ISUOG Basic Training

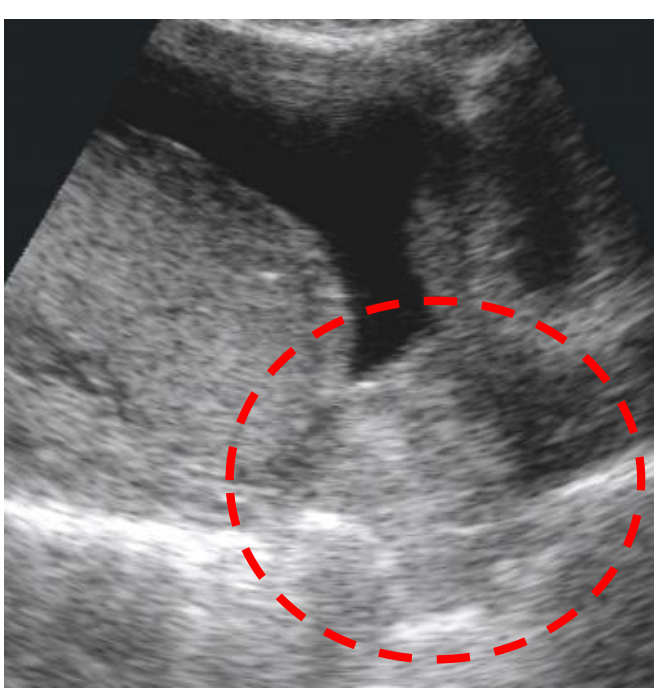
Imaging, Measurement and Assessment of the Cervix

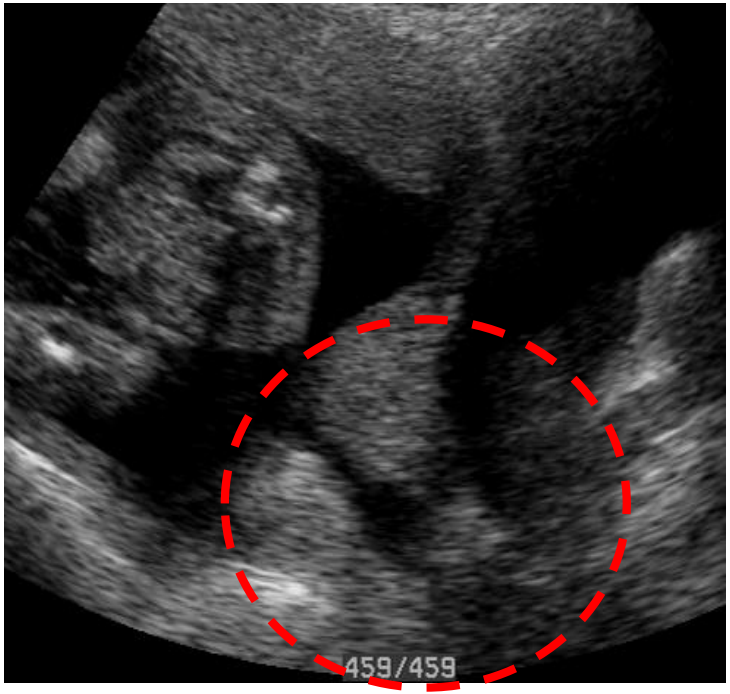
Learning objectives

Upon completion of this activity, you should be able to better:

