Prevention of preterm birth (PTB) in twins

Cerclage vs. others methods to prevent PTB

In conclusion

- Cerclage **does not** reduce the rate of preterm birth in unselected twin cohorts.
- Cerclage **should not** be used in the prevention of preterm birth in twin pregnancy.

Cerclage to prevent PTB

Indication		Gestational age of placement (wks)	Preterm birth Reduction	Perinatal outcome
History-indicated cerclage	Prior STL and/or PTB	12-14	17% (no cerclage) to 13% (cerclage) decrease in PTB < 33 wk	17% to 9% decrease in mortality
Ultrasound-indicated cerclage	Short cervix (CL < 25 mm on TVU) and prior PTB	16-23	41% to 28% (30% decrease) in PTB < 35 wk	25% to 16% (36% decrease) in morbidity and mortality
Physical examination-indicated cerclage	Dilated cervix on manual or speculum examination	16-23	100% to 54% decrease in PTB < 34 wk ; 92% reduction in PTB < 28 wk, 4-10 wk prolongation of pregnancy	71% to 31% decrease in neonatal death

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Berghella et al. Cerclage for short cervix on ultrasound in singleton gestations with prior preterm birth: meta-analysis of trials using individual patient-level data.Obstet Gynecol. 2011;117:663–671.

Althuisius et al. Cervical incompetence prevention randomized cerclage trial: mergency cerclage with bed rest versus bed rest alone. Am J Obstet Gynecol. 2003;189:907–910.

Pereira et al. Expectant management compared with physical-examination indicated cerclage (EMPEC) in selected women with a dilated cervix at 14-25 weeks: results from the EM-PEC international cohort study. Am J Obstet Gynecol. 2007;197:483.e1–483.e8.

Cerclage to prevent PTB

THE COCHRANE COLLABORATION®

Cervical stitch (cerclage) for preventing preterm birth in multiple pregnancy

5 RCT; N:128 pregnant women with multiple gestation (twins 122, triplets 6)

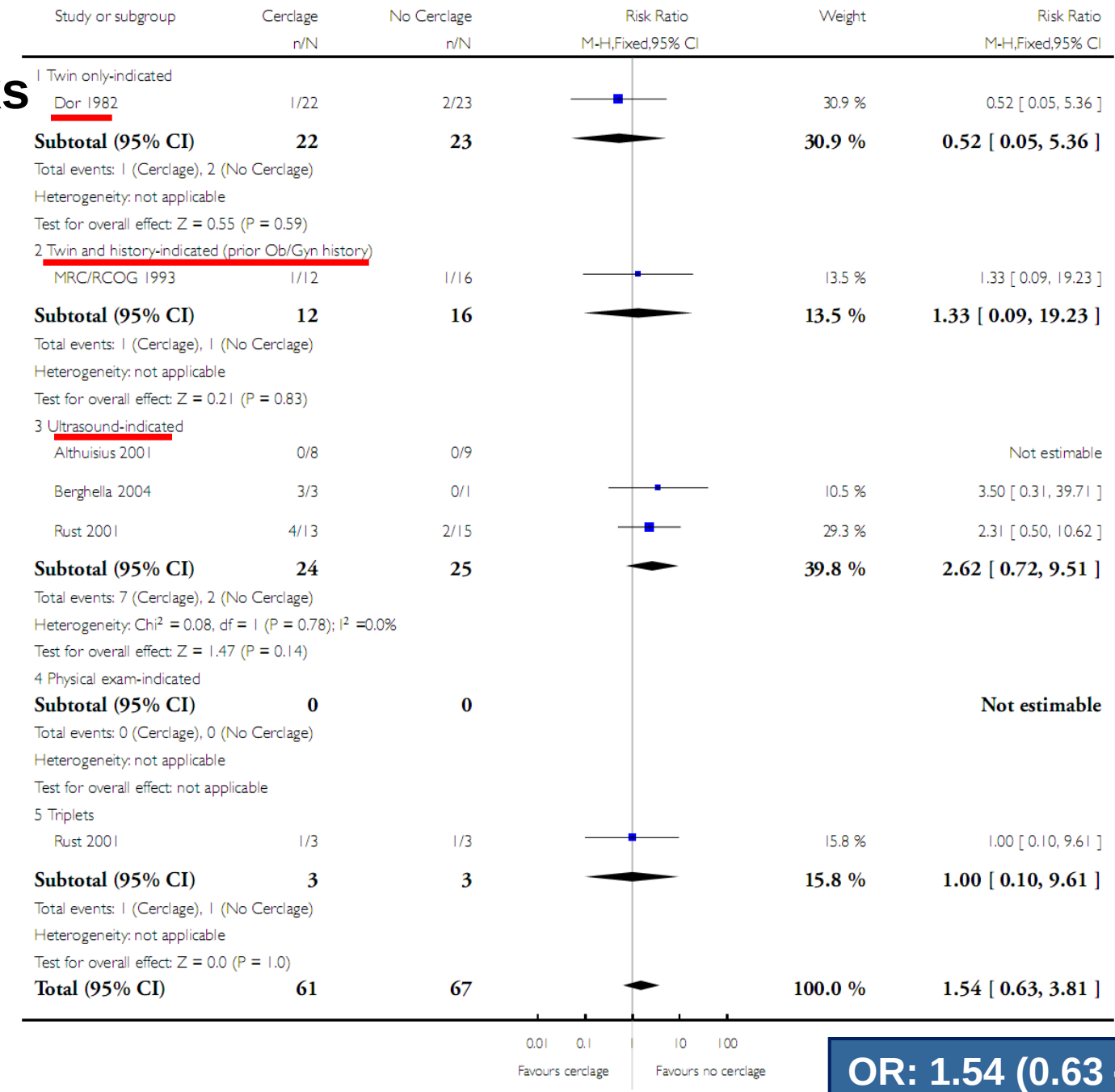
Aim: To assess whether the use of a cervical cerclage in multiple gestations, improves obstetrical and perinatal outcomes.

