Placenta Accreta Spectrum Anesthesia Management

Carolyn Weiniger
Chair, Patient Forum, SC, ESAIC
Division of Anesthesia, Critical Care and Pain
Tel Aviv Sourasky Medical Center
Faculty of Medicine and Health Sciences
Tel Aviv University, Tel Aviv, Israel

carolynfweiniger@gmail.com

Disclosures

None relevant to this lecture

Honararium Elsevier

carolynfweiniger@gmail.com

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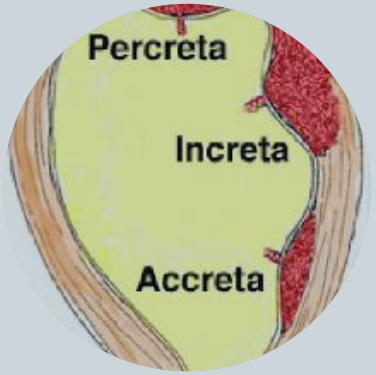
carolynfweiniger@gmail.com



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#OBAnes Antenatal Assessment

Involved early

Surgical approach, timing for surgery, plan for urgent delivery

Anticipate co-morbidities eg difficult airway, obesity, difficult IV access

Optimize BP control, diabetes management

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Eller AG, Obstet Gynecol 2011
Einerson B, IJOA 2021

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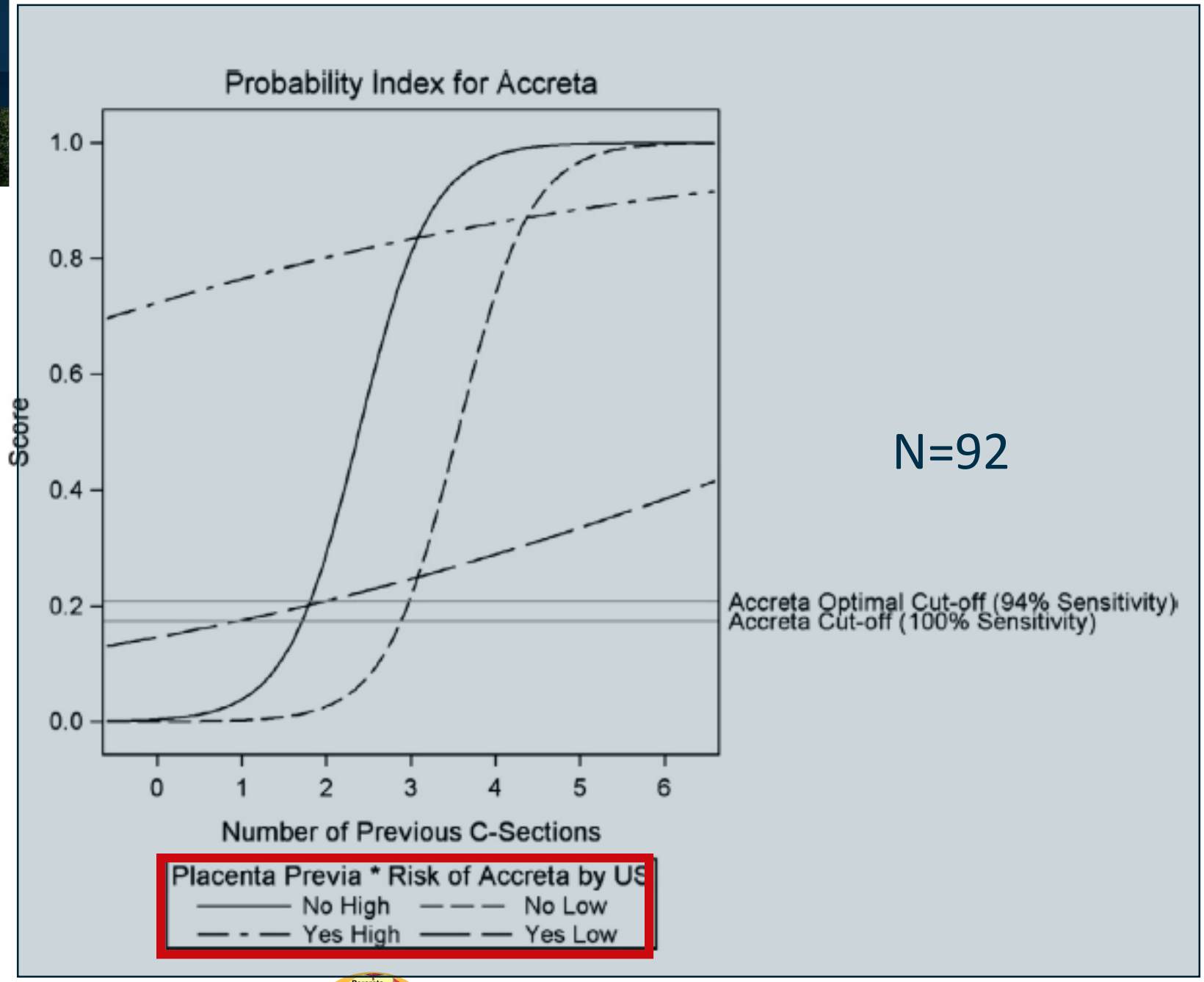