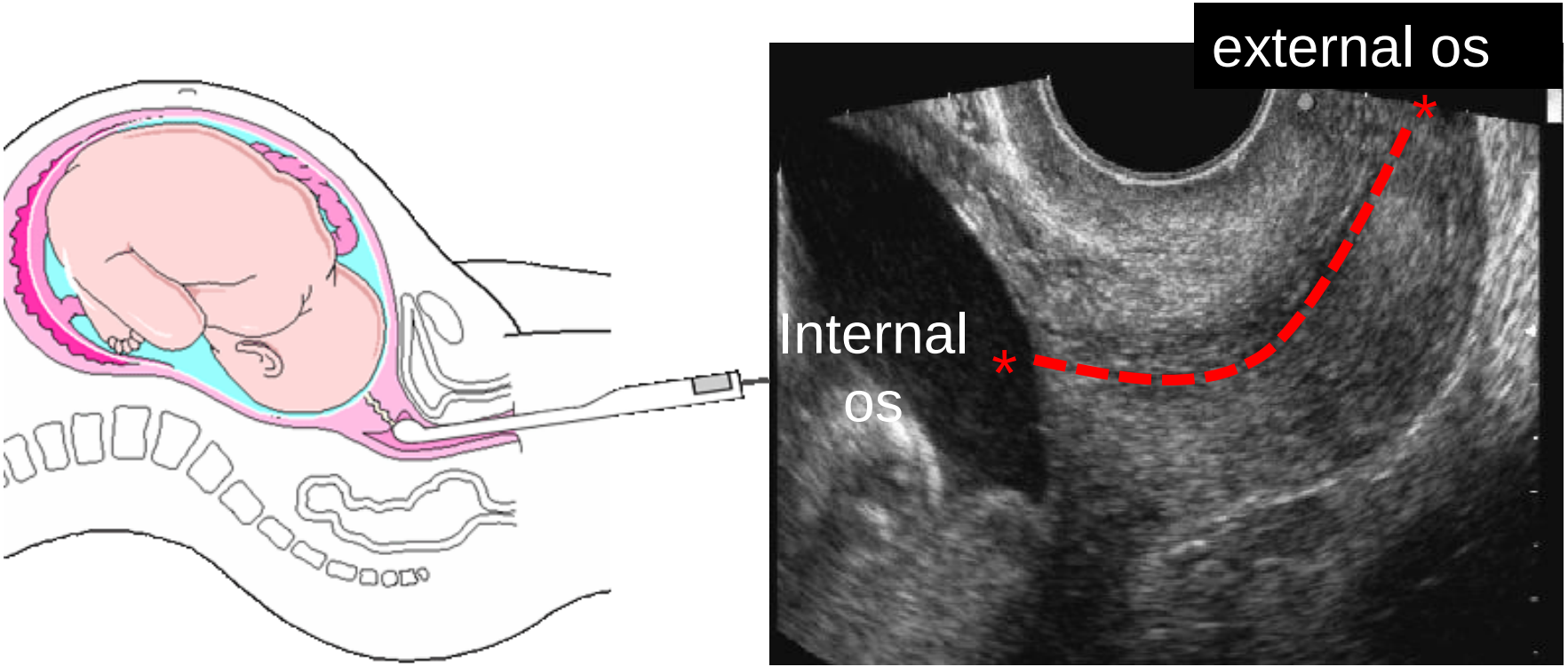
- Visualize and measure the cervix in pregnant patients with vaginal sonography
- Identify and manage pregnant patients with short cervix
- Manage patients with threatened preterm labour