Rafael T, Berghella V, Alfirevic Z. *Cochrane* 2014

Delivery <28 wks

5 RCT

N: 128 women

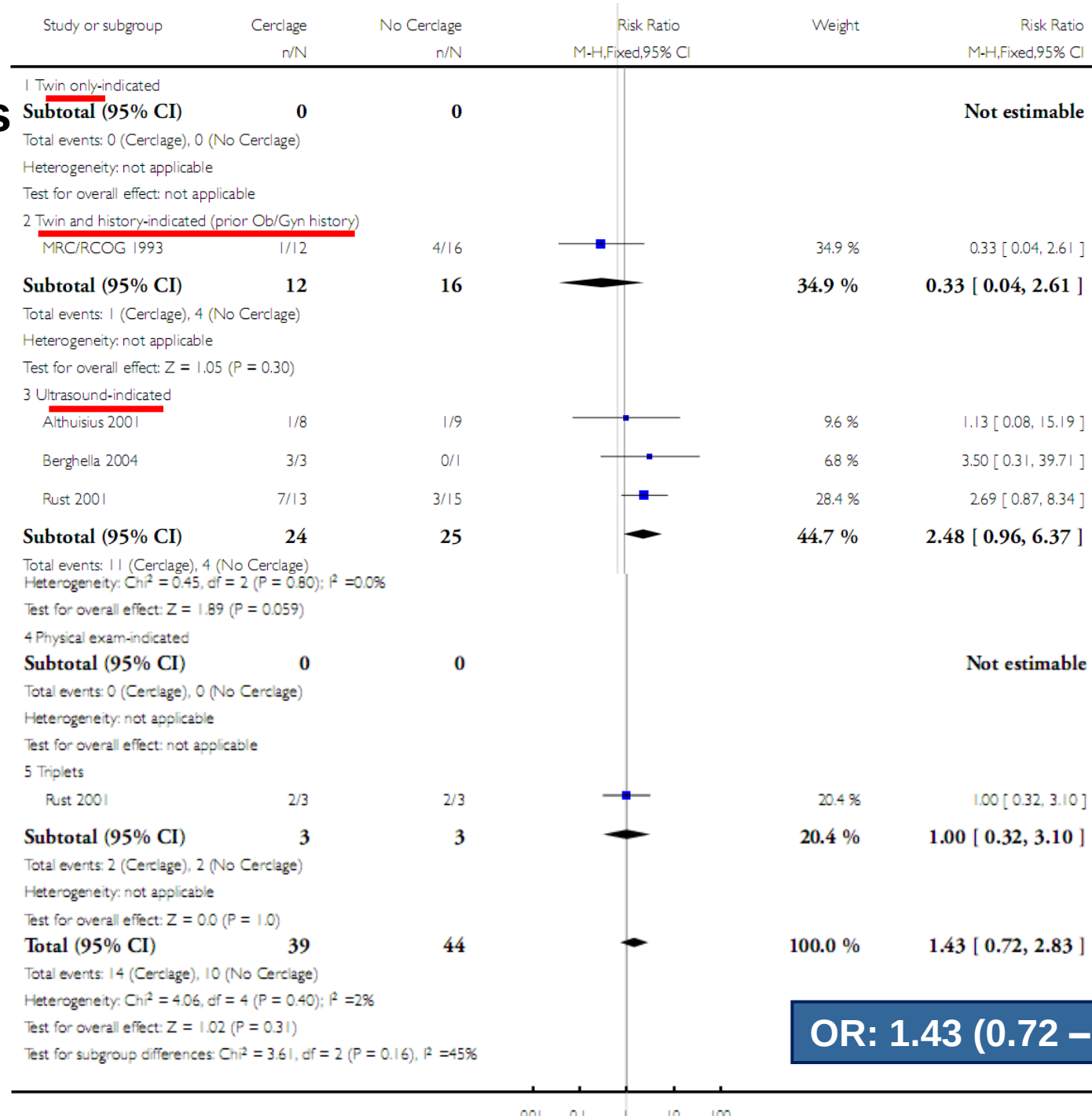


OR: 1.54 (0.63 – 3.81)

Delivery <32 wks

4 RCT

N: 83 women



Cervical stitch (cerclage) for preventing preterm birth in multiple pregnancy

THE COCHRANE COLLABORATION®

5 RCT; N:128 pregnant women with multiple gestation (twins 122, triplets 6)

Aim: To assess whether the use of a cervical cerclage in multiple gestations, improves obstetrical and perinatal outcomes.

AUTHORS' CONCLUSIONS: For multiple gestations, there is no evidence that cerclage is an effective intervention for preventing preterm births and reducing perinatal deaths or neonatal morbidity

Rafael T, Berghella V, Alfirevic Z. *Cochrane* 2014

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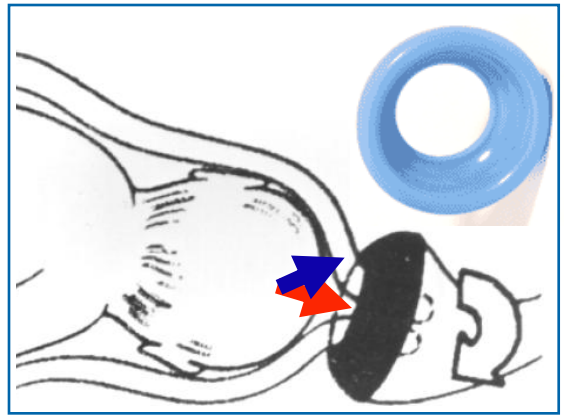
Prevention of preterm birth in twins
RCT: pessary vs expectant

- Twin pregnancies: live fetuses at 20^{+0} - 24^{+6} wks
- No major defects, no severe TTTS / sFGR
- Mother: ≥16 yrs, able to consent
- No regular painful contractions, PPROM, cerclage *in situ*



- Information leaflet: 11-13 and 20-24 w
- Measurement of cervical length
- Internet-based allocation (computer-generated random number list)
- High vaginal swab and Rx for infection before pessary insertion
- Follow up every 4 wks
- Pessary removal: 37 wks, elective birth, or preterm labor

Outcome
1ry: Spont birth <34 wks
2ry: Perinatal death
Neonatal morbidity
Neonatal therapy

Logistic regression analysis (including effect of cervical length):
- Assume pessary reduces spontaneous birth <34 weeks by 30%
- Need for randomization: 1,180 patients to demonstrate significance (at 5% level, with power of 85%).

