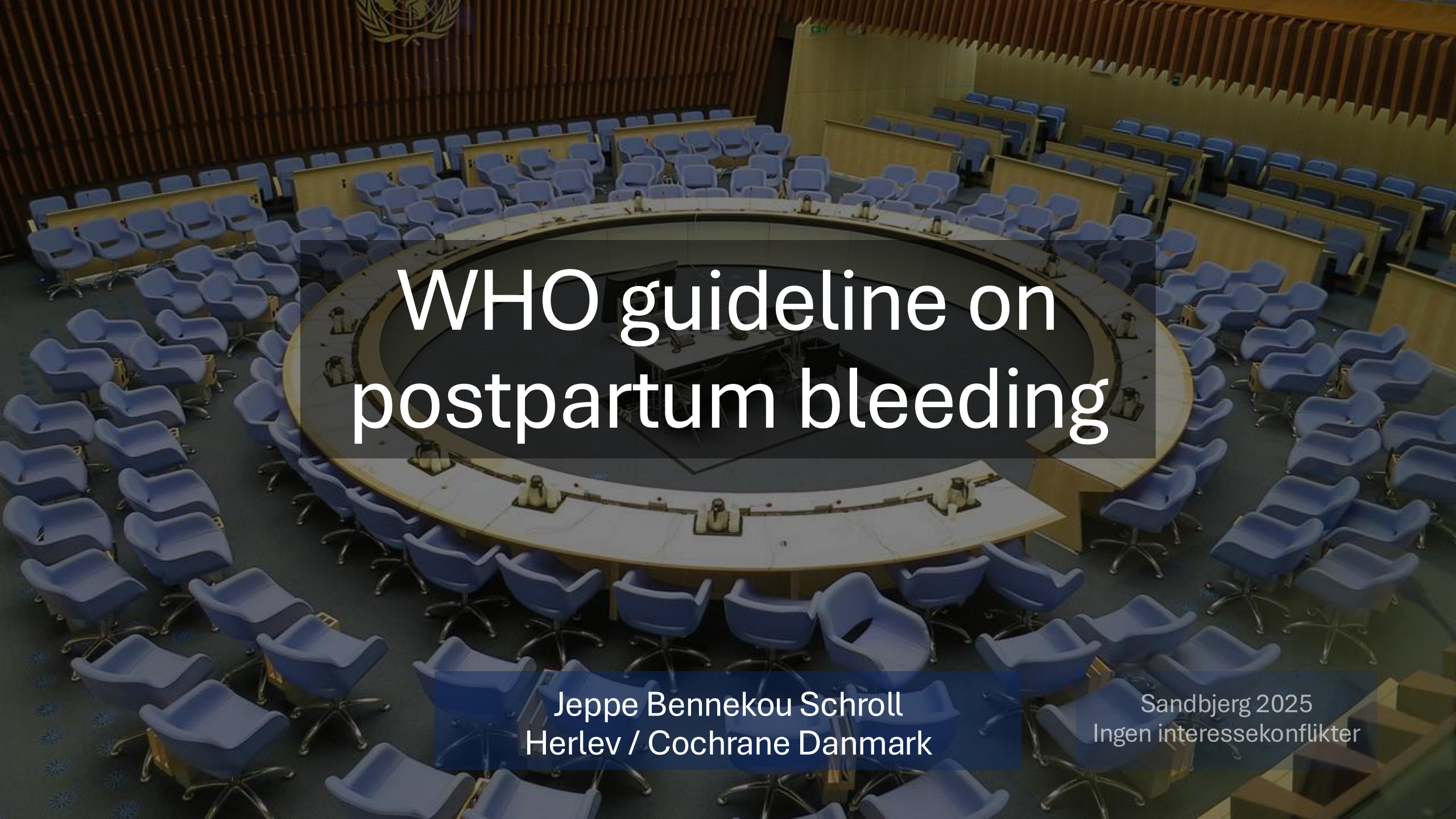


WHO guideline on postpartum bleeding

Jeppe Bennekou Schroll
Herlev / Cochrane Danmark

Sandbjerg 2025
Ingen interessekonflikter

The consolidated guideline incorporates recommendations from a variety of different sources