Cervix can be visualized transabdominally but poorly

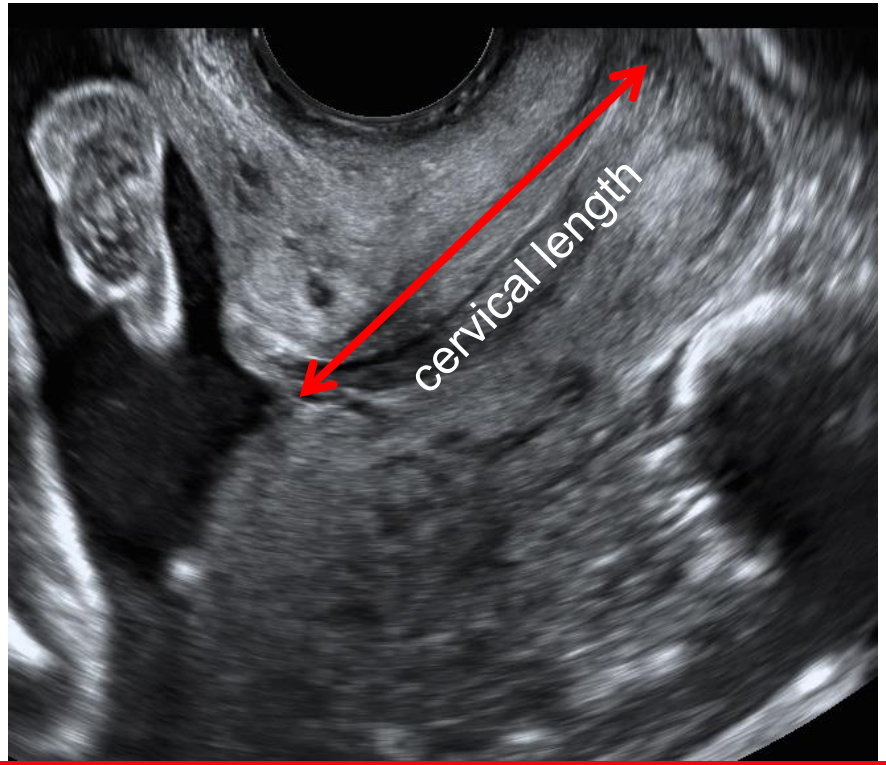


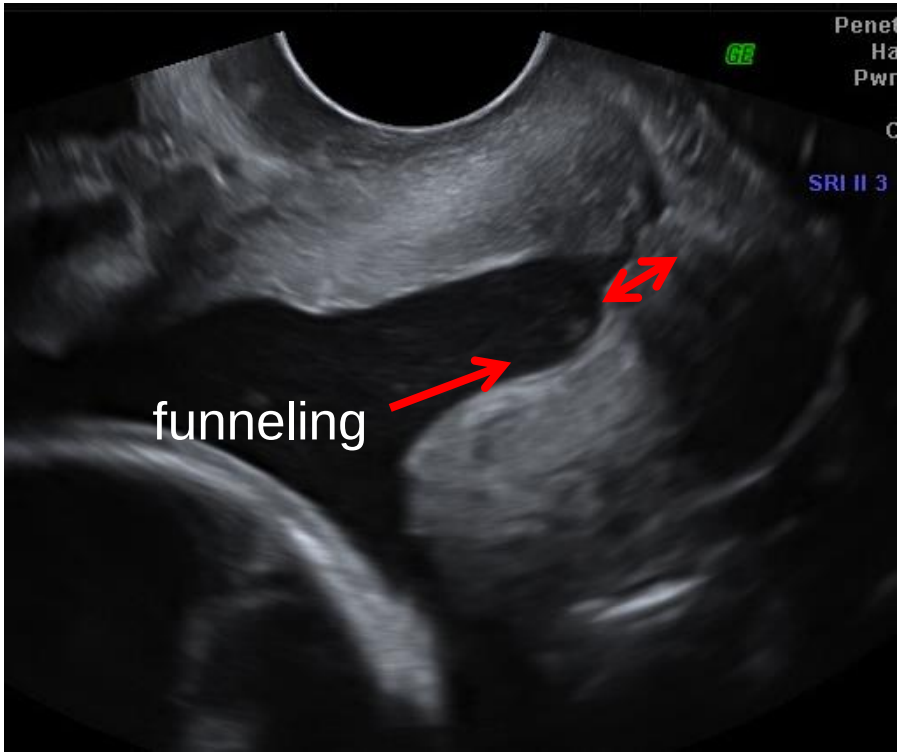


Vaginal sonography of the cervix

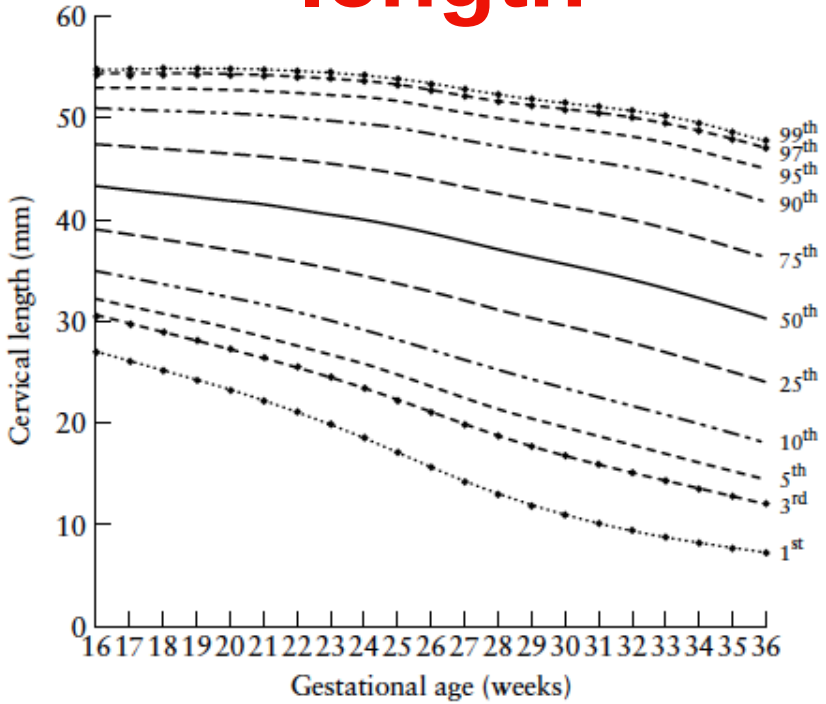


Normal cervix and short cervix



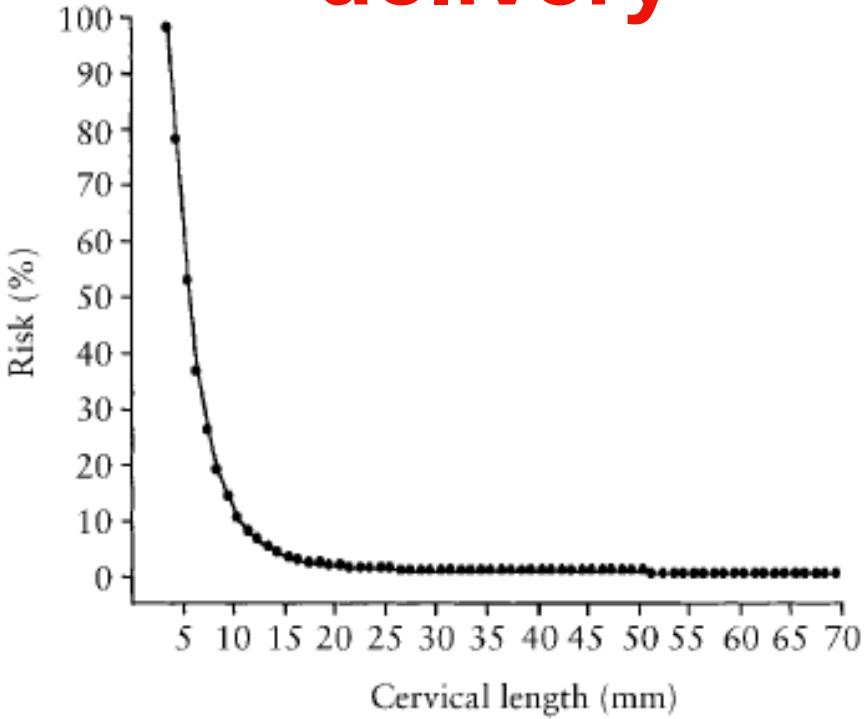


Normal cervical length



Salomon et al: UOG 2009; 33: 459

Risk of premature delivery