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Prevention of preterm birth in twins
RCT: pessary vs expectant

Eligible women n=2,107

Refused to participate n=927 (44%)

Randomized n=1,180

Pessary group (*n* = 590)
• Lost to follow up (n=2)

Expectant group (*n* = 590)
• Lost to follow up (n=1)

England (8 hospitals)	600
Spain (3 hospitals)	391
Slovenia (1 hospital)	61
Portugal (1 hospital)	34
Italy (1 hospital)	29
Hong Kong (1 hospital)	26
Brazil (1 hospital)	11
Albania (1 hospital)	7
Chile (1 hospital)	7
Germany (2 hospitals)	7
Austria (2 hospitals)	6
Belgium (1 hospital)	1

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Prevention of preterm birth in twins RCT: pessary vs expectant

Characteristics	Pessary group (n=588)	Expectant group (n=589)	P value
Age in yrs, median (IQR)	33.1 (29.5-36.7)	33.2 (29.1-36.6)	0.704
Weight in Kg, median (IQR)	67.0 (60.0-76.3)	68.0 (60.0-79.0)	0.211
Height in cm, median (IQR)	165 (160-170)	164 (160-169)	0.073
Race: Caucasian, n (%)	497 (84.2)	483 (81.9)	0.313
Conception: Spontaneous, n (%)	373 (63.2)	366 (62.0)	0.718
Smoking, n (%)	45 (7.6)	53 (9.0)	0.460
No previous cervical surgery, n (%)	571 (96.8)	566 (95.9)	0.535
Monochorionic, n (%)	111 (18.8)	111 (18.8)	>0.999
Randomisation GA in wks, median (IQR)	22.6 (21.4-23.9)	22.7 (21.4-23.9)	0.803
Cervical length in mm, median (IQR)	32.0 (27.0-36.0)	32.0 (27.0-37.0)	0.447
Cervical length $\leq$25 mm, n (%)	107 (18.1)	108 (18.3)	>0.999

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Prevention of preterm birth in twins
RCT: pessary vs expectant

Randomised (*n* = 1,180)

Pessary group (*n* = 588)

Expectant group (*n* = 589)

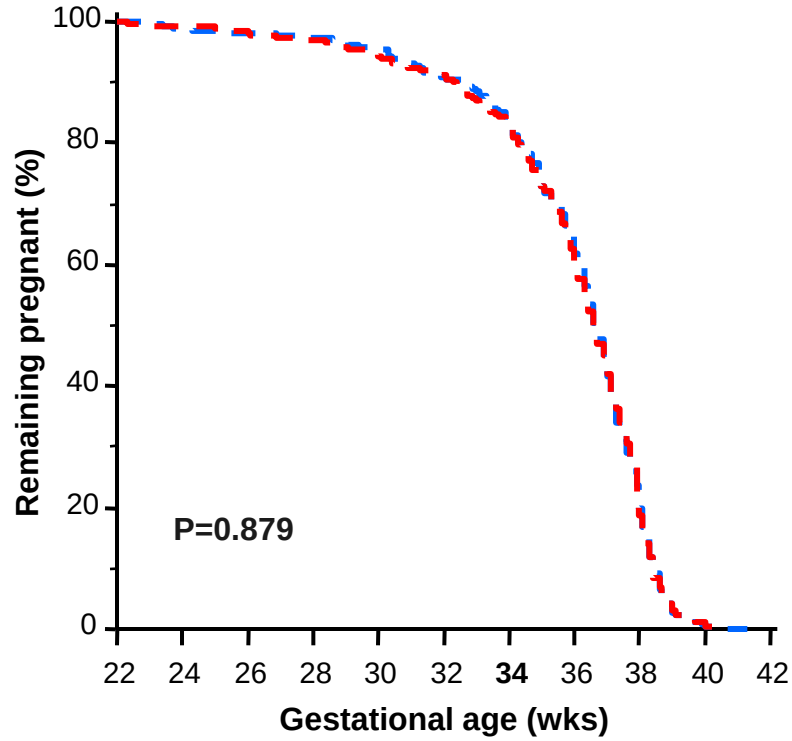
Delivery < 34 wks

Total 98 (16.7%)

