Ultrasound following Medical Abortion

Matthew F. Reeves, MD, MPH

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Background

- Early Medical Abortion (MA)
  - Less than 63 days gestational age
  - Using mifepristone and misoprostol generally
    - Data should apply to misoprostol-only MA
- Return in 7-14 days for follow-up evaluation
  - Often includes transvaginal ultrasound

3 clinical questions after medical abortion

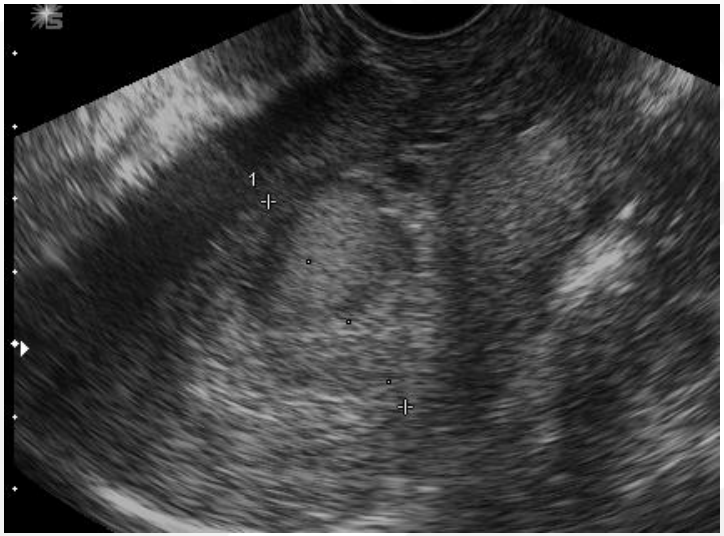
- Has the pregnancy been expelled?
- Is the woman's bleeding in the normal range and generally decreasing?
- Is she feeling well and not in pain, with resolving symptoms of pregnancy?

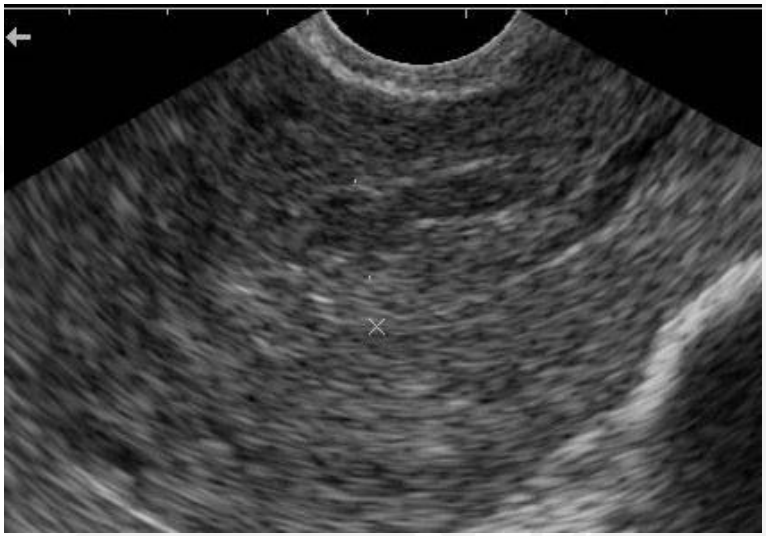
Only the first question should be and can be determined by ultrasound.