1. WHO PPH guidelines

2. WHO non-PPH guidelines

3. New or updated recommendations formulated by the WHO PPH GDG

World Health Organization

metoder

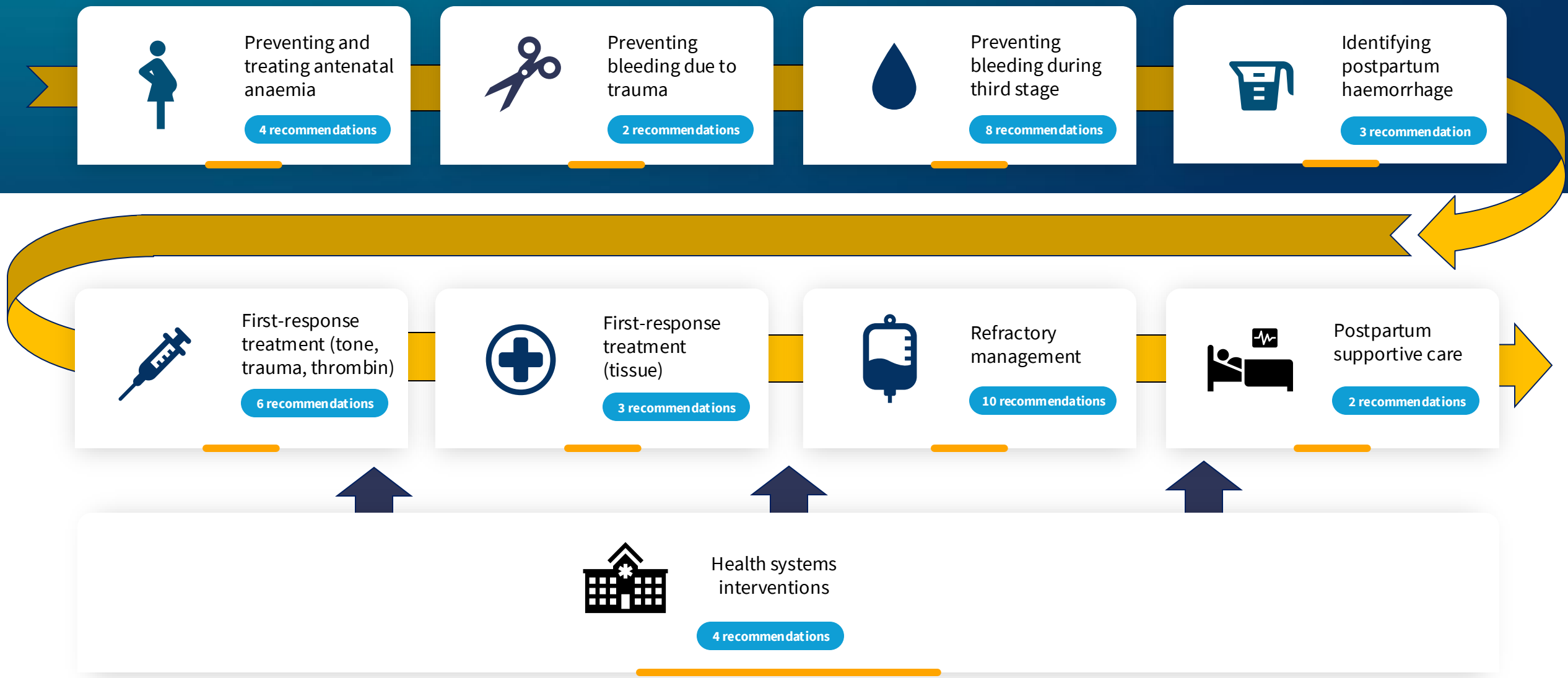
DSOG

- Egne søgninger
- GRADE forladt?
- Godkendes på Sandbjerg
- Konsensus/afstemning

WHO

- Baseret på Cochrane reviews (RCT)
- Forsimplet GRADE
- Mulighed for at ”revalidere” anbefaling
- Godkendes af ”guideline development group” (patienter/donorer)
- Konsensus
- Undervisningsmateriale

The 42 new, updated and revalidated recommendations in the consolidated set of guidelines cover the full spectrum of PPH care



