Is Freezing an Issue with Pulse Oximetry Pulse Rate (PR) Signal in the Delivery Room? 


Methods: The Coviden Nellcor N600X (Melville, NY), Masimo Radical 7 (Irvine, CA) were compared in 78 neonates following cesarean section as part of quality improvement (QI) to assess pulse oximetry performance in a DR environment. Both oximeters were placed on the warmer, oximeter probes were attached to left and right foot to minimize movement artifacts. Both oximeters were placed, and monitoring was initiated simultaneously according to manufacturer’s recommendations. No differences were present in gender, birth weight, APGAR score (5–8) or number of O2, or illness severity. Most patients were born at term and were non-moving adult patients. When the older oximeters were placed on the warmer, oximeter probes were attached to the left and right foot to minimize movement artifacts. Both oximeters were placed, and monitoring was initiated simultaneously according to manufacturer’s recommendations. No differences were present in gender, birth weight, APGAR score (5–8) or number of O2, or illness severity. Most patients were born at term and were non-moving adult patients. When the older oximeters were placed on the warmer, oximeter probes were attached to the left and right foot to minimize movement artifacts. Both oximeters were placed, and monitoring was initiated simultaneously according to manufacturer’s recommendations. No differences were present in gender, birth weight, APGAR score (5–8) or number of O2, or illness severity. Most patients were born at term and were non-moving adult patients.

Discussion: The first generation conventional oximetry was designed for well perfused, non-moving adult patients. The performance of pulse oximetry in the DR has been the subject of many studies. The improved technologies resulted in a paradigm shift. Improved reliability produced a change in the day to day practice in the NICU. Oximeters are no longer affected by the presence of non–continuous recording by improved waveform analysis. An algorithm is set as evidence of potential freezing. Monitor performance was evaluated by waveforms analysis, especially in the context of motion sensing. The described QI data were approved as part of chart review by the Riverside County Medical Center (Moore, CA) Institutional Research Board (IRB) to present for research publication.