

Oxygen Targets in 2026: Lessons Learned and the Road Ahead

References

Askie LM, Henderson-Smart DJ, Irwig L, Simpson JM. Oxygen-saturation targets and outcomes in extremely preterm infants. *N Engl J Med*. 2003 Sep 4;349(10):959-67. doi: 10.1056/NEJMoa023080. PMID: 12954744.

Askie LM, Henderson-Smart DJ, Ko H. Restricted versus liberal oxygen exposure for preventing morbidity and mortality in preterm or low birth weight infants. *Cochrane Database Syst Rev*. 2009 Jan 21;2009(1):CD001077. doi: 10.1002/14651858.CD001077.pub2. PMID: 19160188; PMCID: PMC7050616.

Askie LM, Ballard RA, Cutter GR, Dani C, Elbourne D, et al; Meta-analysis of Preterm Patients on Inhaled Nitric Oxide Collaboration. Inhaled nitric oxide in preterm infants: an individual-patient data meta-analysis of randomized trials. *Pediatrics*. 2011 Oct;128(4):729-39. doi: 10.1542/peds.2010-2725. Epub 2011 Sep 19. PMID: 21930540; PMCID: PMC3387905.

Askie LM, Darlow BA, Finer N, Schmidt B, Stenson B, et al; Neonatal Oxygenation Prospective Meta-analysis (NeOProm) Collaboration. Association Between Oxygen Saturation Targeting and Death or Disability in Extremely Preterm Infants in the Neonatal Oxygenation Prospective Meta-analysis Collaboration. *JAMA*. 2018 Jun 5;319(21):2190-2201. doi: 10.1001/jama.2018.5725. Erratum in: *JAMA*. 2018 Jul 17;320(3):308. doi: 10.1001/jama.2018.9635. PMID: 29872859; PMCID: PMC6583054.

BOOST II United Kingdom Collaborative Group; BOOST II Australia Collaborative Group; BOOST II New Zealand Collaborative Group; Stenson BJ, Tarnow-Mordi WO, Darlow BA, Simes J, Juszczak E, et al. Oxygen saturation and outcomes in preterm infants. *N Engl J Med*. 2013 May 30;368(22):2094-104. doi: 10.1056/NEJMoa1302298. Epub 2013 May 5. PMID: 23642047.

Chow LC, Wright KW, Sola A; CSMC Oxygen Administration Study Group. Can changes in clinical practice decrease the incidence of severe retinopathy of prematurity in very low birth weight infants? *Pediatrics*. 2003 Feb;111(2):339-45. doi: 10.1542/peds.111.2.339. PMID: 12563061.

Claire N, Bancalari E. Automated closed loop control of inspired oxygen concentration. *Respir Care*. 2013 Jan;58(1):151-61. doi: 10.4187/respcare.01955. PMID: 23271825.

Collins MP, Lorenz JM, Jetton JR, Paneth N. Hypocapnia and other ventilation-related risk factors for cerebral palsy in low birth weight infants. *Pediatr Res*. 2001 Dec;50(6):712-9. doi: 10.1203/00006450-200112000-00014. PMID: 11726729.

Franz AR, Maiwald CA, Niemarkt HJ, Ehrhardt H, Mendler MR, et al; FiO₂-C Study Group. Automatic versus manual control of oxygen and neonatal clinical outcomes in extremely preterm infants: a multicentre, parallel-group, randomised, controlled, superiority trial. *Lancet Child Adolesc Health*. 2026 Mar;10(3):179-188. doi: 10.1016/S2352-4642(25)00351-7. PMID: 41679888.

Schmidt B, Whyte RK, Asztalos EV, Moddemann D, Poets C, et al; Canadian Oxygen Trial (COT) Group. Effects of targeting higher vs lower arterial oxygen saturations on death or disability in extremely preterm infants: a randomized clinical trial. *JAMA*. 2013 May 22;309(20):2111-20. doi: 10.1001/jama.2013.5555. PMID: 23644995.

Silverman WA. The unresolved oxygen-level issue: hijacked by anti-trialists. *J Perinatol*. 2004 Feb;24(2):109-11. doi: 10.1038/sj.jp.7211029. PMID: 14872209.

Sinclair JC. Meta-analysis of randomized controlled trials of antenatal corticosteroid for the prevention of respiratory distress syndrome: discussion. *Am J Obstet Gynecol*. 1995 Jul;173(1):335-44. doi: 10.1016/0002-9378(95)90223-6. PMID: 7631714.

SUPPORT Study Group of the Eunice Kennedy Shriver NICHD Neonatal Research Network; Carlo WA, Finer NN, Walsh MC, Rich W, Gantz MG, et al. Target ranges of oxygen saturation in extremely preterm infants. *N Engl J Med*. 2010 May 27;362(21):1959-69. doi: 10.1056/NEJMoa0911781. Epub 2010 May 16. PMID: 20472937; PMCID: PMC2891970.

Tan A, Schulze A, O'Donnell CP, Davis PG. Air versus oxygen for resuscitation of infants at birth. *Cochrane Database Syst Rev*. 2005 Apr 18;2005(2):CD002273. doi: 10.1002/14651858.CD002273.pub3. PMID: 15846632; PMCID: PMC7017642.

Tarnow-Mordi W, Kirby A. Current Recommendations and Practice of Oxygen Therapy in Preterm Infants. *Clin Perinatol*. 2019 Sep;46(3):621-636. doi: 10.1016/j.clp.2019.05.015. Epub 2019 Jun 12. PMID: 31345552.

Taylor RS, Singh B, Mukerji A, Dorling J, Alvaro R, et al; Canadian Neonatal Network Investigators. Intermediate vs. High Oxygen Saturation Targets in Preterm Infants: A National Cohort Study. *Neonatology*. 2025;122(1):106-113. doi: 10.1159/000540278. Epub 2024 Aug 5. PMID: 39102804; PMCID: PMC11809520.

Tin W, Wariyar U. Giving small babies oxygen: 50 years of uncertainty. *Semin Neonatol*. 2002 Oct;7(5):361-7. doi: 10.1053/siny.2002.0130. PMID: 12464498.

Vaucher YE, Peralta-Carcelen M, Finer NN, Carlo WA, Gantz MG, et al; SUPPORT Study Group of the Eunice Kennedy Shriver NICHD Neonatal Research Network. Neurodevelopmental outcomes in the early CPAP and pulse oximetry trial. *N Engl J Med*. 2012 Dec 27;367(26):2495-504. doi: 10.1056/NEJMoa1208506. PMID: 23268664; PMCID: PMC4140695.