Spontaneous 80 (13.6%)

Total 92 (15.6%)

Spontaneous 76 (12.9%)



Group: Expectant

588 583 578 574 562 535 487 365 118 3 1

Group: Pessary

588 584 576 569 555 536 484 351 111 3 0

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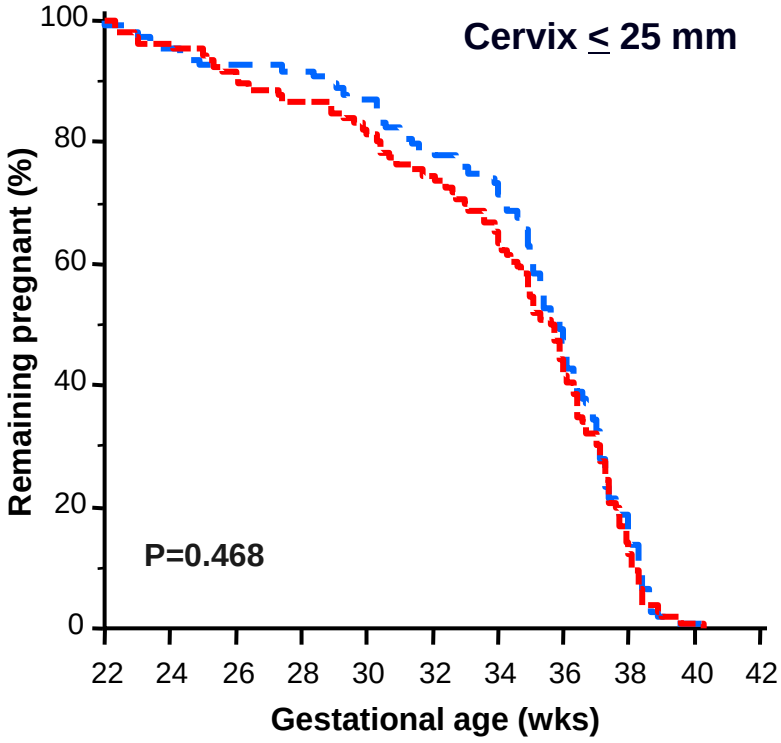
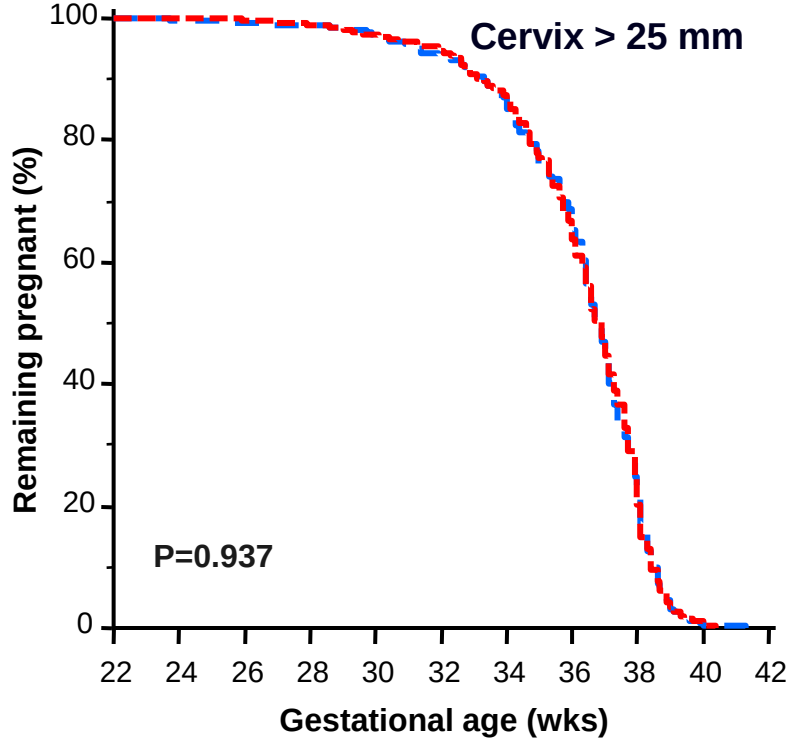
Prevention of preterm birth in twins
RCT: pessary vs expectant





