



Complex Parturient Symposium

Abnormal Placentation: Anesthesia



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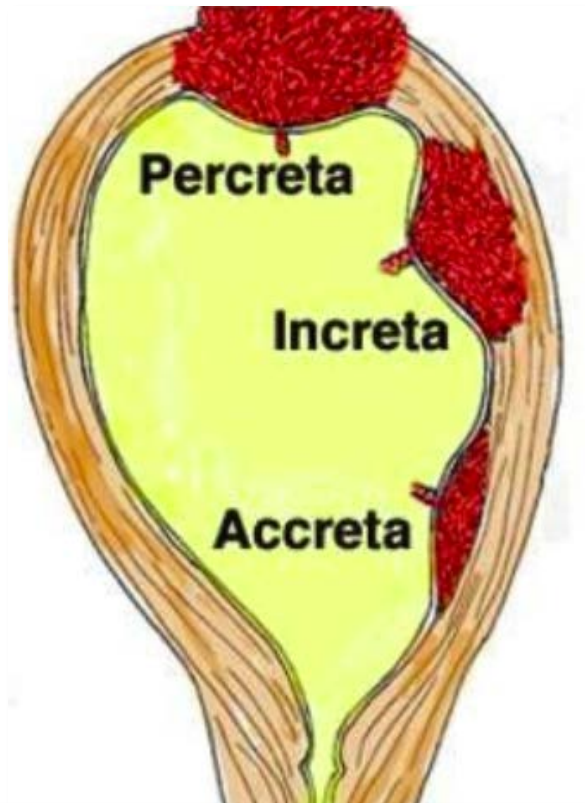
Investigator Sponsored Research Medtronic (Boulder,
Colorado, USA)

Editor of International Journal of Obstetric Anesthesia

No disclosures relevant to this lecture



A
C
C
R
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T
A



Objectives

1. Assess patient for suspected placenta accreta risk
2. Plan anesthesia according to anesthesia risk
3. Plan lines/blood management/invasive radiology/postop care

35 years old, G6 P5
S/P 3 NVD and 2 prior CD
35/40, planned elective cesarean delivery
Known placenta previa and highly suspected accreta since week 18
Blood products prepared
IV line in place

Known accreta
Cesarean hysterectomy

Multidisciplinary planning

Optimize:
Lines; Blood; Anesthesia choice



8.3 Summary of the key findings 2009–13

In the UK and Ireland there were 22 women who died from obstetric haemorrhage between 2013–15, one of these women died more than 42 days after the end of pregnancy (Table 8.1). This represents an overall mortality rate of 0.88 (95% CI 0.55 to 1.33). Of note, 9 women died from haemorrhage in association with abnormal placentation, 8 of whom had placenta accreta, increta or percreta.

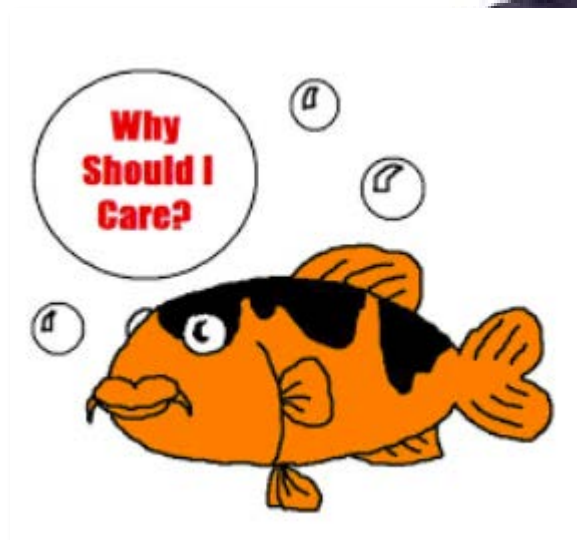
Table 8.1: Direct deaths by type of obstetric haemorrhage 1994–2015

Time period	Placental Abruption	Placenta Praevia/ accreta	Postpartum haemorrhage		Total deaths from haemorrhage	Direct haemorrhage death rate per 100,000 maternities	
			Atony	Genital Tract Trauma		rate	CI
1994–6	4	3	5	5	17	0.77	0.45–1.24
1997–99	3	3	1	2	9	0.42	0.19–0.80
2000–2	3	4	10	1	18	0.9	0.53–1.42
2003–5	2	3	9	3	17	0.8	0.47–1.29
2006–8	2	2	3 +2	(0/2)	9	0.39	0.18–0.75
2009–12†	2	1	7	7	17	0.49	0.29–0.78
2013–15†	3	9*	9**	1	22	0.88	0.55–1.33

†Figures for UK and Ireland. All other figures are UK only.

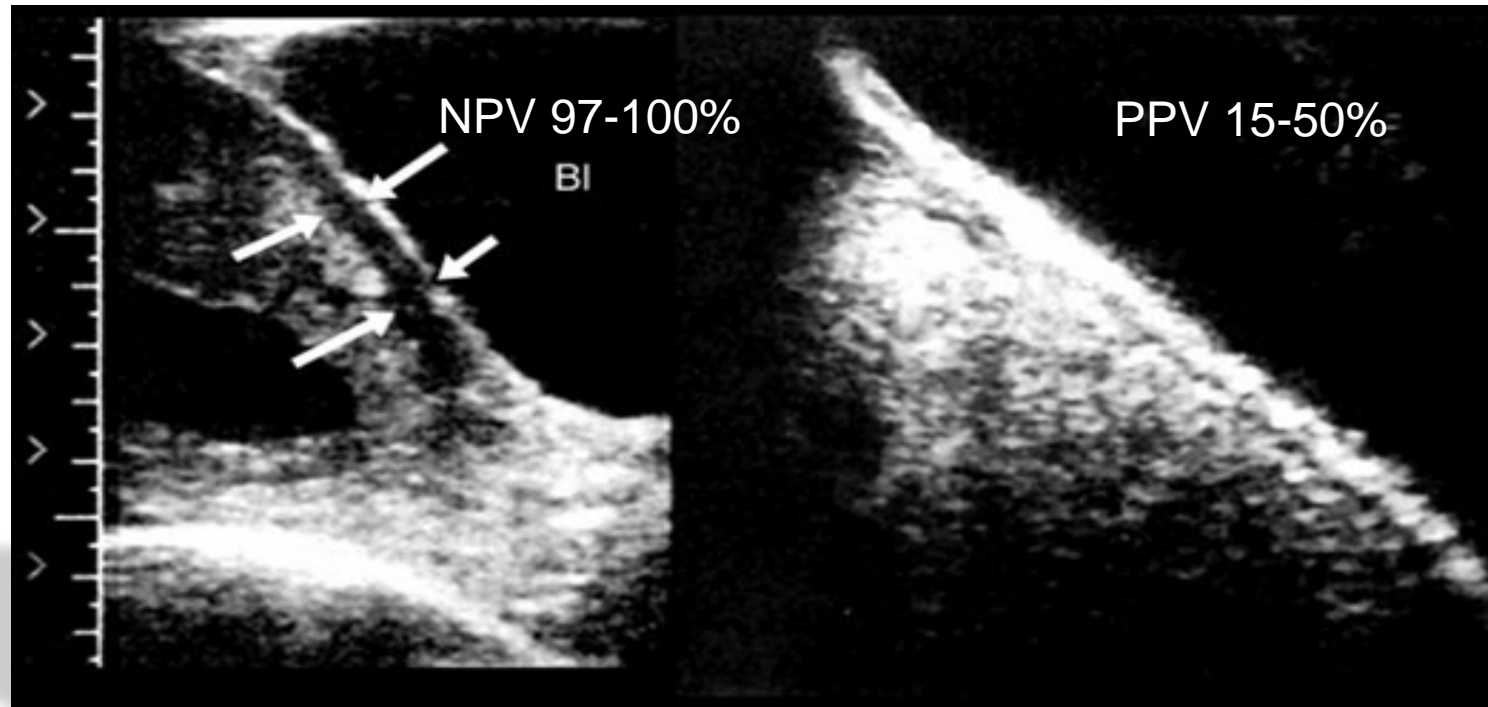
*One placenta praevia alone, 8 accreta/increta/percreta





