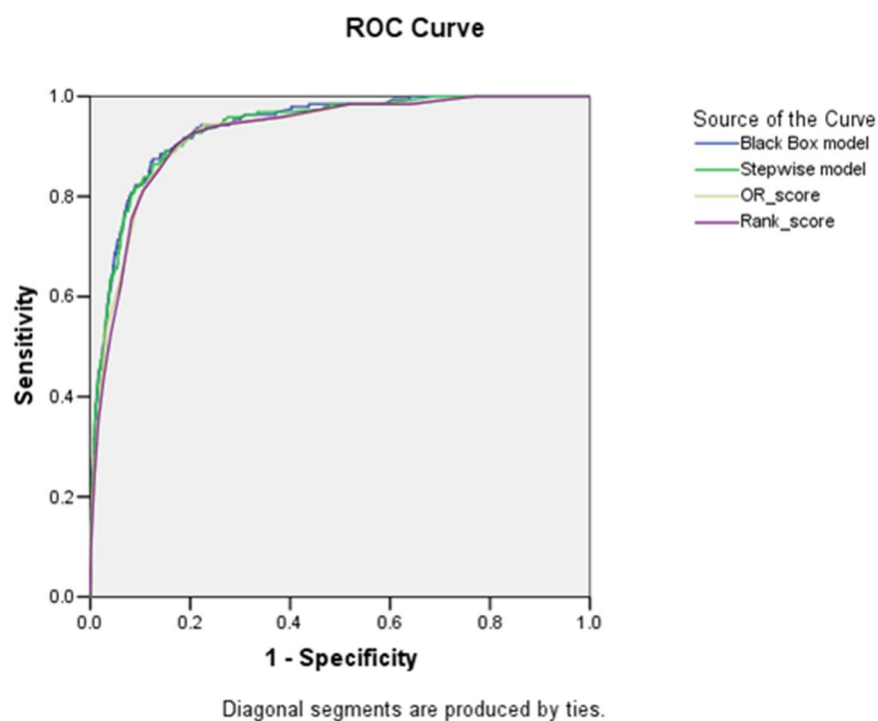


Appendix - Supplementary Tables and Figures

Figure 1: ROC curve for mortality outcome performance

Derivation cohort



Validation cohort

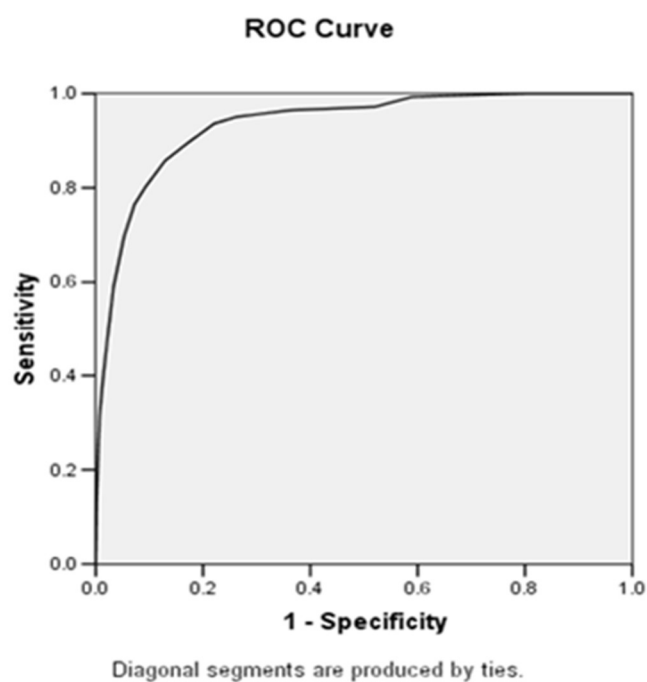
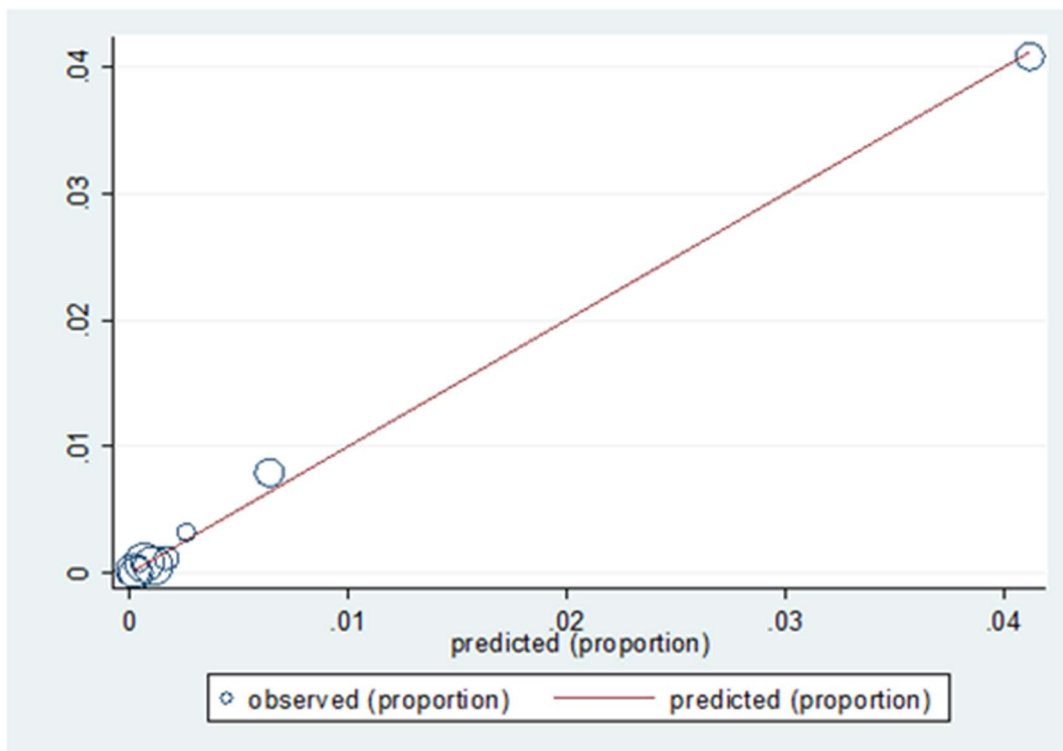


