Oxygen Targeting in Preterm Infants Comparing the Masimo Pulse Oximeter with the Phillips Pulse Oximeter.
Jeyaprakash V., Li D., Foreman S., Groves A., *Pediatric Academic Societies Annual Meeting* 2012:1534.575.

Background
Specific approaches to oxygen saturation targeting in preterm infants may significantly impact outcome. The oxygen saturation algorithm used may also be important. *Objective*: To confirm a reduction in frequency of oxygen saturation readings at 87%-90% using the Masimo SatShare oximetry module. To assess the suitability of a Philips system (MP70) for routine neonatal use.

Design/Methods
Oxygen saturations of 4 preterm infants (gestation 25-26 weeks, weight 805-1100 grams) on CPAP receiving 25-40% oxygen (saturation target 88-90%, alarm limits 84-92%) were taken every minute using a Masimo SatShare module for 24 hours. Saturations were then taken using a Philips algorithm every 60 seconds for 4-8 hours on 2 consecutive days and matched to 2 periods using the Masimo algorithm.

Results
Preterm infants on the Masimo SatShare oximetry module showed a reduction in frequency of oxygen saturations at 87-90% (Figure, in red). The Philips algorithm provided saturation readings with minimal periods of signal loss (0.14%vs1.03% with Masimo), produced a range of saturation readings normally distributed around 91-93% (figure, in blue), and showed no reduction in frequency of values at 87-90%.

The Philips algorithm appeared to decrease the amount of time spent outside the alarm limits (38.0%vs45.9%,p=0.08).

Conclusions
The previously reported artefact with the Masimo SET Radical oximeter also affects the Masimo SatShare module. Use of a Philips algorithm within the MP70 monitoring system may provide a viable alternative in stable preterm infants. The Philips algorithm did not appear to be significantly impaired by movement artefact, produced readings as frequently as the Masimo, and showed no reduction in frequency of values at 87-90%. The Philips algorithm requires no additional cost, intervention or training and could be a pragmatic solution to the problem posed by the artefact within the Masimo algorithm. The Philips algorithm may also reducing the frequency of saturation limit alarms in preterm infants.