Pre-delivery diagnosis of placenta accreta

Irregular or absent “clear space” behind placenta



Normal

Absent



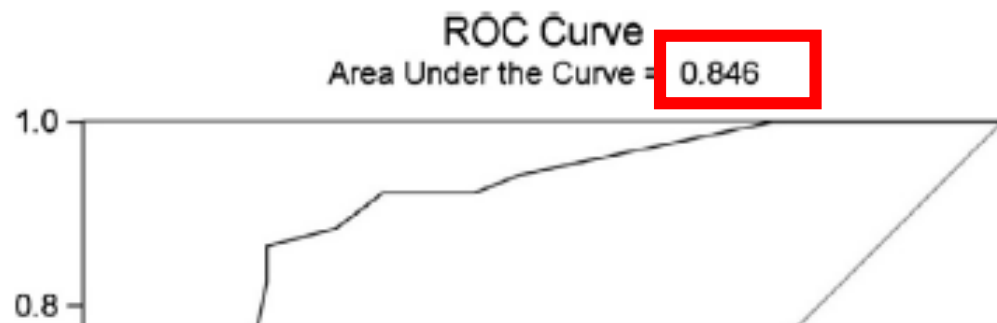
ORIGINAL ARTICLE

Outcomes of prospectively-collected consecutive cases of antenatal-suspected placenta accreta

C.F. Weiniger,^a S. Einav,^b L. Deutsch,^c Y. Ginosar,^a Y. Ezra,^d L. Eid^a



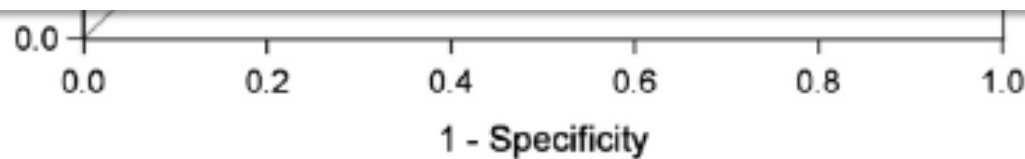
Antenatally-suspected placenta accreta requires preparations for major hemorrhage.
How to direct massive hemorrhage preparations to those most likely to need it?

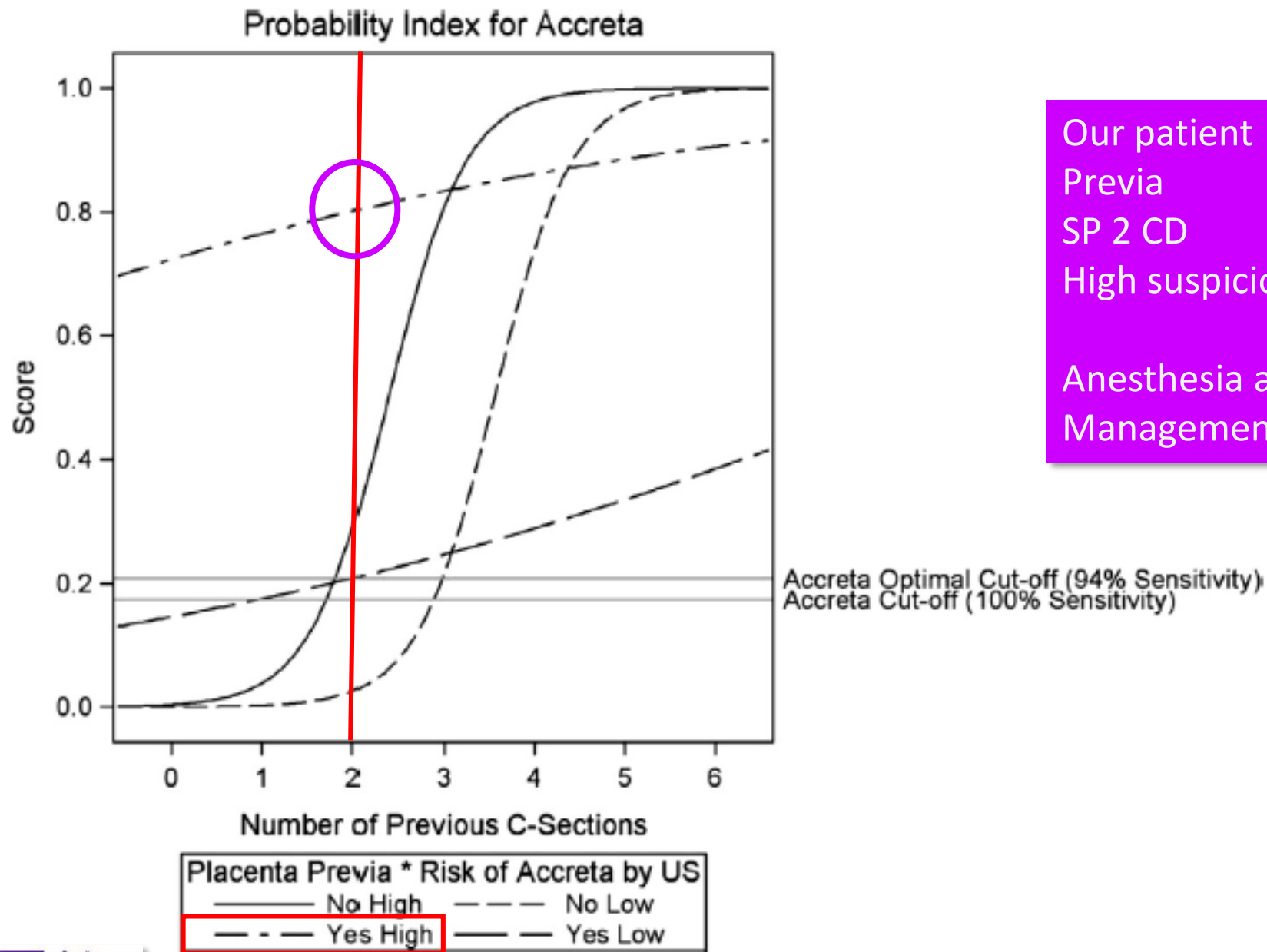


Placenta previa = yes or no N=92
 Prior cesarean delivery number
 Ultrasound signs of accreta – low or high

