ISUOG Basic Training

## Cervical Assessment

Learning objectives

At the end of this lecture you should be able to:

- Visualise & measure the cervix in pregnant patients with vaginal sonography

- Identify & manage pregnant patients with short cervix

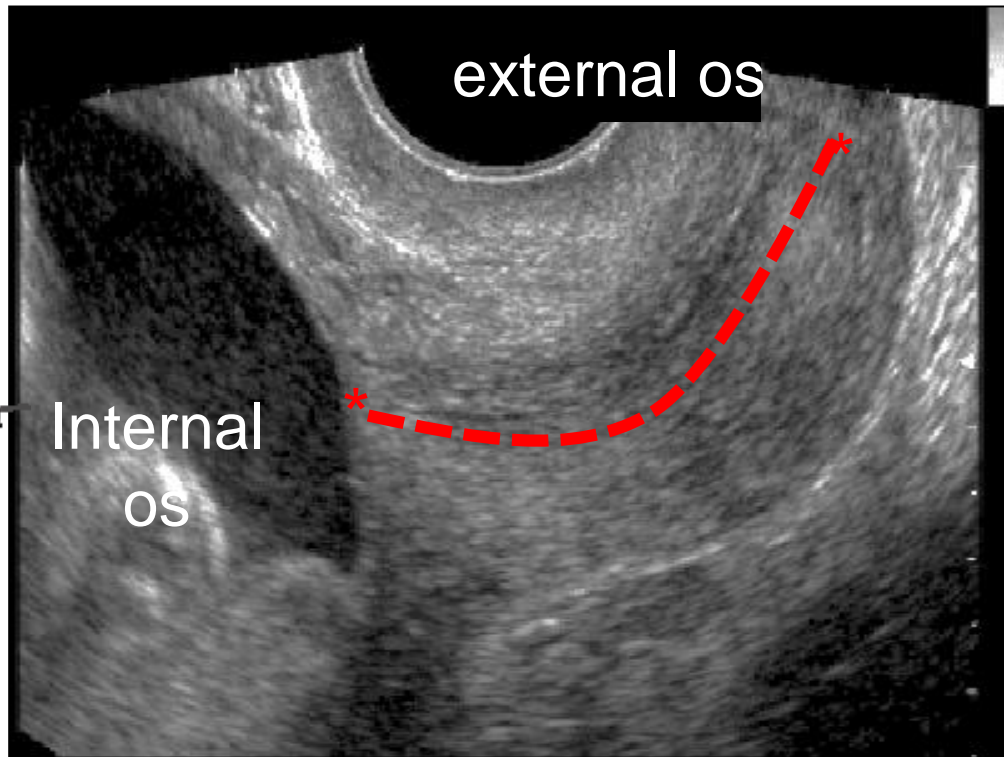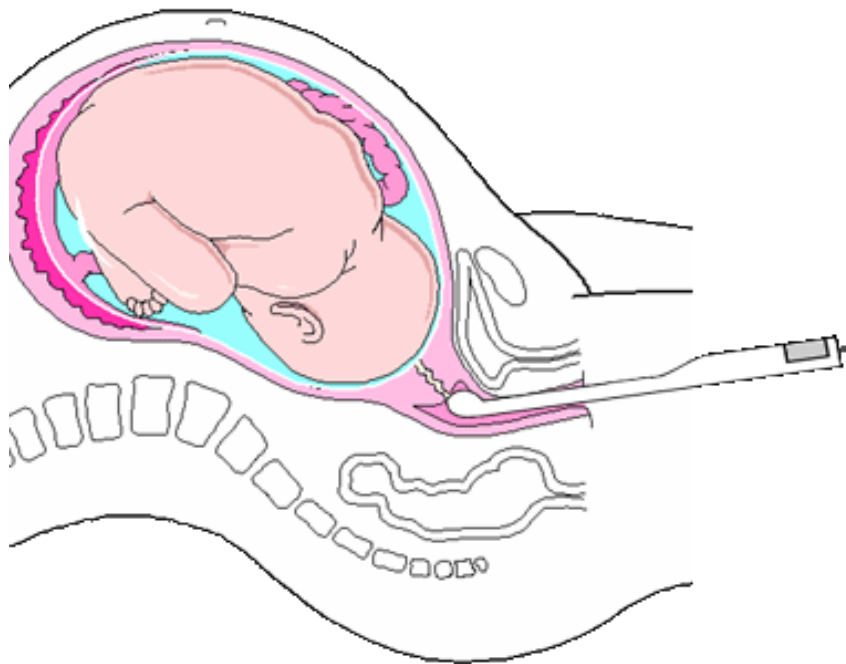- Manage patients with threatened preterm labour

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Key questions

- What is the correct technique for assessing cervical length (CL) using transvaginal imaging?