Figure 2. H-L plots for calibration of mortality outcome- Derivation cohort



Group	N	Obs (%)	Exp (%)	HL
1	5331	1(0)	1(0)	0
2	4783	0(0)	1.4(0)	1.36
3	1386	1(0.1)	0.6(0)	0.24
4	7191	6(0.1)	5(0.1)	0.21
5	7218	4(0.1)	7.8(0.1)	1.84
6	2699	3(0.1)	4.5(0.2)	0.52
7	1571	5(0.3)	4.1(0.3)	0.20
8	3667	29(0.8)	23.4(0.6)	1.33
9	3625	148(4.1)	149.2(4.1)	0.01
Total	37471	197(0.5)	197(0.5)	5.71

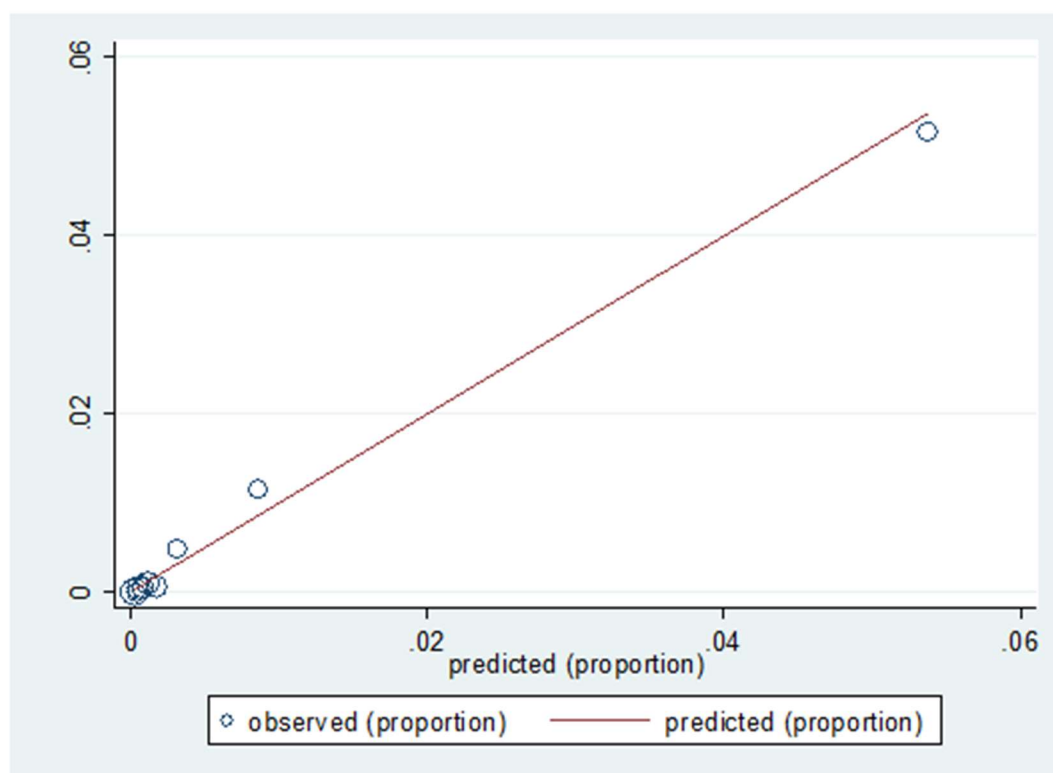
Number of observations = 37471

Number of groups = 9

Hosmer-Lemeshaw chi-sq (9) = 5.71

Prob > chi-sq = 0.7690

Figure 3. H-L plots for calibration of mortality outcome- Validation cohort



Group	N	Obs (%)	Exp (%)	HL
1	2871	0(0)	0.6(0)	0.57
2	1175	0(0)	0.4(0)	0.41
3	2107	1(0)	1.1(0.1)	0.01
4	1868	1(0.1)	1.5(0.1)	0.15
5	2116	2(0.1)	2.5(0.1)	0.09
6	1700	1(0.1)	3(0.2)	1.3
7	1449	7(0.5)	4.5(0.3)	1.39
8	1385	16(1.2)	11.9(0.9)	1.45
9	1334	69(5.2)	71.6(5.4)	0.10
Total	15995	97(0.6)	97(0.6)	5.48

