

Cervical length for predicting preterm birth in women with uterine anomalies: a cohort study

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BACKGROUND

- Uterine anomalies occur due to a failure of Mullerian ducts to form, fuse or resorb normally during embryological development.
- Spectrum of anomalies includes unicornuate, bicornuate, didelphys, septate and arcuate morphology (see Figure 1).

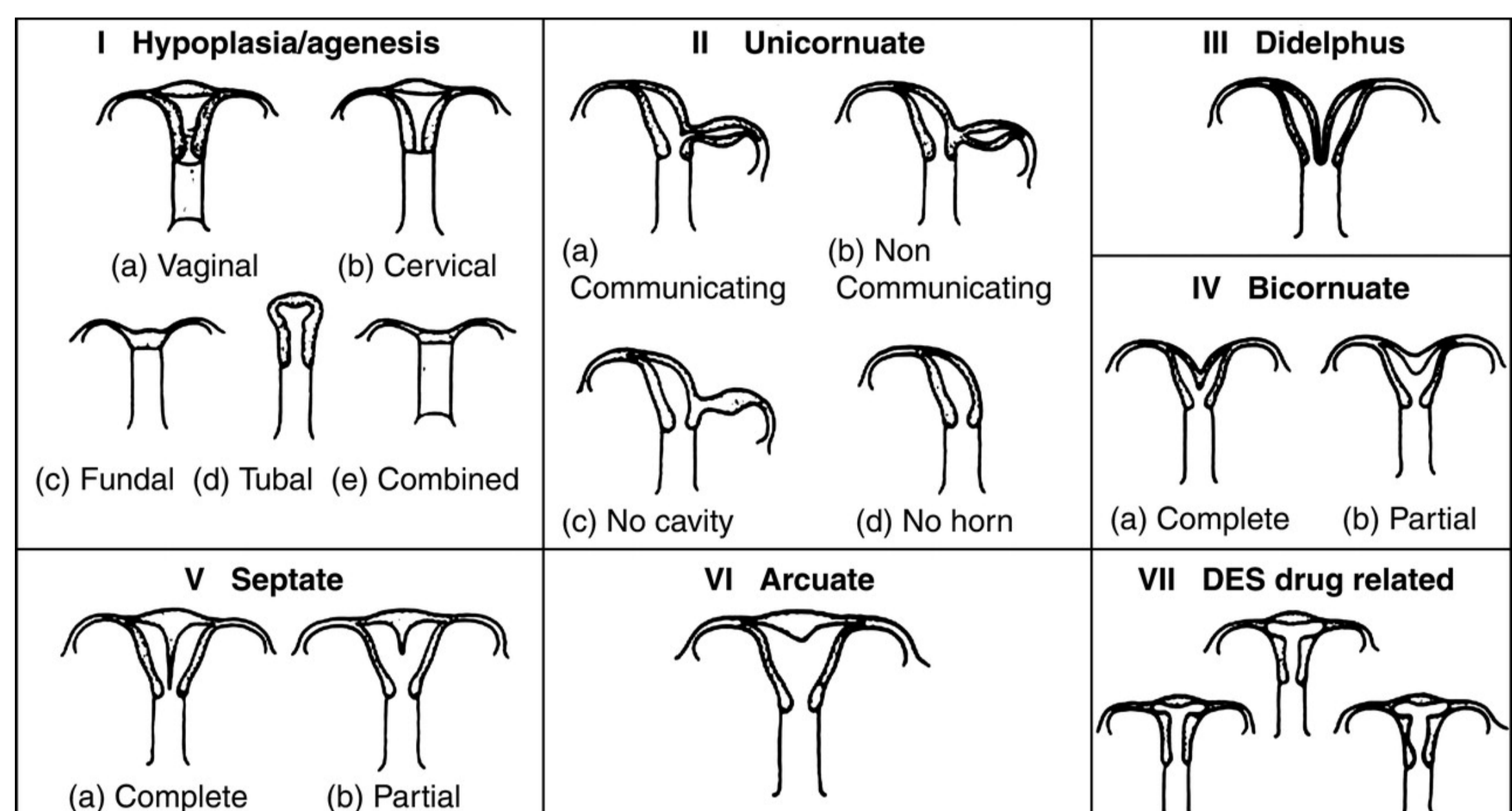


Figure 1. (1) Used with permission.