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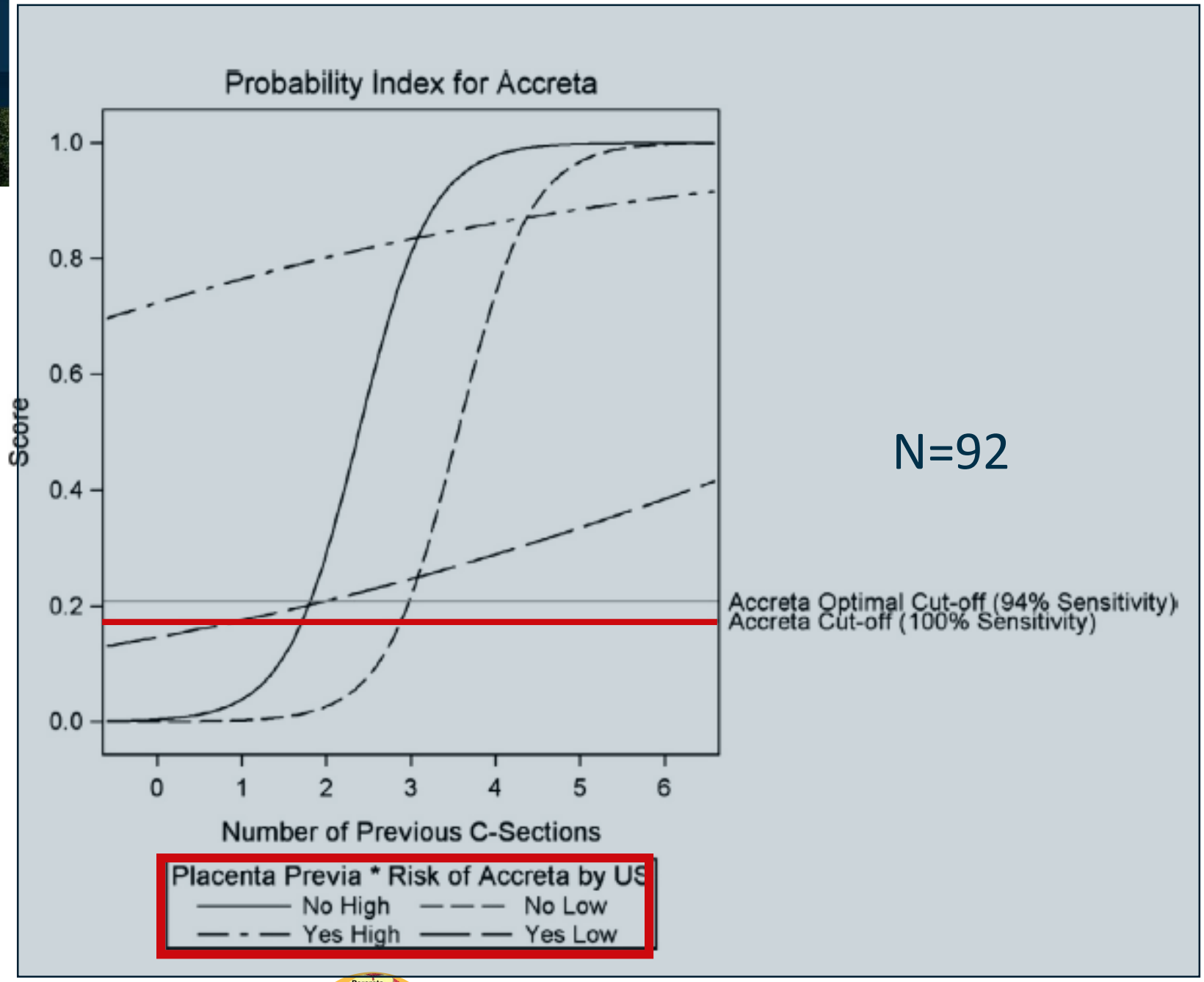
Weiniger CF, IJOA 2013



