

**Supplemental Table 1.** Test characteristics for clinician predicted probability of all-cause, 60-day hospital readmission for neonates at both sites

Threshold %	Sensitivity (95% CI)	Specificity (95% CI)	Positive Predictive Value (95% CI)	Negative Predictive Value (95% CI)	Area under Precision-Recall Curve (95% CI)
All Clinicians (N=2,173)					0.03 (0.02, 0.04), chance=0.04
≤5	8.75 (3.75, 15)	73.77 (71.91, 75.68)	1.25 (0.51, 2.19)	95.48 (95.19, 95.81)	
≤20	8.75 (3.75, 15)	73.87 (72, 75.73)	1.25 (0.51, 2.19)	95.48 (95.19, 95.81)	
≤40	8.75 (3.75, 15)	74.34 (72.48, 76.21)	1.28 (0.52, 2.23)	95.51 (95.23, 95.84)	
≤60	7.5 (2.5, 13.75)	74.58 (72.72, 76.4)	1.1 (0.36, 2.04)	95.46 (95.2, 95.78)	
≤80	2.5 (0, 6.25)	94.84 (93.88, 95.8)	1.75 (0, 4.47)	96.21 (96.11, 96.36)	
≤99	0 (0, 0)	100 (100, 100)	NA (NA, NA)	96.32 (96.32, 96.32)	
Interns/Residents (N=2,076)					0.03 (0.02, 0.04), chance=0.04
≤5	7.79 (2.6, 14.29)	73.69 (71.68, 75.54)	1.12 (0.37, 2.03)	95.39 (95.11, 95.72)	
≤20	7.79 (2.6, 14.29)	73.74 (71.74, 75.59)	1.12 (0.37, 2.04)	95.4 (95.12, 95.73)	
≤40	7.79 (2.6, 14.29)	74.09 (72.09, 75.94)	1.14 (0.37, 2.07)	95.42 (95.14, 95.74)	
≤60	7.79 (2.6, 14.29)	74.29 (72.34, 76.14)	1.15 (0.38, 2.08)	95.43 (95.15, 95.76)	
≤80	2.6 (0, 6.49)	95.15 (94.15, 96.05)	1.96 (0, 4.85)	96.2 (96.09, 96.35)	
≤99	0 (0, 0)	100 (100, 100)	NA (NA, NA)	96.29 (96.29, 96.29)	
Specialist or Consultant (N=66)					0.09 (0.01, 0.18) , chance=0.07
≤5	50 (0, 100)	65.62 (53.12, 76.56)	4.35 (0, 10.53)	97.67 (94.87, 100)	
≤20	50 (0, 100)	67.19 (54.69, 79.69)	4.55 (0, 11.11)	97.73 (95.12, 100)	
≤40	50 (0, 100)	71.88 (60.94, 82.81)	5.26 (0, 12.5)	97.87 (95.45, 100)	
≤60	0 (0, 0)	73.44 (62.5, 84.38)	0 (0, 0)	95.92 (95.24, 96.43)	
≤80	0 (0, 0)	82.81 (73.44, 92.19)	0 (0, 0)	96.36 (95.92, 96.72)	
≤99	0 (0, 0)	100 (100, 100)	NA (NA, NA)	96.97 (96.97, 96.97)	
Medical Officer (N=30)					0.03 (NA, NA), chance=0.04
≤5	0 (0, 0)	100 (100, 100)	NA (NA, NA)	96.67 (96.67, 96.67)	
≤20	0 (0, 0)	100 (100, 100)	NA (NA, NA)	96.67 (96.67, 96.67)	
≤40	0 (0, 0)	100 (100, 100)	NA (NA, NA)	96.67 (96.67, 96.67)	
≤60	0 (0, 0)	100 (100, 100)	NA (NA, NA)	96.67 (96.67, 96.67)	
≤80	0 (0, 0)	100 (100, 100)	NA (NA, NA)	96.67 (96.67, 96.67)	
≤99	0 (0, 0)	100 (100, 100)	NA (NA, NA)	96.67 (96.67, 96.67)	

**Supplemental Table 2.** Test characteristics for clinician predicted probability of all-cause, 60-day hospital readmission for young children aged 1-59 months at both sites

