

# Masimo SET®: Advancing Patient Safety



"I saw and was conquered. I was not able to defeat the Masimo SET® pulse oximeter using all the motion and low pulse tricks I know. This technology is most impressive and should be available in all oximeters."

**John Severinghaus, M.D.**

Professor of Anesthesiology, Emeritus  
University of California, San Francisco

## The accuracy and reliability of Masimo SET® pulse oximetry has been studied in challenging conditions.

- > Masimo SET® pulse oximeters detected approximately **10 times more** true events than other "Next Generation" pulse oximeters studied.<sup>1,2</sup>
- > Researchers showed time to **reliable oxygen saturation readings during neonatal resuscitation** was approximately **50 seconds faster** using Masimo SET® than using other pulse oximetry technologies.<sup>3</sup>
- > In a PACU, Masimo SET® had a greater than **50% reduction** in false alarms compared to other pulse oximetry technology.<sup>4</sup>
- > In two NICU settings, Masimo SET®, coupled with changes in clinical practice, showed significantly **reduced rates of severe retinopathy of prematurity (ROP)** and decreased the need for **laser treatment to 0%**.<sup>5,6</sup>
- > In a study of 39,821 infants, CCHD screening sensitivity increased from **63%** with physical exam alone to **83%** with physical exam and Masimo SET® pulse oximetry.<sup>7</sup>
- > In a study of 122,738 infants, critical congenital heart disease (CCHD) screening sensitivity increased from **77% to 93%** with the combined use of Masimo SET® and clinical assessment.<sup>8</sup>
- > On a post-surgical unit, rescue calls and ICU transfers were **reduced by 65% and 48%**, respectively, after the implementation of continuous surveillance monitoring with Masimo SET®.<sup>9</sup>

<sup>1</sup> Hay WW. Reliability of conventional and new oximetry in neonatal patients. *J of Perinatal*, 2002;22:360-36. <sup>2</sup> Barker SJ. "Motion-Resistant" Pulse Oximetry: A comparison of new and old models. *Anesth Analg*, 2002;95(4):967-72. <sup>3</sup> Baquero H et al. Avoiding Hyperoxemia during Neonatal Resuscitation: Time to Response of Different SpO<sub>2</sub> Monitors. *Acta Paediatr*. 2011 Apr;100(4):515-8. <sup>4</sup> Malviya S et al. False Alarms and Sensitivity of Conventional Pulse Oximetry Versus the Masimo SET® Technology in the Pediatric Postanesthesia Care Unit. *Anesth Analg* 2000; 90(6):1336-1340. <sup>5</sup> Castillo et al. Prevention of retinopathy of prematurity in preterm infants through changes in clinical practice and SpO<sub>2</sub> Technology. *Acta Paediatr*. 2011 Feb;100(2):188-92. <sup>6</sup> Sola et al. Can changes in clinical practice decrease the incidence of severe retinopathy of prematurity in very low birth weight infants? 2003;111(2):339-345. <sup>7</sup> de-Wahl Granelli A et al. Impact of pulse oximetry screening on the detection of duct dependent congenital heart disease: a Swedish prospective screenign study in 39,821 newborns. *BMJ* 2009;338:a3037. <sup>8</sup> Zhao et al. Pulse oximetry with clinical assessment to screen for congenital heart disease in neonates in China: a prospective study. *Lancet*. 2014 Aug 30;384(9945):747-54. <sup>9</sup> Taenzer AH et al. Impact of pulse oximetry surveillance on rescue events and intensive care unit transfers: a before-and-after concurrence study. *Anesthesiology*.2010;112(2):282-287.

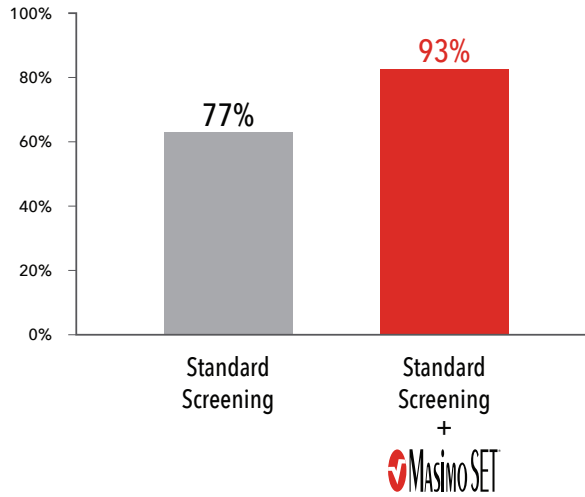


# Clinical Studies: The Performance of Masimo SET®

## CCHD Screening

- > When combined with clinical assessment, Masimo SET® **improved** critical congenital heart disease (CCHD) screening sensitivity to 93%