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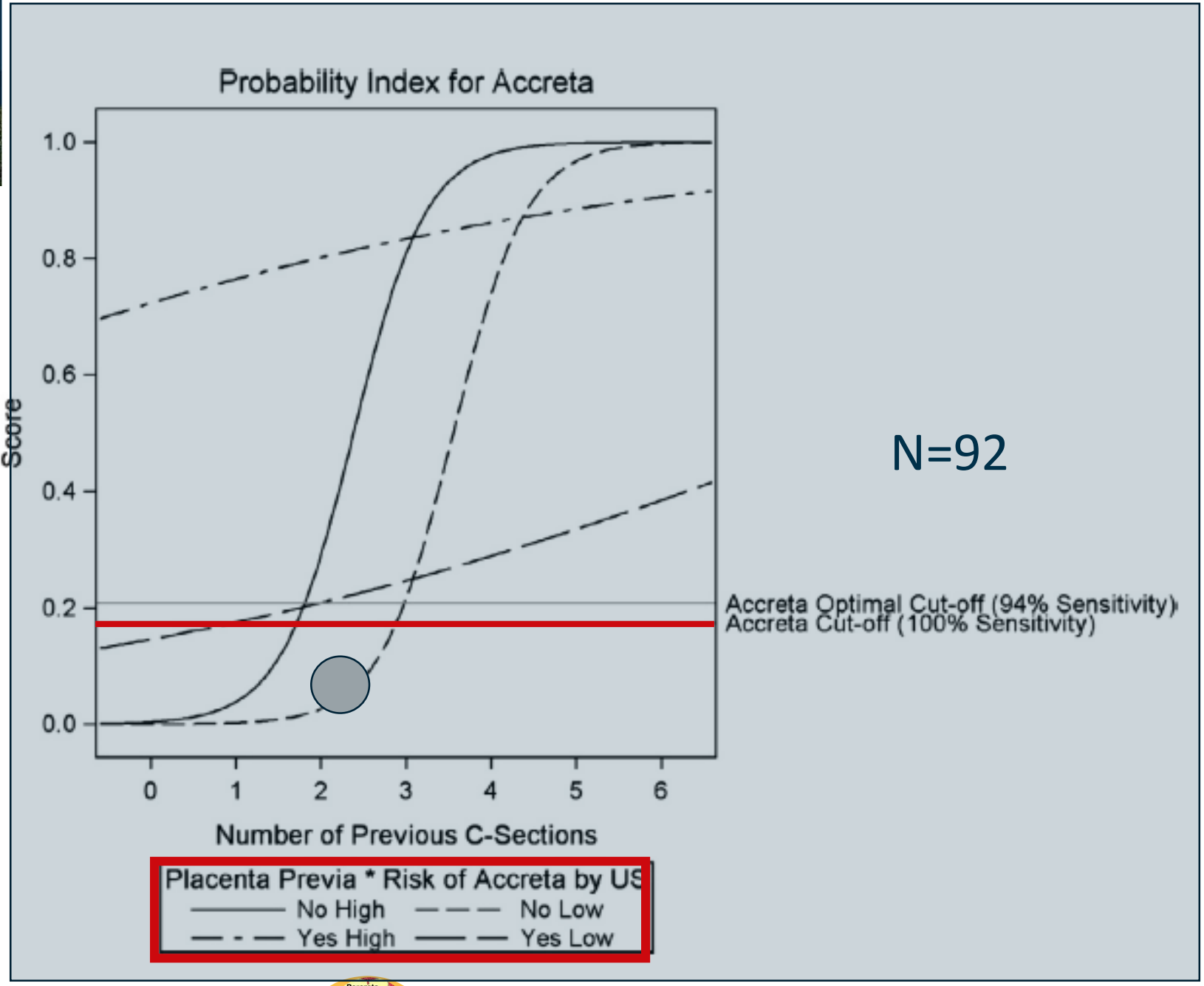
Weiniger CF, IJOA 2013