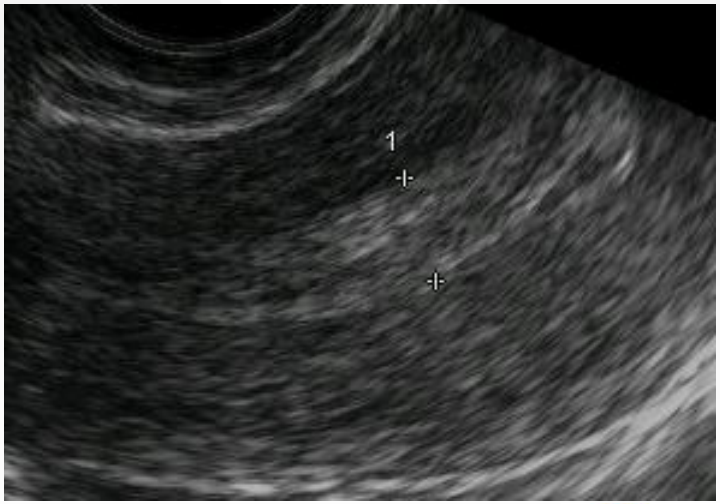
Ultrasound Uses After MA

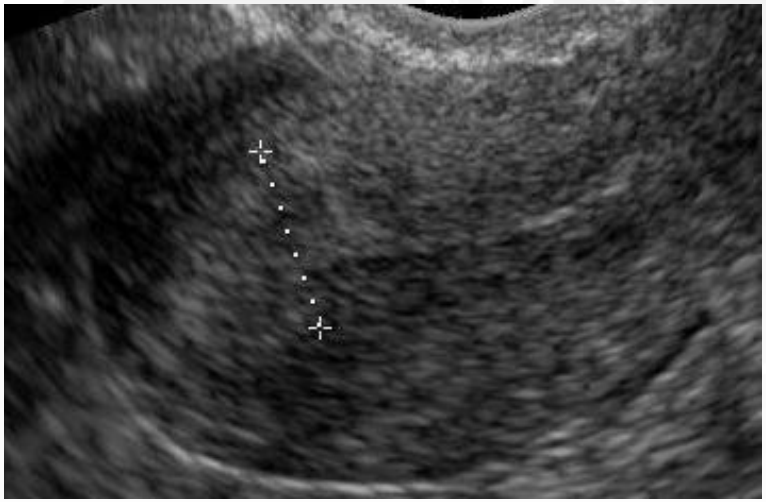
- Confirm absence of gestational sac
  - Expelling the pregnancy is the goal of MA
  - Previously visualized of sono before MA
  - Confirms absence of continuing pregnancy
- Not to confirm a “complete” abortion
  - The uterus is rarely “empty”
  - Residual clot & decidua remain
  - Often includes villi
  - Highly variable appearance