Managing antenatal anaemia

4 recommendations

Revalidated 1 Full blood count testing to diagnose anaemia in pregnancy

Revalidated 2 Daily oral iron and folic acid supplementation

Revalidated 3 Intermittent oral iron and folic acid supplementation

NEW 4 Intravenous iron to treat maternal anaemia in pregnancy

Managing antenatal anaemia

4 recommendations

NEW

Intravenous iron to treat maternal anaemia

9	Der er svag/betinget anbefaling for IV jern fremfor oral jern, hvis kvinden har svært ved at optage oralt jern eller har svære gastrointestinale bivirkninger.	↑

Summary of evidence on benefits and harms

Effects of IV versus oral iron for iron deficiency anaemia in pregnancy

Characteristics of studies involving over 500 women

	IVON 2024	Neogi 2019	REVAMP 2023	RAPID IRON TBD
Study design	RCT	RCT	RCT	RCT
Setting	10 health facilities Nigeria	4 hospitals India	2 centers Malawi	India 4 sites
Participants	1056 women of gestational age between 20-32 weeks with anaemia (Hb <100 g/L) (440 with iron deficiency defined as ferritin <30 mg/ml)	2018 women with peripheral smear suggestive of iron deficiency anaemia (Hb 50-80 g/L if gestational age between 20-28 or Hb 50-90g/L if gestational age between 29-32)	862 women of gestational age between 13-26 weeks with anaemia (Hb <100 g/L) (324 with iron deficiency defined as ferritin <15 mg/ml or <30 mg/ml if C-reactive protein >5 mg/L)	4368 women Hb levels between 7·0 and 9·9 g/dL, and TSAT < 20% and/or serum ferritin <30 ng/mL
Intervention	Ferric carboxymaltose administered as one infusion of 20mg/kg up to a maximum 1000mg	Iron sucrose administered as 200mg/100ml infusions on alternate days until the calculated dose was administered	Ferric carboxymaltose administered as one infusion up to a dose of 1000mg/250ml	1) IV ferric derisomaltose (20mg/kg, maximum 1000mg) 2) IV ferriccarboxymaltose (20mg/kg, maximum 1000mg)
Comparison	Ferrous sulphate given as 200mg tablets three times per day until 6 weeks postpartum (total daily dose: 195mg elemental iron)	Ferrous sulphate given as 100mg tablets twice a day until 6 weeks postpartum (total daily dose: 200mg elemental iron)	Ferrous sulphate given as 60mg tablets twice a day for 90 days (total daily dose: 120mg elemental iron)	Ferrous sulphate 60mg twice daily

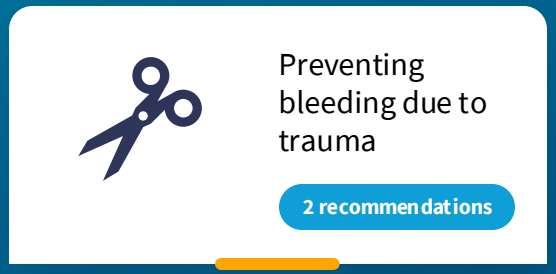
Source:
Nicholson L, Axon E, Daru J, Rogozińska E. Effect and safety of intravenous iron compared to oral iron for treatment of iron deficiency anaemia in pregnancy. Cochrane Database of Systematic Reviews 2024, Issue 12. Art. No.: CD016136.

Preventing bleeding due to trauma

2 recommendations

Updated 1 **Techniques for reducing perineal trauma during vaginal birth**

Revalidated 2 **Routine or liberal use of episiotomy is not recommended**



Updated

Techniques for reducing perineal trauma during vaginal birth

For women in the second stage of labour, techniques to reduce perineal trauma and facilitate spontaneous birth (including perineal massage, warm compresses and a “hands on” guarding of the perineum) are recommended, based on a woman’s preferences and available options. (*Recommended*)

Source: Dwan K, Fox T, Lutje V, Lavender T, Mills TA. Perineal techniques during the second stage of labour for reducing perineal trauma and postpartum complications. Cochrane Database of Systematic Reviews TBD, Issue TBD. Art No: CD016148. (In Press)

Preventing bleeding during third stage

8 recommendations

Updated	1	Uterotonics for PPH prevention
Updated	2	Administration of misoprostol by community and lay health workers
Updated	3	Heat-stable uterotonics for PPH prevention
Validated	4	Routes of oxytocin administration
Validated	5	Advance distribution of misoprostol
Validated	6	Controlled cord traction
Validated	7	Sustained uterine massage not recommended
NEW	8	Tranexamic acid for PPH prevention