No previa, low US, 2CD



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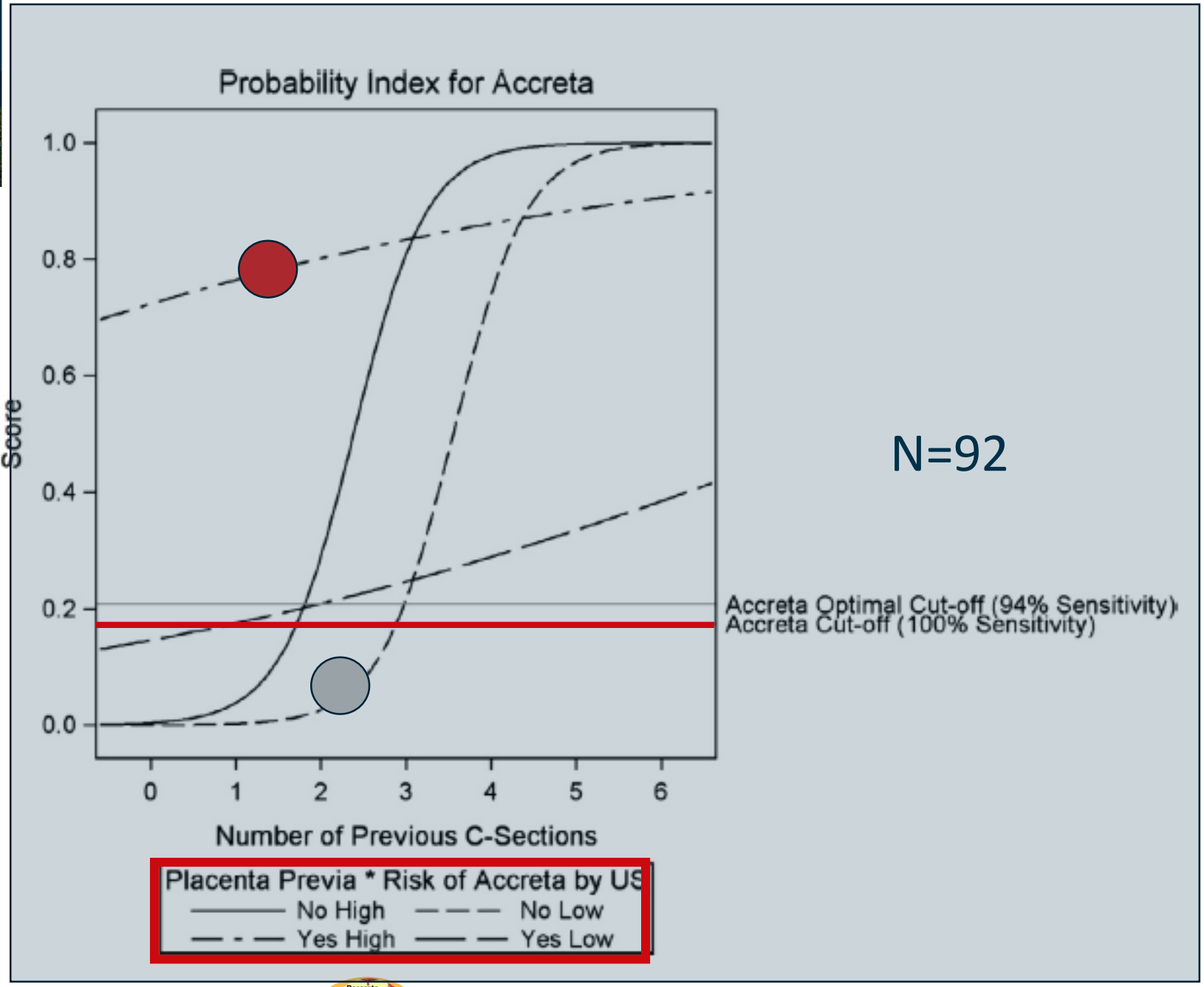
Weiniger CF, IJOA 2013

No previa, low US, 2CD

Previa, high US, 3 CD



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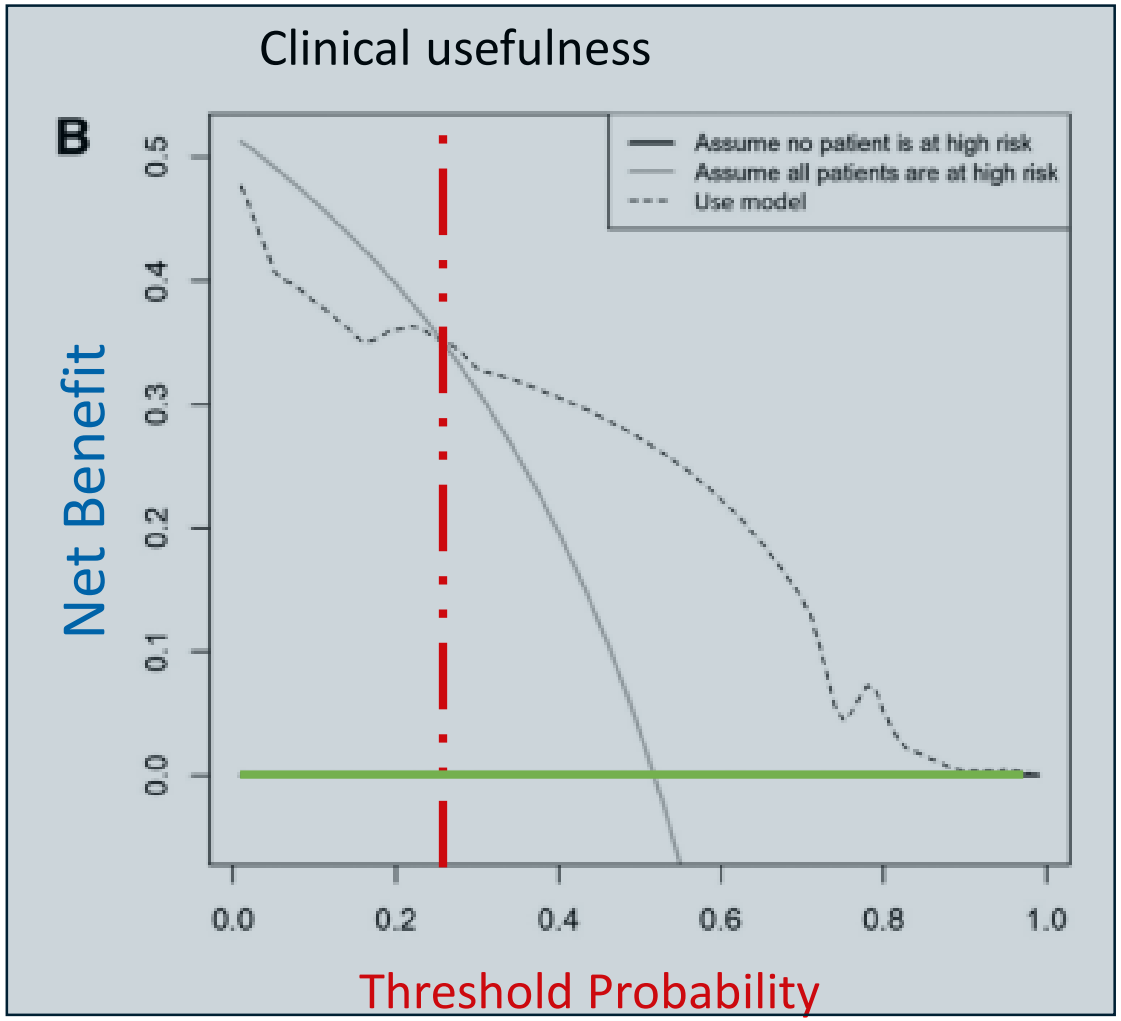
Weiniger CF, IJOA 2013