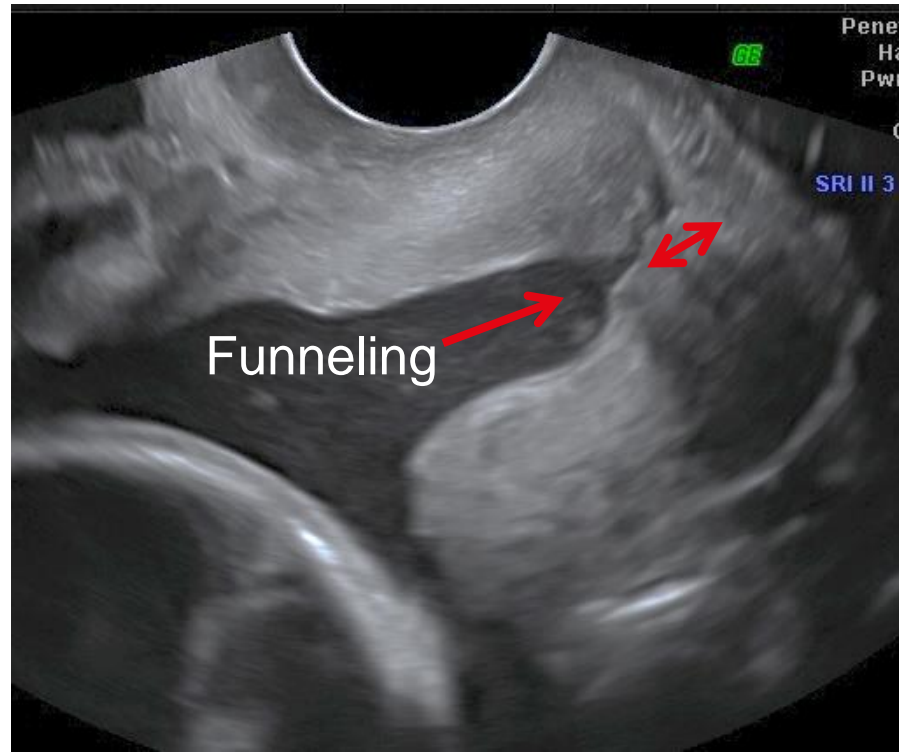- When in pregnancy are cervical length measurements useful?