Threshold %	Sensitivity (95% CI)	Specificity (95% CI)	Positive Predictive Value (95% CI)	Negative Predictive Value (95% CI)	Area under Precision-Recall Curve (95% CI)
All Clinicians (N=1,722)					0.09 (0.04, 0.14), chance=0.06
≤5	27.1 (18.69, 35.51)	70.77 (68.54, 73)	5.77 (4.09, 7.57)	93.6 (92.9, 94.33)	
≤20	27.1 (18.69, 35.51)	71.21 (68.98, 73.44)	5.85 (4.14, 7.69)	93.64 (92.95, 94.36)	
≤40	24.3 (15.89, 32.71)	72.76 (70.65, 74.86)	5.51 (3.81, 7.4)	93.53 (92.9, 94.23)	
≤60	22.43 (14.95, 30.84)	73.87 (71.7, 75.98)	5.34 (3.59, 7.35)	93.48 (92.88, 94.19)	
≤80	11.21 (5.61, 17.76)	92.26 (90.84, 93.44)	8.63 (4.32, 13.71)	94 (93.63, 94.45)	
≤99	3.74 (0.93, 7.48)	99.57 (99.26, 99.88)	35.71 (10, 66.67)	93.98 (93.81, 94.21)	
Interns/Residents (N=1,426)					0.08 (0.04, 0.11), chance=0.06
≤5	21.43 (13.1, 30.95)	70.57 (68.18, 73.03)	4.32 (2.7, 6.11)	93.47 (92.81, 94.2)	
≤20	21.43 (13.1, 30.95)	70.72 (68.33, 73.1)	4.35 (2.71, 6.13)	93.48 (92.82, 94.22)	
≤40	21.43 (13.1, 30.95)	71.83 (69.45, 74.14)	4.51 (2.81, 6.35)	93.58 (92.93, 94.29)	
≤60	19.05 (10.71, 27.38)	72.35 (69.97, 74.67)	4.08 (2.45, 5.93)	93.43 (92.83, 94.12)	
≤80	8.33 (3.57, 14.29)	92.55 (91.06, 93.96)	6.25 (2.48, 11.2)	94.14 (93.83, 94.54)	
≤99	2.38 (0, 5.95)	99.78 (99.48, 100)	40 (0, 100)	94.23 (94.09, 94.43)	
Specialist or Consultant (N=109)					0.05 (0.02, 0.08), chance=0.06
≤5	0 (0, 0)	71.43 (62.86, 80)	0 (0, 0)	94.94 (94.29, 95.45)	
≤20	0 (0, 0)	71.43 (62.86, 80)	0 (0, 0)	94.94 (94.29, 95.45)	
≤40	0 (0, 0)	74.29 (65.71, 82.86)	0 (0, 0)	95.12 (94.52, 95.6)	
≤60	0 (0, 0)	76.19 (67.62, 83.81)	0 (0, 0)	95.24 (94.67, 95.65)	
≤80	0 (0, 0)	86.67 (79.98, 92.38)	0 (0, 0)	95.79 (95.45, 96.04)	
≤99	0 (0, 0)	100 (100, 100)	NA (NA, NA)	96.33 (96.33, 96.33)	
Medical Officer (N=187)					0.30 (0.18, 0.41), chance=0.10
≤5	57.89 (36.84, 78.95)	72.02 (64.88, 79.17)	19.2 (12.07, 26.32)	93.85 (90.76, 96.85)	
≤20	57.89 (36.84, 78.95)	75 (67.86, 81.55)	20.93 (13.46, 28.85)	94.07 (91.11, 96.95)	
≤40	42.11 (21.05, 63.16)	79.17 (72.62, 85.12)	18.75 (9.37, 28.57)	92.36 (89.61, 95.17)	
≤60	42.11 (21.05, 63.16)	84.52 (78.57, 89.88)	23.68 (12.12, 36)	92.86 (90.26, 95.42)	
≤80	26.32 (10.53, 47.37)	92.86 (88.69, 96.43)	30 (10.53, 50)	91.76 (89.88, 93.98)	
≤99	10.53 (0, 26.32)	97.62 (95.24, 99.4)	33.33 (0, 80)	90.61 (89.56, 92.18)	

**Supplemental Table 3.** Test characteristics for clinician predicted probability of all-cause, 60-day hospital readmission among all participants by time to unplanned hospital readmission

