Table S1. Characteristics of Trials Used to Estimate Intraclass Correlation Coefficients

Trial	Study Design	Inclusion Criteria	Exclusion Criteria	Treatment Groups
Cervical Pessary ProTWIN Trial (Liem)[15]	Multicentre, open-label RCT	Women with a multiple pregnancy 12-20 weeks' gestation	Known serious congenital defects, fetal death, twin-to-twin transfusion syndrome, known placenta previa	Cervical pessary inserted 16-20 weeks' gestation and removed in the 36th week of gestation vs no cervical pessary
Progestogen Individual Patient Data Meta-Analysis - Rode[4]	Multicentre, double-blind, placebo-controlled RCT	Women with a live, diamniotic twin pregnancy and chorionicity assessed by ultrasound <16 weeks' gestation	Age <18 years, known allergy to progesterone or peanuts, history of hormone-associated thromboembolic disorders, rupture of membranes, treatment for signs of twin-to-twin transfusion syndrome, intentional fetal reduction, known major structural or chromosomal fetal abnormality, known or suspected malignancy in genitals or breasts, known liver disease, higher-order multiple pregnancies, women who did not speak and understand Danish or German, as appropriate	Vaginal progesterone pessaries (200mg) vs vaginal placebo pessaries self-administered daily from 20+0-23+6 weeks' gestation until 33+6 weeks' or occurrence of either rupture of membranes or delivery
- Rouse[17]	Multicentre, double-blind, placebo-controlled RCT	Women carrying twins 16+0-20+3 weeks' gestation	Serious fetal anomalies, spontaneous death of a fetus >12 weeks, presumed monoamniotic placenta, suspected twin-to-twin transfusion syndrome, marked ultrasonographic growth discordance, planned nonstudy progesterone therapy >16 weeks, in-place or planned cerclage, major uterine anomaly, treatment with 10,000 or more units of unfractionated heparin per day, treatment with low-molecular-weight heparin at any dose, major	Weekly intramuscular injections of 17Pc (250mg) vs placebo starting at 16+0-20+6 weeks' gestation and continuing until the end of the 34th week of gestation or delivery

			chronic medical diseases, twin gestations that were the result of intentional fetal reduction	
- Lim[18]	Multicentre, double-blind, placebo-controlled RCT	Women with a multiple pregnancy 15-19 weeks' gestation and chorionicity determined by ultrasonography	Women with a previous spontaneous preterm birth <34 weeks, serious congenital defects or death of one or more fetuses, early signs of twin-to-twin transfusion syndrome, primary cerclage	Weekly intramuscular injections of 17Pc (250mg) vs placebo from 16-20 weeks' gestation until 36 weeks' or delivery
- Norman[5]	Multicentre, double-blind, placebo-controlled RCT	Women with a twin pregnancy, with gestation and chorionicity established by scan <20 weeks' gestation, and attending the antenatal clinic during the recruitment period	Pregnancy complicated by a recognised structural or chromosomal fetal abnormality at the time of recruitment, contraindications to progesterone, planned cervical suture, planned elective delivery <34 weeks, planned intervention for twin-to-twin transfusion <22 weeks, higher order multiple pregnancy	Daily progesterone gel (90mg) vs placebo self-administered vaginally for 10 weeks from 24+0 weeks' gestation
- Serra[6]	Multicentre, double-blind, placebo-controlled RCT	Maternal age ≥18 years, dichorionic diamniotic twin pregnancy diagnosed by ultrasound and written informed consent	Singleton pregnancies, monochorionic twin pregnancies, triplets or higher order multiple pregnancies, elective cervical cerclage <14 weeks, history of hepatic problems or gestational cholestasis, abnormal liver enzymes, abnormal kidney function, local allergy to micronised natural progesterone, allergy to peanuts, recurrent vaginal bleeding, recurrent vaginal infections, fetal anomalies diagnosed by ultrasound, alcohol or illicit drug consumption, smoking ≥10 cigarettes/day	Two vaginal progesterone pessaries (400mg or 200mg) vs placebo self-inserted daily at bedtime from 20 weeks' gestation until 34 weeks' or delivery
- Nassar[7]	Single centre, double-blind, placebo-controlled RCT	Twin pregnancy diagnosed by ultrasound and maternal age ≥18 years, recruited at 12-20 weeks' gestation	Ultrasonographically diagnosed fetal anomalies, elective cervical cerclage <14 weeks, hypertension, diabetes mellitus, asthma, history of deep vein thrombosis, history of hepatic disease or abnormal liver enzymes, pre-existing renal disease or abnormal kidney function, seizure disorders	Weekly intramuscular injections of 17Pc (250mg) vs placebo from16-20 weeks' gestation until 36 weeks'