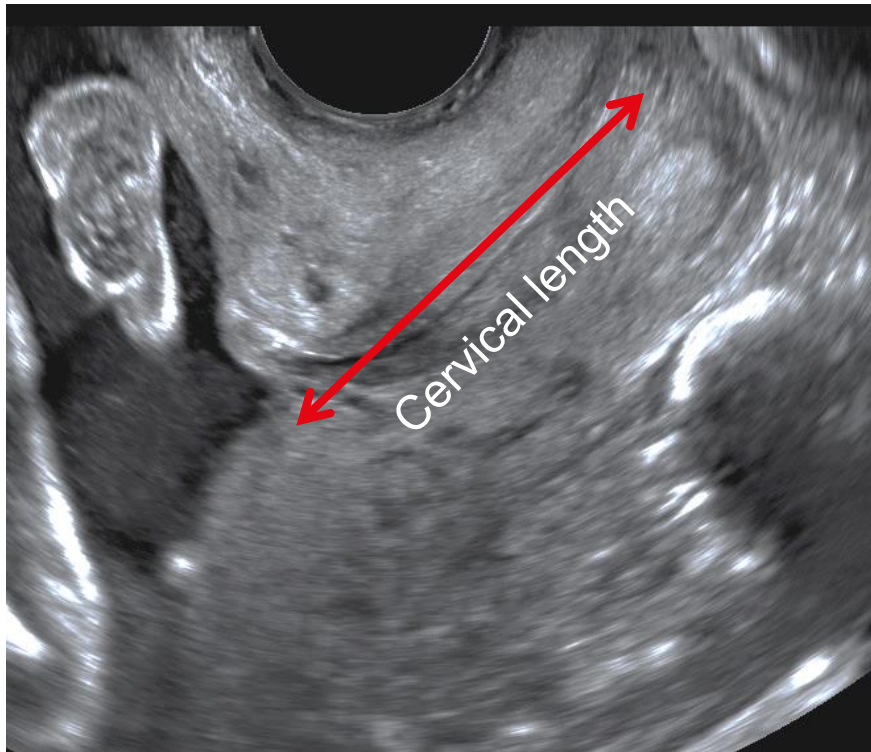# Cervix can be visualised transabdominally but poorly
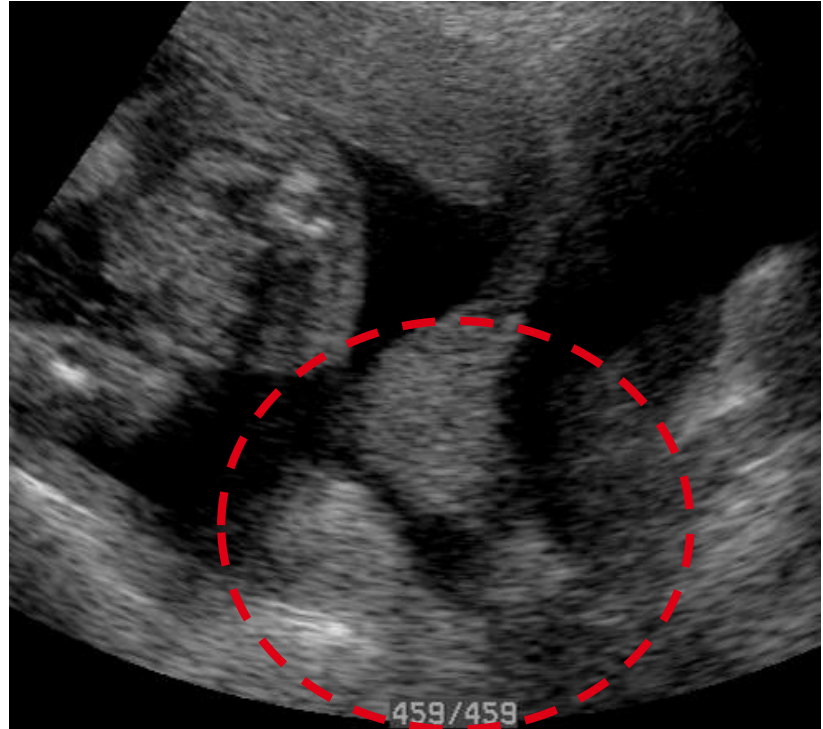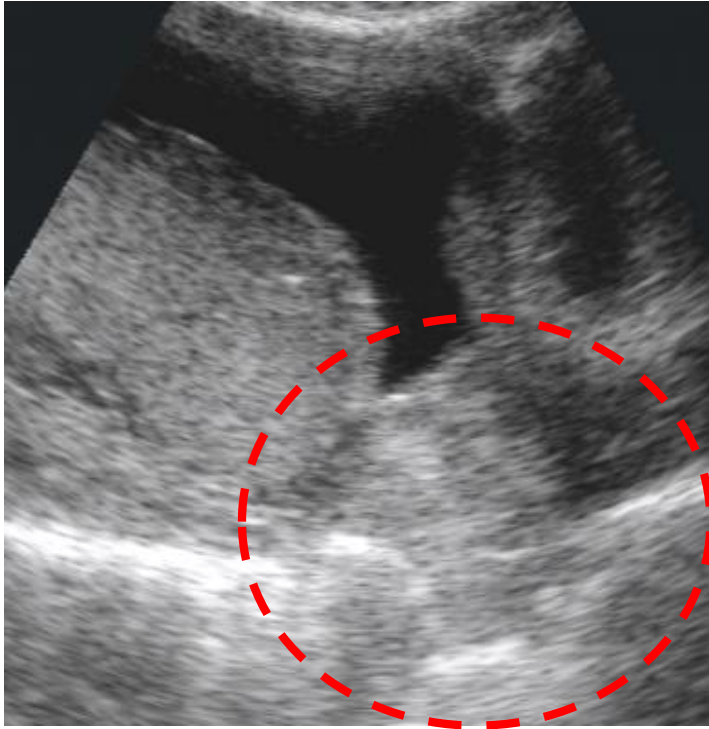
Vaginal sonography of the cervix

