Providing accurate SpO₂ monitoring during surgical procedures

The safety of an OR patient is dependent on a clinician’s awareness and response to potential problems. It is critical for OR clinicians to know they are detecting the earliest changes in oxygenation status so they can respond quickly to emergent problems.

The Assurance® Nasal Alar SpO₂ ™ Sensor is your solution for fast, accurate and dependable SpO₂ readings.

- Earlier detection ...faster reflection of oxygen saturation changes¹
- Ideal central site for poorly perfused patients...strong, consistent signal, less prone to drop out
- Dependable monitoring...monitored signal is unaffected by issues commonly affecting peripheral sites due to poor perfusion³
- Easy access to the nasal alar site

Faster detection of SpO₂ changes¹,⁴,⁷,⁸

The Assurance® Nasal Alar SpO₂ ™ Sensor applied to the nasal ala detects SpO₂ changes faster than a finger-applied sensor, an early response that can be critical for clinical intervention in the OR. In research studies, Nasal Alar Oximetry™ detected desaturations up to 30 seconds faster than finger-applied sensors.¹,⁸
Easy to use and cost effective

Placement of the Assurance® Nasal Alar SpO2™ Sensor is simple. This single-patient-use sensor maintains its placement on the ala comfortably, without adhesives. As a result, the sensor is easily removed and reapplied, eliminating the waste associated with trying multiple sensors to get a good signal. In a recent study, the nasal alar sensor was validated for 7-days of continuous use\textsuperscript{10}. This can reduce costs as the sensor can move with the patient from the OR to the hospital floor.

Better perfusion; dependable signal... less prone to drop out\textsuperscript{3}

Because the Assurance® Nasal Alar SpO2™ Sensor is used on the nasal ala, a central site with a highly consistent blood supply and signal, it is unaffected by many of the most common patient conditions that cause diminished perfusion to the digits leading to signal dropout and resulting in failure to provide an accurate pulse oximetry reading. Traditional finger monitoring may also be limited in the OR by injury, presence on the surgical field, non-invasive blood pressure cuff interruption, arm tucking and shivering.

**Desaturation Measurement using Nasal Alar Sensor and Finger Sensor\textsuperscript{1,8}**

![Desaturation Measurement chart]

*In research studies, Nasal Alar Oximetry\textsuperscript{TM} detected desaturations up to 30 seconds faster than finger-applied sensors.\textsuperscript{1,8}

References:
6. Melker RJ, PhD, MD; Morey TE, MD; Rice MJ, MD. Accuracy of a Nasal Alar Pulse Oximeter. Sensor Society for Technology in Anesthesia. Jan 2013 (abstract).

*This product complies with ISO 10993-1, Biological evaluation of medical devices - Part 1: Evaluation and testing. The SpO2 accuracy has been validated with Nellcor Oximax and Oxisensor II compatible monitors and Philips FAST compatible monitors in human studies against arterial blood sample reference measured with a CO-oximeter.

**Distributor Information**

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Accuracy of a Nasal Alar Pulse Oximeter Sensor

Melker RJ, PhD, MD; Morey TE, MD; Rice MJ, MD. Society for Technology in Anesthesia. Jan 2013 (abstract).

Introduction

The nasal ala is an attractive site for pulse oximetry because of the rich perfusion by branches of both the external and internal carotid arteries. The following accuracy study was performed at the HYPO2XIA LAB, UCSF, San Francisco, CA.

Methods

The study included 12 subjects – 6 women and 6 men of variable skin tone. No subject was anemic and only healthy, non-smoking individuals of age 21-49 were included. Assurance® Alar One-Sense™ sensors (Xhale Assurance, Inc., Glastonbury, CT) were placed on left and right alar regions. A radial arterial cannula was placed in either the left or right wrist of each subject to allow sampling for CO-oximetry determination of oxyhemoglobin saturation using a calibrated OSM3® multi-wavelength oximeter (Hemoximeter, Radiometer, Copenhagen).

Each subject had control data taken at the beginning of each experiment, with control blood samples drawn while breathing room air. Hypoxia was induced to different levels of oxyhemoglobin saturation (between 70-100%) by having subjects breathe mixtures of nitrogen, room air, and carbon dioxide. Each plateau level of oxyhemoglobin saturation was maintained for at least 30 seconds and until pulse oximeter readings had stabilized. Two arterial blood samples were then obtained, approximately 30 seconds apart. A total of 25 samples were obtained on plateaus across the range for each subject. At least 200 data points were collected for each sensor studied.

Results

The Assurance® Alar One-Sense is accurate within ±2% for the full range of oxyhemoglobin saturation levels when compared to an arterial blood sample reference measured with a CO-oximeter.

