



## FORE-SIGHT® Absolute Cerebral Oximeter Fact Sheet

### Challenge:

The brain has the highest metabolic rate of any organ in the body. With oxygen reserves of only about 8-10 seconds at normal body temperatures, it is one of the organs most vulnerable to oxygen deprivation.

Brain protection from low oxygen levels during surgical procedures or in the ICU is an important goal of any clinical team. Cerebral tissue oxygen saturation (SctO<sub>2</sub>) is especially essential to high risk cardiovascular surgical teams who are often required to interrupt, re-route or stop normal brain circulation.

Until FORE-SIGHT, an FDA cleared device allowing clinicians to non-invasively and accurately Monitor *absolute* SctO<sub>2</sub> had not been available.

### Solution:

The CAS Medical Systems (CASMED®) FORE-SIGHT Cerebral Oximeter non-invasively and continuously measures *absolute* brain tissue oxygen saturation, enabling clinicians to identify and react to instances of lowered brain oxygen saturation before the situation becomes critical.

With sensors placed on the patient's forehead, FORE-SIGHT utilizes CASMED's advanced LASER-SIGHT® Optical Technology to project near infrared light into an area of the brain that is most susceptible to low oxygen levels. LASER-SIGHT then measures and quantifies specific elements found in the blood and brain tissue. FORE-SIGHT's patented algorithms translate this information to an absolute SctO<sub>2</sub> measurement. SctO<sub>2</sub> is displayed on the FORE-SIGHT monitor screen and updated every two seconds.

Our scientists understand that the ratio of white and grey brain matter, as well as extracerebral tissue, changes throughout development. FORE-SIGHT accounts for brain development stages by incorporating age and weight into its advanced algorithms. This breakthrough refinement optimizes brain tissue interrogation, ensuring absolute accuracy for all stages of development.

LASER-SIGHT Optical Technology enhances FORE-SIGHT measurement accuracy and reproducibility. LASER-SIGHT utilizes highly precise, laser photo diode light (4 wavelengths), fiber optics and photo diode light detectors.

### Key Benefits:

The FORE-SIGHT Cerebral Oximeter was designed to give clinicians accurate, reliable information to guard against brain injuries as a result of compromised brain tissue oxygenation.

The FORE-SIGHT Cerebral Oximeter provides clinically relevant absolute measurements that clearly indicate a patient's brain tissue oxygen saturation status.

The ability of the FORE-SIGHT Cerebral Oximeter to provide absolute brain oxygen saturation measurements gives clinicians the flexibility to begin monitoring patients at any time during a procedure,



eliminating the need for a pre-surgical baseline reading. Absolute cerebral oximetry gives clinicians an important tool for optimizing individual patient care.

Unlike readings obtained from a trend-only monitor, absolute cerebral tissue oxygen saturation readings have stand-alone clinical significance because individual measurements have a direct correlation to invasive measurements with which clinicians are familiar. In cardiac surgery, use of cerebral oximetry has been shown to significantly reduce adverse clinical outcomes, including permanent stroke; and, to lower healthcare costs via decreased post-surgical ventilation time, decreased intensive care unit stays, and decreased length of hospital stays.

**Background Information:**

Historically, clinicians have employed a number of strategies in the ICU and operating room in an attempt to measure oxygen levels in the brain. Some of these include: invasive analysis of blood entering the brain- either directly or through a bypass circuit; invasive analysis of blood leaving the brain; continuous monitoring of pulse oxygen saturation in the extremities; and monitoring other parameters such as blood pressure and flow. While all of these parameters provide useful information, none of them give a complete picture of what is actually happening with respect to oxygen delivery and consumption in the brain tissue.

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