Threshold %	Sensitivity (95% CI)	Specificity (95% CI)	Positive Predictive Value (95% CI)	Negative Predictive Value (95% CI)	Area under Precision-Recall Curve (95% CI)
Day 7					0.03 (0.01, 0.05), chance=0.01
≤5	23.4 (10.64, 36.17)	72.77 (71.34, 74.22)	1.03 (0.49, 1.62)	98.72 (98.54, 98.95)	
≤20	23.4 (10.64, 36.17)	73 (71.57, 74.45)	1.04 (0.5, 1.64)	98.73 (98.54, 98.95)	
≤40	23.4 (10.64, 36.17)	74.01 (72.61, 75.39)	1.08 (0.51, 1.7)	98.75 (98.56, 98.96)	
≤60	23.4 (10.64, 36.17)	74.66 (73.28, 76.09)	1.1 (0.53, 1.74)	98.76 (98.57, 98.97)	
≤80	12.77 (4.26, 23.4)	93.69 (92.96, 94.49)	2.38 (0.78, 4.35)	98.87 (98.76, 99.01)	
≤99	4.26 (0, 10.64)	99.77 (99.58, 99.9)	16.67 (0, 46.15)	98.84 (98.79, 98.92)	
Day 14					0.03 (0.02, 0.04), chance=0.02
≤5	17.28 (9.88, 25.93)	72.68 (71.24, 74.07)	1.31 (0.75, 1.95)	97.63 (97.43, 97.87)	
≤20	17.28 (9.88, 25.93)	72.92 (71.47, 74.28)	1.32 (0.75, 1.97)	97.64 (97.43, 97.88)	
≤40	16.05 (8.64, 23.46)	73.89 (72.47, 75.25)	1.28 (0.69, 1.89)	97.64 (97.43, 97.86)	
≤60	16.05 (8.64, 23.46)	74.57 (73.13, 75.91)	1.31 (0.71, 1.94)	97.66 (97.46, 97.88)	
≤80	7.41 (2.47, 13.58)	93.68 (92.87, 94.47)	2.38 (0.8, 4.43)	97.94 (97.83, 98.08)	
≤99	2.47 (0, 6.17)	99.76 (99.61, 99.9)	16.67 (0, 44.44)	97.97 (97.91, 98.04)	
Day 30					0.03 (0.01, 0.06), chance=0.03
≤5	18.64 (11.86, 25.42)	72.57 (71.06, 73.95)	2.06 (1.34, 2.87)	96.61 (96.34, 96.91)	
≤20	18.64 (11.86, 25.42)	72.82 (71.33, 74.21)	2.08 (1.35, 2.9)	96.62 (96.35, 96.92)	
≤40	16.95 (10.17, 23.73)	73.79 (72.31, 75.17)	1.97 (1.23, 2.74)	96.6 (96.33, 96.87)	
≤60	15.25 (9.32, 22.03)	74.42 (72.97, 75.8)	1.81 (1.1, 2.62)	96.56 (96.31, 96.83)	
≤80	6.78 (2.54, 11.86)	93.65 (92.82, 94.39)	3.15 (1.24, 5.53)	96.98 (96.85, 97.14)	
≤99	1.69 (0, 4.24)	99.76 (99.6, 99.89)	16.67 (0, 44.44)	97.01 (96.96, 97.09)	
Day 45					0.05 (0.04, 0.06), chance=0.04
≤5	18.67 (12.67, 24.67)	72.52 (71.13, 73.91)	2.64 (1.84, 3.51)	95.7 (95.39, 96.02)	
≤20	18.67 (12.67, 24.67)	72.76 (71.35, 74.15)	2.66 (1.85, 3.54)	95.71 (95.41, 96.03)	
≤40	16.67 (11.33, 22.67)	73.72 (72.26, 75.09)	2.47 (1.69, 3.33)	95.66 (95.38, 95.97)	
≤60	15.33 (10, 21.33)	74.34 (72.92, 75.73)	2.33 (1.56, 3.19)	95.63 (95.37, 95.92)	
≤80	7.33 (3.33, 11.33)	93.67 (92.87, 94.45)	4.4 (2.21, 7.17)	96.19 (96.04, 96.37)	
≤99	2.67 (0.67, 5.35)	99.81 (99.68, 99.95)	35.71 (9.09, 66.67)	96.24 (96.16, 96.35)	