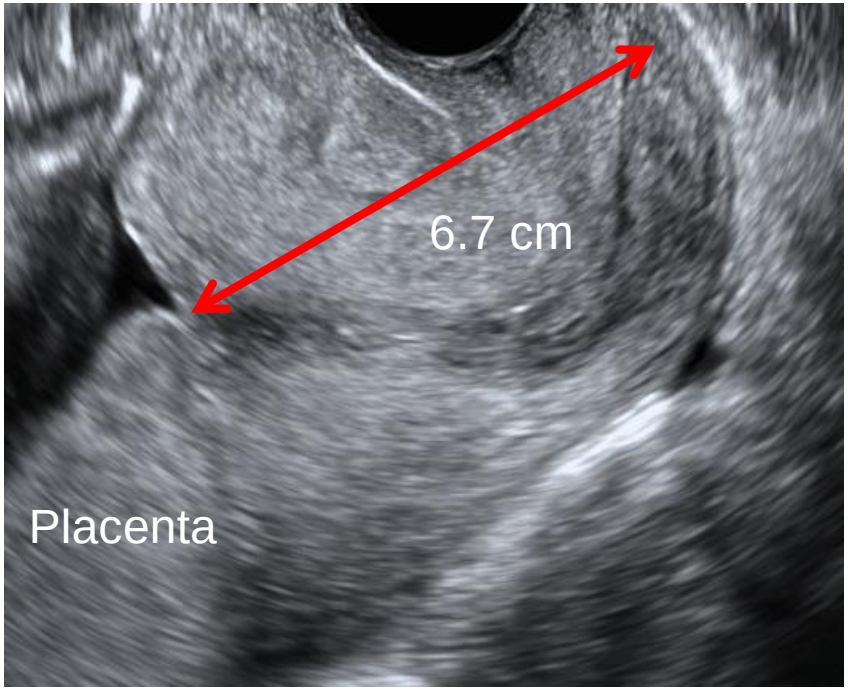


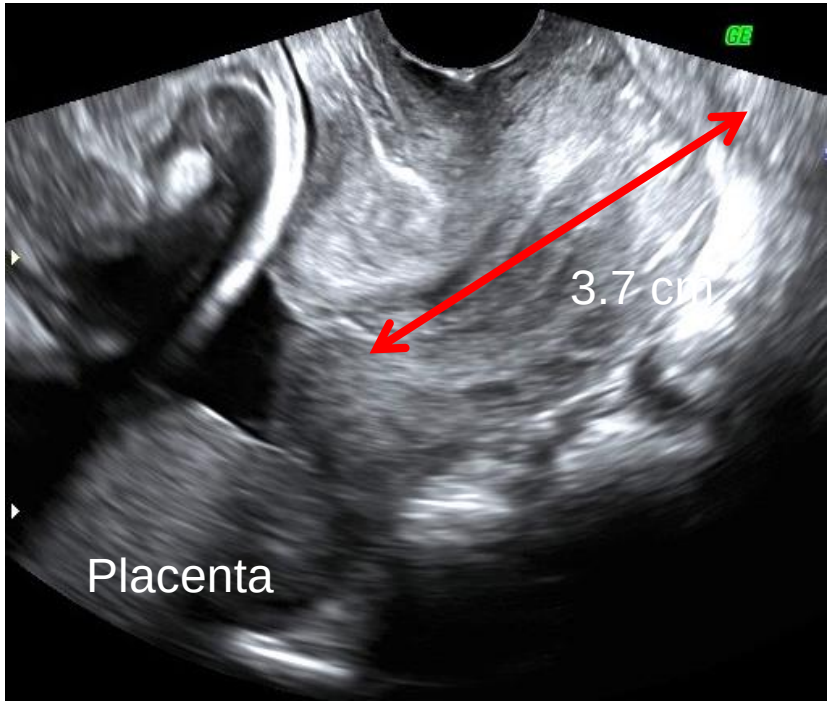
Heath et al: UOG 1998:12:312

Protocol for cervical assessment

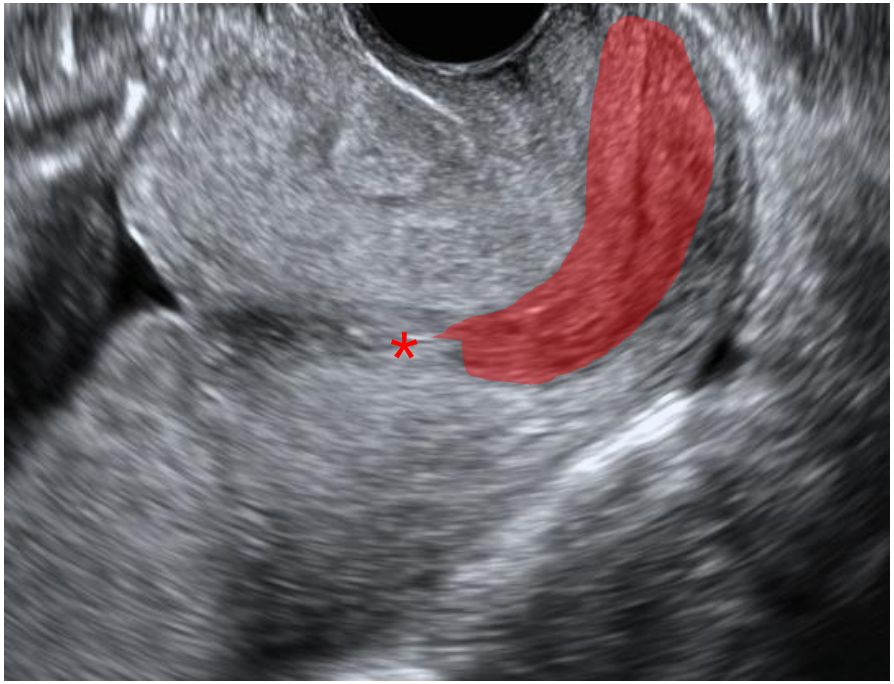
- Patient in gynecological position, empty bladder
- Vaginal probe ≥ 5 MHz in a lubricated disposable sheath
- Gently place the probe in the anterior vaginal fornix to ensure a sagittal view of the cervix is obtained