Model was effective for a wide range of patients

When model marked those >25% likelihood of PAS as "high risk."

Threshold can focus attention on cases when likelihood of PAS is more significant

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Singh S, A and A 2023

50-70% PAS cases unexpected

Centers with experience, unexpected PAS = similar bleeding as planned CD

SMFM Checklist for unexpected PAS

Fitzgerald KE, BJOG 2014
Thurn L, BJOG 2016
Sargent W, Acta Scand Anesth 2018
Morlando M, AOGS 2020

carolynfweiniger@gmail.com

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- Likelihood of hemorrhage
- Anticipated difficult airway
- Elective or emergency status
- Institutional logistics
- Patient’s wishes

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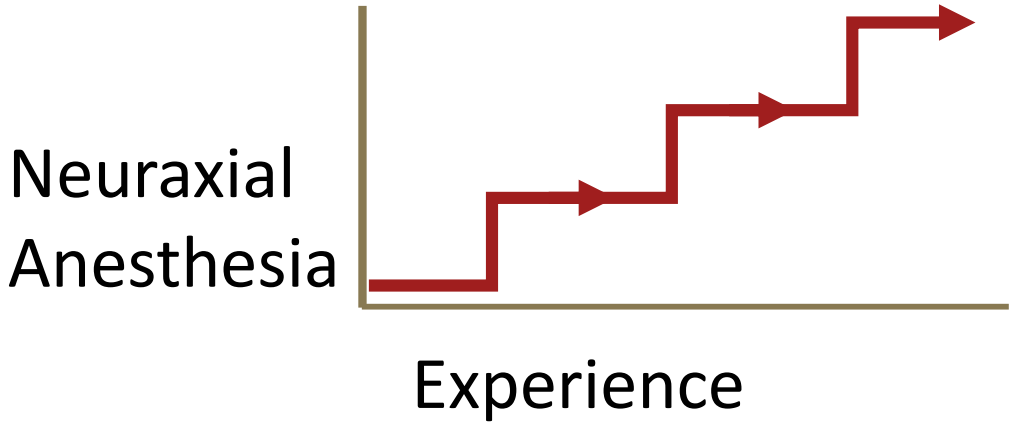

CSE
↓ Airway & aspiration risks
Prolonged surgery

Spinal+GA
Bonding

GA
Secure airway
Patient unaware

Markley JC, A & A 2018
Taylor NJ, IJOA 2017
Ioscovich I, Acta Anesth Scand 2016
Warrick CM, AJ Perinat 2023

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Institutional experience
N=129 non emergency PAS cases,
only 7 began with GA

		GA 🤰 7	NA 🤰 122
BMI kg/m^2	median (range)	32 (29 to 41)	28 (21 to 54)
Mallampati 3 or 4	n (%)	2 (29%)	18 (15%)
Bleeding as indication for cesarean	n (%)	2 (29%)	17 (14%)

