

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

Noblet T. *Respir Care*. 2001;46(10):1130.

Introduction

Recent publications have focused on pulse oximetry technology, specifically changes in artifact rejection, low perfusion sensitivity and alarm management. However, little information has been presented concerning the financial implications of utilizing this new technology. Additionally, Masimo Corporation (Irvine, CA.) has introduced innovations in sensor design and technology that claim to increase the durability and longevity for sensors. We evaluated these changes in sensor performance and the cost associated with using Masimo oximetry in our 39 bed level III Neonatal ICU (NICU).

Methods

All patients admitted to the NICU are monitored with pulse oximetry for the duration of their admission. Criticare 504US oximeters with 573SD sensors had been used in our NICU prior to October 1, 2000. At that time we began a conversion to Masimo SET oximetry, using the Radical oximeter and NeoPt sensors throughout our NICU. We evaluated the number of sensors utilized per patient admission for a three month period of time (post) and compared this to the same three month period of time prior to the conversion (pre). We determined 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. Additionally, we surveyed the staff (RNs, RRTs, and MDs) to determine their impression of the Masimo sensors.

Results

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

	<u># of Admissions</u>	<u>Daily Census</u>	<u># of Sensors Consumed</u>	<u>Sensors per Admission</u>	<u>Sensor Longevity(days)</u>
Criticare sensor	213	32.7	544	2.6	4.8
Masimo sensor	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.

Conclusions

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. 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.