- Large image (> 75% of screen)
- Identify the internal os, external os, cervical canal and endocervical mucosa. Beware segmental contractions of the lower uterus
- Avoid undue pressure with the probe because this will falsely elongate the cervix

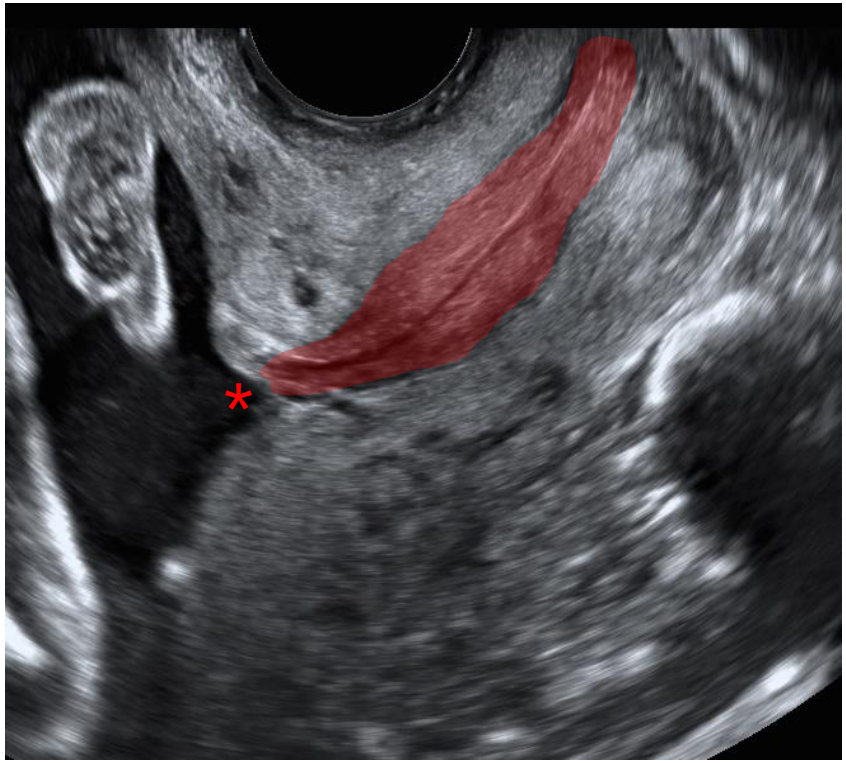
Segmental thickening of the lower uterus: be careful not to overestimate the cervical length



