

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

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Objective

Pulse oximetry is a standard of care for monitoring oxygenation in neonates. Associated with the use of pulse oximetry is the cost of patient sensors, especially if the sensor is designed for single-patient use. Pulse oximetry monitoring of sick newborns is routine and often lengthy and, if the pulse oximeter sensor is short-lived, can result in a significant portion in the cost of intensive care.

Methods

We evaluated, in the NICUs of two hospitals and one step-down nursery, the useful life of disposable neonatal pulse oximeter sensors from two manufacturers: Masimo and Nellcor. The only requisites were ethics committee approval and need for monitoring. The timing of PO sensor placement and replacement were noted along with the reason for changing the sensor. The standard care practices for PO and sensor use in the respective institutions were followed.

Results

A total of 835.5 patient days of monitoring were accumulated with 65 infants in the Masimo group and 56 using Nellcor. The Masimo Neo sensors had over twice (2.33) the useful life of the Nellcor N-25 (9.05 \pm 4.4 versus 3.9 \pm 2.3 days (range of 7.2-11.8 and 2.5-5.8 days, respectively, $p < 0.05$)). The magnitude of useful life between the two institutions was not significantly different in the Masimo group (2.35- versus 2.22-fold). PO sensors were replaced due to impaired adhesion (38 Masimo and 32 Nellcor) and no signal (six Masimo and four Nellcor).

Conclusions

We found a more than two-fold increase in the life of Masimo versus Nellcor sensors. This difference was consistent between various caregivers in multiple settings and corroborates the experience of another, more limited study. A cost savings should result from the use of Masimo versus Nellcor disposable pulse oximeter sensors in neonatal routine care.