- Uterine anomalies occur in around 5% of the general population (2), but are more highly represented in women with fertility difficulties, and are a risk factor for spontaneous preterm birth (SPTB).
- Preterm birth (at <37 weeks completed gestation) is the leading cause of neonatal mortality worldwide
- Survivors are at higher risk for acute illnesses, disabilities and adult-onset chronic diseases

- Short cervical length (<25mm on transvaginal ultrasound (TVUS) is predictive of SPTB (3), but very few studies have examined its utility in women with uterine anomalies.

AIMS & OBJECTIVES

- To determine the predictive value of mid-trimester transvaginal ultrasonographic cervical length
- To describe pregnancy outcomes in a cohort of women with uterine anomalies

METHODS

Design: Retrospective cohort study

Participants: All women with uterine anomalies attending Preterm Labour Clinic at the Royal Women's Hospital between 2004 and 2013.

- Records missing delivery data, cervical length measurements, and those with multiple pregnancies, iatrogenic preterm births or fetal death in utero were excluded
- 86 pregnancies for analysis, TVUS cervical length at fortnightly intervals from 16-26 weeks' gestation.

Ethics: Project approved as audit

Statistical analysis: Descriptive statistics calculated in Excel, analysis in Stata 13.

RESULTS

Demographics and descriptive statistics

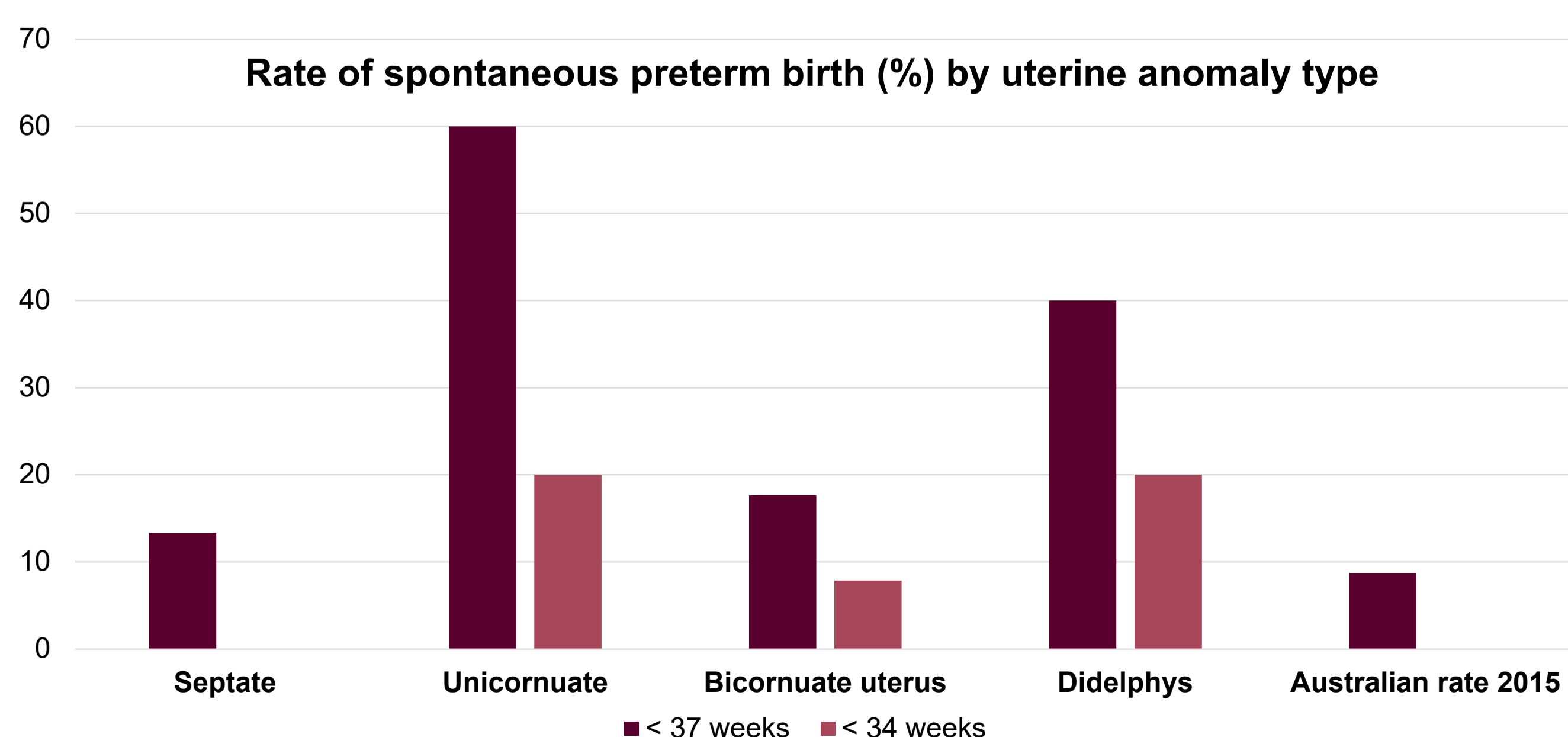
Most women had uterine anomaly as their only risk factor for SPTB. Short cervix occurred less frequently compared to the overall Preterm Labour Clinic cohort (10.5% vs 31.7%) (5). These women were offered vaginal progesterone or transvaginal cerclage (or both).