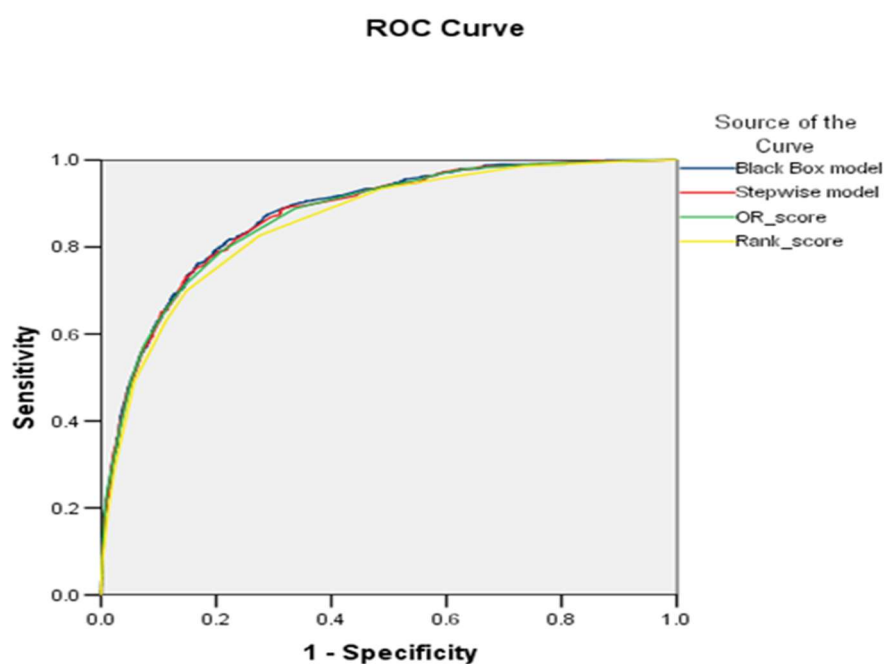
Number of observations = 15995

Number of groups = 9

Hosmer-Lemeshaw chi-sq (9) = 5.48

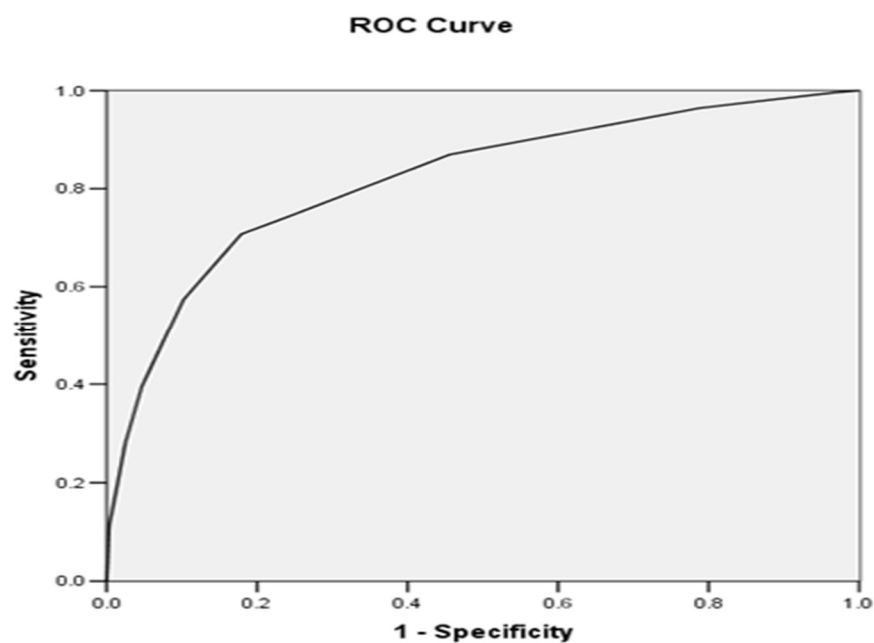
Prob > chi-sq = 0.7910

**Figure 4: ROC curve for ICU outcome performance –
Derivation cohort**



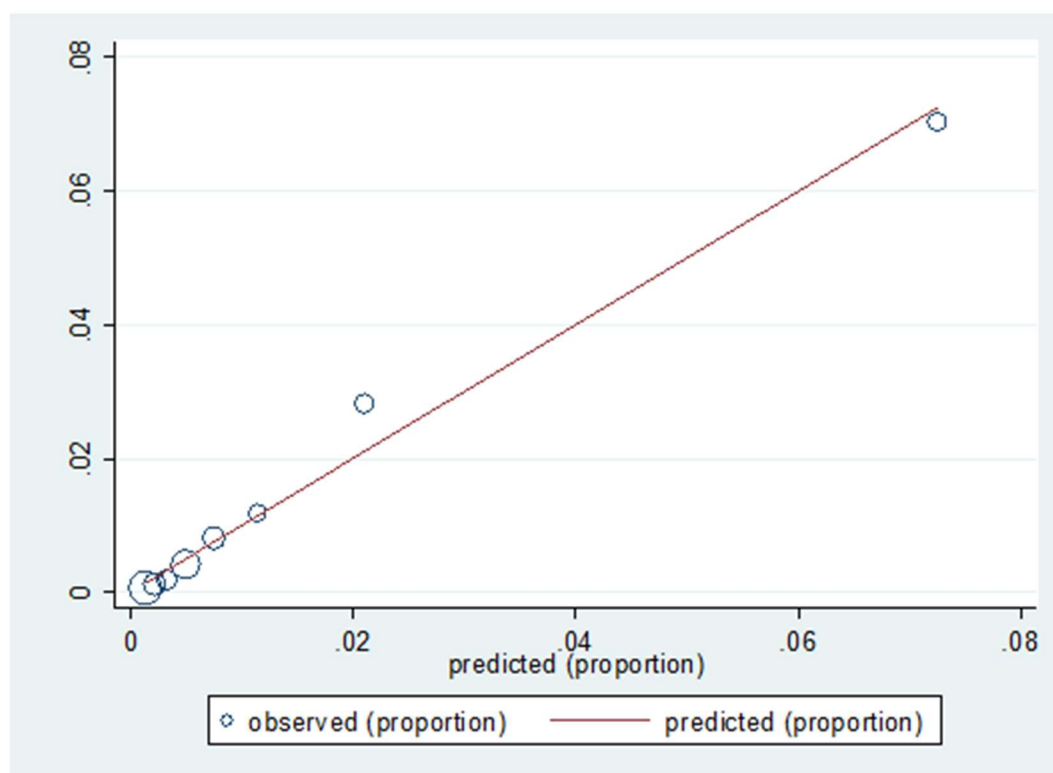
Diagonal segments are produced by ties.

Validation cohort



Diagonal segments are produced by ties.

Figure 5. H-L plots for calibration oICU>24h- Derivation cohort



Group	N	Obs (%)	Exp (%)	HL
1	10092	5(0)	11.2(0.1)	3.46
2	5861	10(0.2)	12.7(0.2)	0.56
3	4526	11(0.2)	15.9(0.4)	1.51
4	7814	35(0.4)	44.5(0.6)	2.05
5	5830	64(1.1)	53.9(0.9)	1.92
6	3013	56(1.9)	45(1.5)	2.7
7	2070	54(2.6)	49.9(2.4)	0.35
8	4355	338(7.8)	339.9(7.8)	0.01
Total	43561	573(1.3)	573(1.3)	12.56

