Title: Pulse Oximetry: The Basics

Author: Katie Rau

Date: 3/4/2009

Key words: pulse oximetry, hemoglobin

Abstract: Location of pulse oximeter placement affects accuracy of readings in some critically ill children.

PULSE OXIMETRY: THE BASICS

What is pulse oximetry?

- Pulse oximetry is a noninvasive and indirect measurement of the oxygenation percentage within the blood.

What does a pulse oximeter look like?

- Usually, a pulse oximeter is a small, reusable probe that is placed on the toe or finger. There are also single use probes that can be taped to a finger, toe or earlobe.

*from: http://en.wikipedia.org/wiki/File:Saturometre_2.jpg

How does a pulse oximeter work?

- Oxygen is carried in the blood by a substance called hemoglobin. When a hemoglobin molecule is "full" of oxygen (oxyhemoglobin), it is a different color than when it is "empty" (deoxyhemoglobin). Pulse oximeters have two different sensors that are capable of detecting the difference between the types of hemoglobin.
- Pulse oximeters work by detecting pulsations in blood flow.

Why might I need pulse oximetry?

- There are many reasons why one might need pulse oximetry. It is a very common measurement in both the clinic and hospital setting. Many people require pulse oximeters at home.
- Some conditions that may require pulse oximetry include:
  - Before, during or after surgical procedures
  - Admission to an intensive care unit, the emergency room, or a general hospital floor
  - Chronic heart or lung problems
  - Aiding in the diagnosis of certain sleep disorders, such as sleep apnea

What factors influence the accuracy of pulse oximeters?

- Certain blood conditions can decrease the accuracy of pulse oximetry.
- Inadequate blood flow can decrease the accuracy of pulse oximetry.
- Mechanical failure of the device can affect the accuracy of pulse oximetry.
- The placement of the pulse oximeter probe can affect the accuracy of the reading.

Is pulse oximetry painful?

- No, pulse oximetry is usually painless. The probe simply rests on the finger or toe while it measures the oxygen saturation in the blood.

Where can I go for more information?

- http://www.medicinenet.com/oximetry
- http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1472779

*from: http://en.wikipedia.org/wiki/File:Saturometre_1.jpg