

SOP: Hypoxic thresholds for cerebral oximeters

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Requirements for cerebral oximeters in SafeBoosC-IIIv

In general, all commercially available cerebral oximeters that are approved for clinical use in newborns (FDA-approved, CE-marked etc.) may be used in SafeBoosC-IIIv. The aim is to use multiple different devices to generate generic results. There are now seven commercially available devices in use (INVOS, NIRO, Fore-Sight, Sensmart, O3, Egos, and Oxyprem) with a total of 14 adjacent NIRS sensors. The appropriate intervention threshold, defined as the rStO₂ value that reflects the same level of brain tissue oxygenation as an rStO₂ value of 55% using the INVOS adult sensor, has been defined for these devices and their sensors. For any new device and sensor, the appropriate threshold will be determined.

Hypoxic intervention thresholds in different oximeters

Hypoxic thresholds corresponding to a 55% rStO₂ in INVOS adult. The different subtypes within each NIRS device (e.g. FORESIGHT small/FORESIGHT small band) represent different sensors and therefore show different hypoxic thresholds.

NIRS Device	Hypoxic threshold %
FORESIGHT small	66
FORESIGHT non-adhesive small	67
NIRO small	61
NIRO small re-usable	63
NIRO large	62
NIRO large re-usable	62
INVOS neo	63
SenSmart neo 8004CB-NA	66
Oxyprem 1.4 re-usable	48
NOAH (Oxyprem)	Will be updated
O3 Pediatric	64
O3 Neonatal	64
Egos reusable pediatric/neonate	56
Egos disposable pediatric/neonate	56