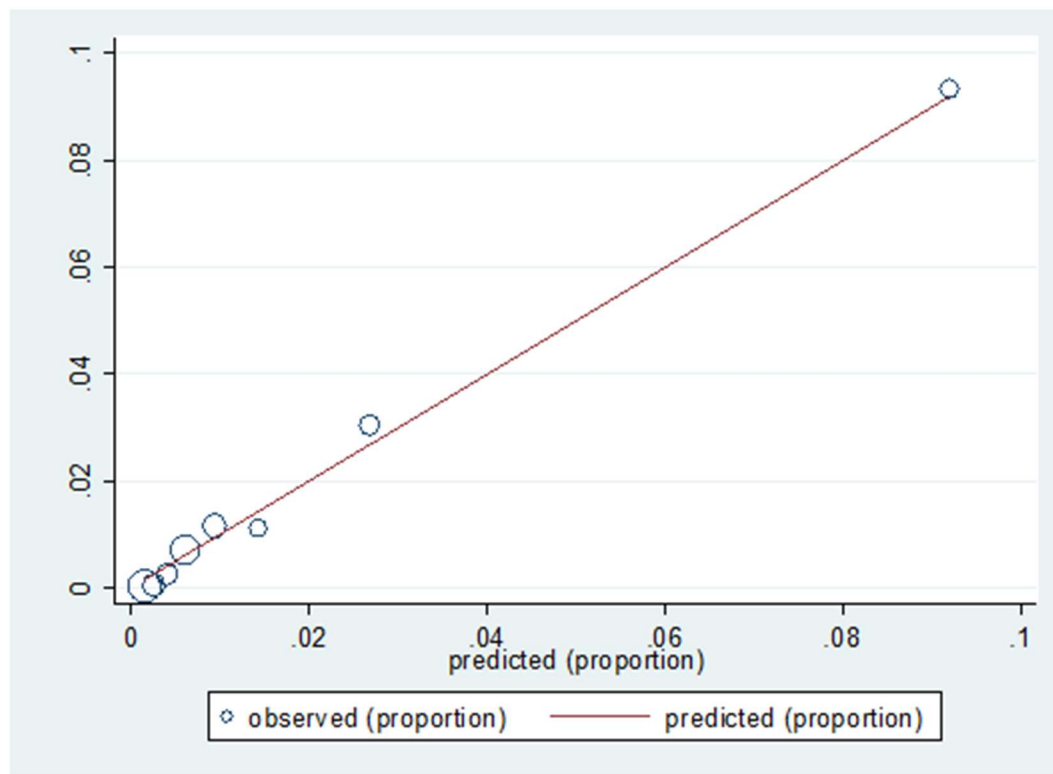
Number of observations = 43561

Number of groups = 8

Hosmer-Lemeshaw chi-sq (9) = 12.56

Prob > chi-sq = 0.1279

Figure 6. H-L plots for calibration of ICU>24h- Validation cohort



Group	N	Obs (%)	Exp (%)	HL
1	3823	1(0)	6.1(0.2)	4.23
2	1868	1(0.1)	4.9(0.3)	3.09
3	1577	4(0.3)	6.3(0.4)	0.85
4	2925	21(0.7)	17.9(0.6)	0.53
5	1979	23(1.2)	18.6(0.9)	1.07
6	1076	12(1.1)	15.4(1.4)	0.77
7	1409	43(3.1)	37.7(2.7)	0.76
8	1338	125(9.3)	123.1(9.2)	0.03
Total	15995	230(1.4)	230(1.4)	11.32

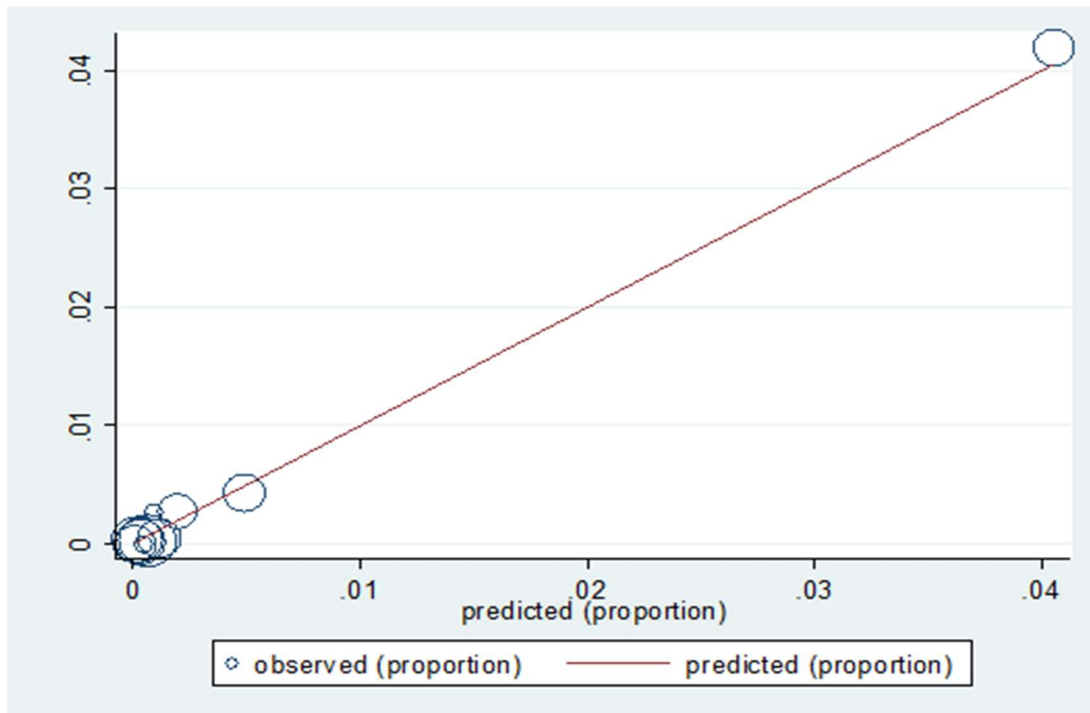
Number of observations = 15995

Number of groups = 8

Hosmer-Lemeshaw chi-sq (9) = 11.32

Prob > chi-sq = 0.1841

Figure 7. H-L plots and tabulation when using combined model to predict mortality - Derivation Cohort



