

## **The Anatomy of the Short Desaturation: Transient Drops in Saturation with a Basis in Physiology.**

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### **Background**

Short intermittent desaturations occur with regularity in neonates. These increase the perception of inappropriate alarming because of concerns regarding accuracy. Alarm management technologies that produce decreases in the depth of desaturation, programmable alarm delays, and other techniques to decrease staff interaction have engendered real time monitoring.

### **Objective**

We sought to determine if short intermittent desaturations are a real phenomena and characterize and qualify their presence over the defined interval.

### **Methods**

Short desaturations were qualified by brief drops of oxygen saturation by more than 10% points from baseline occurring up to 4 seconds. Over 150 hours of continuous pulse oximetry were analyzed for these epochs. A desaturation was qualified if it was identified by the Masimo Radical Oximeter (v4.1) and validated by the presence of desaturation on 2 of 3 of the other oximeters on the other three extremities.

### **Results**

Short desaturative changes were characteristically deeper on the Masimo (figure) and could be validated by analysis of the raw waveform data. Analysis demonstrated desaturations of  $14.3 \pm 5.0$  (range 10.3-28.1) over  $2.54 \pm 1.0$  seconds with an average decelerative velocity of  $6.7 \pm 3.6$  /second (2.7-14.4/second) from baseline to nadir.