Endometrium after medical abortion: Wide variation

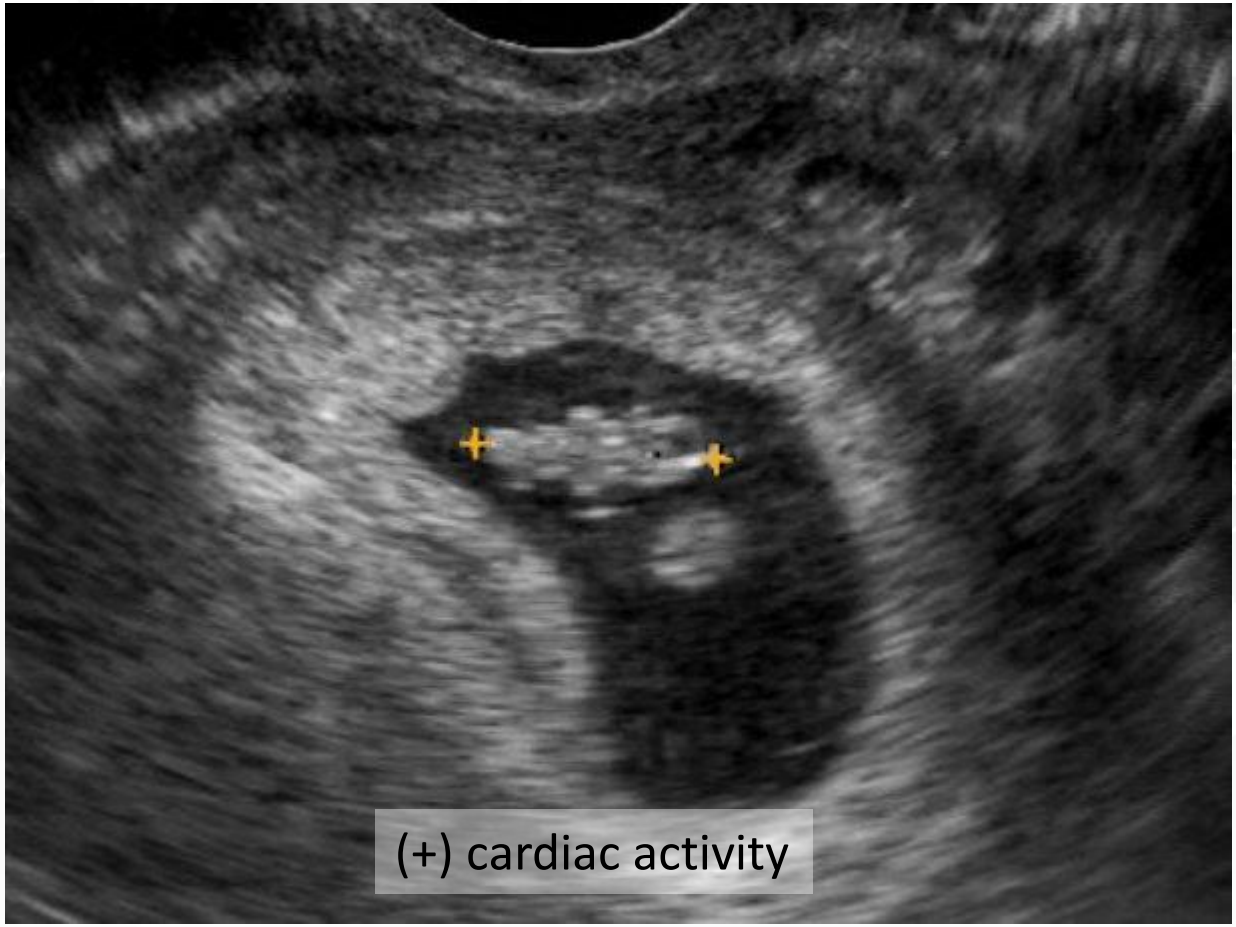








Ongoing pregnancy <1% after medical abortion



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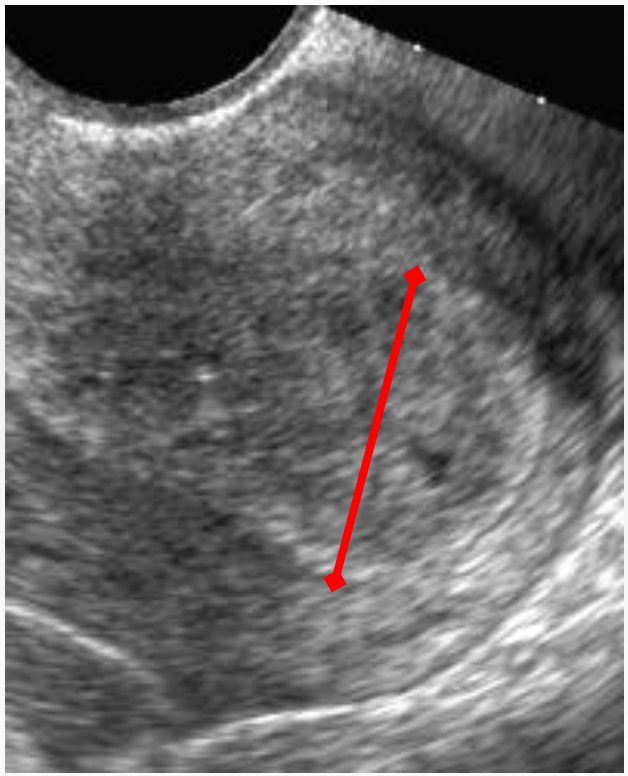
Research Questions

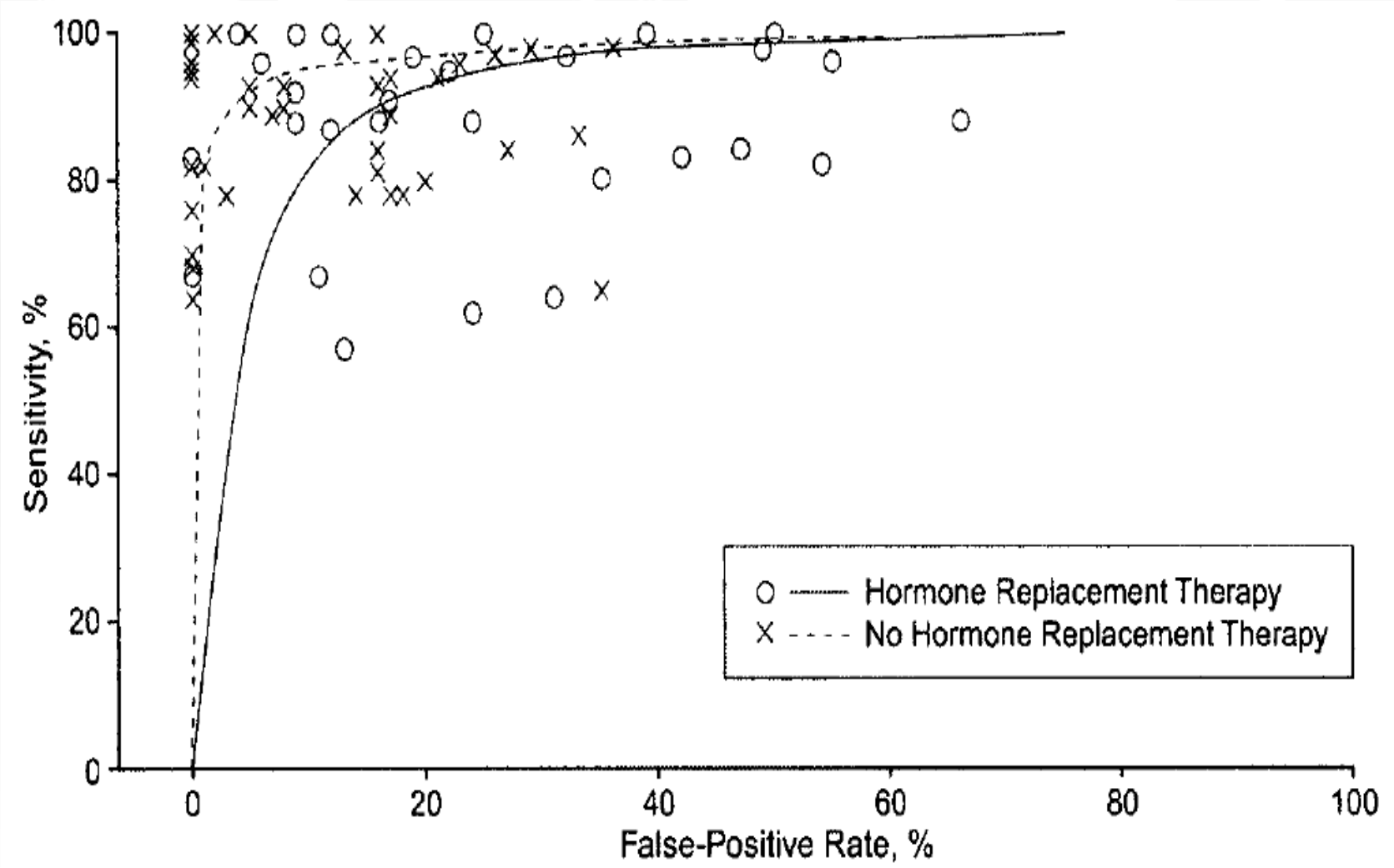
- What sonographic findings predict the need for intervention (uterine evacuation)?
- Is endometrial thickness a useful predictor of the need for intervention (uterine evacuation)?

