**Indication of False Unwarned Desaturations in the Neonatal Intensive Care Unit.**
Goldstein M.R., Louie P., Lawas-Alejo P., Pernia M.L., Yang L.L., Ochikubo C.G., Sindel B.D., Furman G.I., Martin G.I. *Proceedings of the American Thoracic Society International Conference*, 2004. A139.

## Introduction

Despite improvements in monitoring with the new generation of motion resistant, low perfusion tolerant pulse oximeters, PO), changes in physiological state can produce situations where POs are unable to measure saturation reliably. Missteps in oxygen titration in the neonate can produce untoward results. It is imperative that safeguards be in place to prevent inadvertent over oxygenation during desaturation that is obviously false. Nellcor has incorporated Pulse Serch and Masimo has incorporated Low Signal IQ indicator alerts that warn the user that the information processed by the PO may not be reliable. The Philips Virida has no built in mechanism to signal potential false readings.

## Methods

For this study, 30 neonates were studies for a total of 10,750 minutes on four different oximeters; the Masimo SET Radical (rev V4), the Nellcor N-595 (rev 2.4.6.0), the Nellcor N-395 (Rev 1.6.2.0) and the Philips-Viridia 24C (Rev C1). POs were rotated through all four limbs so as not to bias the results. False desaturation was quantified by clinical appearance of the baby, concordance of remaining PO, and apparent desaturation in the indicated PO with the appearance of a warning indicator light. Events likely to produce a clinical response lasting >5 seconds were noted.

## Results

Even when episodes <5 seconds were excluded, clinically concerning false desaturation occurred at a much higher rate in the N-395, N-595 and Philips Viridia (without its warning indicators). Masimo SET has fewer unwarned false events in saturation that can produce confounding pulse oximetry data.

## Conclusion

Use of this device may lead to improved oxygen titration in an at risk neonatal population.