



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

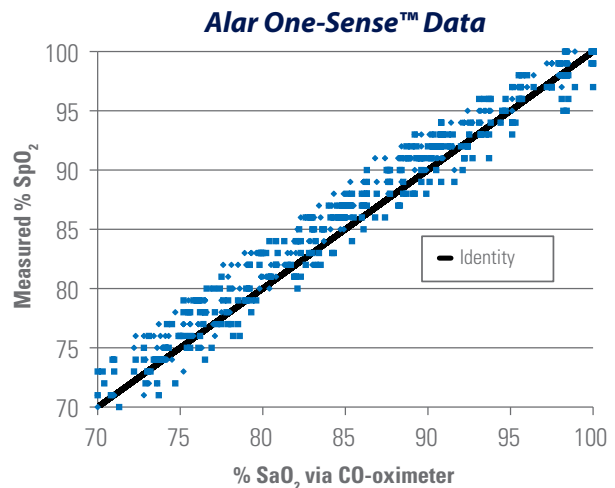
The study included 12 subjects – 6 women and 6 men of variable skin tone. No subject was anemic and only healthy, non-smoking individuals of age 21-49 were included. Assurance® Alar One-Sense™ sensors (Xhale Assurance, Inc., Glastonbury, CT) were placed on left and right alar regions. A radial arterial 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.

SpO ₂	Bias	Std	Measured Accuracy (A _{rms})
90-100%	0.57	1.25	1.37
80-90%	1.46	1.36	1.99
70-80%	0.86	1.89	2.07
Overall 70-100%	0.97	1.55	1.83



This summary was created by Xhale Assurance, Inc. based on the original report by the authors referenced.



Xhale Assurance, Inc.
701 Hebron Avenue
Glastonbury, CT 06033
www.assurance.xhale.com
Toll Free: 855.743.4589