Endometrial Thickness

- The maximal thickness of the endometrium
  - Including everything within
  - In the sagittal plane
  - Anterior-posterior dimension
- Used to assess for endometrial cancer
  - A good diagnostic test for endometrial abnormalities in post-menopausal women
    (Smith-Bindman, JAMA, 1998)



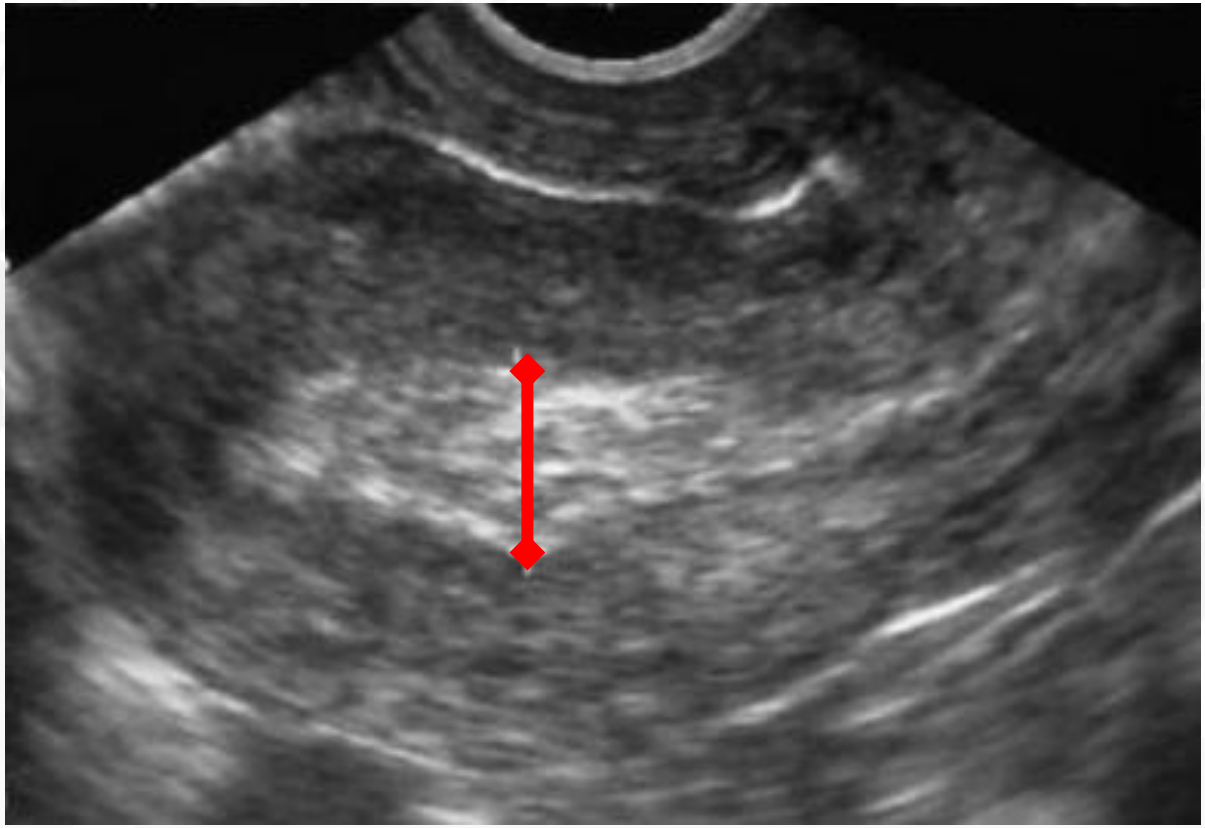
EMT for post-menopausal women: ROC Curves



EMT after Medical Abortion

- Endometrial Thickness (EMT) after spontaneous or medical abortion
  - Poorly studied
  - Arbitrary cutoffs used to define abnormal
    - 10mm
    - 15mm
    - 20mm
- EMT not routinely checked after surgical abortion but similar cut-offs frequently used

Typical ultrasound after medical abortion



Endometrial Thickness after Medical Abortion

- A pooled analysis of 2208 women undergoing medical abortion at less than 63 days,
  - 2 prospective randomized trials
  - Very good follow-up
- Both trial used 200 mg mifepristone followed by 800 mcg misoprostol vaginally

