.34 0.27-0.43	54 49-60	86 82-89	46
mNIHSS ≥ 5	71 65-77	75 70-78	2.78 2.34-3.30	0.39 0.32-0.48	58 52-63	84 80-87	40
mNIHSS ≥ 6	67 61-73	79 75-83	3.22 2.66-3.91	0.41 0.34-0.50	61 55-67	83 80-87	36
mNIHSS ≥ 7	64 58-70	82 79-86	3.63 2.93-4.49	0.44 0.37-0.52	64 68-70	82 79-86	33
mNIHSS ≥ 8	59 53-66	85 82-88	4.02 3.17-5.08	0.48 0.41-0.56	66 60-73	81 78-84	29
mNIHSS ≥ 9	57 51-64	90 87-92	5.66 4.26-7.52	0.48 0.41-0.55	73 67-80	81 78-84	26
mNIHSS ≥ 10	53 46-59	92 89-94	6.30 5.49-8.65	0.52 0.46-0.60	75 68-82	80 76-83	23
mNIHSS ≥ 11	46 40-53	93 90-95	6.50 4.59-9.20	0.58 0.52-0.65	76 68-83	78 74-81	20
mNIHSS ≥ 12	41 34-47	94 91-96	6.70 4.58-9.78	0.63 0.57-0.70	77 68-84	76 73-80	17
mNIHSS ≥ 13	35 29-42	95 92-97	6.70 4.44-10.10	0.68 0.62-0.75	77 68-84	75 71-78	15
mNIHSS ≥ 14	26 21-32	96 93-97	5.87 3.70-9.30	0.77 0.72-0.84	74 64-83	73 69-76	12
mNIHSS ≥ 15	22 17-28	97 95-98	6.92 4.05-11.80	0.80 0.75-0.86	77 66-86	72 68-75	10
mNIHSS ≥ 16	17 13-23	97 95-98	6.15 3.43-11.00	0.85 0.80-0.90	75 62-86	71 67-74	8
mNIHSS ≥ 17	14 10-19	98 96-99	6.76 3.39-13.50	0.88 84-0.93	77 61-88	70 66-73	6
mNIHSS ≥ 18	12 8-16	98 96-99	6.38 3.06-13.30	0.90 0.86-0.95	76 59-88	70 66-73	5
mNIHSS ≥ 19	9 5-13	98 97-99	5.38 2.42-12.00	0.93 0.89-0.97	72 53-87	69 65-72	4
mNIHSS ≥ 20	7 4-11	99 97-99	4.69 1.95-11.20	0.95 0.91-0.98	70 47-87	68 65-72	3

mNIHSS: Modified National Institutes of Health Stroke Scale; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value

Supplemental Table 8. Diagnostic test parameters of each NIHSS threshold up to 20.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
NIHSS ≥ 1	96 93-98	17 14-21	1.16 1.11-1.22	0.22 0.11-0.42	36 33-40	90 83-96	87
NIHSS ≥ 2	93 89-96	31 27-35	1.35 1.26-1.44	0.23 0.14-0.37	40 36-44	90 85-94	77
NIHSS ≥ 3	91 86-94	44 39-48	1.61 1.47-1.76	0.22 0.15-0.33	44 40-48	90 86-94	67
NIHSS ≥ 4	87 82-91	55 51-60	1.95 1.75-2.17	0.23 0.17-0.33	49 44-54	90 86-93	59
NIHSS ≥ 5	81 75-86	63 58-67	2.16 1.90-2.46	0.31 0.23-0.40	51 46-56	87 83-90	52
NIHSS ≥ 6	76 70-81	69 65-73	2.45 2.11-2.85	0.35 0.28-0.45	55 49-60	85 81-89	45
NIHSS ≥ 7	72 66-78	74 70-78	2.76 2.34-3.27	0.38 0.31-0.46	57 52-63	85 81-88	41
NIHSS ≥ 8	70 64-75	79 75-82	3.25 2.69-3.92	0.39 0.32-0.47	61 55-67	84 81-87	37
NIHSS ≥ 9	67 61-73	81 78-85	3.59 2.92-4.40	0.41 0.34-0.49	64 57-70	83 80-87	34
NIHSS ≥ 10	64 57-70	84 81-88	4.07 3.25-5.11	0.43 0.37-0.51	67 60-73	83 79-86	31
NIHSS ≥ 11	61 55-67	88 85-91	5.02 3.88-6.50	0.44 0.38-0.52	71 64-77	82 79-85	28
NIHSS ≥ 12	56 50-62	90 87-83	5.77 4.31-7.71	0.49 0.42-0.56	74 67-80	81 77-84	25
NIHSS ≥ 13	52 45-58	92 89-94	6.20 4.51-8.52	0.53 0.46-0.61	75 68-82	80 76-83	22
NIHSS ≥ 14	48 41-54	93 90-95	6.37 4.55-8.92	0.57 0.50-0.64	76 68-82	78 75-82	21
NIHSS ≥ 15	42 35-48	94 92-96	7.07 4.82-10.04	0.62 0.56-0.69	78 69-84	77 73-80	18
NIHSS ≥ 16	38 32-45	95 93-97	8.20 5.33-12.60	0.65 0.59-0.72	80 72-87	76 72-79	16
NIHSS ≥ 17	32 36-38	96 93-97	7.08 4.52-11.10	0.72 0.66-0.78	78 68-85	74 71-78	13
NIHSS ≥ 18	25 20-31	96 94-98	6.47 3.96-10.60	0.78 0.73-0.84	76 65-85	72 69-76	11
NIHSS ≥ 19	19 14-25	97 95-98	6.29 3.58-11.00	0.83 0.78-0.89	75 63-86	71 68-75	8
NIHSS ≥ 20	15 11-20	98 96-99	6.15 3.26-11.60	0.87 0.83-0.92	75 60-86	70 67-74	7