Normal cervix & short cervix

Cervical length

Funneling

Full bladder & cervical length

Full bladder — 27 mm

Empty bladder — 14 mm
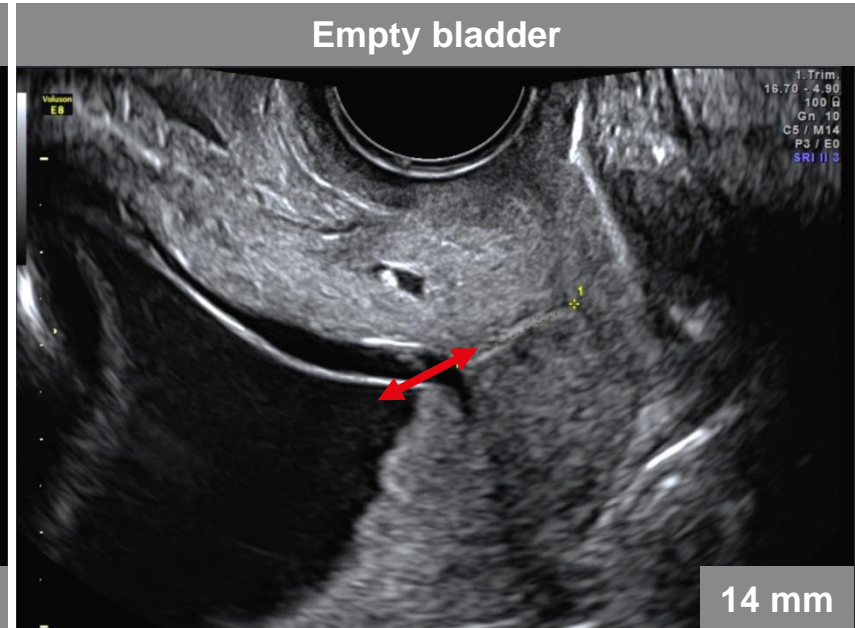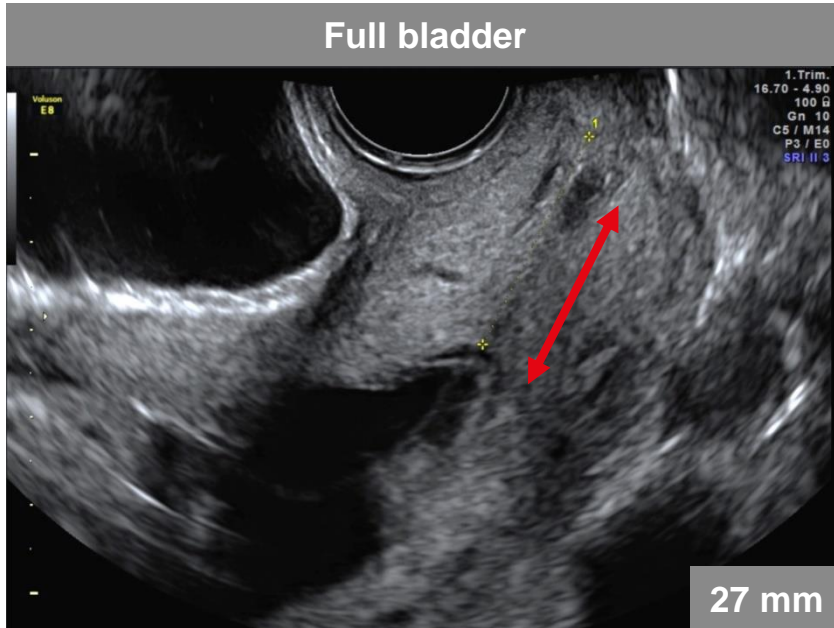
Full Bladder:
- Can artificially increase the cervical length
- Can obscure the presence of cervical funneling