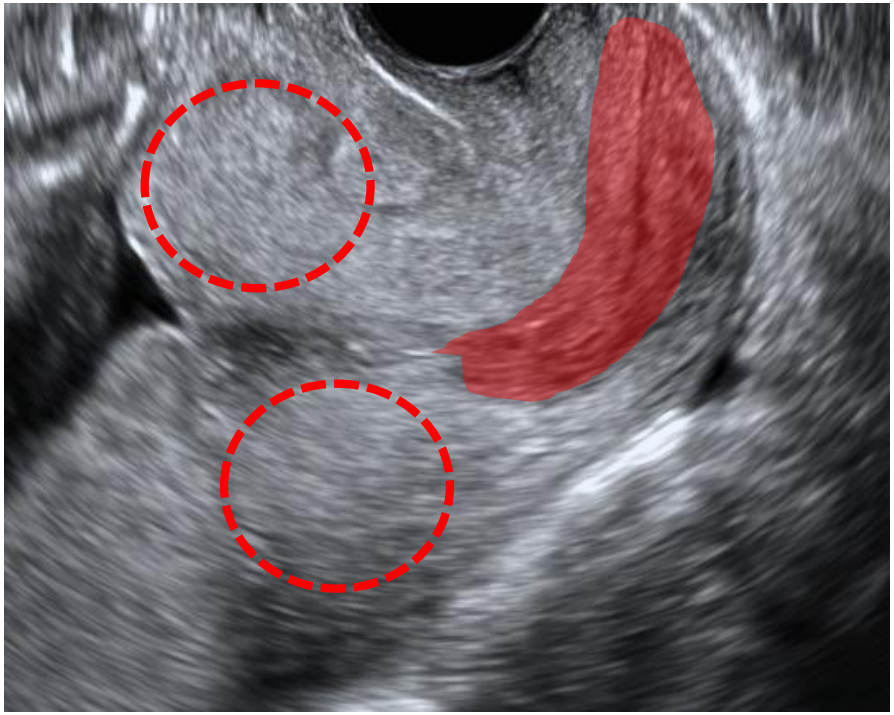


Visualizing the cervical mucosa





Segmental contractions of the lower uterus



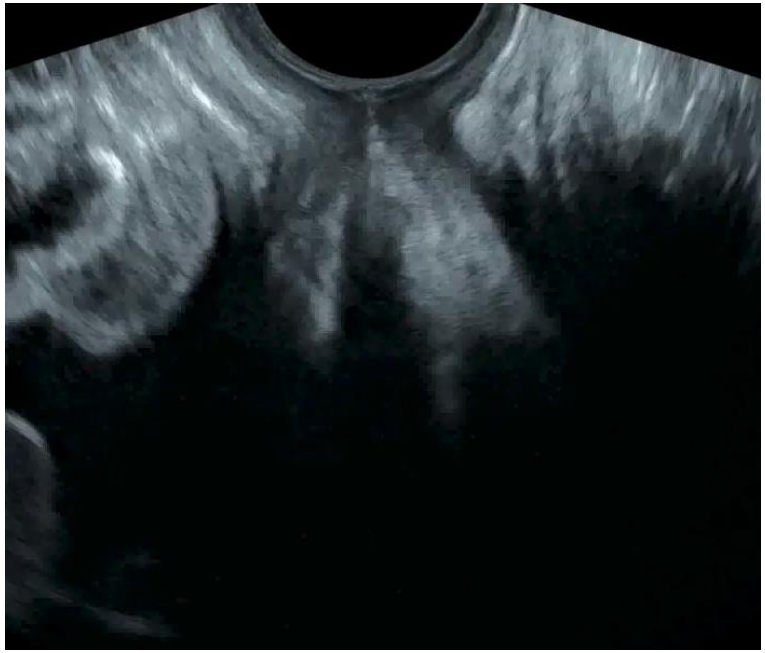
Patient rushed in at night for an emergency cerclage

Outpatient scan: ? funneling

Upon admission

Cervix is soft, avoid undue pressure

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



1. Exert some pressure to identify cervix and cervical canal

2. Release completely the pressure to measure cervical length

Cervical length and preterm delivery in asymptomatic patients

Ultrasound Obstet Gynecol 2008; **31**: 549–554
Published online in Wiley InterScience (www.interscience.wiley.com). **DOI:** 10.1002/uog.5333

The Fetal Medicine Foundation

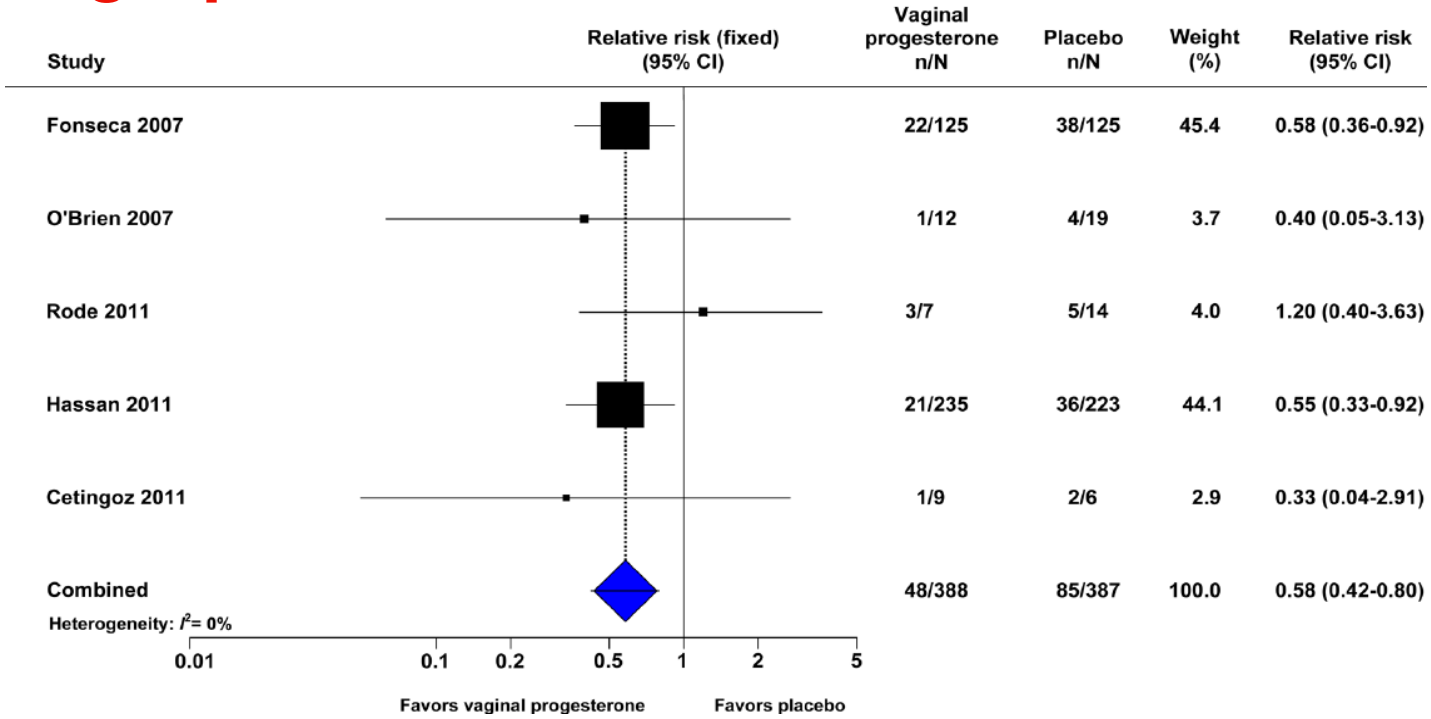
Cervical length and obstetric history predict spontaneous preterm birth: development and validation of a model to provide individualized risk assessment