Table 3 Sensitivity, specificity, positive and negative predictive value using models of categorization for predicting suspected placenta accreta

	Sensitivity (95% CI)	Positive predictive value (95% CI)	Specificity (95% CI)	Negative predictive value (95% CI)
Ultrasound alone	86.6% (74.2–94.4%)	73.8% (60.9–84.2%)	60.0% (43.3–75.1%)	77.4% (9.6–41.1%)
Combination of three parameters; maximal sensitivity cut-off	100% (93.2–100%)	72.1% (59.9–82.3%)	25.0% (12.7–41.2%)	87.5% (2.7–32.4%)
Combination of three parameters; optimal cut-off	94.2% (84.1–98.8%)	63.4% (52.1–73.8%)	52.5% (36.1–68.5%)	100% (69.2–100%)





Our patient
Previa
SP 2 CD
High suspicion ultrasound

Anesthesia and blood
Management for high risk patient

Question: Mode of Anesthesia

For a healthy woman undergoing elective cesarean delivery for placenta percreta, which anesthesia mode are you most likely to use?

- A - General anesthesia
- B - Neuraxial anesthesia
- C - Depends on her airway examination
- D - Depends on the surgical plan eg uterine preservation or hysterectomy
- E - Other/combination epidural-general



Neuraxial Anesthesia During Cesarean Delivery for Placenta Previa With Suspected Morbidly Adherent Placenta: A Retrospective Analysis

John C. Markley, MD, PhD,* Michaela K. Farber, MD, MS,† Nicola C. Perlman, BA,‡
and Daniela A. Carusi, MD, MSc§

Neuraxial Anesthesia During Cesarean Delivery for Placenta Previa With Suspected Morbidly Adherent Placenta: A Retrospective Analysis

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CD for Placenta Previa and Suspected Placenta Accreta

n = 137

Emergent CD

Primary GA

n = 7 (5%)

→ n = 7 (100%) Hysterectomy

Primary NA

n = 122 (95%)

→ n = 76 (62%) Hysterectomy

Non-emergent CD

n = 129 (94%)

→

Early NA Failure

n = 5 (4%)

→ n = 4 (80%) Hysterectomy

NA-to-GA

n = 15 (12%)

→ n = 15 (100%) Hysterectomy

NA-Only

n = 102 (84%)

→ n = 57 (56%) Hysterectomy

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	GA n = 7	NA n = 122
Mallampati 3 or 4	2 (29%)	18 (15%)
Bleeding as indication for CD	2 (29%)	17 (14%)
Low Suspicion of invasion	1 (14%)	12 (10%)
Attempted placental removal	3 (43%)	73 (60%)
No invasion (pathology)	0	39 (35%)
Invasion (pathology)	7 (100%)	74 (66%)
Hysterectomy	7 (100%)	76 (62%)



Damage Control!
We need Massive
Amounts of Blood!!



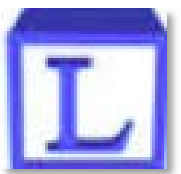
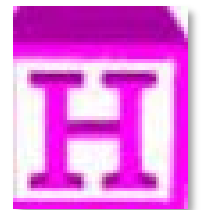
11	E	Pain	Preincision
12	E	Pain	Predelivery
NA-to-GA (n = 15)			
13	CSE	Pain	30
14	S*	Pain	85
15	E	Pain	124
16	E	Pain	8
17	CSE	Pain	97
18	E	Pain	38
19	CSE	Elective	37
20	CSE	Enhanced exposure	61
21	CSE	Resuscitation	139
22	E	Resuscitation	31
23	CSE	Resuscitation	150
24	E	Resuscitation	43
25	CSE	Resuscitation	71
26	CS	Resuscitation	74
27	CSE	Resuscitation	166

Abbreviations: CS, continuous spinal; CSE, combined spinal-epidural; Des, desaturation; Iso, isoflurane; K, ketamine; N₂O, nitrous oxide; NA, neuraxial anesthesia; video laryngoscopy.
*NA was attempted, but was not successfully placed due to technical reasons.
% CSE was intended, but the catheter was not able to be inserted.



0	No	0
0	No	0
1	No	0
1	No	0
0	Yes	1200
0	No	0
1	Yes	1320
0	No	0
0	Yes	280
3	Yes	ID
0	Yes	ID
4	Yes	308
0	Yes	ID
0	Yes	246
1	No	0
5	Yes	1200

ash frozen plasma; GA, general anesthesia; ID, incomplete; S, spinal; Sevo, sevoflurane; T, thiopental; U, units; VL,



Suspicion of Abnormal Placentation at a Single Center, 2003-2016
All patients had suspected accreta (US signs/prior CD/placenta previa)

N=110	Invasive Placentation N = 58	No invasive placentation N = 52	p value
US Suspicion			
Low suspicion	11 (19%)	30 (63%)	
High suspicion	47 (81%)	17 (36%)	<0.0001
Placenta Previa	51 (88%)	36 (69%)	0.016
Prior CD >2	34 (67%)	17 (33%)	0.008
General Anesthesia (no conversions)	52 (96%)	32 (65%)	<0.0001
Hysterectomy Performed	51 (88%)	2 (4%)	<0.0001
PRBC>4 units	33 (57%)	2 (4%)	<0.0001

Unpublished Data



REPORTS OF ORIGINAL INVESTIGATIONS

Mode of anesthesia and clinical outcomes of patients undergoing Cesarean delivery for invasive placenta: a retrospective cohort study of 50 consecutive cases

Mode d'anesthésie et issues cliniques des patientes subissant un accouchement par césarienne en raison d'une placenta envahissante: une étude de cohorte rétrospective de 50 cas consécutifs

Nhathien Nguyen-Lu, MBBS · Jose Carlos Almeida Carvalho, MD, PhD · John Kingdom, MD · Rory Windrim, MD · Lisa Allen, MD · Mrinalini Balki, MBBS, MD



Regional Anesthesia
n = 34

General Anesthesia
n = 16

Patient demographics

Age (yr)	34.0 (5.7)	33.6 (5.2)	34.8 (6.8)
Gravida	4 (3-5)	4 (3-5)	4 (3-5)
Para	2 (1-2)	2 (1-3)	2 (1-2)