Preventing bleeding during third stage

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Summary of evidence on benefits and harms

Effects of TXA on prevention of PPH at vaginal birth : Source and characteristics of studies

	WOMAN-2 2024	TRAAP-1 2018	ALAM 2023
Study design	Randomised controlled trial	Randomised controlled trial	Randomised controlled trial
Setting	34 hospitals across four countries (Nigeria, Pakistan, Tanzania, and Zambia)	15 hospitals France	1 hospital Canada
Participants	15,068 women , women with **moderate or severe anaem**ia (haemoglobin <100 g/L).	3,891 women with singleton pregnancies from 35 weeks or more	27 women (12 caesarean section and 15 vaginal birth) * (only use vaginal birth)
Intervention	1 g of tranexamic acid by slow intravenous injection (over 10 min) within 15 min of the umbilical cord being cut or clamped (all received oxytocin)	1g intravenous TXA delivered during the two minutes after birth **(over a period of 30 to 60 seconds)** after the routine prophylactic injection of **oxytocin** at delivery of the anterior shoulder	1g intravenous TXA administered at time of shoulder delivery (vaginal birth)
Comparison	Placebo	Placebo	Placebo (0.9% saline)

Rohwer C, Rohwer AC, Cluver C, Ker K, Hofmeyr GJ. Tranexamic acid for preventing postpartum haemorrhage after vaginal birth. Cochrane Database of Systematic Reviews 2025, Issue 1. Art. No.: CD007872.

Summary of evidence on benefits and harms

Rohwer C, Rohwer A, Cluver C, Ker K, Hofmeyr GJ, Winer L. Tranexamic acid for preventing postpartum haemorrhage after caesarean section. Cochrane Database of Systematic Reviews 2024, Issue 11. Art. No.: CD016278.

Effects of TXA on prevention of PPH at caesarean birth : Source and characteristics of studies

	Pacheco 2023	TRAAP-2 2021	Lee 2023	Ogunkua 2022	WOMANPharmaco TXA 2023	TAPPH-1 2023
Study design	Randomised controlled trial	Randomised controlled trial	Randomised controlled trial	Randomised controlled trial	Randomised controlled trial	Randomised controlled trial
Setting	31 hospitals USA	27 hospitals France	1 hospital Singapore	1 hospital USA	3 hospitals Pakistan/Zambia	1 hospital Canada
Participants	11000 women prelabour or intrapartum caesarean birth	4551 women prelabour or intrapartum caesarean birth	200 women prelabour caesarean birth	110 women Prelabour caesarean birth	120 women with unspecified type of caesarean birth	12 women prelabour or intrapartum caesarean birth
Intervention	1g TXA IV immediately after cord Clamping (over 10 min)	1g TXA IV 3 min after birth of baby (over 30-60s)	1g TXA IV 10 minutes prior to skin incision	1g TXA IV 10 min before skin incision and 1g TXA after placental delivery	1g TXA IV or IM, or 4g oral, 1 hour before caesarean birth	1g TXA IV 3 min during skin preparation
Comparison	Placebo	Placebo	Placebo	Placebo	No intervention	Placebo
Outcome	Provider-estimated blood loss from data obtained from the anesthesia record and operative report	Gravimetrically-estimated and calculated blood loss	Calculated and provider-estimated blood loss	Calculated estimated and provider-estimated blood loss	Gravimetrically-estimated blood loss	Not clear

Identifying postpartum haemorrhage

3 recommendation

Validated 1 **Uterine tonus assessment for early identification of uterine atony**

Validated 2 **Method of blood loss assessment**

NEW 3 **Optimal diagnostic criteria**

Identifying postpartum haemorrhage

1 recommendation

Validated

Uterine tonus assessment for early identification of uterine atony

Postpartum abdominal uterine tonus assessment for early identification of uterine atony is recommended for all women. (*Strong recommendation, very-low-quality evidence*)

Identifying postpartum haemorrhage

1 recommendation

Validated

Method of blood loss assessment

For all women giving birth, routine objective measurement of postpartum blood loss is recommended to improve the detection and prompt treatment of postpartum haemorrhage. Methods to objectively quantify blood loss, such as calibrated drapes for women having vaginal birth, can achieve this. (*Recommended*)