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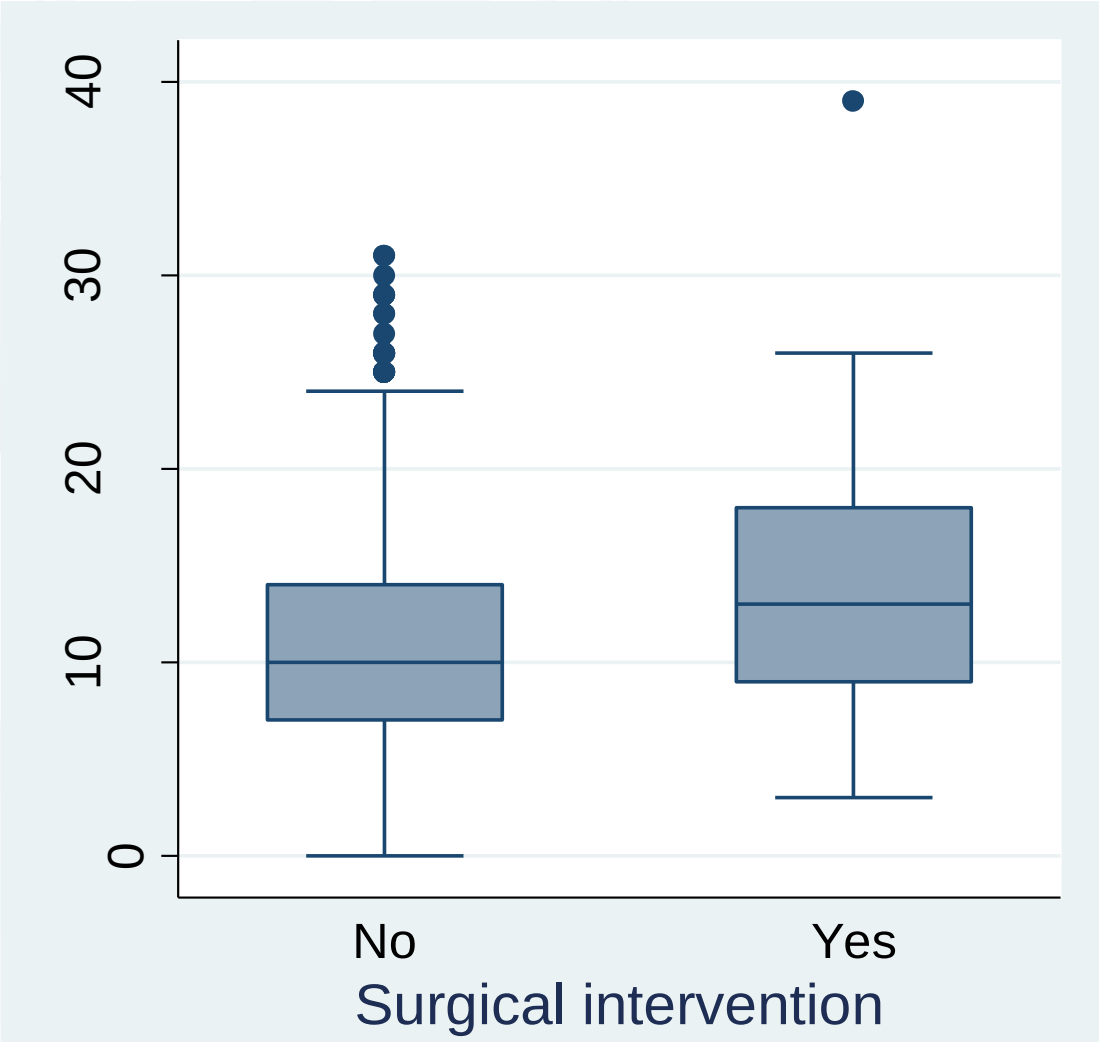
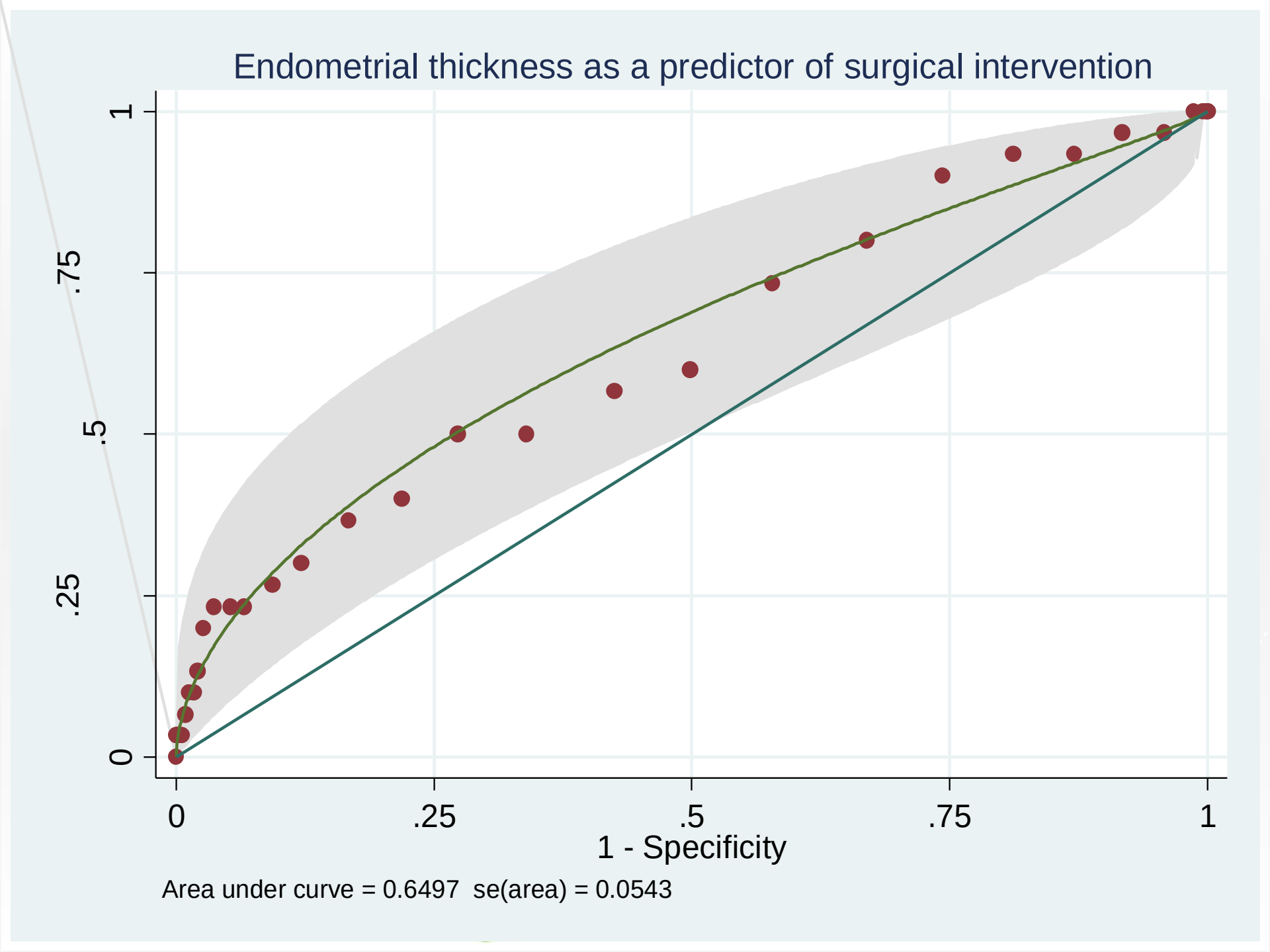
Reeves, Fox, Lohr , Creinin.
Ultrasound Obstet Gynecol 2009