Risk factors

Age > 35 (yr)	22 (44%)	15 (44%)	7 (44%)
Previous CD	46 (92%)	31 (91%)	15 (94%)
Placenta previa	47 (94%)	32 (94%)	15 (94%)
Previous uterine surgery	26 (52%)	17 (50%)	9 (56%)

Diagnosis on histopathology

Percreta	24 (48%)	19 (56%)	5 (31%)
Increta	15 (30%)	7 (21%)	8 (50%)
Accreta	11 (22%)	8 (24%)	3 (19%)

are expressed as mean (standard deviation), median (range), or *n* (%)

Cesarean delivery

Israeli survey of anesthesia practice related to placenta previa and accreta

Acta Anesth Scand 2016

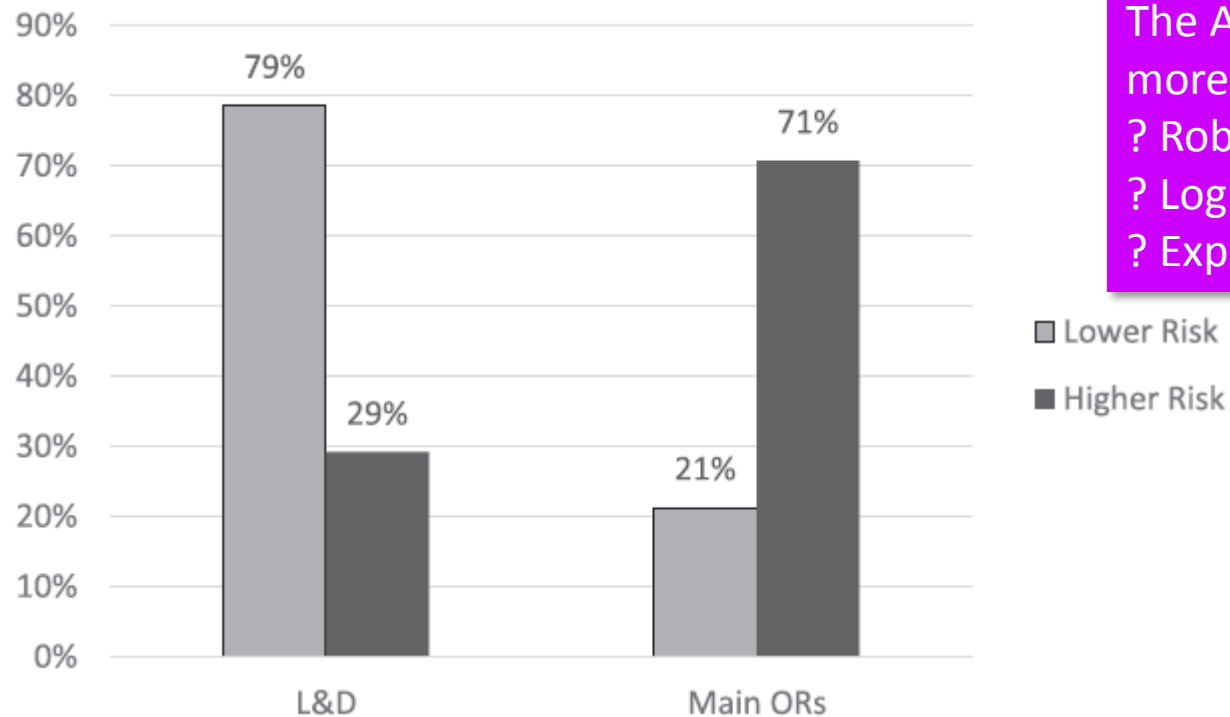
A. Ioscovich^{1,*}, D. Shatalin^{1,*}, A. J. Butwick², Y. Ginossar³, S. Orbach-Zinger⁴ and C. F. Weiniger³

	Placenta previa	Low suspicion placenta accreta	High suspicion placenta accreta
What anesthesia mode do you use? n(%)			
General	8 (30.8%)	18 (69.2%)	25 (96.2%)
CSE	1 (3.8%)	2 (7.7%)	0
Spinal	17 (65.4%)	6 (23.1%)	1 (4.3%)
How many IVs are placed pre-operatively? n(%)			
1	8 (30.8%)	1 (4.3%)	0
2	18 (69.2%)	19 (82.6%)	16 (66.6%)
3	0	3 (13.0%)	7 (30.4%)

Risk-stratification, resource availability, and choice of surgical location for the management of parturients with abnormal placentation: a survey of United States-based obstetric anesthesiologists

T.R. Grant,^a E.H. Ellinas,^b A.O. Kula,^a M.Y. Muravveva^a

International Journal of Obstetric Anesthesia (2018) 34, 56–66



The All L&D group:
more likely to use neuraxial even for high risk women
? Robust staff
? Logistics
? Experience



Question: Cell Saver

Do you use cell saver for invasive placentation cases

A - yes for all cases

B - yes when uterine preservation is planned but not for planned cesarean hysterectomy

C - no we usually don't use it/don't have one available





The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

NUMBER 183, OCTOBER 2017

(Replaces Practice Bulletin Number 76, October 2006)

Committee on Practice Bulletins—Obstetrics. This Practice Bulletin was developed by the American College of Obstetricians and Gynecologists' Committee on Practice Bulletins—Obstetrics in collaboration with Laurence E. Shields, MD; Dena Goffman, MD; and Aaron B. Caughey, MD, PhD.

Cell Salvage

Intraoperative **cell** salvage—also known as autologous blood transfusion—has been shown to be effective and safe in obstetric patients. Limitations are primarily related to availability of appropriate staff and equipment.



Safe

ACOG and NICE recommend its use

Needs specialized technicians

Save allogeneic blood transfusion

Cell salvage and donor blood transfusion during cesarean section: A pragmatic, multicentre randomised controlled trial (SALVO).

Khan KS¹, Moore PAS², Wilson MJ³, Hooper R⁴, Allard S⁵, Wrench I⁶, Beresford L⁴, Roberts TE⁷, McLoughlin C⁷, Geoghegan J², Daniels JP⁸, Catling S⁹, Clark VA¹⁰, Ayuk P¹¹, Robson S¹², Gao-Smith F¹³, Hogg M¹⁴, Lanz D¹, Dodds J¹; SALVO study group.

We defined increased risk of haemorrhage as any emergency cesarean or as an elective cesarean for any reason other than maternal preference or known breech presentation,

Conclusions

The overall reduction observed in donor blood transfusion associated with the routine use of cell salvage during cesarean section was not statistically significant.