<table>
<thead>
<tr>
<th>Oxyhemoglobin Saturation (%)</th>
<th>Bias</th>
<th>Std</th>
<th>Measured Accuracy (A_rms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100%</td>
<td>0.57</td>
<td>1.25</td>
<td>1.37</td>
</tr>
<tr>
<td>80-90%</td>
<td>1.46</td>
<td>1.36</td>
<td>1.99</td>
</tr>
<tr>
<td>70-80%</td>
<td>0.86</td>
<td>1.89</td>
<td>2.07</td>
</tr>
<tr>
<td>Overall 70-100%</td>
<td>0.97</td>
<td>1.55</td>
<td>1.83</td>
</tr>
</tbody>
</table>

Alar One-Sense™ Data

This summary was created by Xhale Assurance, Inc. based on the original report by the authors referenced.
Providing accurate SpO₂ monitoring for critical care

Critical care clinicians make split-second decisions in response to life-threatening situations. When monitoring critical patients with pulse oximetry, it's important to know that you are detecting the earliest changes in oxygenation status.

The Assurance® Nasal Alar SpO₂™ Sensor is your solution for fast, accurate and dependable SpO₂ readings.

- Earlier detection ...faster reflection of oxygen saturation changes
- One sensor - 7 days of continuous use ...one and done!
- Ideal central site for poorly perfused patients...strong, consistent signal, less prone to drop out
- Dependable monitoring...monitored signal is unaffected by issues commonly affecting peripheral sites due to poor perfusion
- Easy access to the nasal alar site

Faster detection of SpO₂ changes

The Assurance® Nasal Alar SpO₂™ Sensor applied to the nasal ala detects SpO₂ changes faster than a finger-applied sensor, an early response that can be critical for clinical intervention. In research studies, Nasal Alar Oximetry™ detected desaturations up to 30 seconds faster than finger-applied sensors.
Use one sensor for the average ICU stay

The Assurance® Nasal Alar SpO₂™ Sensor is easily removed and reapplied, eliminating the waste associated with trying multiple sensors to get a good signal. And because it can be repositioned, the proper use of the nasal alar sensor can eliminate pressure injuries; unlike forehead sensors which contribute to tissue necrosis with prolonged use. The Assurance Nasal Alar SpO₂™ Sensor was validated for 7-days of continuous use thus making it the perfect sensor for the ICU where patients are treated for an average of 3.86 days. This usability study also showed that the nasal alar sensor was preferred by study participants over the finger sensor.

Better perfusion; dependable signal... less prone to drop out

Because the Assurance® Nasal Alar SpO₂™ Sensor is used on the nasal ala, a central site with a highly consistent blood supply and signal, Nasal Alar Oximetry is unaffected by many of the most common patient conditions that cause diminished perfusion to the digits leading to signal dropout and resulting in failure to provide an accurate pulse oximetry reading. Traditional finger monitoring may also be limited by injury, presence on the surgical field, non-invasive blood pressure cuff interruption, arm tucking and shivering.

Desaturation Measurement using Nasal Alar Sensor and Finger Sensor

In research studies, Nasal Alar Oximetry™ detected desaturations up to 30 seconds faster than finger-applied sensors.

References:
6. Melker RJ, PhD, MD; Morey TE, MD; Rice MJ, MD. Accuracy of a Nasal Alar Pulse Oximeter. Sensor Society for Technology in Anesthesia. Jan 2013 (abstract).
Providing “One and Done” SpO2 monitoring for EMS

In the world of EMS, speed is everything. Making quick, informed decisions can be the difference in patient outcomes. The Assurance® Nasal Alar SpO2™ Sensor is your “one and done” solution for fast, accurate and dependable SpO2 readings.

- Earlier detection
- Better perfusion
- Dependable monitoring
- Easy access to the alar site
- Immune to ambient light
- Less susceptible to high noise and vibration environments

Easy to use and cost effective

Placement of the Assurance® Nasal Alar SpO2™ Sensor is simple. It is readily accessible, which can be important in EMS vehicles. In addition, this single-patient-use sensor maintains its placement on the nasal ala comfortably, without adhesives. As a result, the sensor is easily removed and reapplied, eliminating the waste associated with trying multiple sensors to get a good signal.

Also, because the sensor’s receiver is inside the nose, it is naturally shaded, protecting it from the interferences of ambient light. The Assurance® Nasal Alar SpO2™ Sensor is also less susceptible to dropout caused by the noise and vibrations associated with EMS transportation.
Faster detection of SpO₂ changes¹,⁴,⁷,⁸

When monitoring critical patients with pulse oximetry, it’s important to know that you are detecting the earliest changes in oxygenation status. Central monitoring sites have been shown to be more responsive to changes in SpO₂ than peripheral locations.⁴

The Assurance® Nasal Alar SpO₂™ Sensor applied to the nasal alа detects SpO₂ changes faster than a finger-applied sensor, an early response that can be critical for clinical intervention. In research studies, Nasal Alar Oximetry detected desaturations up to 30 seconds faster than finger-applied sensors¹,⁸

Better perfusion; Dependable signal...less prone to drop out³

Because the Assurance® Nasal Alar SpO₂™ Sensor is used on the nasal alа, a central site with a highly consistent blood supply and signal, it is unaffected by many of the most common patient conditions that cause diminished perfusion to the digits leading to signal dropout and resulting in failure to provide an accurate pulse oximetry reading. Traditional finger monitoring may also be limited by injury, presence on the surgical field, non-invasive blood pressure cuff interruption, arm tucking and shivering.

Desaturation Measurement using Alar Sensor and Finger Sensor¹,⁸

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