- Combs[8]	Multicentre, double-blind, placebo-controlled RCT	Women with a dichorionic-diamniotic twin pregnancy at 15-23 weeks' gestation with a detailed ultrasound examination showing no major fetal anomalies	Age <18 years, taken any progestins >15 weeks, symptomatic uterine contractions, rupture of fetal membranes, contraindication to prolonging the pregnancy, pre-existing condition that might be worsened by progesterone, pre-existing medical condition carrying a high risk of preterm delivery	Weekly intramuscular injections of 17Pc (250mg) vs placebo from 16-24 weeks' gestation until 34 weeks' or delivery
- Senat[9]	Multicentre, open-label RCT	Women >18 years, carrying twins, asymptomatic, cervical length ≤25mm measured in the sagittal plane by routine transvaginal ultrasound according to the standard technique, who agreed to regular follow-up and provided written informed consent	Cervical dilatation >3cm, premature rupture of the membranes, placenta previa, monochorial monoamniotic pregnancy, signs of twin-to-twin transfusion syndrome, severe intrauterine growth restriction, known major structural or chromosomal fetal abnormality, death of 1 fetus, any maternal or fetal disease requiring preterm delivery, progesterone therapy before inclusion, ongoing anticonvulsant treatment, participation in any other treatment trial, twin gestations resulting from intentional fetal reduction	Twice weekly intramuscular injections of 17Pc (500mg) from 24+0-31+6 weeks' gestation until 36 weeks' or preterm delivery vs no treatment
- Aboulghar[19]	Single centre, placebo-controlled RCT	Healthy pregnant women who conceived after IVF/ICSI between 18-24 weeks' gestation, with a first pregnancy, singleton or dichorionic twins, normal uterine and cervical anatomy, and normal fetal anatomy	Previous pregnancy, serious fetal anomalies for which termination may be considered, intrauterine growth restriction, mono-chorionic and mono-amniotic twins, uterine anomalies, triplet pregnancies, cervical cerclage	Vaginal progesterone suppositories (200mg) vs placebo twice daily from randomisation until 37 weeks' gestation or onset of preterm birth
- Wood[20]	Multicentre, double-blind, placebo-controlled RCT	Pregnant women with two or more live fetuses confirmed at 16-18 week	Placenta previa, pre-existing hypertension, known major fetal anomaly detected on ultrasound, monoamniotic monozygotic multiple pregnancies, maternal seizure	Daily progesterone gel (90mg) vs placebo self-administered vaginally from randomisation until 35+6 weeks' gestation

		ultrasound, 16+0-20+6 weeks' gestation	disorder, active or history of thromboembolic disease, maternal liver disease, known or suspected breast malignancy or pathology, known or suspected progesterone-dependent neoplasia, plans to move to another city during pregnancy, previous participation in this trial or other perinatal clinical trials during this pregnancy, known sensitivity to progesterone	
- Cetingoz[21]	Single centre, double-blind, placebo-controlled RCT	Women with a twin pregnancy, prior spontaneous preterm birth or uterine malformation	Abortions and deliveries 20-24 weeks, prophylactic cervical cerclage	Vaginal progesterone suppositories (100mg) vs placebo nightly from 24 weeks' gestation until 34 weeks'