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Normal cervical length

6614 pregnancy Cx measurements between 16 – 36 weeks

Salomon et al, UOG 2009, 33: 459

Risk of premature delivery

23 week CL in 2567 singleton pregnancies

Heath et al, UOG, 1998,12:312

Protocol for cervical assessment

- Patient in gynecological position, empty bladder

- Vaginal probe $\geq$ 5 MHz in a lubricated disposable sheath
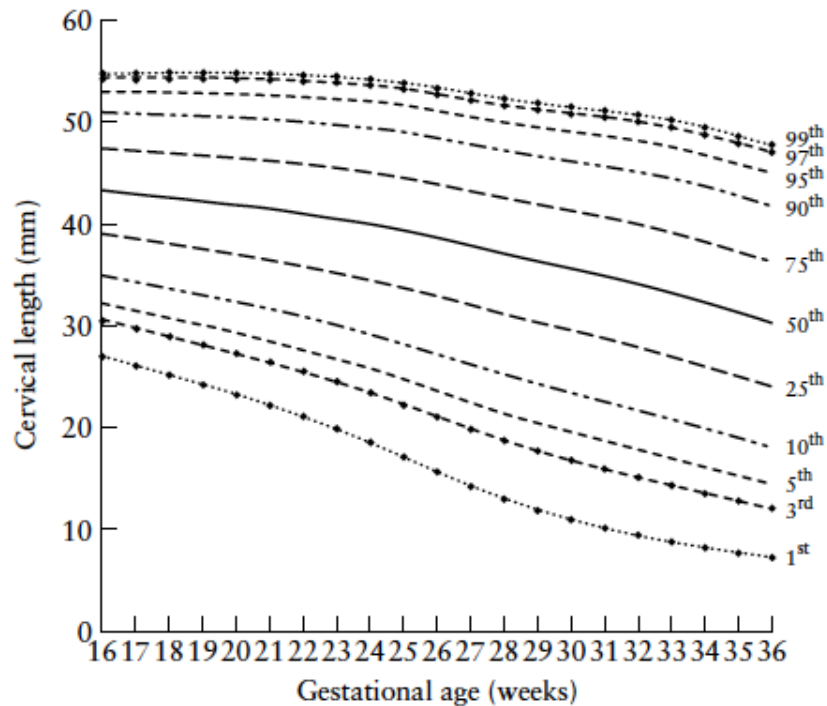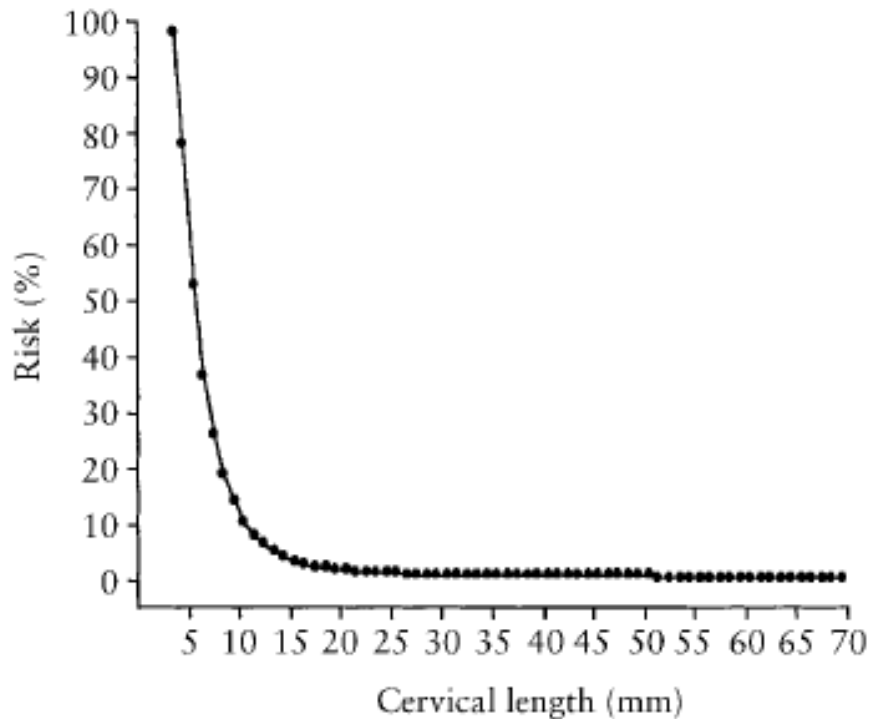
- Gently place the probe in the anterior vaginal fornix and ensure a sagittal view of the cervix is obtained

- Large image (> 75% of screen)

- Identify the internal os, external os, cervical canal & endocervical mucosa. Beware segmental contractions of the lower uterus

- Avoid excessive pressure with the probe because it may cause inaccurate estimation of cervical length

- Take time, at least three measurements and use the shortest

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Segmental thickening of the lower uterus:
be careful not to overestimate the cervical length

