

## **Comparison between Two Oximeter Technologies in the Detection of Desaturation during Polysomnography.**

Whitman R.A., Garrison M.E., Oestriech P.J. *Respir Care*. 2002;47(9):1088.

### **Introduction**

Different oximeters with different technologies are used in the sleep disorders laboratory to assess level of desaturation during sleep related respiratory events. The scoring of hypopneas based on the newly implemented definition by Medicare requires that there be a 4% or greater decrease in saturation associated with the event. We studied two different oximeter technologies to determine if the type of technology would influence the scoring of respiratory hypopneas during sleep.

### **Methods**

Thirty five patients referred to the sleep disorders laboratory for evaluation of possible sleep disordered breathing were studied using two common oximeter technologies, a Masimo Radical with SET V3 technology (M) and a Nellcor N-395 (N3). The Radical was configured in the 2-second data averaging mode. The N-395 does not have a user-selectable averaging mode. Both oximeters were turned on simultaneously at the beginning of the study and turned off simultaneously at the termination of the study. The data from all three oximeters were downloaded into PROFOX oximetry analysis software (version PFWs 08/99). Both mean saturation and number of desaturations <sup>3</sup> 4% were extracted from the report and analyzed.

### **Results**

There were no differences in mean saturation between M and N3 ( $95.2 \pm 1.6\%$ ,  $95.8 \pm 1.7\%$  respectively). However, there was a significant difference in the number of desaturations greater than or equal to 4% between the two oximeters. The mean number of desaturations was  $87 \pm 84$  and  $52 \pm 51$  for M and N3 respectively. The Masimo Radical detected 69% more desaturations <sup>3</sup> 4% than the Nellcor N-395.

### **Conclusion**

The Masimo Radical oximeter detected 67% more desaturation episodes of <sup>3</sup> 4% than the Nellcor N-395 during standard polysomnography. Thus, oximeter technology appears to have a significant impact on the scoring respiratory events and possibly CPAP coverage by Medicare.