Table S2. Sample Size by Trial and Chorionicity

Trial	Number of Women With a Twin Pregnancy[a]	Number (%) of Women with Monochorionic Pregnancy	Number (%) of Women with Dichorionic Pregnancy	Number (%) of Women with Unknown Chorionicity
Liem	795	181 (22.8)	609 (76.6)	5 (0.6)
Rode	677	100 (14.8)	577 (85.2)	0 (0.0)
Rouse	661	103 (15.6)	551 (83.4)	7 (1.1)
Lim	650	112 (17.2)	538 (82.8)	0 (0.0)
Norman	500	92 (18.4)	408 (81.6)	0 (0.0)
Serra	290	0 (0.0)	290 (100.0)	0 (0.0)
Nassar	286	41 (14.3)	222 (77.6)	23 (8.0)
Combs	240	0 (0.0)	240 (100.0)	0 (0.0)
Senat	165	0 (0.0)	0 (0.0)	165 (100.0)
Aboulghar	92	0 (0.0)	92 (100.0)	0 (0.0)
Wood	81	0 (0.0)	0 (0.0)	81 (100.0)
Cetingoz	67	9 (13.4)	26 (38.8)	32 (47.8)

[a] Some trials included women with single or higher order multiple pregnancies but only women with twin pregnancies were included in this study

Table S3. Intraclass Correlation Coefficients for Composite Adverse Neonatal Outcome 1[d] by Trial and Chorionicity

Trial	Prevalence (%)	ICC (95% CI) - All Twins	ICC (95% CI) - Monochorionic Twins	ICC (95% CI) - Dichorionic Twins
Liem	9.94	0.68 (0.59, 0.76)	0.62 (0.43, 0.78)	0.73 (0.62, 0.82)
Rouse	17.70	0.70 (0.62, 0.77)	0.86 (0.70, 0.96)	0.65 (0.56, 0.73)
Lim	15.25	0.68 (0.59, 0.75)	0.76 (0.56, 0.90)	0.66 (0.57, 0.75)
Norman	12.09	0.54 (0.43, 0.67)	0.50 (0.23, 0.77)	0.56 (0.41, 0.70)
Serra	14.66	0.52 (0.38, 0.66)	[a]	0.52 (0.38, 0.66)
Nassar	22.28	0.68 (0.56, 0.78)	0.86 (0.43, 1.00)	0.68 (0.55, 0.79)
Combs	14.04	0.71 (0.56, 0.84)	[a]	0.71 (0.56, 0.84)
Senat	29.93	0.64 (0.49, 0.77)	[b]	[b]
Cetingoz	17.16	0.65 (0.32, 0.88)	[c]	[c]

[a] Monochorionic twins excluded from trial

[b] Chorionicity unknown

[c] Insufficient data to estimate ICC

[d] Includes perinatal death, respiratory distress syndrome, bronchopulmonary dysplasia, intraventricular haemorrhage, necrotising enterocolitis and sepsis

Table S4. Intraclass Correlation Coefficients for Composite Adverse Neonatal Outcome 2[d] by Trial and Chorionicity

Trial	Prevalence (%)	ICC (95% CI) - All Twins	ICC (95% CI) - Monochorionic Twins	ICC (95% CI) - Dichorionic Twins
Liem	8.23	0.65 (0.54, 0.74)	0.63 (0.42, 0.82)	0.66 (0.54, 0.77)
Rode	11.87	0.77 (0.69, 0.84)	0.82 (0.57, 0.96)	0.76 (0.66, 0.84)
Rouse	17.08	0.68 (0.60, 0.75)	0.85 (0.69, 0.96)	0.62 (0.52, 0.71)
Lim	14.10	0.67 (0.59, 0.76)	0.80 (0.56, 0.93)	0.65 (0.55, 0.75)
Norman	10.85	0.56 (0.44, 0.68)	0.62 (0.31, 0.86)	0.54 (0.40, 0.68)
Serra	14.31	0.54 (0.40, 0.68)	[a]	0.54 (0.40, 0.68)
Nassar	20.53	0.67 (0.54, 0.77)	0.94 (0.36, 1.00)	0.64 (0.50, 0.76)
Combs	14.04	0.71 (0.56, 0.84)	[a]	0.71 (0.56, 0.84)
Senat	29.22	0.62 (0.46, 0.74)	[b]	[b]
Wood	20.37	0.65 (0.40, 0.87)	[b]	[b]
Cetingoz	17.16	0.65 (0.32, 0.88)	[c]	[c]

[a] Monochorionic twins excluded from trial

[b] Chorionicity unknown

[c] Insufficient data to estimate ICC

[d] Includes perinatal death, respiratory distress syndrome, intraventricular haemorrhage and necrotising enterocolitis