EMT at 7 days after misoprostol



Difference 3.5 mm [95% CI 1.8, 5.3]


Endometrial thickness as a predictor of surgical intervention
1
.75
.5
.25
0
0
.25
.5
.75
1
1 - Specificity
Area under curve = 0.6497 se(area) = 0.0543

Day 7 Results by EMT Threshold

EMT (mm)	Sensitivity	Specificity	PPV	NPV	ROC area
10	73.3%	42.2%	2.0%	99.0%	0.58
15	40.0%	78.1%	2.9%	98.8%	0.59
20	23.3%	94.7%	6.7%	98.7%	0.59
25	10.0%	98.8%	11.5%	98.5%	0.54
30	3.3%	99.8%	25.0%	98.4%	0.52

Endometrial thickness after miscarriage management

A randomized trial of management:

- 491 women received misoprostol vaginally
- 161 women received suction curettage
- Endometrium assessed at 2 weeks
  - Endometrial thickness measured

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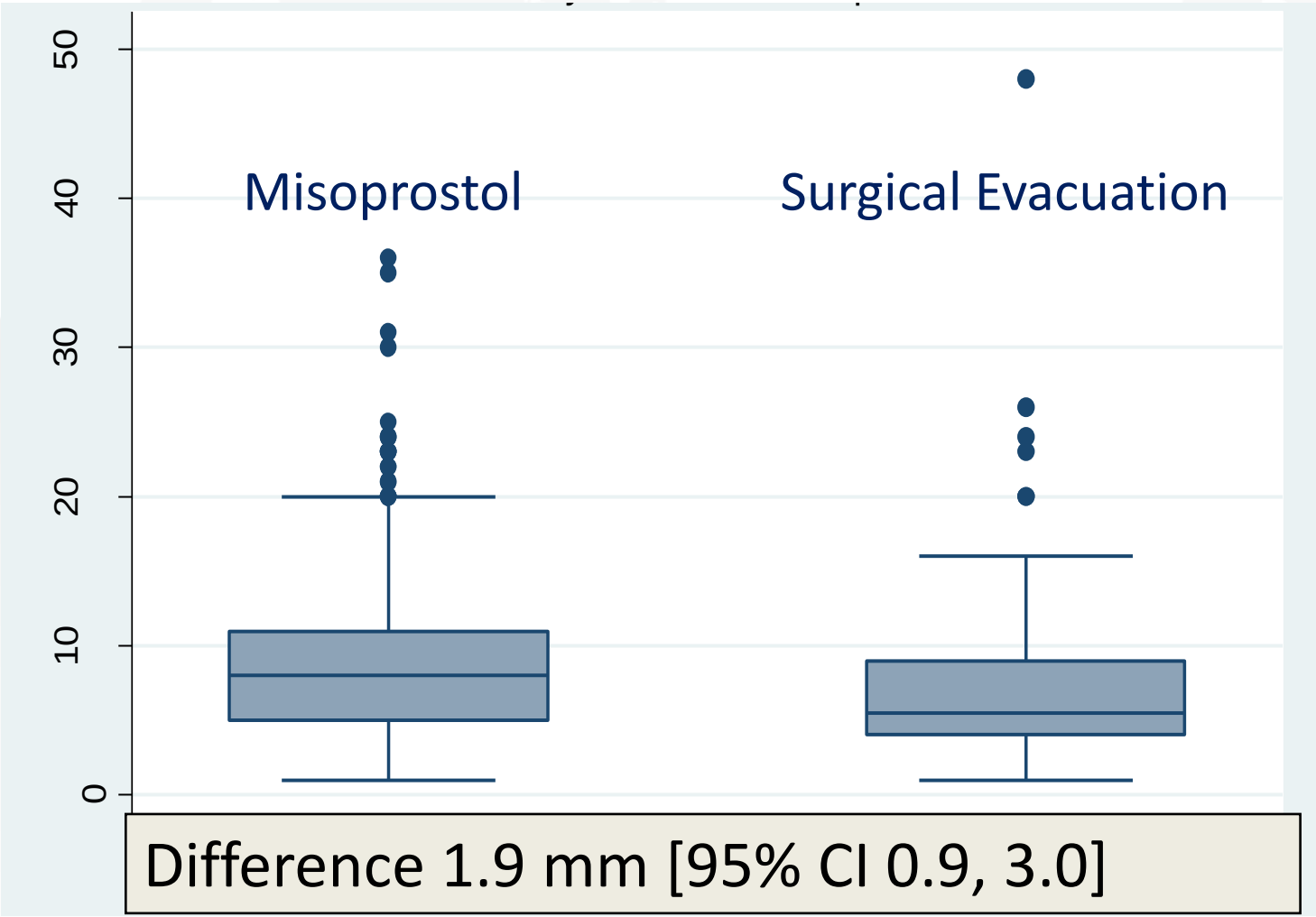
Reeves, Lohr , Harwood, Creinin.
Obstet Gynecol 2008;111:106-12.

