Study Selection Criteria: Cohort and case-control studies from 2000 onwards: Four reviewers independently assessed eligibility.

Data Extraction and analysis: The outcome measure was ‘all stages of ROP’. Quality assessment of studies was done using Newcastle-Ottawa scale. A random effects meta-analysis model was used and heterogeneity was assessed using I^2 statistic.

Results Nine studies met the final selection criteria. Total sample size was 2106 preterm infants with median gestational age 30 weeks and birth weight 1228 grams. Blood transfusion was associated with the development of ROP; unadjusted odds ratio (OR) = 3.05 (95% CI 2.16 to 4.32) with a significant heterogeneity (I^2 = 54.8% p = 0.02). The unadjusted pooled OR in three of these studies was 2.59 (95% CI 1.35 to 4.98) and the adjusted pooled OR was 1.18 (95% CI 0.96 to 1.33), I^2 = 8.8%.

Conclusion Blood transfusion was associated with the development of ROP in preterm infants. However once other factors such as gestational age and birth weight were adjusted for, the association between blood transfusion and ROP development was considerably weaker.

REFERENCE
Background and aims We tested the hypothesis that moderate permissive hypercapnia (PHC) results in less lung injury than mild hypercapnia (MHC) and therefore may reduce the concentration of proinflammatory cytokines and acid sphingomyelinase (ASMase) in tracheal aspirates.

Methods Preterm infants (birthweight 400–1000 g, gestational age 23 0/7–28 6/7 weeks) requiring mechanical ventilation within the first 24 h after birth, were randomised to receive either PHC (PaCO₂ target area starting with 55–65 mm Hg at day 1 to 65–75 mm Hg at day 7) or MHC (PaCO₂ target area starting with 40–50 mm Hg at day 1 to 50–60 mm Hg at day 7). Tracheal aspirates were collected and analysed for IL-1β, IL-6, IL-8, IL-10, MIP-1α, LTβα, TGF-β1, NPY, albumin, nitrate, ASMase and the secretory component for IgA. The primary end-point BPD or death was determined at a postmenstrual age of 36 weeks ± 1 day.

Results 71 infants were enrolled, 35 received PHC and 36 MHC. Analyses of variance for the main effect of the PaCO₂ targets did not detect significant differences: IL-1β (p = 0.42), IL-6 (p = 0.44), IL-8 (p = 0.91), IL-10 (p = 0.87), MIP-1α (p = 0.34), LTβα (p = 0.87), TGF-β1 (p = 0.26), NPY (p = 0.47), albumin (p = 0.63), nitrate (p = 0.73), ASMase (p = 0.25). BPD or death occurred in 9 (26%) and in 10 (28%) of infants receiving PHC or MHC.

Conclusion PHC did not result in lower inflammatory activity than MHC in ventilated ELBW.