Table S5. Intraclass Correlation Coefficients for Admission to Neonatal Intensive Care Unit by Trial and Chorionicity

Trial	Prevalence (%)	ICC (95% CI) - All Twins	ICC (95% CI) - Monochorionic Twins	ICC (95% CI) - Dichorionic Twins
Liem	13.05	0.72 (0.64, 0.79)	0.67 (0.51, 0.80)	0.75 (0.66, 0.83)
Rode	48.82	0.86 (0.81, 0.89)	0.95 (0.85, 1.00)	0.84 (0.79, 0.88)
Rouse	48.58	0.81 (0.76, 0.85)	0.88 (0.74, 0.96)	0.80 (0.74, 0.85)
Lim	18.31	0.79 (0.72, 0.85)	0.84 (0.69, 0.94)	0.77 (0.69, 0.84)
Norman	39.40	0.79 (0.73, 0.84)	0.87 (0.74, 0.96)	0.77 (0.70, 0.83)
Serra	11.90	0.56 (0.40, 0.71)	[a]	0.56 (0.40, 0.71)
Nassar	36.89	0.80 (0.72, 0.87)	[c]	0.76 (0.66, 0.84)
Combs	38.56	0.79 (0.70, 0.86)	[a]	0.79 (0.70, 0.86)
Senat	41.21	0.85 (0.75, 0.93)	[b]	[b]
Cetingoz	29.10	0.68 (0.42, 0.86)	[c]	[c]

[a] Monochorionic twins excluded from trial

[b] Chorionicity unknown

[c] Insufficient data to estimate ICC

Table S6. Intraclass Correlation Coefficients for Birthweight by Trial and Chorionicity

Trial	Mean (SD)	ICC (95% CI) - All Twins	ICC (95% CI) - Monochorionic Twins	ICC (95% CI) - Dichorionic Twins
Liem	2344 (637)	0.81 (0.77, 0.83)	0.83 (0.76, 0.88)	0.80 (0.75, 0.83)
Rode	2434 (584)	0.80 (0.76, 0.83)	0.85 (0.77, 0.91)	0.79 (0.74, 0.83)
Rouse	2259 (617)	0.85 (0.82, 0.87)	0.88 (0.83, 0.93)	0.84 (0.80, 0.86)
Lim	2362 (683)	0.80 (0.75, 0.84)	0.78 (0.63, 0.88)	0.81 (0.74, 0.85)
Norman	2325 (619)	0.79 (0.74, 0.83)	0.85 (0.76, 0.91)	0.78 (0.72, 0.82)
Serra	2350 (508)	0.70 (0.62, 0.77)	[a]	0.70 (0.62, 0.77)
Nassar	2241 (569)	0.78 (0.71, 0.83)	0.79 (0.62, 0.91)	0.77 (0.69, 0.83)
Combs	2371 (534)	0.70 (0.60, 0.77)	[a]	0.70 (0.60, 0.77)
Senat	2145 (534)	0.83 (0.77, 0.88)	[b]	[b]
Aboulghar	2345 (505)	0.62 (0.46, 0.77)	[a]	0.62 (0.46, 0.77)
Wood	2291 (559)	0.75 (0.62, 0.86)	[b]	[b]
Cetingoz	2288 (562)	0.78 (0.59, 0.89)	[c]	[c]

[a] Monochorionic twins excluded from trial

[b] Chorionicity unknown

[c] Insufficient data to estimate ICC

Table S7. Intraclass Correlation Coefficients for Birthweight <2500g by Trial and Chorionicity

Trial	Prevalence (%)	ICC (95% CI) - All Twins	ICC (95% CI) - Monochorionic Twins	ICC (95% CI) - Dichorionic Twins
Liem	54.87	0.50 (0.44, 0.56)	0.47 (0.32, 0.60)	0.50 (0.43, 0.57)
Rode	49.85	0.50 (0.43, 0.57)	0.61 (0.44, 0.78)	0.48 (0.41, 0.55)
Rouse	61.95	0.61 (0.54, 0.67)	0.58 (0.35, 0.77)	0.60 (0.53, 0.67)
Lim	51.85	0.52 (0.45, 0.59)	0.48 (0.31, 0.65)	0.53 (0.45, 0.60)
Norman	56.69	0.48 (0.40, 0.56)	0.41 (0.21, 0.61)	0.49 (0.41, 0.58)
Serra	57.96	0.47 (0.36, 0.57)	[a]	0.47 (0.36, 0.57)
Nassar	64.57	0.53 (0.43, 0.64)	0.45 (0.15, 0.72)	0.53 (0.41, 0.66)
Combs	55.49	0.50 (0.39, 0.62)	[a]	0.50 (0.39, 0.62)
Senat	74.68	0.55 (0.39, 0.70)	[b]	[b]
Aboulghar	51.95	0.41 (0.20, 0.61)	[a]	0.41 (0.20, 0.61)
Wood	56.88	0.37 (0.16, 0.58)	[b]	[b]
Cetingoz	56.72	0.71 (0.51, 0.88)	[c]	[c]