Misoprostol vs Surgical for EPF: EMT on Day 15



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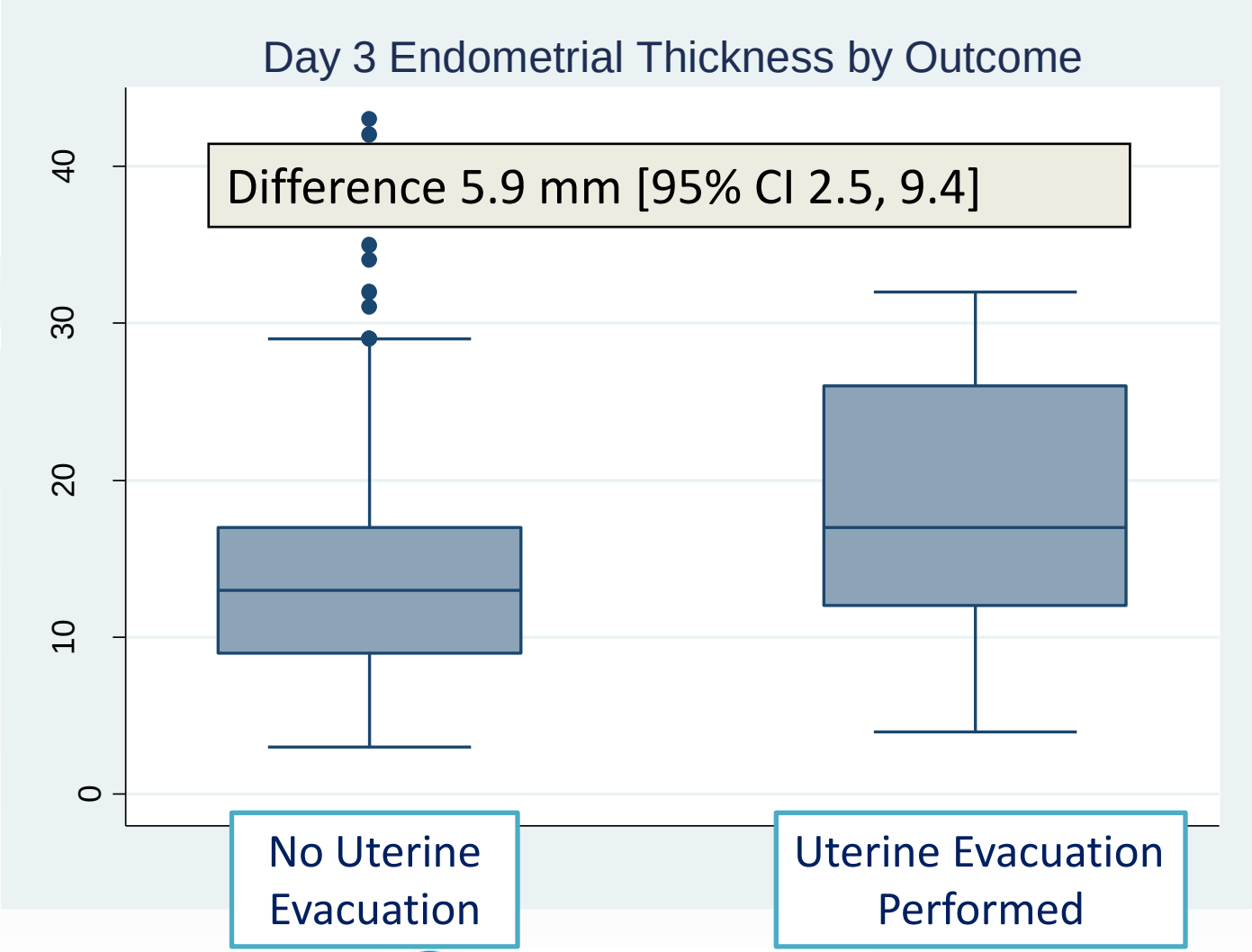
EMT at Day 3 after Misoprostol



