

Randomized controlled trial of oxygen saturation targets in very preterm infants: two year outcomes. *J Pediatr.* 2014 Jul;165(1):30-35.e2. doi: 10.1016/j.jpeds.2014.01.017. Epub 2014 Feb 20. Darlow BA, Marschner SL, Donoghoe M, Battin MR, Broadbent RS, Elder MJ, Hewson MP, Meyer MP, Ghadge A, Graham P, McNeill NJ, Kuschel CA, Tarnow-Mordi WO; Benefits Of Oxygen Saturation Targeting-New Zealand (BOOST-NZ) Collaborative Group.

Objective

To assess whether an oxygen saturation (Spo₂) target of 85%-89% compared with 91%-95% reduced the incidence of the composite outcome of death or major disability at 2 years of age in infants born at <28 weeks' gestation.

Study Design

A total 340 infants were randomized to a lower or higher target from <24 hours of age until 36 weeks' gestational age. Blinding was achieved by targeting a displayed Spo₂ of 88%-92% using a saturation monitor offset by $\pm 3\%$ within the range 85%-95%. True saturations were displayed outside this range. Follow-up at 2 years' corrected age was by pediatric examination and formal neurodevelopmental assessment. Major disability was gross motor disability, cognitive or language delay, severe hearing loss, or blindness.

Results

The primary outcome was known for 335 infants with 33 using surrogate language information. Targeting a lower compared with a higher Spo₂ target range had no significant effect on the rate of death or major disability at 2 years' corrected age (65/167 [38.9%] vs 76/168 [45.2%]; relative risk 1.15, 95% CI 0.90-1.47) or any secondary outcomes. Death occurred in 25 (14.7%) and 27 (15.9%) of those randomized to the lower and higher target, respectively, and blindness in 0% and 0.7%.

Conclusions

Although there was no benefit or harm from targeting a lower compared with a higher saturation in this trial, further information will become available from the prospectively planned meta-analysis of this and 4 other trials comprising a total of nearly 5000 infants.