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

or

Consider at increased risk anyone with a cervical length < 25 mm at 18-23 weeks

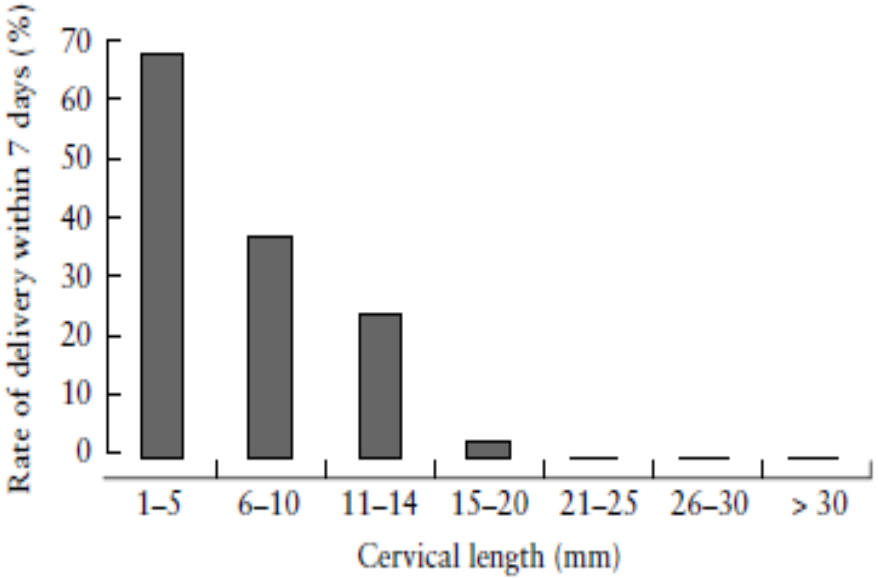
Vaginal progesterone in women with an asymptomatic sonographic short cervix in the midtrimester



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

Cervical length (CL) and threatened preterm labor

Delivery < 7 days and CL



Tsoi et al: UOG 2003, 21:552

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

	CL	controls
Delivery ≤ 34 wks	9.5 %	15 %
Inappropriate treatment	3 %	18 %
Delivery < 35 wks without steroids	0	0

