

## Supplementary Materials

**Supplementary Table S1.** Exploratory binary threshold model performance

Threshold	Model	Apparent AUC	LOOCV AUC	LOOCV Brier
ICP >20 mmHg	ONSD	0.716	0.594	0.124
ICP >20 mmHg	Gordon-Firing	0.667	0.590	0.122
ICP >20 mmHg	Combined model	0.791	0.684	0.128
ICP >22 mmHg	ONSD	0.647	0.500	0.172
ICP >22 mmHg	Gordon-Firing	0.653	0.596	0.167
ICP >22 mmHg	Combined model	0.707	0.596	0.174
ICP $\geq$ 25 mmHg	ONSD	0.631	0.523	0.203
ICP $\geq$ 25 mmHg	Gordon-Firing	0.679	0.624	0.199
ICP $\geq$ 25 mmHg	Combined model	0.736	0.654	0.201

These analyses are exploratory because the cohort is highly enriched for elevated ICP, especially at lower thresholds.

**Supplementary Figure S1.** Exploratory ROC curves across binary ICP thresholds. AUC: area under the curve; ICP: intracranial pressure; ONSD: optic nerve sheath diameter; ROC: receiver operating characteristic.

