



# Major Reduction in Alarm Frequency With a New Pulse Oximeter

Bohnhorst B, Poets CF. *Intensive Care Medicine* 1998;24(3):277-278

## Introduction


“In general, intensive care monitor alarms are a major burden on both nurses and patients. Between 44% and 63% of alarms are caused by pulse oximeters, with 94% of these being non-significant. The high percentage of false alarms can result in potential delays in response or ignoring the alarms completely. Desensitization of nursing staff to alarms carries the risk of intervention in a severe event occurring too late.” This study was undertaken to evaluate oximeter alarm frequency using Masimo SET pulse oximetry technology compared to conventional pulse oximetry in preterm infants monitored for SpO<sub>2</sub>.

## Methods

Seventeen unsedated, preterm infants [median birth weight of 1000 grams (range 360-2400)] were studied with two pulse oximeters. One SpO<sub>2</sub> sensor was attached to each foot. The sensors were connected into one of two SpO<sub>2</sub> modules fitted into the housing of a standard modular intensive care monitoring system (Kolormon, Kontron, Watford, UK). One module contained a conventional oximeter (Kontron 7278), the other the new pulse oximeter technology (Kontron/Masimo SET). SpO<sub>2</sub> alarm limits were identical at 85% and 100%. The ECG heart rate alarms were set at 90 and 210 bpm, but the pulse rate alarms were muted. The occurrence of an alarm was recorded by the monitoring system, printed and analyzed for periods of approximately 24 h per infant. The frequency and cause(s) of alarms were also analyzed.

## Results

There were 2,241 alarms during a total of 329 hours of monitoring. There was a very significant difference between the conventional and Masimo SET pulse oximeter alarm rate (p< 0.0001).

	 Masimo SET SpO <sub>2</sub>	Conventional SpO <sub>2</sub>	ECG Monitor	Total of Each Category
<b>Total Alarms</b>	136	1,884	221	2,241
<b>% Alarms</b>	6%	84%	10%	100%
<b>Alarms/Hour</b>	0.3	4.0	0.6	0.4.9

## Authors' Discussion and Conclusions

“Thus, the new technology (Masimo SET) oximeter assessed in this study generated 93% fewer alarms than the conventional pulse oximeter with which it was compared. The results of this study are encouraging, as they suggest that incorporation of advanced pulse oximeter technology into current ICU monitoring systems will result in a considerable reduction in the frequency of alarms and may, thereby, contribute to better patient care, as well as to a less noisy atmosphere on these units.”