Israeli survey of anesthesia practice related to placenta previa and accreta

Acta Anesth Scand 2016

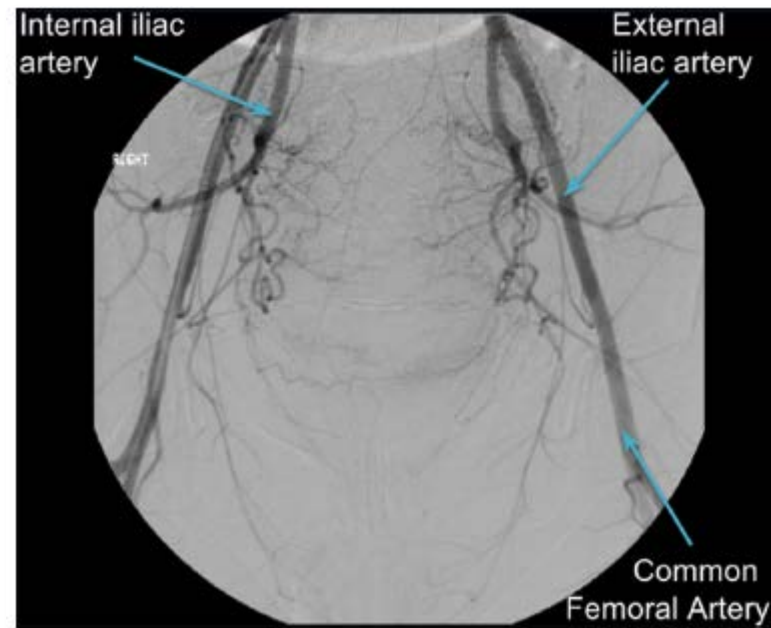
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	Placenta previa	Low suspicion placenta accreta	High suspicion placenta accreta
How many IVs are placed pre-operatively? n(%)			
1	8 (30.8%)	1 (4.3%)	0
2	18 (69.2%)	19 (82.6%)	16 (66.6%)
3	0	3 (13.0%)	7 (30.4%)
Rapid infusor device used n(%)	8 (34.8%)	12 (46.2%)	17 (65.4%)
AL placed n(%)	2 (7.7%)	15 (57.7%)	21 (80.8%)
Central venous line placed n(%)	0	2 (7.7%)	4 (15.4%)
Cell saver n(%)	1 (3.8%)	5 (19.2%)	5 (19.2%)

Perioperative Internal Iliac Artery Balloon Occlusion, In the Setting of Placenta Accreta and Its Variants: The Role of the Interventional Radiologist

David A. Petrov, MD^{a,*}, Benjamin Karlberg, MD^a, Kamalpreet Singh, MD^a,
Matthew Hartman, MD^a, Pardeep K. Mittal, MD^b

Appears that balloon occlusion –
useful adjuvant for peripartum
cesarean hysterectomy or
conservative management of
placenta accreta



Expanding the field of acute care surgery: a systematic review of the use of resuscitative endovascular balloon occlusion of the aorta (REBOA) in cases of morbidly adherent placenta

R. Manzano-Nunez^{1,2} · M. F. Escobar-Vidarte³ · M. P. Naranjo^{1,2} · F. Rodriguez² · P. Ferrada⁵ · J. D. Casallas^{1,3} · C. A. Ordoñez^{2,4}

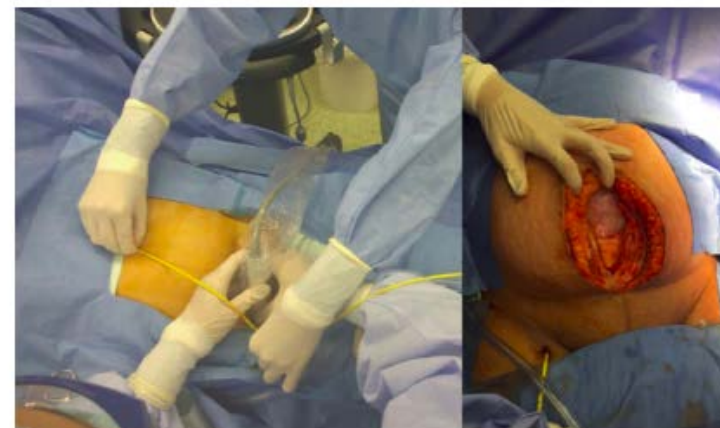


Fig. 3 Insertion of REBOA through the right femoral artery using external landmarks

6 reports using REBOA cases of morbidly adherent placenta

2 studies REBOA was deployed during established hemorrhagic shock at the moment of cesarean delivery.

REBOA was deployed primarily by interventional radiologists; however, one study reported a surgeon as the REBOA provider.

Promising results. The device should be deployed in the infrarenal aorta and may decrease hemorrhage



Mode of anesthesia and clinical outcomes of patients undergoing Cesarean delivery for invasive placentation: a retrospective cohort study of 50 consecutive cases

Mode d'anesthésie et issues cliniques des patientes subissant un accouchement par césarienne en raison d'une placentation envahissante: une étude de cohorte rétrospective de 50 cas consécutifs

Nhathien Nguyen-Lu, BMBS · Jose Carlos Almeida Carvalho, MD, PhD · John Kingdom, MD · Rory Windrim, MD · Lisa Allen, MD · Mrinalini Balki, MBBS, MD



and surgical management of women with invasive placentation

	Overall <i>n</i> = 50	Regional Anesthesia <i>n</i> = 34	General Anesthesia <i>n</i> = 16	<i>P</i> Values
Resuscitation				
Estimated blood loss (mL)	2,322 (2,356)	1,906 (1,096)	3,206 (3,777)	0.20
Median [IQR]	2,000 [1,000-2,500]	1,850 [1,000-2,000]	2,000 [950-3,500]	
Blood transfusion	29 (58%)	18 (53%)	11 (69%)	0.37
Packed RBC (unit)*	2 (0-15)	2 (0-8)	4 (0-15)	0.07
Median [IQR]	2 [0-4]	2 [0-4]	4 [0-6]	
Fresh Frozen Plasma (unit)*	0 (0-12)	0 (0-4)	0 (0-12)	0.04
Platelets (pool)*	0 (0-8)	0 (0-1)	0 (0-8)	0.35
Cryoprecipitate (pool)*	0 (0-16)	0 (0-0)	0 (0-16)	0.17
Crystalloid (mL)	3,140 (1,535)	2,850 (1,303)	3,718 (1,827)	0.10
Colloid (mL)	972 (549)	969 (561)	979 (548)	0.96
Arterial line insertion	45 (92%)	30 (91%)	15 (94%)	1.00
CVC insertion	4 (8%)	2 (6%)	2 (13%)	0.58
Interventional Radiology				
Insertion of balloons	44 (88%)	32 (94%)	12 (75%)	0.07
Inflation of balloons	38 (83%)	29 (91%)	9 (64%)	0.04
Embolization of vessels	33 (66%)	24 (71%)	9 (56%)	0.35



SOGC CLINICAL PRACTICE GUIDELINE

Redaktion

A. E. Goetz, Ha
M. Jöhr, Luzer
T. Koch, Dresd
C. Werner, Mai



No. 235 October 2009 (Replaces No. 88, April 2000)

Active Management of the Third Stage of Labour: Prevention and Treatment of Postpartum Hemorrhage

Green-top Guideline No. 52
December 2016



D-A-CH-Konsensusgruppe PPH
(Deutschland – Österreich – Schweiz)

ologists and Obstetricians. We also
ip for Maternal Safety. On the basis
and international societies' recom-
advances in the nonobstetric setting,
se recommendations in the obstet-
nesthetic societies may also help
(Anesth Analg 2016;XXX:00–00)

Prevention and Management of Postpartum Haemorrhage

Green-top Guideline No. 52

December 2016

Consideration should be given to the use of tranexamic acid in the management of PPH.
[New 2016]

B

Resort to hysterectomy sooner rather than later (especially in cases of placenta accreta or uterine rupture).

