

## Performance of Two Different Pulse Oximeters in Neonatal Transition

Jeyapal S, Kommu PP, Manikandan M, Krishnan L. *Indian J Pediatr.* 2017 Jan;84(1):7-12. doi: 10.1007/s12098-016-2212-1.

**Objective:** To evaluate the performance of two different pulse oximeter technologies by comparing the time taken to achieve reliable oxygen saturation readings during neonatal transition.

**Methods:** This cross-sectional study was done to compare the performance of two pulse oximeter technologies - Signal Extraction Technology (SET), and Resistor Calibration (RCAL) technology on 150 inborn, term neonates at birth. Probes of both pulse oximeters were connected to the pre-ductal limb and the time taken to obtain a reliable reading was recorded. Sequential saturation values were recorded every minute till ten minutes of life. Statistical analysis was done with Mann-Whitney U test and intraclass correlation coefficient was calculated.

**Results:** Pulse oximeter with SET recorded reliable readings faster than RCAL technology - Median (IQR) 32 (21-60)s vs. 45 (21.75-105)s,  $p = 0.021$ . There was a significant difference in the time to record first saturation readings of the two pulse oximeters when used in normal deliveries [RCAL vs. SET-Median (IQR) 50s (25-120.75) vs. 32.5s (21.75-58.25),  $p = 0.004$ ] but no such difference was observed in Lower Segment Cesarean section (LSCS) [RCAL vs. SET Median (IQR) 35.5s (18.25-70.75) vs. 31s (20-69.75),  $p = 0.968$ ]. Sequential saturation readings for every minute for the first 10 min of life were higher with SET vs. RCAL technology. The intraclass correlation coefficient between both pulse oximeters, for each minute, was poor ( $r < 0.80$ ).

**Conclusions:** The SET pulse oximeter picked up first saturation values faster than the RCAL technology pulse oximeters. Studies are needed to evaluate effect of this on decisions made during neonatal resuscitation.