

Additional file 4:

Performance of 22 variable organ-specific TreeNet® PERSEVERence risk models.

		Training Set	Test Set
Day 7 Cardiovascular Dysfunction			
	AUROC	0.92 (0.89, 0.94)	0.79 (0.73, 0.84)
	Weighted misclassification rate	0.17	0.29
	True positive, n	103	80
	False negative, n	19	42
	False positive, n	71	91
	True negative, n	309	289
	Sensitivity %	84.4 (76.4, 90.1)	65.6 (56.3, 73.7)
	Specificity %	81.3 (76.9, 85.0)	76.1 (71.3, 80.2)
	Positive predictive value %	59.1 (51.4, 66.4)	46.7 (39.1, 54.5)
	Negative predictive value %	94.2 (90.0, 96.3)	87.3 (83.1, 90.6)
Day 7 Respiratory Dysfunction			
	AUROC	0.91 (0.89, 0.94)	0.68 (0.63, 0.73)
	Weighted misclassification rate	0.17	0.36
	True positive, n	167	126
	False negative, n	26	67
	False positive, n	68	116
	True negative, n	241	193
	Sensitivity %	71.1 (64.7, 76.7)	65.2 (58.1, 71.9)
	Specificity %	77.9 (72.8, 82.4)	62.4 (56.8, 67.8)
	Positive predictive value %	71.1 (64.7, 76.6)	52.1 (45.5, 58.4)
	Negative predictive value %	78.0 (72.9, 82.4)	74.2 (68.3, 79.3)
Day 7 Renal Dysfunction			
	AUROC	0.91 (0.89, 0.94)	0.80(0.76, 0.85)
	Weighted misclassification rate	0.17	0.27
	True positive, n	123	103
	False negative, n	20	40
	False positive, n	73	96
	True negative, n	286	263
	Sensitivity %	86.1 (78.9, 91.1)	72.1 (63.8, 77.7)
	Specificity %	79.7 (75.1, 83.6)	73.2 (68.3, 77.7)
	Positive predictive value %	62.7 (55.5, 69.4)	51.7 (44.6, 58.8)
	Negative predictive value %	93.4 (89.9, 95.9)	86.7 (82.3, 90.2)

		Training Set	Test Set
Day 7 Hepatic Dysfunction			
	AUROC	0.97 (0.96, 0.99)	0.89 (0.85, 0.92)
	Weighted misclassification rate	0.08	0.18
	True positive, n	79	66
	False negative, n	4	17
	False positive, n	53	68
	True negative, n	366	351
	Sensitivity %	95.1 (87.5, 98.4)	79.5 (68.9, 87.2)
	Specificity %	87.3 (83.6, 90.3)	83.7 (79.8, 87.1)
	Positive predictive value %	59.8 (50.9, 68.1)	49.2 (40.5, 57.9)
	Negative predictive value %	98.9 (97.1, 99.6)	95.3 (92.5, 97.2)
Day 7 Hematologic Dysfunction			
	AUROC	0.92 (0.90, 0.95)	0.82 (0.78, 0.86)
	Weighted misclassification rate	0.14	0.24
	True positive, n	96	79
	False negative, n	11	28
	False positive, n	75	87
	True negative, n	320	308
	Sensitivity %	89.7 (81.9, 94.5)	73.8 (64.2, 81.6)
	Specificity %	81.1 (76.7, 84.7)	77.9 (73.4, 81.9)
	Positive predictive value %	56.1 (48.3, 63.6)	47.5 (39.8, 55.4)
	Negative predictive value %	96.6 (93.9, 98.2)	91.6 (88.1, 94.2)
Day 7 Neurologic Dysfunction			
	AUROC	0.96 (0.94, 0.98)	0.81 (0.74, 0.88)
	Weighted misclassification rate	0.15	0.25
	True positive, n	38	28
	False negative, n	3	13
	False positive, n	68	73
	True negative, n	393	388
	Sensitivity %	92.7 (78.9, 98.1)	68.2 (51.7, 81.4)
	Specificity %	85.2 (81.6, 88.2)	84.1 (80.4, 87.3)
	Positive predictive value %	35.8 (26.9, 45.8)	27.7 (19.5, 37.6)
	Negative predictive value %	99.2 (97.6, 99.8)	96.7 (94.3, 98.1)