Group: Expectant	107	103	100	99	94	85	77	51	16	1	1
Group: Pessary	106	102	96	92	86	79	67	44	13	1	0

Group: Expectant	481	480	478	475	468	450	410	314	102	2	1
Group: Pessary	482	482	480	477	469	457	417	307	98	2	0

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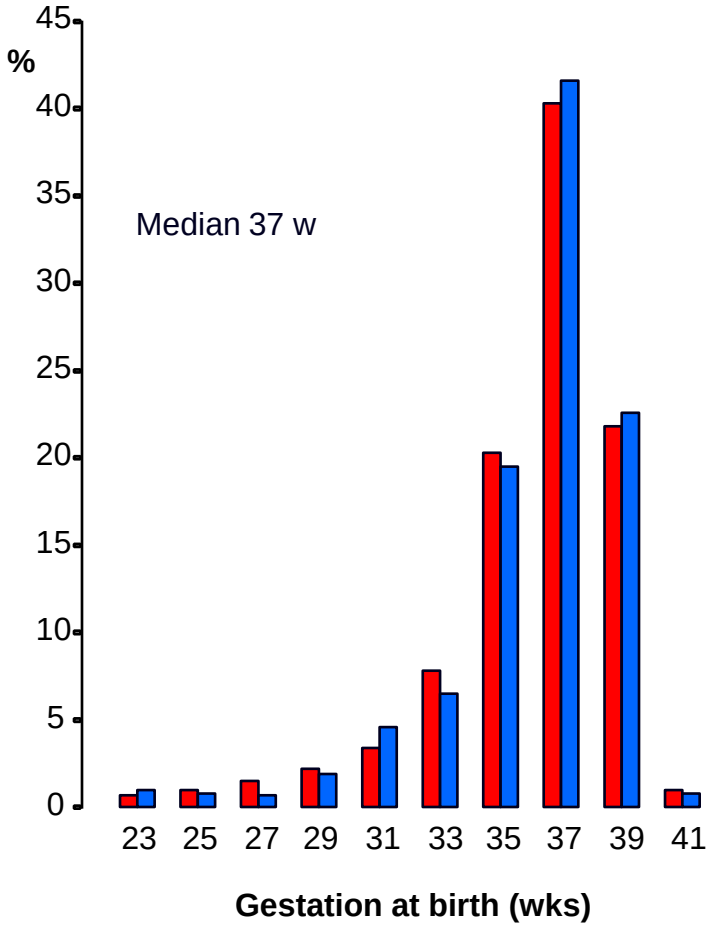
Prevention of preterm birth in twins
RCT: pessary vs expectant



Outcome	Pessary (n=1,176)	Expectant (n=1,178)	*p* value
Fetal death	12 (1.0%)	18 (1.5%)	0.361
Neonatal death	17 (1.4%)	14 (1.2%)	0.714
Perinatal death	29 (2.5%)	32 (2.7%)	0.801
Neonatal morbidity *	114 (9.7%)	98 (8.3%)	0.274
Neonatal therapy **	202 (17.2%)	201 (17.1%)	0.985

* Intraventricular hemorrhage, respiratory distress syndrome, retinopathy of prematurity, or necrotizing enterocolitis

** Ventilation, phototherapy, treatment for proven or suspected sepsis, or blood transfusion

Prevention of preterm birth in twins
RCT: pessary vs expectant

In twin pregnancies with any cervical length, insertion of cervical pessary at 21-23 wks:

- **Does not reduce the rate of preterm birth**
- **Does not reduce perinatal death or neonatal morbidity**

Take home message

- **Prevention** should be the **primary goal** in prenatal care.
- **Identification** of the risk factors involved are useful measures in secondary prevention:
  - Cervical insufficiency;
  - Prior preterm birth (PTB);
  - Short cervical length at midtrimester scan;
  - **Multiple gestation**.

- **Strategy in the prevention of PTB:**
  - **Cerclage**: cervical insufficiency
  - **Vaginal progesterone**: prior PTB ou short cervix

Cerclage should not be used in the prevention of PTB in twin pregnancy.