6.7 cm

Placenta

3.7 cm

Placenta

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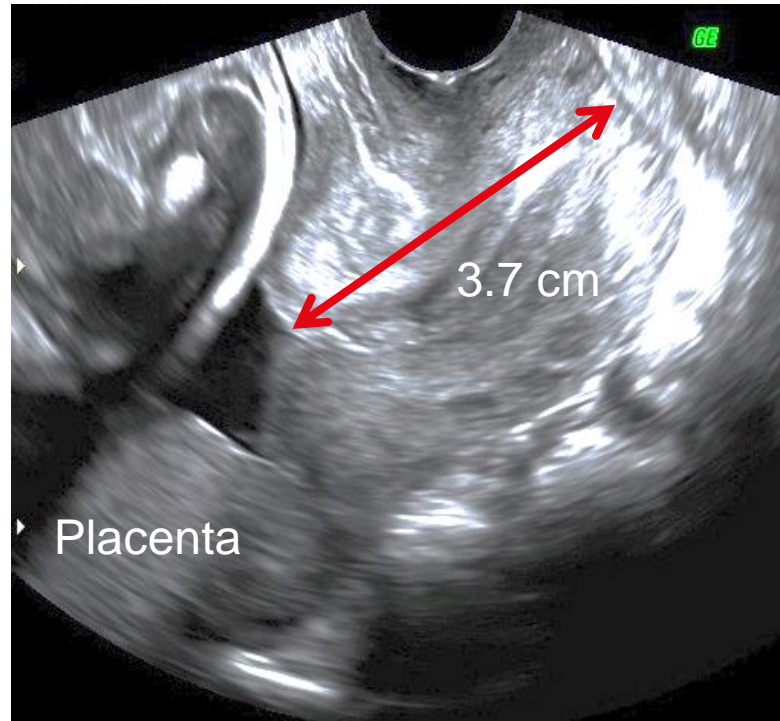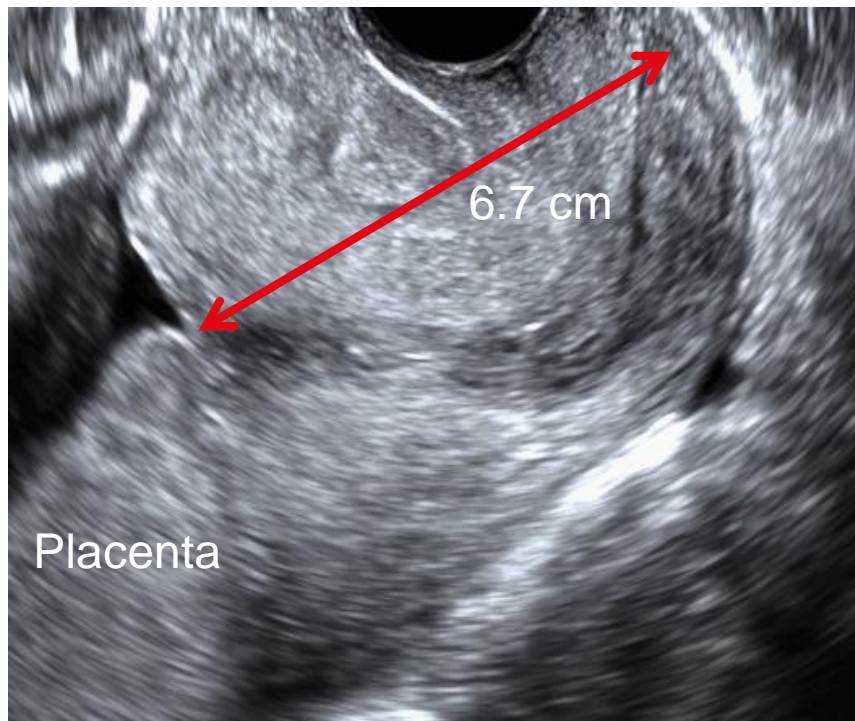
Visualising the cervical mucosa

Segmental contractions of the lower uterus
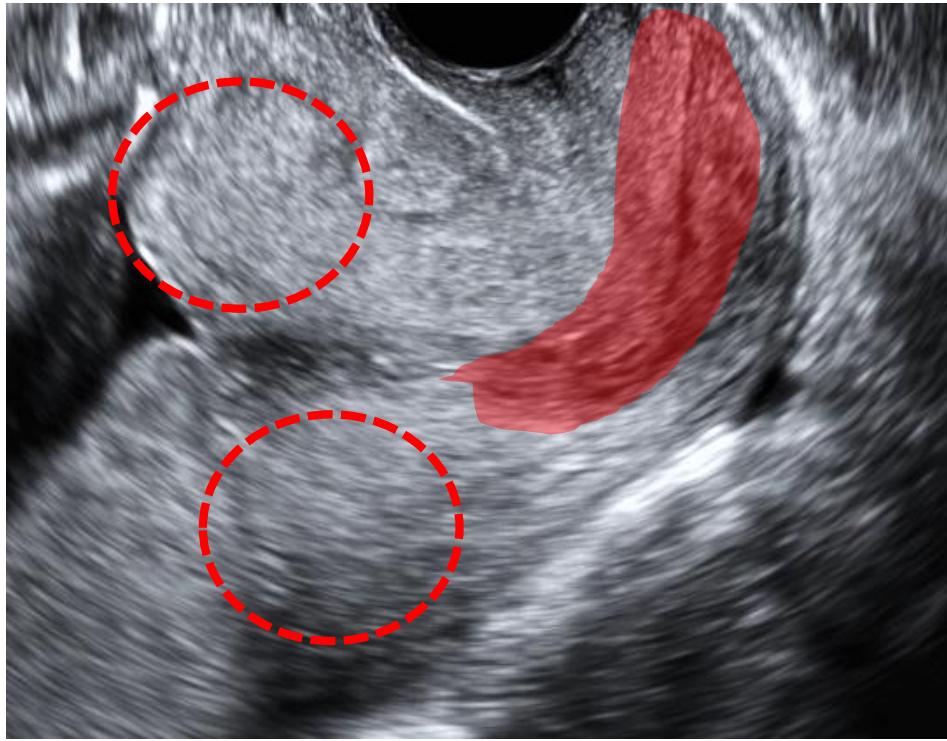
Patient rushed in at night for an emergency cerclage