C

When a major hemorrhagic risk is identified, general anesthesia can be chosen from the outset to avoid emergency conversions in difficult conditions (professional consensus). Epidural or combined spinal anesthesia are also possible (professional consensus).



Active Management of the Third Stage of Labour: Prevention and Treatment of Postpartum Hemorrhage

1. AMTSL reduces the risk of PPH and should be offered and recommended to all women. (I-A)
2. Oxytocin (10 IU), administered intramuscularly, is the preferred medication and route for the prevention of PPH in low-risk vaginal deliveries. Care providers should administer this medication after delivery of the anterior shoulder. (I-A)
3. Intravenous infusion of oxytocin (20 to 40 IU in 1000 mL, 150 mL per hour) is an acceptable alternative for AMTSL. (I-B)
4. An IV bolus of oxytocin, 5 to 10 IU (given over 1 to 2 minutes), can be used for PPH prevention after vaginal birth but is not recommended at this time with elective Caesarean section. (II-B)
5. Ergonovine can be used for prevention of PPH but may be considered second choice to oxytocin owing to the greater risk of maternal adverse effects and of the need for manual removal of a retained placenta. Ergonovine is contraindicated in patients with hypertension. (I-A)

How to replace fibrinogen in postpartum haemorrhage situations? (Hint: Don't use FFP!)

International Journal of Obstetric Anesthesia (2018) 33, 4–7

Transfusion and coagulation management in major obstetric hemorrhage

Curr Opin Anesthesiol 2015, 28:275–284

Alexander J. Butwick^a and Lawrence T. Goodnough^{b,c}

The Use of Postpartum Hemorrhage Protocols in United States Academic Obstetric Anesthesia Units

Rachel M. Kacmar, MD,* Jill M. Mhyre, MD,† Barbara M. Scavone, MD,‡ Andrea J. Fuller, MD,§
Loma Toledo, MD, MPH*

Question: Point of Care (POC) Testing

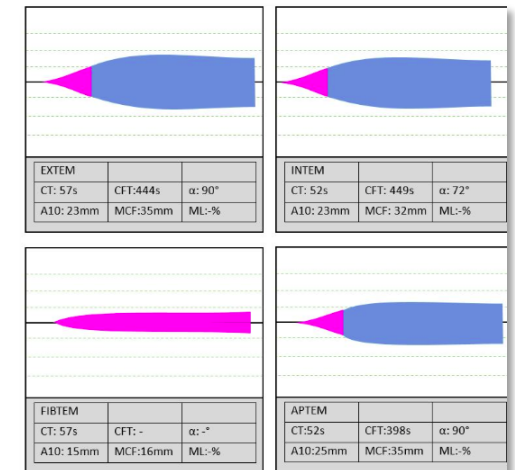
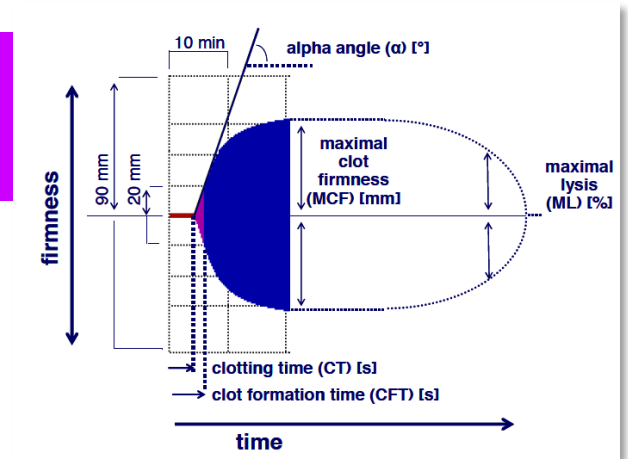
Do you use a viscoelastic test during management of invasive placentation cases:

A - yes, I have POC test in the labor ward

B - yes I have POC test in the lab/blood bank and the clot is visible on a monitor as it develops