NIHSS: National Institutes of Health Stroke Scale; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value

Supplemental Table 9. Diagnostic test parameters of each PASS scale threshold.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
PASS ≥1	89 84-93	43 39-48	1.56 1.43-1.71	0.26 0.18-0.38	43 39-48	89 84-93	67
PASS ≥2	65 59-71	82 79-86	3.66 2.96-4.51	0.42 0.36-0.51	64 58-70	83 79-86	33
PASS = 3	29 23-35	96 94-98	7.17 4.47-11.50	0.74 0.68-0.80	78 68-86	74 70-77	12

PASS: Prehospital Acute Stroke Severity; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value

Supplemental Table 10. Diagnostic test parameters of each RACE scale threshold.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
RACE ≥1	88 84-92	42 37-46	1.51 1.38-1.65	0.28 0.20-0.40	42 38-47	91 83-92	68
RACE ≥2	77 71-82	64 60-68	2.14 1.87-2.46	0.36 0.29-0.46	51 46-56	85 81-89	49
RACE ≥3	66 60-72	77 73-81	2.93 2.43-3.53	0.44 0.36-0.52	59 53-65	83 79-86	37
RACE ≥4	60 54-66	83 79-86	3.46 2.78-4.30	0.48 0.41-0.57	63 56-69	81 77-84	31
RACE ≥5	54 47-60	87 84-90	4.26 3.29-5.54	0.53 0.46-0.61	68 60-74	79 76-83	26
RACE ≥6	49 43-56	90 87-93	5.04 3.74-6.79	0.57 0.50-0.64	71 64-78	78 75-82	23
RACE ≥7	38 32-45	94 92-96	6.74 4.54-9.99	0.66 0.59-0.73	77 68-84	76 72-79	16
RACE ≥8	22 17-28	98 97-99	12.30 6.18-24.50	0.79 0.74-0.85	86 75-93	72 69-76	9
RACE = 9	12 9-17	100 99-100	30.70 7.41-128	0.88 0.84-0.92	94 79-99	70 66-73	4

RACE: Rapid Arterial Occlusion Evaluation; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value

Supplemental Table 11. Diagnostic test parameters of each VAN scale threshold.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
VAN = 1	72 66-77	77 73-81	3.17 2.64-3.79	0.37 0.30-0.45	61 55-66	85 81-88	39

VAN: Vision Aphasia Neglect; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value

Supplemental Table 12. Diagnostic test parameters of each 3I-SS threshold.

Scale threshold	Sensitivity % 95% CI	Specificity % 95% CI	PLR 95% CI	NLR 95% CI	PPV % 95% CI	NPV % 95% CI	% of all patients
3I-SS ≥1	84 79-88	45 41-50	1.53 1.39-1.68	0.36 0.27-0.49	43 38-47	85 80-89	64
3I-SS ≥2	65 58-71	79 75-83	3.07 2.53-3.73	0.48 0.38-0.53	60 54-66	82 78-85	35
3I-SS ≥3	47 41-54	92 89-94	5.79 4.18-8.02	0.58 0.51-0.65	74 66-81	78 74-81	21
3I-SS ≥4	24 19-30	97 95-98	7.43 4.37-12.60	78 67-87	72 69-87	72 69-76	10
3I-SS ≥5	8 5-12	99 97-100	6.49 2.63-16.00	0.93 0.90-0.97	76 55-91	69 65-72	3
3I-SS =6	3 1-6	100 99-100	8.20 1.75-38.3	0.97 0.95-0.99	80 44-98	68 64-71	1

3I-SS: 3-Item Stroke Scale; CI: Confidence Interval; PLR: positive likelihood ratio; NLR: negative likelihood ratio; PPV: positive predictive value; NPV: negative predictive value