5/20 women converted to GA had a difficult airway

Markley JC, A & A 2018

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Most, 96% Israeli anesthesiologists chose GA for high suspicion PAS

Fewer, 69% chose GA for low suspicion PAS

Ioscovich A, Acta Anesth Scand 2016

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Experience over time may influence anesthesia choice
Placental tug less frequent over time
Concurrent increase rate of cesarean hysterectomy
CSE most common

Taylor NJ, IJOA 2017

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Main OR, Labor & delivery OR, Hybrid OR, Angio + OR

18 PAS cases Hybrid OR / iliac balloon angiography **VS** 11 Labor OR

Retrospective (2016-2020)

Women requesting uterine preservation had surgery in Hybrid OR
All others (incl emergencies) labor ward OR

Primary outcome = EBL

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Ronel I, CJA 2023

Hybrid OR / iliac balloon angiography associated with

↓ EBL, odds ratio, 0.06 95% CI, 0.00 to 0.61; P = 0.02 in the unadjusted but not adjusted model

↓ packed red blood cell transfusion
↓ ICU admission
↑ Neuraxial anesthesia

Ronel I, CJA 2023

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L&D	Angio/OR	Hybrid OR
Familiar	Transfer can dislodge catheters	No transfer
REBOA?	Long procedure	Massive transfusion
Cell Salvage		Back-Up
Massive transfusion		Partner presence
Back-Up		Familiarity

Requires knowing about the suspected PAS case

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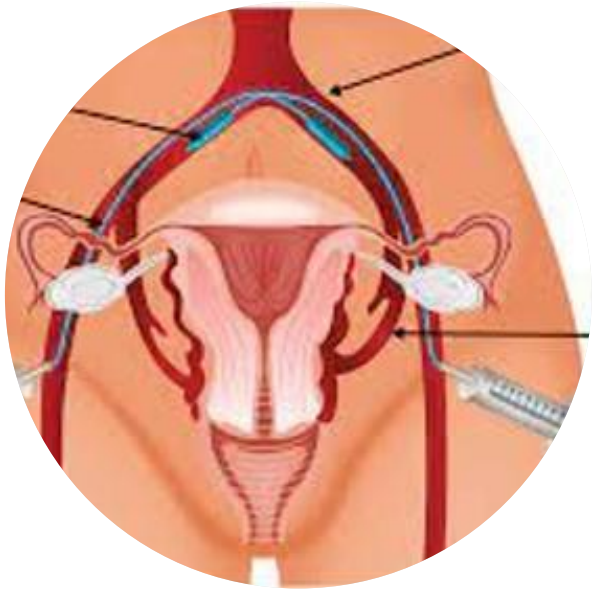
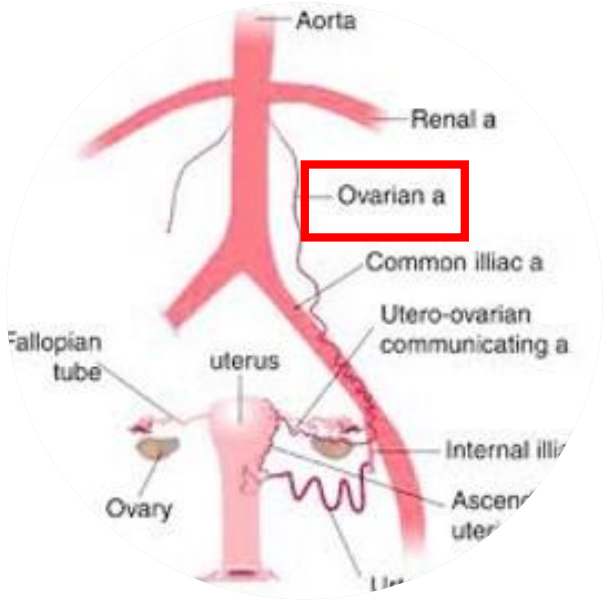
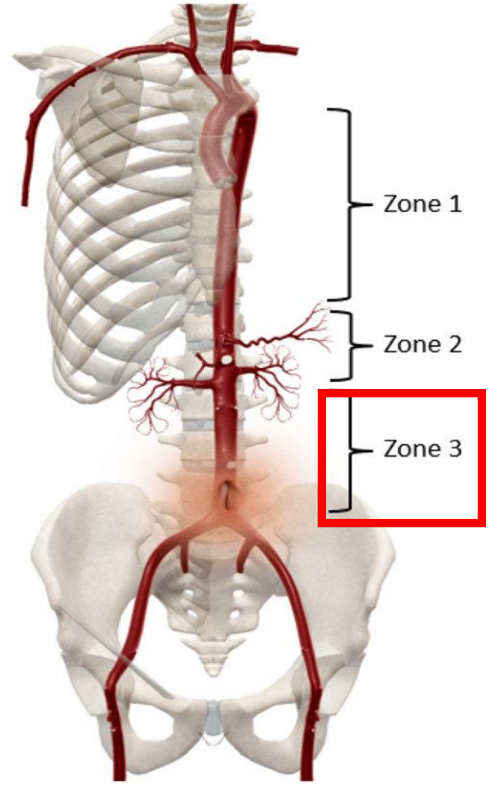
Balloons/sheaths in angio suite - requires transfer to OR