Outpatient scan: ? funneling
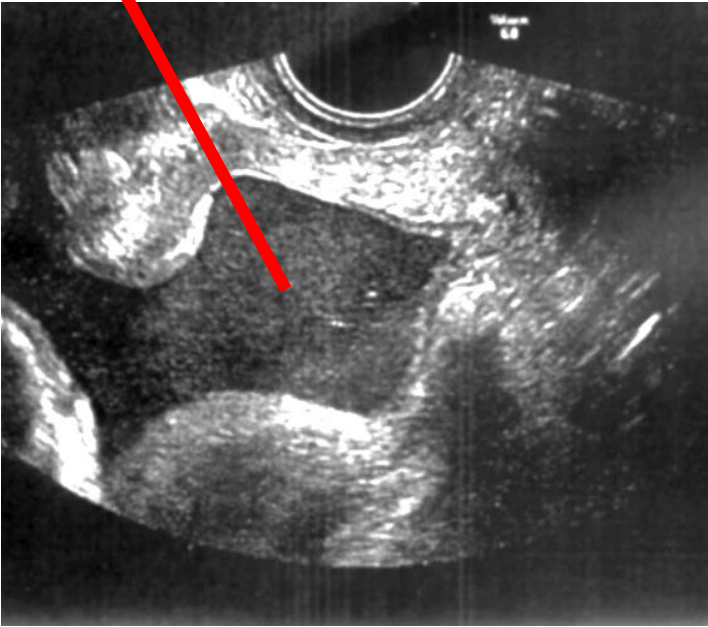
Upon admission

Cervix is soft, avoid undue pressure

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The proper technique to visualise and measure the cervix with vaginal sonography

1. Exert some pressure to identify cervix & cervical canal

2. Release completely the pressure to measure cervical length

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Cervical length & preterm delivery in asymptomatic patients

The Fetal Medicine Foundation

Cervical length and obstetric history predict spontaneous preterm birth: development and validation of a model to provide individualized risk assessment

E. CELIK*, M. TO*, K. GAJEWSKA*, G. C. S. SMITH† and K. H. NICOLAIDES* on behalf of The Fetal Medicine Foundation Second Trimester Screening Group

Screening by a combination of obstetric history and cervical length provides a higher detection rate than either method alone. For a screen-positive rate of 10%, the respective detection rates are about 80% and 60% in identifying extreme and early preterm birth.

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Vaginal progesterone in women with an asymptomatic sonographic short cervix in the midtrimester

- 775 women
- Significant reduction in the risk of preterm birth 33 weeks of gestation
- 12.4% vs 22.0%; RR, 0.58; 95% CI, 0.42– 0.80
- Number needed to treat 11

Study	Relative risk (fixed) (95% CI)	Vaginal progesterone n/N	Placebo n/N	Weight (%)	Relative risk (95% CI)
Fonseca 2007		22/125	38/125	45.4	0.58 (0.36-0.92)
O'Brien 2007		1/12	4/19	3.7	0.40 (0.05-3.13)
Rode 2011		3/7	5/14	4.0	1.20 (0.40-3.63)
Hassan 2011		21/235	36/223	44.1	0.55 (0.33-0.92)
Cetingoz 2011		1/9	2/6	2.9	0.33 (0.04-2.91)
Combined		48/388	85/387	100.0	0.58 (0.42-0.80)

Heterogeneity: I^2= 0%

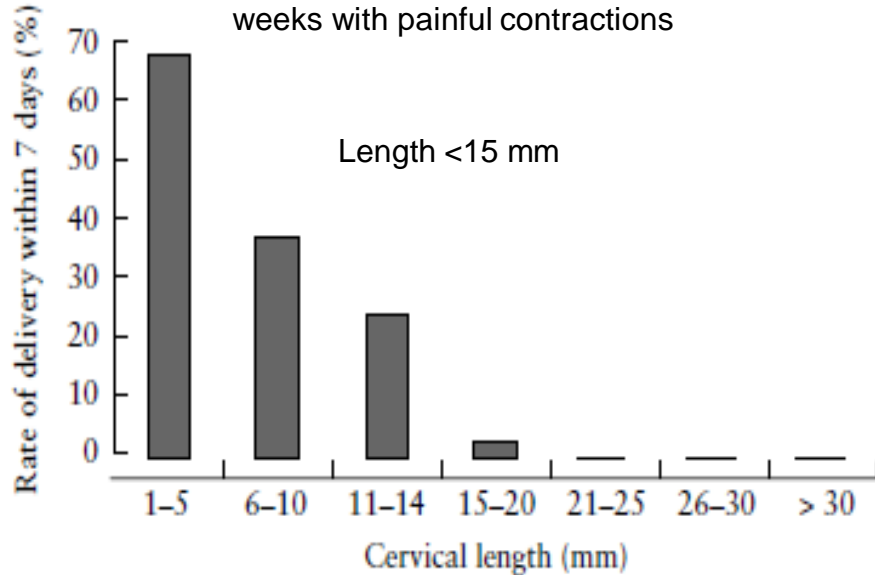Favors vaginal progesterone   Favors placebo

