

Longevity of Masimo and Nellcor Pulse Oximeter Sensors in the Care of Infants

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Introduction

Pulse oximetry is routine for monitoring oxygenation in neonates. If the pulse oximeter sensor is single-patient use and it is short-lived, the cost of monitoring can be high. Since pulse oximetry monitoring of sick newborns is often lengthy, the use of long-lived sensors would benefit the hospital management and lessen patient costs. These physicians (at two hospitals) compared the longevity of the Masimo LNOP Neo and LNOP Neo PT sensors to the Nellcor Oxisensor II N-25 sensors on infants in their Neonatal Intensive Care Units and step-down nurseries.

Methods

121 sick newborns were enrolled in this multicenter study: 56 used Masimo LNOP Neo and LNOP Neo PT sensors and 65 used the Nellcor N-25 sensors. Infants were randomly chosen for monitoring with either the Masimo SET Radical or the Nellcor N-395 and Nellcor N-3000 pulse oximeters. They remained on this monitor/sensor combination throughout the study. The sensors were positioned in an identical fashion and in accordance with the manufacturers' user instructions. The time of sensor placement and replacement were noted along with the reason for changing the sensor. The standard care practices for pulse oximetry were followed, per each institution's use protocol.

Results

A total of 835.5 patient days of monitoring were accumulated on 121 infants. The Masimo Neo sensors had over twice (2.33) the useful life of the Nellcor N-25 sensors (9.05 ± 4.4 versus 3.9 ± 2.3 days, respectively, $p < 0.05$). In addition, the magnitude of the useful life between the two institutions was not significantly different in the Masimo group (2.35 versus 2.22-fold).

	 Masimo LNOP Neo	Nellcor N-395 / N-3000 N-25
Sensor life in days (mean \pm sd)	9.05 \pm 4.4	3.9 \pm 2.3

Authors' Discussion and Conclusions

"We are aware that the pricing of the Masimo and Nellcor pulse oximeters is similar, as is the cost of the LNOP Neo and N-25 sensors. Given this, a two-fold increase in sensor life translates into dramatic savings in settings where long-term PO (pulse oximetry) monitoring is routine, such as neonate care."