Objective
Threatened preterm labour is a common complaint in obstetric emergencies. Current guidelines do not recommend maintenance tocolysis after successful arrest of uterine contractions. Our aim was to compare the effectiveness of different strategies of maintenance of tocolysis versus each other and versus no tocolysis after successful arrest of preterm labour.

Methods
We included randomized controlled trials comparing vaginal progesterone or oral progesterone or intramuscular progesterone or nifedipine or atosiban to each other or to placebo/no maintained tocolysis, after successful arrest of preterm labour. The primary outcomes were birth <34 weeks, prolongation of pregnancy (latency period) and rates of composite adverse neonatal outcome. The secondary outcomes included birth <37 weeks, birth <32 weeks, perinatal mortality, grade III-IV intraventricular hemorrhage, respiratory distress syndrome, necrotizing enterocolitis, sepsis, NICU admission and maternal adverse effects. We performed a random-effects network meta-analysis. We estimated the relative effect sizes using risk ratios (RRs) and we obtained the relative ranking of the interventions using cumulative ranking curves.

Results
Twenty-three randomized controlled trials were included. There were no significant differences between different maintained tocolysis treatments and no tocolysis for birth <34 week. However, vaginal progesterone was associated with a significant prolongation of pregnancy (pooled mean difference 13.6 days; 95% CI 8.3 to 19.0) and significantly decreased risk for composite adverse perinatal outcome (RR 0.58, 95% CI 0.38-0.87), compared to placebo/no tocolysis.
In terms of relative ranking, vaginal progesterone appeared as the best strategy (greatest SUCRA values) for all three primary outcomes. Nifedipine appeared to be more commonly associated with adverse drug reactions when compared to no treatment (RR 25.16, 95% CI 3.41-185.80), atosiban (RR 16.44, 95% CI 2.21-122.06), vaginal progesterone (RR 25.00, 95% CI 3.70-198.30) and oral progesterone (RR 20.00, 95% CI 2.04-221.40). Atosiban was also association with a slightly increased risk of adverse reactions compared to no treatment (RR 1.53, 95% CI 1.32-1.78).

Conclusion
Although current guidelines do not support the use of any maintained tocolysis, there is now evidence that vaginal progesterone may be more effective compared to no tocolysis in prolonging pregnancy and reducing the rate of composite adverse perinatal outcome, without increasing the rate of maternal or perinatal adverse effects.