

Cost Reduction Following Conversion to Masimo SET Pulse Oximetry - Experience in the Neonatal ICU

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Introduction


This study evaluates the financial impact of converting to Masimo SET pulse oximetry technology in the NICU. “Masimo Corporation (Irvine, CA.) has introduced innovations in sensor design and technology that claim to increase the durability and longevity for sensors.” This clinician evaluated these changes in sensor performance and the cost associated with using Masimo SET pulse oximetry in his 39 bed level III Neonatal ICU (NICU).

Methods

Following conversion of the NICU to Masimo SET pulse oximetry technology, the number of Masimo SET LNOP sensors utilized per patient admission for a three month period of time (post) was compared to the same three month period of time prior to the conversion (pre). The number of sensors consumed in the NICU and the number of admissions, length of stay (LOS) and average daily census for the two time periods were compared. Several months following conversion, the staff (RNs, RRTs, and MDs) was surveyed to determine their impression of the Masimo sensors.

Results

The NICU census and sensor utilization data is summarized in the table below.

| Sensors | # of Admissions | Daily Census | # of Sensors Consumed | Sensors per Admission | Sensor Longevity (days) |
|--|-----------------|--------------|-----------------------|-----------------------|-------------------------|
| CPO | 213 | 32.7 | 544 | 2.6 | 4.8 |
|  Masimo SET | 265 | 38.1 | 400 | 1.5 | 11.5 |

“Average LOS was calculated; ‘pre’ = 12.6 days, ‘post’ = 17.2 days. It was noted that during the ‘post’ time there was an increase in the number of patients receiving ECMO in the unit, increasing length of stay. Average sensor longevity was calculated as LOS / sensors per admission; Criticare = 4.8 days, Masimo = 11.5 days.

When asked to determine the durability and useful life of the Masimo sensor, 83% of the staff rated Masimo superior to the previous sensor. 78% of the staff rated Masimo superior in the ease of acquiring initial oximetry readings. 96% of the staff reported that changing to Masimo sensors has resulted in less handling of infants to ‘fix or adjust’ sensors in order to obtain reliable saturation values.”

Authors’ Discussion and Conclusion

“Conversion to Masimo oximetry has resulted in a 58% reduction in sensor consumption in our NICU.” Masimo sensors lasted 11.5 days, on average, which is approximately 2.4 times as long as the Criticare sensor. The authors summarize: “In our experience Masimo oximetry sensors significantly reduce the cost of oximetry monitoring. We attribute this to their increased durability and ease of acquiring initial oximetry readings.”