VARIABLE	
Maternal age (median, SD)	31 ± 4.8
Gravidity (median [range])	2 (1-10)
Parity (median [range])	0 (0-3)
Smoking last 12 months (n [% of complete records])	13 (15.1%)
Presence of abnormal vaginal flora (n [% of complete records])	41 (50.6%)
Frequency of cervical length < 25mm (%)	10.5%

Pregnancy Outcomes

OUTCOMES	n, median (% or range)
Gestational age at delivery (weeks)	38 (22-42)
Spontaneous preterm birth (< 37 weeks)	20 (23.3%)
Spontaneous preterm birth (<34 weeks)	9 (10.5%)
PPROM	11 (55% of SPTB)
Birth weight (g)	3016g
DELIVERY TYPE	
Normal vaginal delivery	30 (34.9%)
Instrumental vaginal delivery	9 (10.5%)
Caesarean section for malpresentation	31 (65.6% of CS)
Caesarean section	47 (54.7% of births)
OUTCOMES FOR INFANTS DELIVERED ≥20 WEEKS (N = 86)	
Live births	84 (97.7%)
Stillbirths	1 (1.2%)
Neonatal deaths	1 (1.2%)

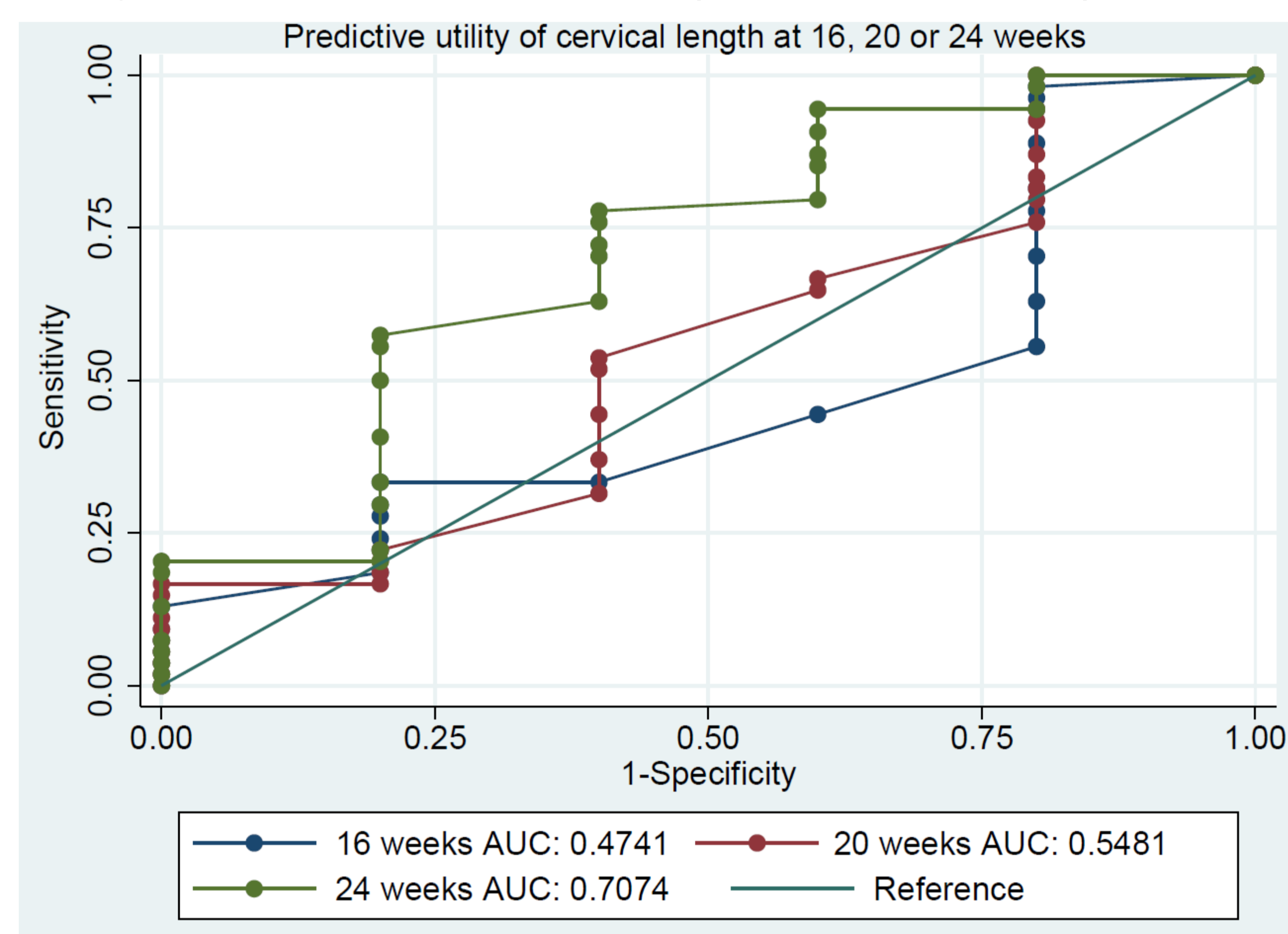
Women with uterine anomalies were at a significantly higher risk of SPTB compared to the general Australian antenatal population (23.3% vs 8.7%) (4). SPTB frequently occurred in the absence of a short cervix.



Predictive value of TVUS cervical length

Short cervix (< 25mm) at any time during the surveillance period was associated on univariate analysis with SPTB < 37 weeks (p=0.029, RR 2.85, 95%CI 1.22-6.69), but not with SPTB < 34 weeks. This association did not persist on logistic regression.

Receiver-operator characteristic (ROC) analysis was performed for cervical length measurements at 16, 20 and 24 weeks. Only short cervix at 24 weeks was moderately predictive of SPTB < 34 weeks (area under curve 0.75).



When analysed by subgroup, short cervix was associated with SPTB < 37 weeks in women with septate uterus only (p=0.029, RR 13, 95% CI 2.0 -85.5). Small numbers precluded further analysis.

CONCLUSIONS

- Women with uterine anomalies are at increased risk of SPTB
- Transvaginal ultrasound is moderately predictive of SPTB < 34 weeks in this population, but only at 24 weeks' gestation, which provides limited options for offering preventive treatment
- Short cervix may have more predictive value in women with a septate uterus compared to other uterine anomaly subtypes

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