Balloons/sheaths can be placed in hybrid OR

REBOA – imaging not required







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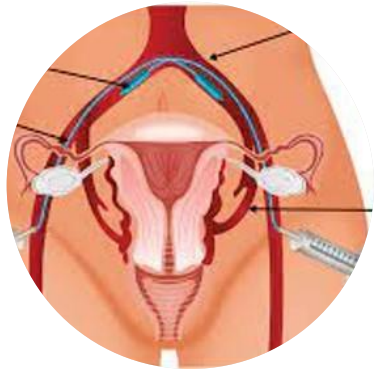
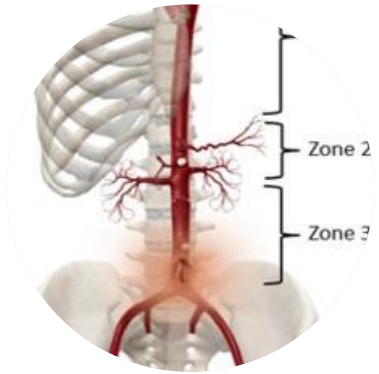
REBOA review, Salvagno M, IJOA 2024





Low quality evidence
Prophylactic balloons before PAS cesarean delivery
↓ blood loss ↓ transfusions

REBOA most effective?
Newer devices – small gauge, partial occlusion

Vascular complications, skill needed

Shahin Y, Eur Radiol 2018
D'Antonio, Ultrasound Obstet Gynecol 2019
Nankali, Repro Biol Endo 2021
Bonsen LR, Obstet Gynecol 2024

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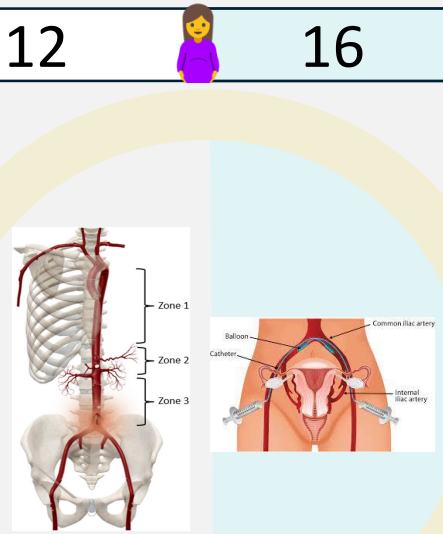
Retrospective study, REBOA vs balloon occlusion

Estimated blood loss (L)

12 | 16

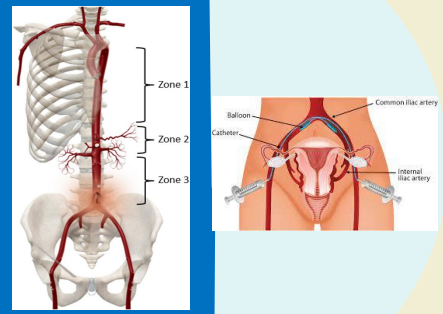


0.5 (0.3-0.8) | 3.3 (1.1-4.8)

P=0.0001

Operation time (min)

12 | 16



76 (64-89) | 168 (90-222)

P=0.001

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Riazanova O, Eur J Ob Gynecol Rep Biol 2021

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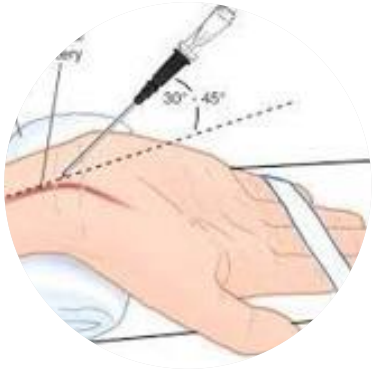

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	UTAH	Tel Aviv
Intravenous lines	2 X 14-gauge peripheral cannulae	2 x 14-gauge peripheral cannulae
Rapid infuser device	Yes	Yes
Cell salvage	Not routine	Not routine
Arterial line placement	Yes	Yes
Central line placement	Not routine	Not routine
Pre-operative blood ordering before scheduled cesarean hysterectomy	6 units PRBC; 6 units plasma	8 units PRBC (4 units available in the operating room)
Point-of-care devices	Arterial blood gas machine and thromboelastometry	Arterial blood gas machine in operating room Thromboelastometry (in hematology laboratory)
Atony prophylaxis with oxytocin	Yes, after delivery of the fetus	Yes, after delivery of the fetus
Tranexamic acid	If actively bleeding after	If actively bleeding