C - yes I have POC test and I get the result when the clot is formed

D - no I don't have access to POC

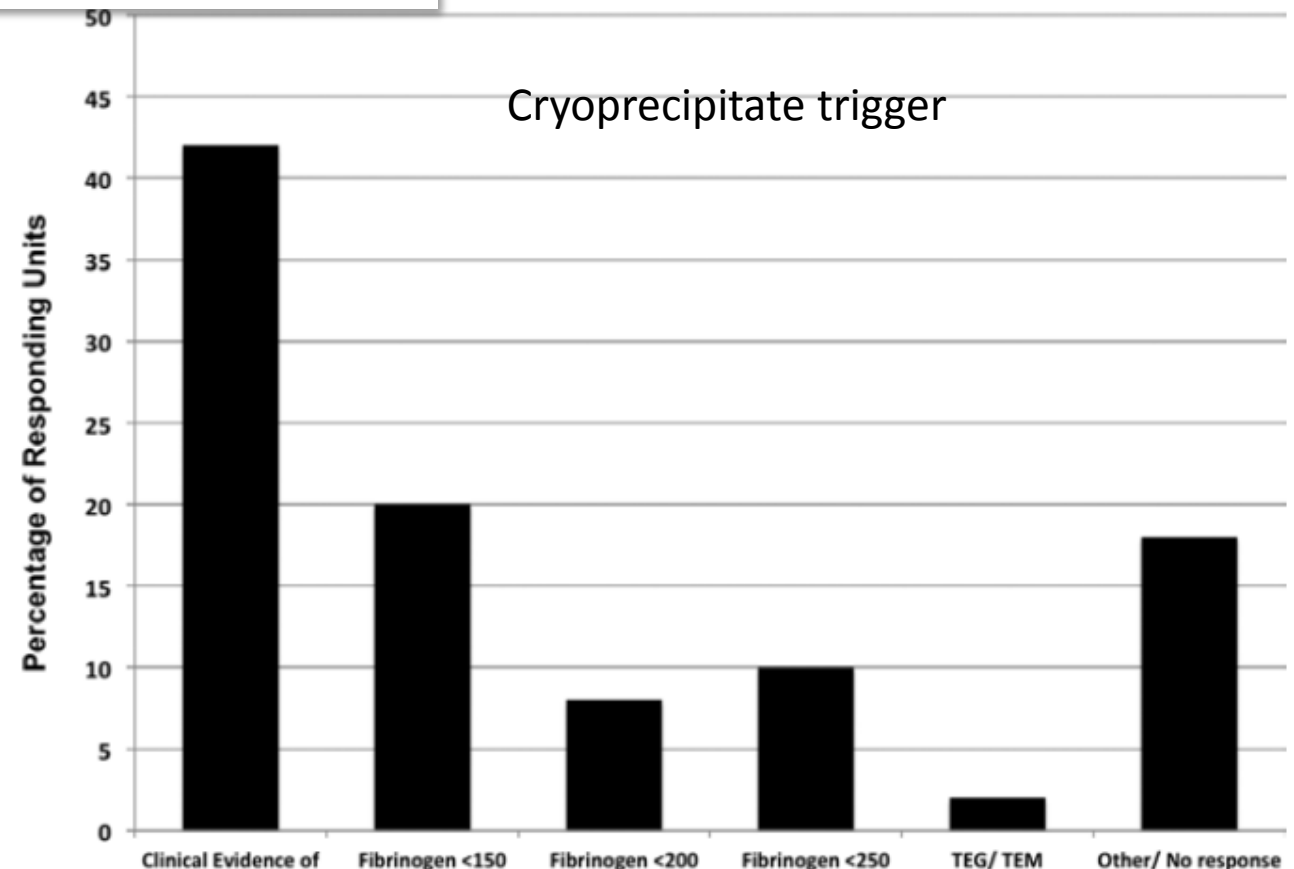


The Use of Postpartum Hemorrhage Protocols in United States Academic Obstetric Anesthesia Units

Rachel M. Kacmar, MD,* Jill M. Mhyre, MD,† Barbara M. Scavone, MD,‡ Andrea J. Fuller, MD,§ and Paloma Toledo, MD, MPH*

MTP in 95% of units with a PPH protocol and in 90% of units without (95% CI of difference: -7% to 7%).

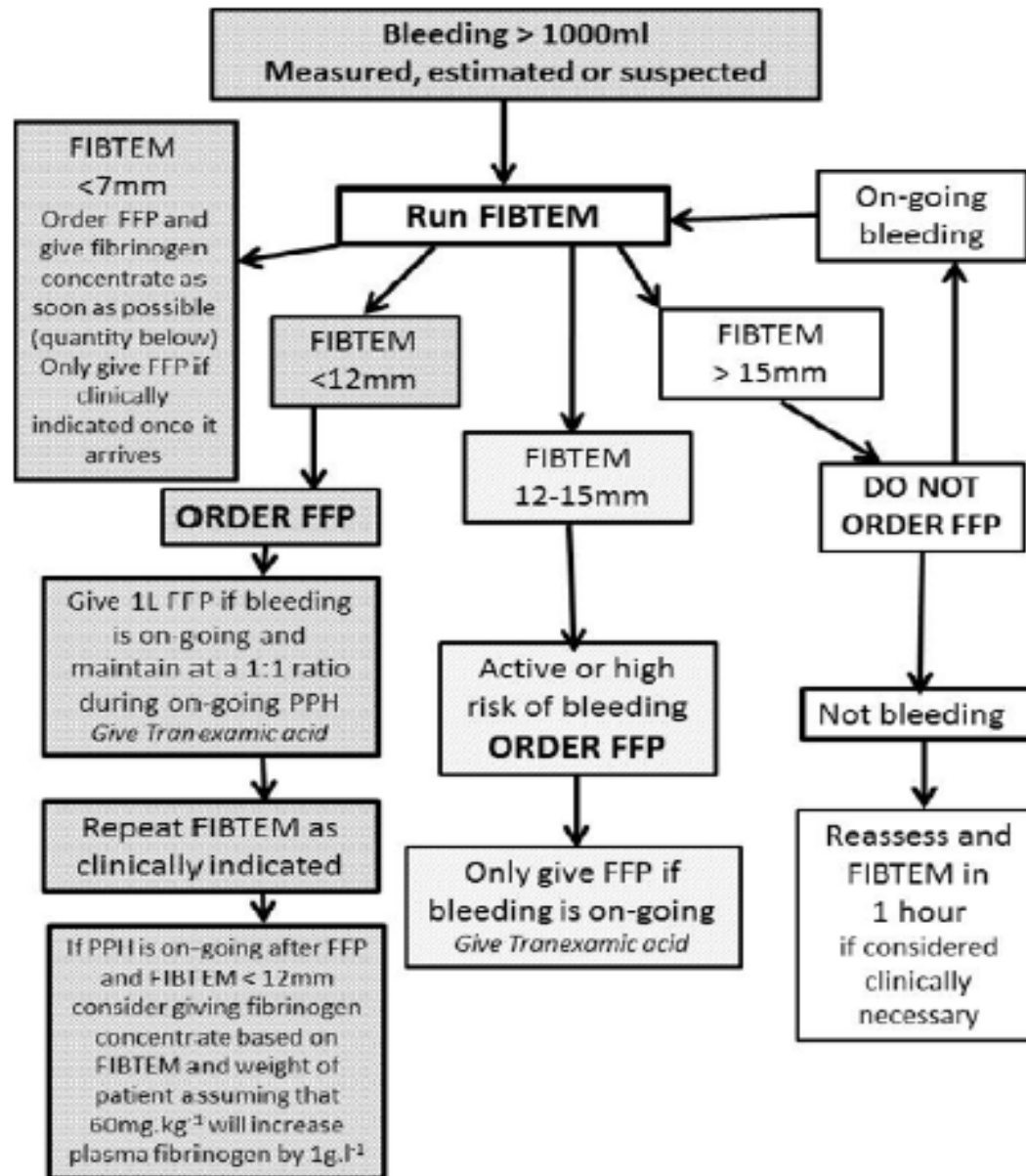
Fixed blood component transfusion ratio in 79% of the units
48% using a 1:1 PRBC:FFP ratio
35% using a 1:1:1 PRBC:FFP:PLT ratio.



Haemostatic management of obstetric haemorrhage

R. E. Collis¹ and P. W. Collins^{2,3}

¹ Consultant, Department of Anaesthetics, Intensive Care and Pain Medicine, ³ Consultant, Department of Haematology, Cardiff and Vale University Health Board, Cardiff, UK
² Consultant, Institute of Infection and Immunity, Critical Illness Research Group, Cardiff University School of Medicine, Cardiff, UK



Multidisciplinary approach

Identify resources available
eg team member availability,
blood products, operating room
and ICU bed, threats – percreta
Transfer patient?