Group	N	Obs (%)	Exp (%)	HL
1	4129	0(0)	0.4(0)	0.38
2	6089	2(0)	1.2(0)	0.47
3	5684	1(0)	2(0)	0.50
4	745	0(0)	0.3(0)	0.34
5	7519	2(0)	5.1(0.1)	1.87
6	747	2(0.3)	0.7(0.1)	2.52
7	4222	2(0)	4.9(0.1)	1.73
8	3639	10(0.3)	7.2(0.2)	1.06
9	3957	17(0.4)	19.4(0.5)	0.31
10	3841	161(4.2)	155.7(4.1)	0.19
Total	40572	197(0.5)	197(0.5)	9.37

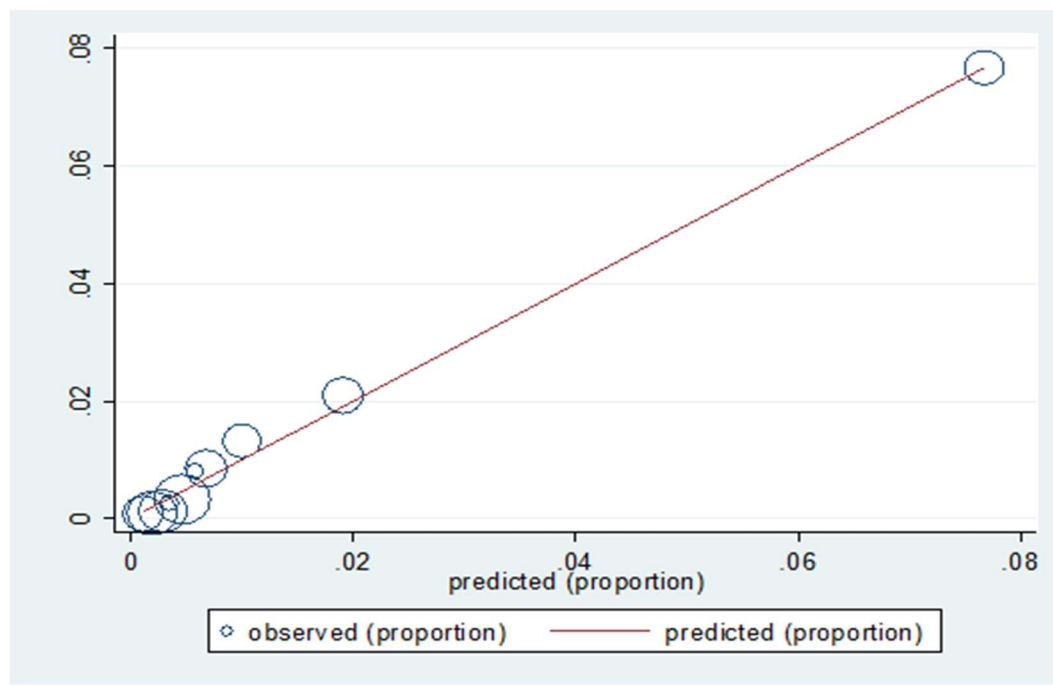
Number of observations = 40572

Number of groups = 10

Hosmer-Lemeshaw chi-sq (10) = 9.37

Prob > chi-sq = 0.4977 (>0.05)

Figure 8. H-L tabulation when using combined model to predict ICU>24h - Derivation Cohort



Group	N	Obs (%)	Exp (%)	HL
1	4129	3(0.1)	4.4(0.1)	0.46
2	6089	5(0.1)	11.6(0.2)	3.80
3	5684	7(0.1)	16.3(0.3)	5.28
4	745	2(0.3)	2.5(0.3)	0.12
5	7519	24(0.3)	34.5(0.5)	3.19
6	747	6(0.8)	4.3(0.6)	0.69
7	4222	36(0.9)	28.7(0.7)	1.86
8	3639	48(1.3)	36.4(1)	3.74
9	3957	83(2.1)	75.4(1.9)	0.78
10	3841	295(7.7)	294.8(7.7)	0
Total	40572	509(1.3)	5.9(1.3)	19.93