**Supplemental Table 4.** Test characteristics for clinician predicted probability of all-cause, 60-day post-discharge mortality among all patients by time to post-discharge mortality

Threshold %	Sensitivity (95% CI)	Specificity (95% CI)	Positive Predictive Value (95% CI)	Negative Predictive Value (95% CI)	Area under Precision-Recall Curve (95% CI)
Day 7					0.02 (0.001, 0.03), chance=0.004
≤5	17.65 (0, 35.29)	96.21 (95.59, 96.78)	1.97 (0, 4.29)	99.63 (99.55, 99.71)	
≤20	17.65 (0, 35.29)	96.47 (95.88, 97.01)	2.11 (0, 4.58)	99.63 (99.55, 99.71)	
≤40	17.65 (0, 35.29)	96.7 (96.13, 97.24)	2.26 (0, 4.92)	99.63 (99.55, 99.71)	
≤60	17.65 (0, 35.29)	97.04 (96.49, 97.55)	2.52 (0, 5.5)	99.63 (99.55, 99.71)	
≤80	5.88 (0, 17.65)	99.43 (99.2, 99.66)	4.17 (0, 14.29)	99.59 (99.56, 99.64)	
≤99	0 (0, 0)	99.95 (99.87, 100)	0 (0, 0)	99.56 (99.56, 99.56)	
Day 14					0.02 (0.005, 0.03), chance=0.01
≤5	13.16 (2.63, 23.68)	96.24 (95.62, 96.81)	3.23 (0.7, 6.3)	99.12 (99.01, 99.23)	
≤20	13.16 (2.63, 23.68)	96.5 (95.93, 97.05)	3.45 (0.75, 6.78)	99.12 (99.02, 99.23)	
≤40	13.16 (2.63, 23.68)	96.73 (96.16, 97.25)	3.7 (0.81, 7.26)	99.12 (99.02, 99.23)	
≤60	7.89 (0, 18.42)	97.02 (96.47, 97.54)	2.42 (0, 5.51)	99.07 (99, 99.17)	
≤80	2.63 (0, 7.89)	99.43 (99.2, 99.66)	4 (0, 14.29)	99.04 (99.02, 99.1)	
≤99	0 (0, 0)	99.95 (99.87, 100)	0 (0, 0)	99.02 (99.02, 99.02)	
Day 30					0.04 (0.01, 0.07), chance=0.02
≤5	9.52 (3.17, 17.46)	96.24 (95.64, 96.82)	3.95 (1.29, 7.24)	98.48 (98.37, 98.61)	
≤20	9.52 (3.17, 17.46)	96.5 (95.9, 97.08)	4.23 (1.39, 7.76)	98.48 (98.37, 98.61)	
≤40	9.52 (3.17, 17.46)	96.74 (96.16, 97.29)	4.51 (1.48, 8.33)	98.49 (98.38, 98.62)	
≤60	6.35 (1.59, 12.7)	97.03 (96.45, 97.55)	3.28 (0.79, 6.96)	98.44 (98.36, 98.55)	
≤80	3.17 (0, 7.94)	99.45 (99.22, 99.69)	8.33 (0, 21.74)	98.42 (98.37, 98.5)	
≤99	1.59 (0, 4.76)	99.97 (99.92, 100)	50 (0, 100)	98.41 (98.38, 98.46)	
Day 45					0.04 (0.02, 0.06), chance=0.02
≤5	8.6 (3.23, 13.98)	96.27 (95.66, 96.87)	5.26 (2.17, 8.86)	97.73 (97.61, 97.87)	
≤20	8.6 (3.23, 13.98)	96.53 (95.9, 97.11)	5.63 (2.36, 9.45)	97.74 (97.61, 97.87)	
≤40	8.6 (3.23, 13.98)	96.77 (96.13, 97.32)	6.02 (2.5, 10.17)	97.74 (97.62, 97.88)	
≤60	6.45 (2.15, 11.83)	97.05 (96.48, 97.56)	4.96 (1.64, 9.26)	97.69 (97.59, 97.83)	
≤80	2.15 (0, 5.38)	99.45 (99.21, 99.66)	8.33 (0, 22.22)	97.65 (97.6, 97.73)	
≤99	1.08 (0, 3.23)	99.97 (99.92, 100)	50 (0, 100)	97.64 (97.61, 97.69)	