

Patient Safety and Staff Satisfaction Following Conversion to Masimo SET Pulse Oximetry - Experience in the Neonatal ICU

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Introduction

This study evaluates the patient safety and staff satisfaction following a unit wide conversion to Masimo SET pulse oximetry technology. Recent reports highlight the importance of human and system error on patient safety.¹ In addition, to the stress placed on staff and the resultant latent errors, monitor function causes other problems in the Neonatal ICU (NICU) with noise from alarms as well as increased handling of the infants to obtain reliable monitoring signals.^{2,3} It has been demonstrated that even minor changes in noise and activity in the NICU can affect infant's physiology and well being.³ The impact of a new oximetry technology on staff perception of patient safety and stress levels was evaluated.

Methods

All oximetry technology in their 39 bed level III NICU was converted to Masimo SET oximetry. Following the conversion a survey was developed to assess factors related to patient safety and staff satisfaction and was administered to RNs, RRTs and MDs in their NICU, 23 clinicians responded. Questions were designed for clinicians to respond to each with either "disagree" or "not disagree" with the statement. The following questions were asked: (1) The noise level in the Nursing unit is reduced now compared to before conversion to Masimo oximetry, (2) Changing to Masimo oximetry has resulted in less handling of infants to "fix or adjust" sensors in order to obtain reliable saturation values, (3) I have a greater sense of patient safety since changing to Masimo oximetry, (4) The combination of decreased false alarms and increased confidence in oximetry values has resulted in less distractions while caring for other infants, (5) I have a greater sense of monitoring reliability since changing to Masimo oximetry, (6) The combination of decreased false alarms and increased confidence in oximetry values has resulted in a reduction in staff stress levels, (7) Since changing to Masimo oximetry there has been less parental anxiety concerning the frequency of false alarms and the reliability of the monitor, (8) If I were to transfer to another nursing unit, I would encourage that unit to use Masimo oximetry. Chi-square analysis was used to test the distribution of results, $p < 0.05$ was considered significant.

Results

The results of this survey are tabulated below. These results were significantly different from a random distribution, $p < 0.001$.

Question number	1	2	3	4	5	6	7	8
% not disagree	70%	96%	91%	83%	83%	74%	78%	83%

Authors' Discussion and Conclusion

"After having used Masimo SET pulse oximetry in our NICU, **our staff perceived greater patient safety and staff satisfaction from this new technology.** A significantly greater number of staff members agreed that Masimo oximetry technology offers improved patient safety by agreeing with questions 2 - 5, which were directed at improved patient safety. **A significantly greater number of staff members agreed that they would recommend Masimo oximetry if they were transferred to another unit.**"

1. Kohn LT, Corrigan JM, Donaldson MS, Editors. *Institute of Medicine*, National Academy Press, 1999.
2. Ahlborn V, Bohnhorst B, Peter CS, Poets CF. *Acta Paediatr* 89:571-576, 2000.
3. Slevin M, Farrington N, Duffy G, Daly L, Murphy JFA. *Acta Paediatr* 89:577-581, 2000.