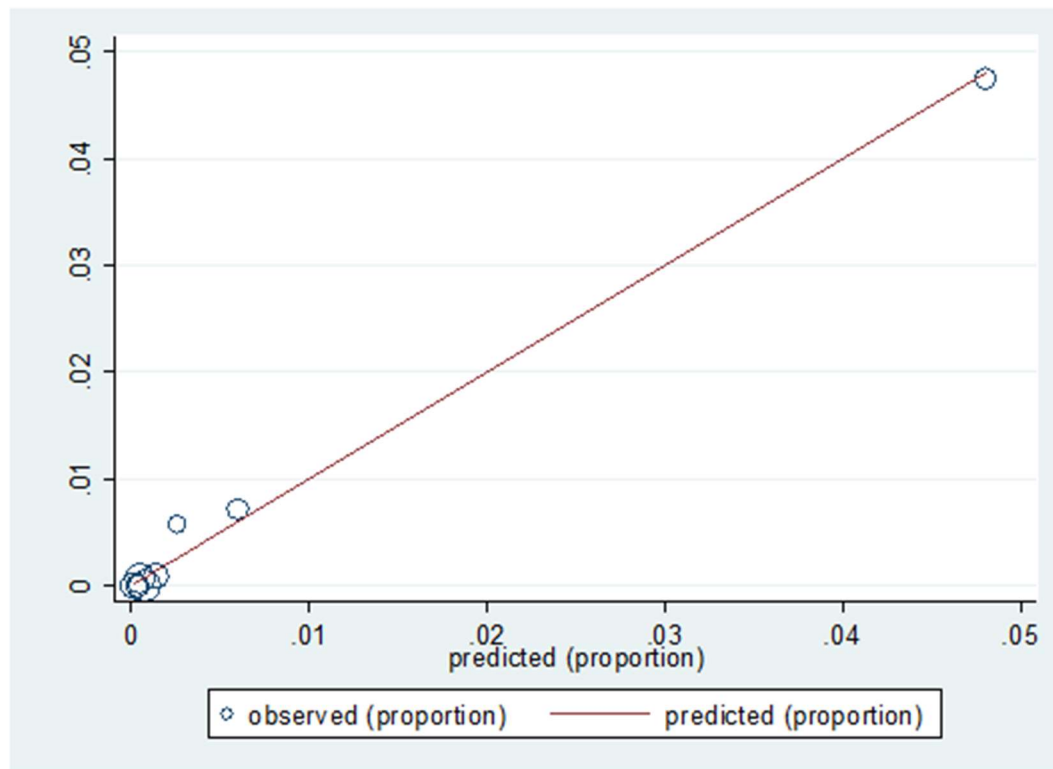
Number of observations = 40572

Number of groups = 10

Hosmer-Lemeshaw chi-sq (10) = 19.93

Prob > chi-sq = 0.029

Figure 9. H-L tabulation when using combined model to predict mortality - Validation Cohort



Group	N	Obs (%)	Exp (%)	HL
1	2539	0(0)	0.5(0)	0.47
2	1827	0(0)	0.7(0)	0.68
3	2940	2(0.1)	1.4(0)	0.23
4	3422	0(0)	2.7(0.1)	2.67
5	2422	2(0.1)	3.2(0.1)	0.43
6	1043	6(0.6)	2.7(0.3)	4.1
7	1671	12(0.7)	10(0.6)	0.39
8	1600	76(4.8)	76.9(4.8)	0.01
Total	17284	98(0.6)	98(0.6)	8.98