Romero R et al, AJOG 2012, 206:124.e1-19

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Cervical length & threatened preterm labour

Delivery < 7 days and CL

216 women between 24-36 weeks with painful contractions

Length <15 mm

Randomised control trial (RCT) of CL (cutoff 15 mm, n = 41)

	CL	Controls
Delivery $\leq$ 34 weeks	9.5 %	15 %
Unnecessary steroids	14 %	90 %
Tocolysis	33.3%	100%
Delivery < 35 weeks without steroids	0	0

Tsoi et al, UOG, 2003, 21:552

Alfirevic et al, UOG 2007, 29:47

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Short term prediction of preterm birth

Variable	Probability of delivery < 7days		
	Pre-test	Positive test	Negative test
Positive fibronectin	20 %	48%	7 %
No fetal breathing	20%	89%	8 %
Short cervix on ultrasound	20%	63 %	7 %

Boots et al, AJOG 2014, 210:54.e1-10

Contingent use of fetal fibronectin & CL in preterm labour

Threatened preterm labor

Cervical length

< 15 mm

15-30 mm

> 30 mm

Fibronectin +

Fibronectin -

High risk

Low risk
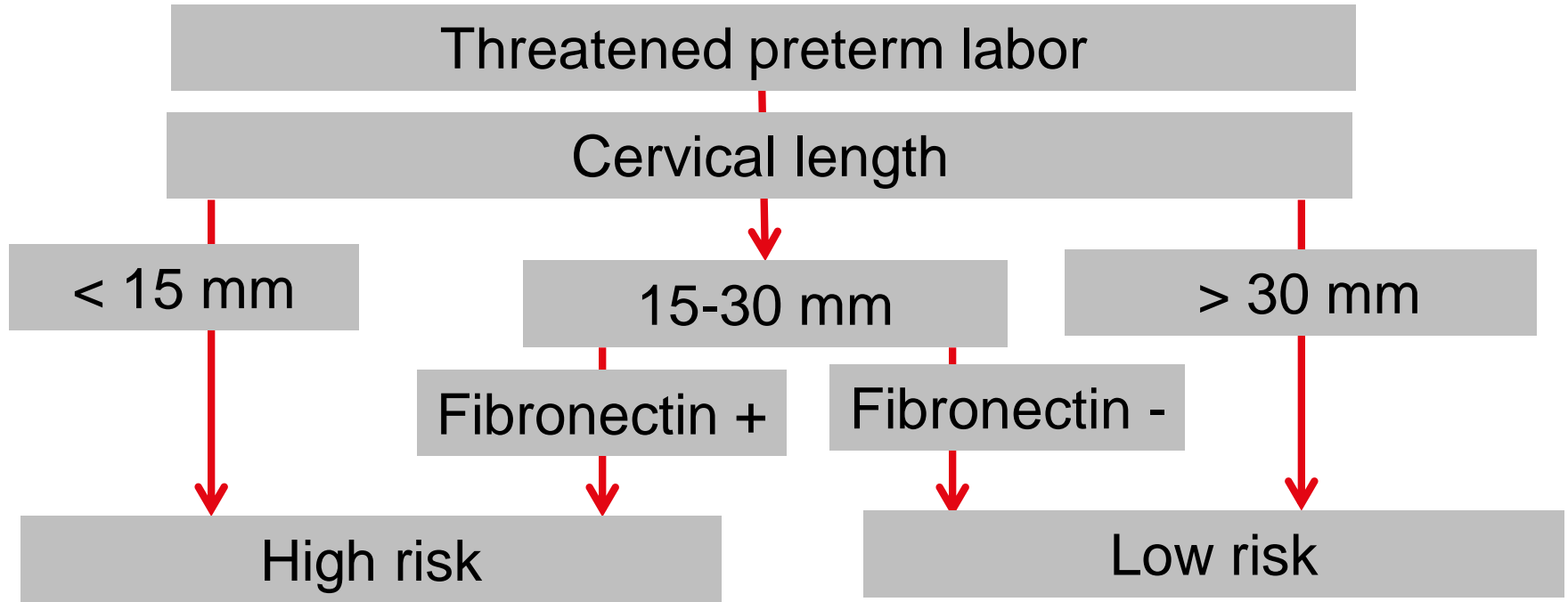
Audibert, J Obstet Gynaecol Can. 2010, 32:307-12

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Key points

- The transvaginal approach should be used in preference to the transabdominal approach when examining the cervix with ultrasound

- The correct technique should always be used

- Care should be taken not to overestimate the cervical length

- Excessive pressure with the probe should be avoided when measuring the cervical length

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