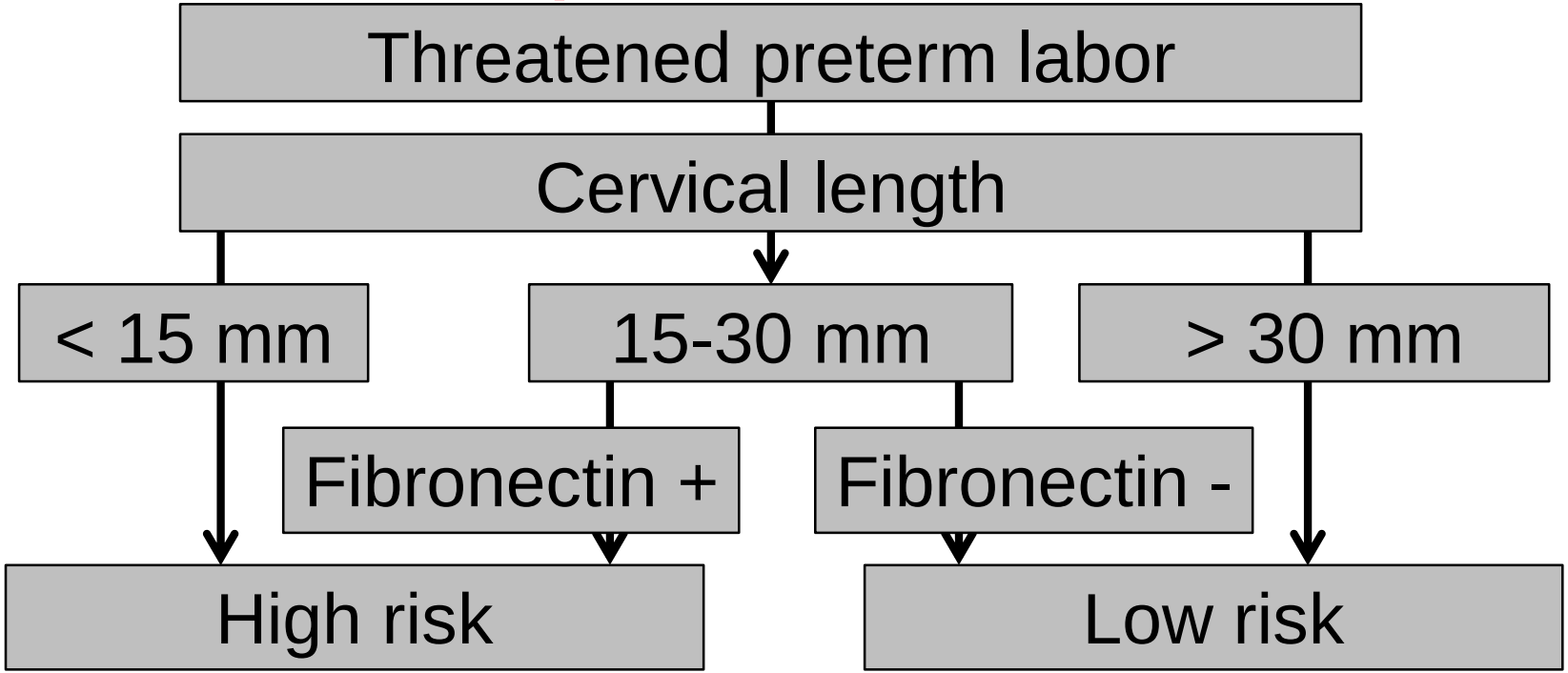
Alfirevic et al: UOG 2007, 29:47

Short term prediction of preterm birth

Variable	Probability of delivery < 7 days		
	Pre-test	Positive test	Negative test
No fetal breathing	10 %	27 %	5 %
Positive fibronectin		54 %	3 %
Short cervix on ultrasound		42 %	3 %

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

Contingent use of fetal fibronectin and CL in preterm labour



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

To summarize:

- The technique for assessing the cervical length with vaginal ultrasound and potential pitfalls has been described
- Cervical measurements is particularly useful:
  - To assess the risk of preterm delivery in asymptomatic patients, both high and low risk
  - In the management of patients with threatened preterm labor

MCQ # 1

Segmental contractions of the lower uterus:

a. Do not interfere with sonographic transvaginal measurement of the cervix
b. May lead to underestimation of the cervical length
c. May lead to overestimation of the cervical length

MCQ # 2

Which of the following should be avoided when assessing the cervix with vaginal sonography in pregnancy

a. Full urinary bladder
b. Empty urinary bladder
c. Lubrication of the sheath containing the probe

MCQ # 3

What is the normal cervical length at 18-23 weeks' gestation:

a. About 3 cm and more than 2.5
b. About 2.5 cm and more than 2 cm
c. About 2 cm and more than 1.5 cm

MCQ # 4

In which of the following cases there evidence of benefit from vaginal progesterone:

a. Singleton pregnancy 22 weeks' gestation, cervical length 2.9 cm
b. Singleton pregnancy 22 weeks gestation, cervical length < 1.9 cm
c. Singleton pregnancy 22 weeks gestation with funneling of the cervix

MCQ # 5

In patients with threatened preterm labor:

a. Vaginal fibronectin predicts preterm birth significantly better than sonographic cervical length
b. Sonographic cervical lengthpredicts preterm birth significantly better than vaginal fibronectin
c. Sonography of the cervix and fibronectin perform similarly

MCQ # 1

Segmental contractions of the lower uterus:

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Which of the following should be avoided when assessing the cervix with vaginal sonography in pregnancy

a. Full urinary bladder
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MCQ # 3

What is the normal cervical length at 18-23 weeks' gestation:

a. About 3 cm and more than 2.5
b. About 2.5 cm and more than 2 cm
c. About 2 cm and more than 1.5 cm

MCQ # 4

In which of the following cases there evidence of benefit from vaginal progesterone:

a. Singleton pregnancy 22 weeks' gestation, cervical length 2.9 cm

b. Singleton pregnancy 22 weeks gestation, cervical length < 1.9 cm

c. Singleton pregnancy 22 weeks gestation with funnelling of the cervix

MCQ # 5

In patients with threatened preterm labor:

a. Vaginal fibronectin predicts preterm birth significantly better than sonographic cervical length

b. Sonographic cervical lengthpredicts preterm birth significantly better than vaginal fibronectin

c. Sonography of the cervix and fibronectin perform similarly