[a] Monochorionic twins excluded from trial

[b] Chorionicity unknown

[c] Insufficient data to estimate ICC

Table S8. Intraclass Correlation Coefficients for Birthweight <1500g by Trial and Chorionicity

Trial	Prevalence (%)	ICC (95% CI) - All Twins	ICC (95% CI) - Monochorionic Twins	ICC (95% CI) - Dichorionic Twins
Liem	9.42	0.75 (0.66, 0.83)	0.71 (0.52, 0.89)	0.76 (0.65, 0.84)
Rode	6.72	0.78 (0.68, 0.87)	0.44 (-0.03, 0.80)	0.80 (0.68, 0.89)
Rouse	11.00	0.77 (0.68, 0.85)	0.72 (0.50, 0.88)	0.79 (0.69, 0.87)
Lim	10.96	0.75 (0.66, 0.82)	0.90 (0.74, 1.00)	0.72 (0.62, 0.81)
Norman	9.73	0.70 (0.58, 0.80)	0.73 (0.36, 0.93)	0.71 (0.57, 0.83)
Serra	6.06	0.48 (0.29, 0.72)	[a]	0.48 (0.29, 0.72)
Nassar	9.89	0.70 (0.51, 0.84)	[c]	0.73 (0.55, 0.87)
Combs	7.59	0.71 (0.45, 0.87)	[a]	0.71 (0.45, 0.87)
Senat	14.29	0.70 (0.38, 0.88)	[b]	[b]
Wood	10.00	0.91 (0.63, 1.00)	[b]	[b]
Cetingoz	8.21	0.36 (-0.05, 0.92)	[c]	[c]

[a] Monochorionic twins excluded from trial

[b] Chorionicity unknown

[c] Insufficient data to estimate ICC

Table S9. Summary of Intraclass Correlation Coefficient Estimates for Neonatal Outcomes from Linear Mixed Effects Models Across Trials

Outcome	Median (Range) ICC	Trials
Composite Adverse Neonatal Outcome 1[a]	0.68 (0.54-0.71)	5-9, 15, 17, 18, 21
Composite Adverse Neonatal Outcome 2[b]	0.66 (0.56-0.77)	4-9, 15, 17, 18, 20, 21
Perinatal Death	0.67 (0.16-0.79)	4, 5, 7, 15, 17, 18, 21
Respiratory Distress Syndrome	0.65 (0.50-0.74)	4-9, 15, 17, 18, 20, 21
Bronchopulmonary Dysplasia	0.51 (0.36-0.72)	5, 17, 18
Intraventricular Haemorrhage	0.37 (0.15-0.46)	4, 5, 17
Necrotising Enterocolitis	0.14 (0.14-0.15)	15, 18
Sepsis	0.40 (0.35-0.51)	4, 5, 7, 15, 17, 18
Admission to Neonatal Intensive Care Unit	0.79 (0.56-0.86)	4-9, 15, 17, 18, 21
Birthweight	0.78 (0.62-0.85)	4-9, 15, 17-21
Birthweight <2500g	0.50 (0.37-0.70)	4-9, 15, 17-21
Birthweight <1500g	0.72 (0.31-0.86)	4-9, 15, 17, 18, 20, 21

[a] Includes perinatal death, respiratory distress syndrome, bronchopulmonary dysplasia, intraventricular haemorrhage, necrotising enterocolitis and sepsis

[b] Includes perinatal death, respiratory distress syndrome, intraventricular haemorrhage and necrotising enterocolitis