### Improved Critical Congenital Heart Disease Screening Sensitivity vs. Clinical Assessment Alone

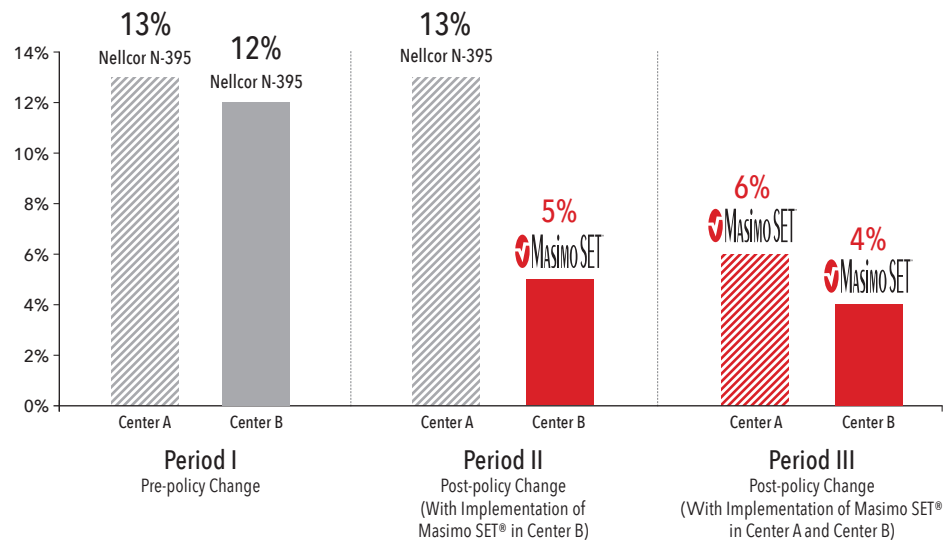


Zhao et al. *Lancet*. 2014 Aug 30;384(9945):747-54.

## Retinopathy of Prematurity

- > Masimo SET®, coupled with changes in clinical practice, led to a significant **reduction** in rates of severe Retinopathy of Prematurity (ROP)

### Severe Retinopathy of Prematurity Rate

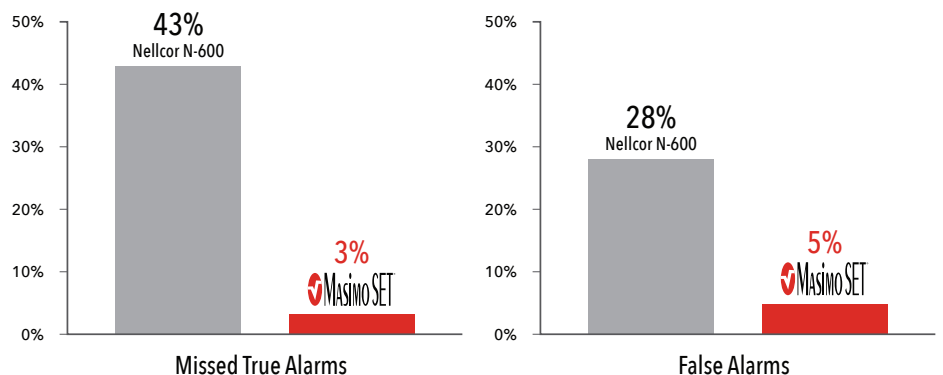


Castillo et al. *Acta Paediatr*. 2011 Feb;100(2):188-92.

## Performance During Motion and Low Perfusion

- > Masimo SET® had **3% missed true alarms and 5% false alarms** versus 43% and 28%, respectively, using competitor technology

### Performance During Motion and Low Perfusion



Shah et al. *J Clin Anesth*. 2012;24(5):385-91.

\*Results shown are calculated by combining sensitivity and specificity outcomes of machine-generated and volunteer-generated motion.

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