Maternal morbidity in patients with morbidly adherent placenta treated with and without a standardized multidisciplinary approach

Alireza A. Shamshirsaz, MD; Karin A. Fox, MD; Bahram Salmanian, MD;

Comparison of maternal complications, operative variables, and complications

Variable	Multidisciplinary group (n = 57)	Nonmultidisciplinary group (n = 33)	P value
Median estimated blood loss, L (range)	2.1 (0.5–18)	3 (0.8–14)	.025
Median packed red blood cell transfusion units, n (range)	4 (0–24)	4.5 (1–25)	.114
Packed red blood cell transfusion of ≥ 4 units, n (%)	37 (65)	26 (79)	.166
Median hemoglobin decrease, mg/dL (range)	1.1 (–4.6 to 5.5)	1 (–3 to 5.1)	.760
Median crystalloid transfusion, mL (range)	4300 (1000–16,200)	5250 (2000–17,000)	.166
Median length of hospital stay, d (range)	4 (2–12)	4 (2–14)	.523
Use of bipolar diathermy device, n (%)	40 (70)	0	< .001
No attempt to remove placenta, n (%)	45 (80)	7 (22)	< .001
Median anesthesia time, min (range)	287 (74–608)	180 (62–398)	< .001
General anesthesia after epidural, n (%)	25 (44)	7 (22)	.057
Median neonatal birthweight, g (range)	2400 (800–3900)	2300 (300–3900)	.460
Cystotomy and bladder repair, n (%)	17 (30)	2 (6)	.008
Bowel injury, n (%)	1 (2)	1 (3)	.999
Ureteral injury, n (%)	1 (2)	2 (6)	.550
Reoperation, n (%)	3 (5)	1 (3)	.999

Teamwork Communication

Anesthesiologist



Obstetrician

The patient in room 12 is hemorrhaging, you know, the one with the accreta
Quick we need to take her to the OR
No time to waste





Anesthesiologist

That's good I know about her difficult airway and obesity

Advocate plan

I'll do a videolaryngoscopy intubation and use ultrasound to get some big lines set up

Inquiry

Did you book a bed in the ICU?

Obstetrician

Hey, Dr Smith, the lady in room 12 we discussed yesterday with placenta accreta has started to bleed

Advocate plan

We need to take her to the OR and do a cesarean hysterectomy

Inquiry

Is there any other information you need? We have blood products available and a technician coming in to run the cell saver



Center of excellence for placenta accreta

Robert M. Silver, MD; Karin A. Fox, MD; John R. Barton, MD; Alfred Z. Abuhamad, MD; Hyagriv Simhan, MD;
C. Kevin Huls, MD; Michael A. Belfort, MD; Jason D. Wright, MD

In developed countries, accreta is the most common reason for cesarean hysterectomy

Silver RM: Center of Excellence of Placenta Accreta. AJOG

TABLE 1

Suggested criteria for accreta center of excellence

1. Multidisciplinary team

- a. Experienced maternal-fetal medicine physician or obstetrician
- b. Imaging experts (ultrasound)
- c. Pelvic surgeon (ie, gynecologic oncology or urogynecology)
- d. Anesthesiologist (ie, obstetric or cardiac anesthesia)
- e. Urologist
- f. Trauma or general surgeon
- g. Interventional radiologist
- h. Neonatologist

2. Intensive care unit and facilities

- a. Interventional radiology
- b. Surgical or medical intensive care unit
 - i. 24-h availability of intensive care specialists
- c. Neonatal intensive care unit
 - i. Gestational age appropriate for neonate

3. Blood services

- a. Massive transfusion capabilities
- b. Cell saver and perfusionists
- c. Experience and access to alternative blood products
- d. Guidance of transfusion medicine specialists or blood bank pathologists



35 years old
G2 P1
S/P 1 CD for breech
Planned 37/40 Elective cesarean delivery
Presentation at 32/40
Massive antepartum hemorrhage

Unknown or
suspected accreta

Massive hemorrhage

GA; Lines; O-neg
Blood
REBOA

A Multidisciplinary Checklist for Management of Suspected Placenta Accreta

Amira El-Messidi, MD, FRCSC,¹ Angela Mallozzi, MD, FRCSC, FACOG,¹
Lawrence Oppenheimer, MD, FRCSC, FRCOG²

Multidisciplinary Checklist for Suspected Placenta Accreta					
Date:					
Patient's name:					
Medical record number:					
Most responsible physician/contacts:					
Pertinent clinical history:					
Age:					
GTPAL:					
Estimated due date:					
Blood type and antibody screen:					
Dates of Rh immunoglobulin administration:					
BMI:					
Number of prior CS:					
Type of other prior uterine surgery:					
Desire for future fertility:					
Number of APH episodes to date:					
ULTRASOUND	Not applicable	To do	Pending	Complete	
				Present	Absent
<i>Details of placentation:</i>					
Anterior					
Posterior					
LLP or previa					
Loss of echoluency between uterus and placenta					
Lacunae					
Interruption of bladder-uterine interface					
Placental mass protrudes into bladder					
Suspected accreta by colour Doppler					
DESIGNATED DELIVERY CENTRE:					
MRI					
CONSULTATIONS					
MFM team					
Anaesthesia					
Interventional radiology					
Most experienced surgeons (e.g., gyn-oncology)					
Urology					
Neonatal ICU					
LABORATORY Most recent date:					
2 to 4 units PRBCs currently on hold					
CBC					
Coagulation profile					
INTRAOPERATIVE PLANS					
Notification of the main OR					
Consent form					
Preoperative internal iliac stents					
4 units PRBC on hold (or as requested)					
Hysterectomy tray available					
Cystoscopy set available/urology team					
CellSaver					
Neonatal team present					
Experienced surgeons on site					
GTPAL: gravida term preterm aborta living; APH: antepartum hemorrhage; LLP: low-lying placenta; MFM: maternal-fetal medicine; PRBC: packed red blood cells; CBC: complete blood count.					

J Obstet Gynaecol Can 2012;34(4):320-324

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Lawrence Oppenheimer, MD, FRCSC, FRCOG²**

Anaesthesia

Interventional radiology

Most experienced surgeons (e.g., gyn-oncology)

Urology

Neonatal ICU

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[illegible]

A of INTRAOPERATIVE PLANS

Ami
Law

Notification of the main OR

Consent form

Preoperative internal iliac stents

4 units PRBC on hold (or as requested)

Hysterectomy tray available

Cystoscopy set available/urology team

CellSaver

Neonatal team present

Experienced surgeons on site

Future Directions

Teamwork

High and low fidelity training for obstetric emergencies

Hybrid Operating Suite



My Take-Homes

- ☐ Talk
- ☐ Plan
- ☐ Anticipate
- ☐ Re-evaluate