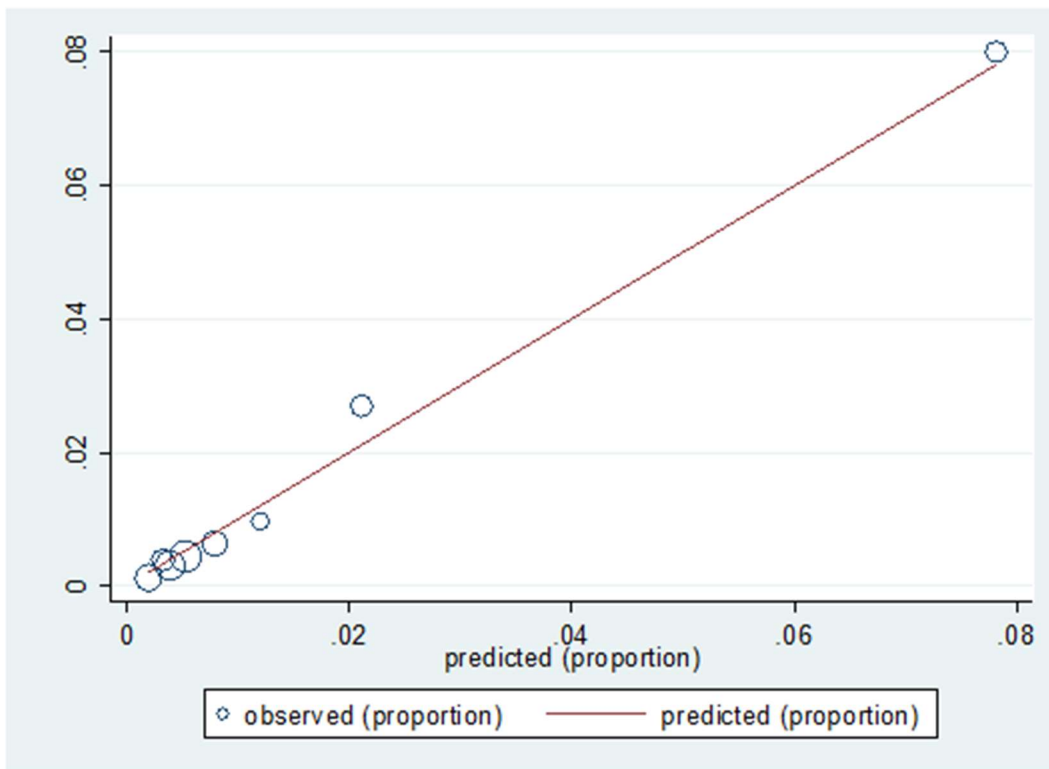
Number of observations = 17284

Number of groups = 8

Hosmer-Lemeshaw chi-sq (9) = 8.98

Prob > chi-sq = 0.344

Figure 10. H-L tabulation when using combined model to predict ICU>24h - Validation Cohort



Group	N	Obs (%)	Exp (%)	HL
1	2539	3(0.1)	5(0.2)	0.8
2	1827	7(0.4)	5.8(0.3)	0.23
3	2940	9(0.3)	11.3(0.4)	0.47
4	3422	15(0.4)	18.2(0.5)	0.55
5	2422	14(0.6)	17.8(0.8)	0.83
6	1043	10(1)	12.5(1.2)	0.52
7	1671	45(2.7)	35.3(2.1)	2.75
8	1600	128(8)	125.1(7.8)	0.07
Total	17284	231(1.3)	231(1.3)	6.24

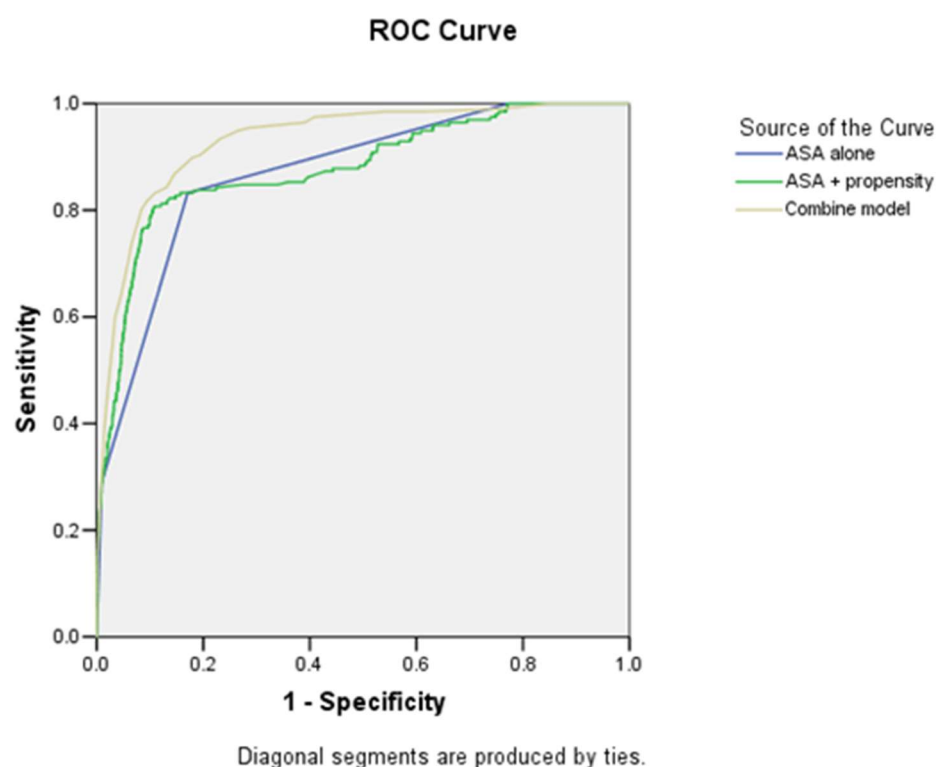
Number of observations = 17284

Number of groups = 8

Hosmer-Lemeshaw chi-sq (9) = 6.24

Prob > chi-sq = 0.6209

Figure 11: ASA and CARES model comparison for outcomes - ROC curve
Mortality



ICU>24h