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PAS Review, Einerson B, IJOA 2021

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Cell Salvage

RCT in high risk women: Modest decrease in blood transfusion
Not cost effective

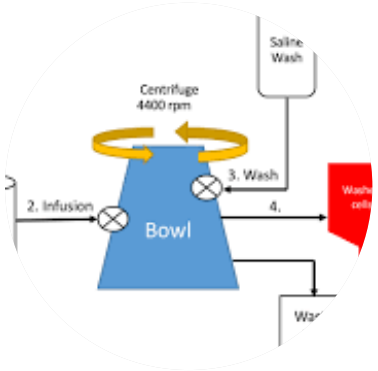
Khan KS, Health Technol Asses 2018

Retrospective, all CD: Open salvage only, processing kit reserved
Economical

Sullivan IJ, Anaesthesia 2018

Recommended in obstetric patients with high risk of hemorrhage
Safe

Neel V, Current Concepts Anesthesiol 2024



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Tugging the placenta

Avoid if planning cesarean hysterectomy

Avoid in women with clinical signs of PAS

Avoid if difficulties delivering the placenta

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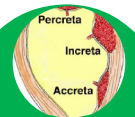
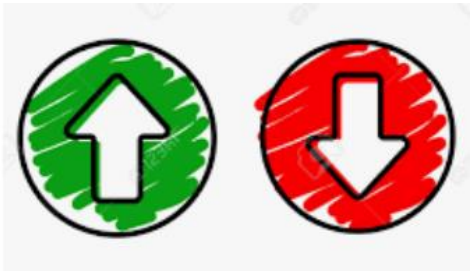


Sentilhes L, Int J Gynaecol Obstet 2018

LACTATE



pH

HEMOGLOBIN

Massive Transfusion Protocol

carolynfweiniger@gmail.com

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Hybrid approach – start with formula and move to point of care guided

Viscoelastic testing associated ↓PRBC, FFP, Platelets ↓ $$

No evidence that fibrinogen concentrate improved outcomes
Not tested in high risk women with severe PPH

? Dose response in pregnancy higher? Al-Maaitah (Abstract SOAP 2023)

Butwick AJ, Transfusion 2020
McNamara H, Anaesthesia 2019
Nascimento A and A 2014
Nascimento BJA 2014
Levy A and A 2012
Bell IJOA 2010
Collins BJA 2014

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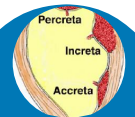

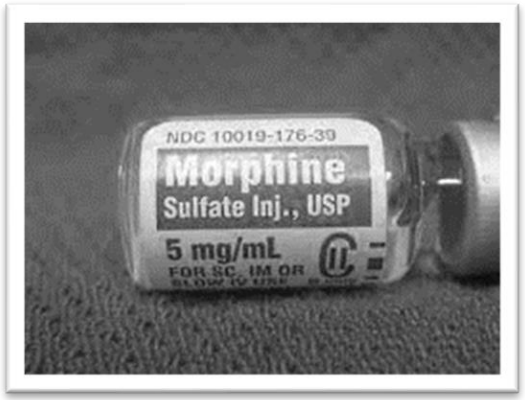

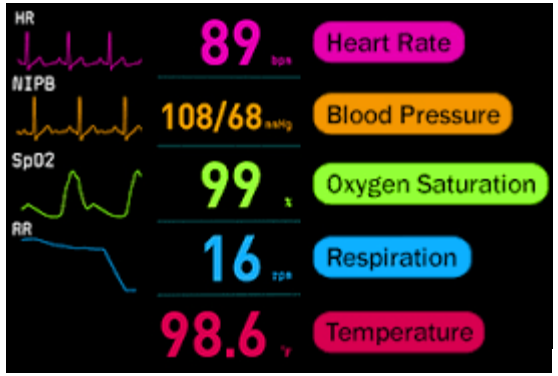

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Identify patient with suspected PAS risk
Prepare anesthesia & multidisciplinary team
Plan for unexpected PAS

Summary

- ❑ Predict & Anticipate
- ❑ Transfer Plan
- ❑ Obstetric Hemorrhage Plan
- ❑ Communicate

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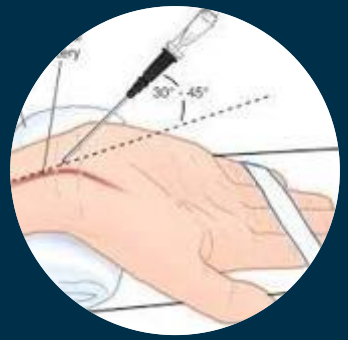

THANK YOU

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