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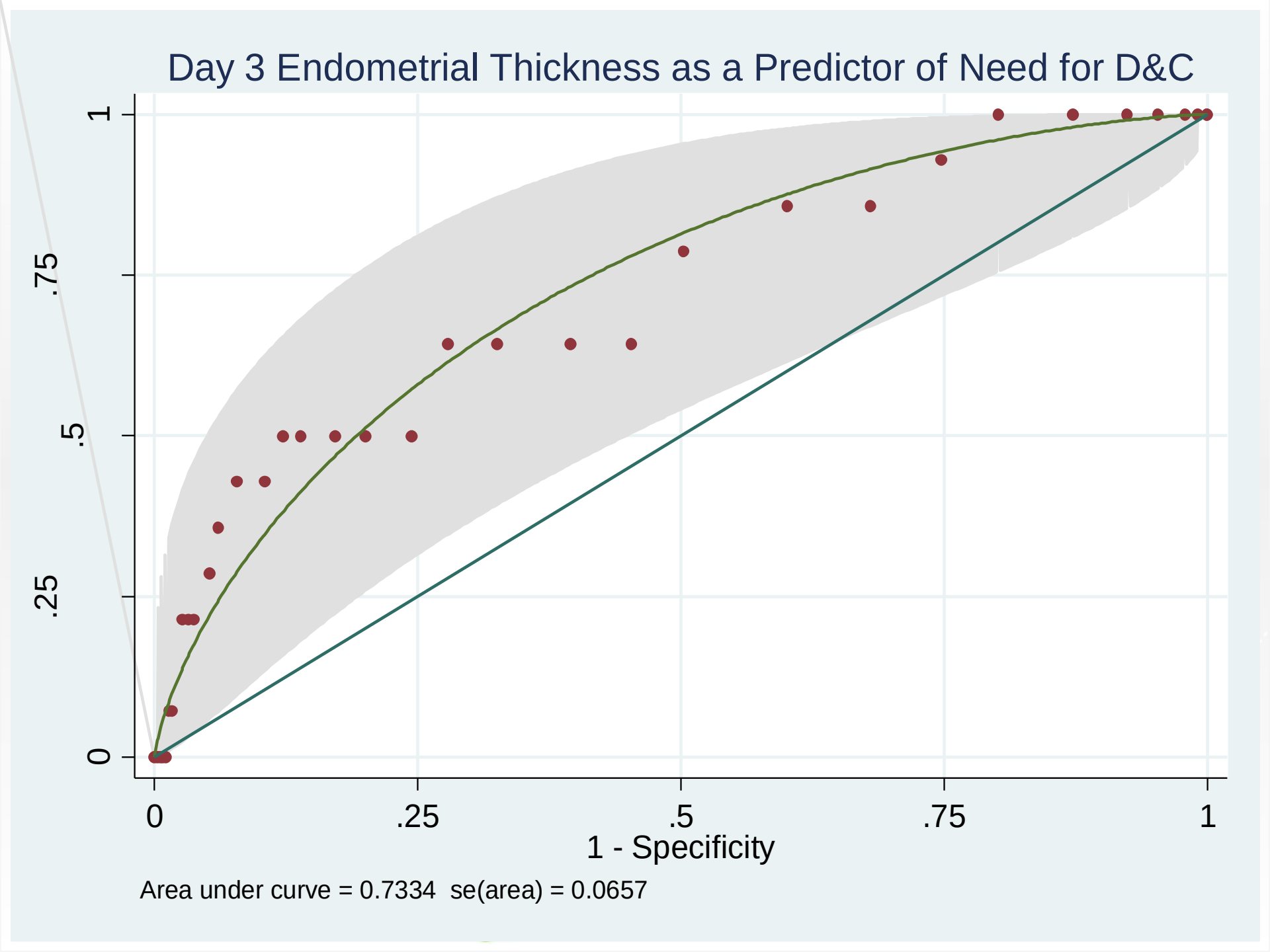
Day 3 Endometrial Thickness as a Predictor of Need for D&C
Sensitivity
0
.25
.5
.75
1
0
.25
.5
.75
1
1 - Specificity
Area under curve = 0.7334 se(area) = 0.0657

Day 3 Ultrasound Results by EMT Threshold

Day 3		Sensitivity	Specificity
EMT Threshold (mm)	10	88.2%	25.6%
	15	58.8%	60.8%
	20	47.1%	82.8%
	30	11.8%	98.3%
Gest. Sac		80.0%	86.4%

Clinical Judgment over Ultrasound: Treat the patient, not the ultrasound

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Conclusions

- Ultrasound is good at confirming absence of a continuing pregnancy
- EMT is a poor predictor of the need for uterine aspiration
- EMT is not substantially different 2 weeks after uterine aspiration compared to misoprostol for EPF at 2 weeks
- Patients should be managed based on clinical presentation

Thank You

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