Transcutaneous Monitoring for Protective, Proactive Neonatal Care

Transcutaneous CO_2 monitoring can help care teams:

- Protect the brain & lungs
- Prevent pain & blood loss
- Preserve skin integrity & touch times
- Proactively manage patients

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Transcutaneous Monitoring for Protective, Proactive Neonatal Care

The Sentec Transcutaneous Monitoring System provides continuous visibility to accurate CO_2 levels for patients in the NICU, helping care teams balance gentle ventilation with neuroprotective care and pain reduction.

Transcutaneous CO_2 monitoring can help care teams:

Protect the brain & lungs

Continuously-monitored CO_2 levels are integral in the NICU for both **protecting the brain from intraventricular hemorrhage** as well as properly **implementing lung protective ventilatory strategies.**[1]

Prevent pain & blood loss

$tcPCO_2$ monitoring has been shown to **reduce blood draws on ventilated neonates**, while arterial blood gases and capillary heel sticks – the accepted standard for accurate $PaCO_2$ information – contribute to important issues in the NICU such as blood loss,[2] infection,[3] and pain.[4,5]

Preserve skin integrity & touch times

Sentec's low-temperature digital sensor technology **enables long site times** (up to 8 hours) in the NICU to **support clustered care**, and has been shown to be **safe for fragile neonatal skin.**[6]

Proactively manage patients

Digital transcutaneous technology monitors CO_2 accurately, regardless of ventilation strategy or lung compromise, **enabling enhanced assessment during transitions in care or support.**

Designed for the smallest, most fragile patients

The Sentec Transcutaneous Monitoring System is made with the NICU in mind - with features like low operating temperatures and specialized attachment solutions that help care teams protect fragile skin.

tCOM+ Digital Monitor features an intuitive touchscreen interface that displays values, trends, and deltas alongside baselines — with features like real-time event logging and customizable alarm limits that support provider workflows and enable personalized patient care.

V-Sign™ Sensor processes signals directly in the sensor head to enable continuous, accurate measurement of $tcPCO_2$.*

- Low operating temperature protects skin and enables site times of up to 8 hours.
- Membrane life of up to ~28 days.

**OxiVenT Sensor also provides $tcPO_2$ monitoring capabilities.*

Smart Cal-Mem feature allows caregivers to disconnect a patient from the monitor for up to 30 minutes without recalibration — supporting kangaroo care and positioning changes.

Multi-Site Attachment Rings hold the sensor in place in multiple anatomical locations.

Single-Dose Contact Gel enables workflow and infection control.

Staysite™ Adhesive supports enhanced adhesion on mobile sweaty patients.

Non-Adhesive Wrap prioritizes skin integrity of VLBW infants in high-humidity environments.

American Association of Respiratory Care Clinical Practice Guidelines, 2012[7]

> *[tcPCO$_2$] is indicated in patients who either lack arterial access or* ***have the need for continuous monitoring of oxygen and carbon dioxide with minimal blood draws.***

Swiss Society of Neonatology, 2019[8]

> ***A unit must have availability for continuous transcutaneous pO$_2$ and transcutaneous pCO$_2$*** *to be considered a level IIB or level III NICU.*

National Institute for Health and Care Excellence, 2019[9]

> *For* ***preterm babies on invasive ventilation*** *who are clinically unstable,* ***consider transcutaneous oxygen monitoring.***

Pediatrics, 2022[10]

> *A special cause variation in the rate of death or severe ICH was temporally related to* ***improved targeting of CO$_2$*** *[.]*

References: 1. Hochwald, et al. *Pediatrics*. 2019. **2.** Counsilman, et al. *J Matern Fetal Neonatal Med*. 2019. **3.** Goudie, et al. *Pediatrics*. 2014. **4.** Hall, et al. *Clin Perinatol*. 2014. **5.** Mukhopadhyay, et al. *Respir Care*. 2016. **6.** Aly, et al. *Am J Perinatol*. 2017. **7.** Restrepo, et al. *Respir Care*. 2012. **8.** Bassler, D., et al. *Swiss Society of Neonatology*. 2019. **9.** National Guideline Alliance (UK). B. London: *National Institute for Health and Care Excellence (NICE)*. 2019. **10.** Travers, C., et al. *Pediatrics*. 2022.

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Noninvasive monitoring should enable less invasive care.

In the NICU, Sentec digital transcutaneous technology overcomes limits of previous devices to offer safe, comfortable respiratory monitoring with accurate CO_2 values regardless of ventilation method or V/Q mismatch, all while supporting neuroprotective efforts to deliver clustered care, protect skin integrity, and reduce the frequency of painful blood draws in neonatal patients.

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Care with Confidence

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