

Abstract Title:

Operating (OR) /Delivery Room (DR) Temperature at 74 degree F can achieve the Normothermia in Extremely low birth weight infants: Multidisciplinary team efforts and continuously quality improvement project.

Author Information:

Dilip Bhatt, MD.
Neonatologist
Kaiser Permanente - Fontana

Co-Authors:

*Nirupa Reddy,MD, David Braun,MD, Reinaldo Ruiz,MD, Roman-Angeleo Dizon,RT, Darla Bustos,RN, Torria Peacock,RN, Rangasamy Ramanathan,MD.

Abstract Description:

Introduction: Normothermia (36.5-37.5 C) in Extremely Low Birth Weight (ELBW) is associated with decreased morbidity and mortality, length of stay, and costs. There is no consensus about DR/Operating Room (OR) temperature. WHO in 1997 recommended DR/OR temperature of 77 F). American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc., (ASHRAE) in 2011 recommended OR temperature range of 68-75 F. NRP in 2016 revised the recommended DR temperature range from 77-79 F to 74-77 F. We started this QI project in 2006 in an attempt to achieve normothermia.

Objective: We report the incidence of normothermia over the last five years (2014-2018) while maintaining DR/OR temperature at 74 F.

Methods: We designed a bundle approach that included: education of perinatal and neonatal staff, use of exothermic mattress, saran wrap, pre- heated radiant warmer, head cap, warm towels, and transport of ELBW infants in a servo controlled unit. Axillary temperature every 5 minutes in OR/DR and first temperature within 15 minutes of admission to NICU were recorded. We studied 175 consecutive ELBW cases. ten infants were <500g and 39 were <24 weeks' GA. C-Section rate was 76%, and 48% were intubated in OR/DR, 37% were intubated in NICU, 15% did not need intubation, and 3 babies needed epinephrine in the OR/DR.

Results: Normothermia (36.5-37.5 C) was achieved in 90% (158/175) of the ELBW infants. Incidence of hypothermia (<36.5 C) was 2.9% (5/175) and hyperthermia (>37.5 C) was 6.9% (12/175). Vermont Oxford Network and CPQCC defined Hypothermia as <36.0 C. According

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to this definition, hypothermia rate in our study was 0%. In 2018, we achieved 100% Normothermia. No case of Hyperthermia was recorded in 2018.

Conclusions: We were able to achieve very close to the target Normothermia rate in the last five consecutive years, 2014 to 2018 with OR/DR temperature set at 74 F. We suggest OR/DR temperature of 74 F as recommended by ASHRAE and NRP 2016 guidelines without compromising ELBW or VLBW infants' temperature during the transitional period. Both hypothermia and hyperthermia may be totally preventable with continuous quality improvement. Our QI project achieved the best results consistently when compared to published studies.

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