First-response treatment (tone, trauma, thrombin)

6 recommendations

Validated 1 **Care bundle for first-response PPH treatment**

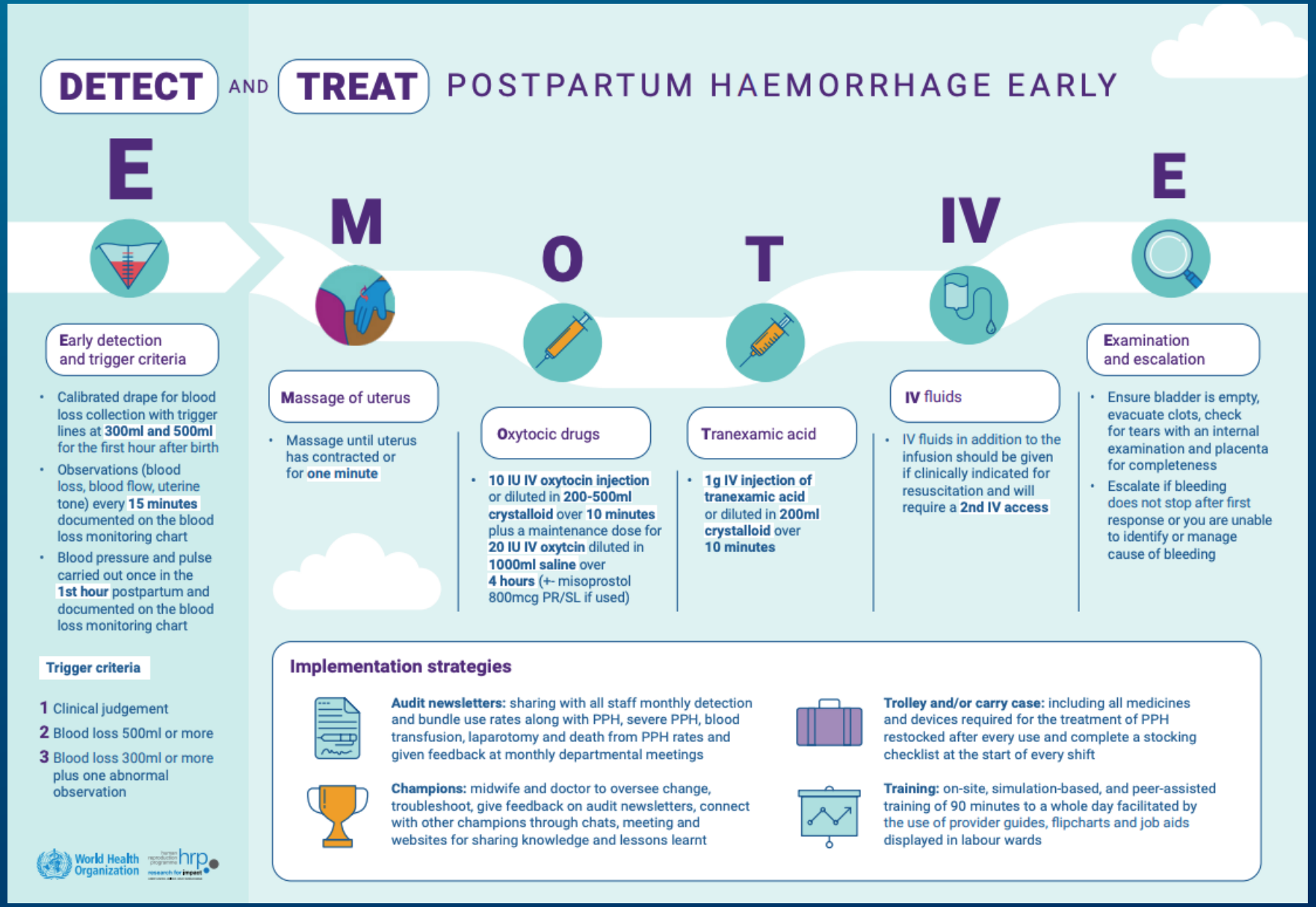
Validated 2 **Oxytocin for PPH treatment**

Validated 3 **Alternate uterotonics for PPH treatment**

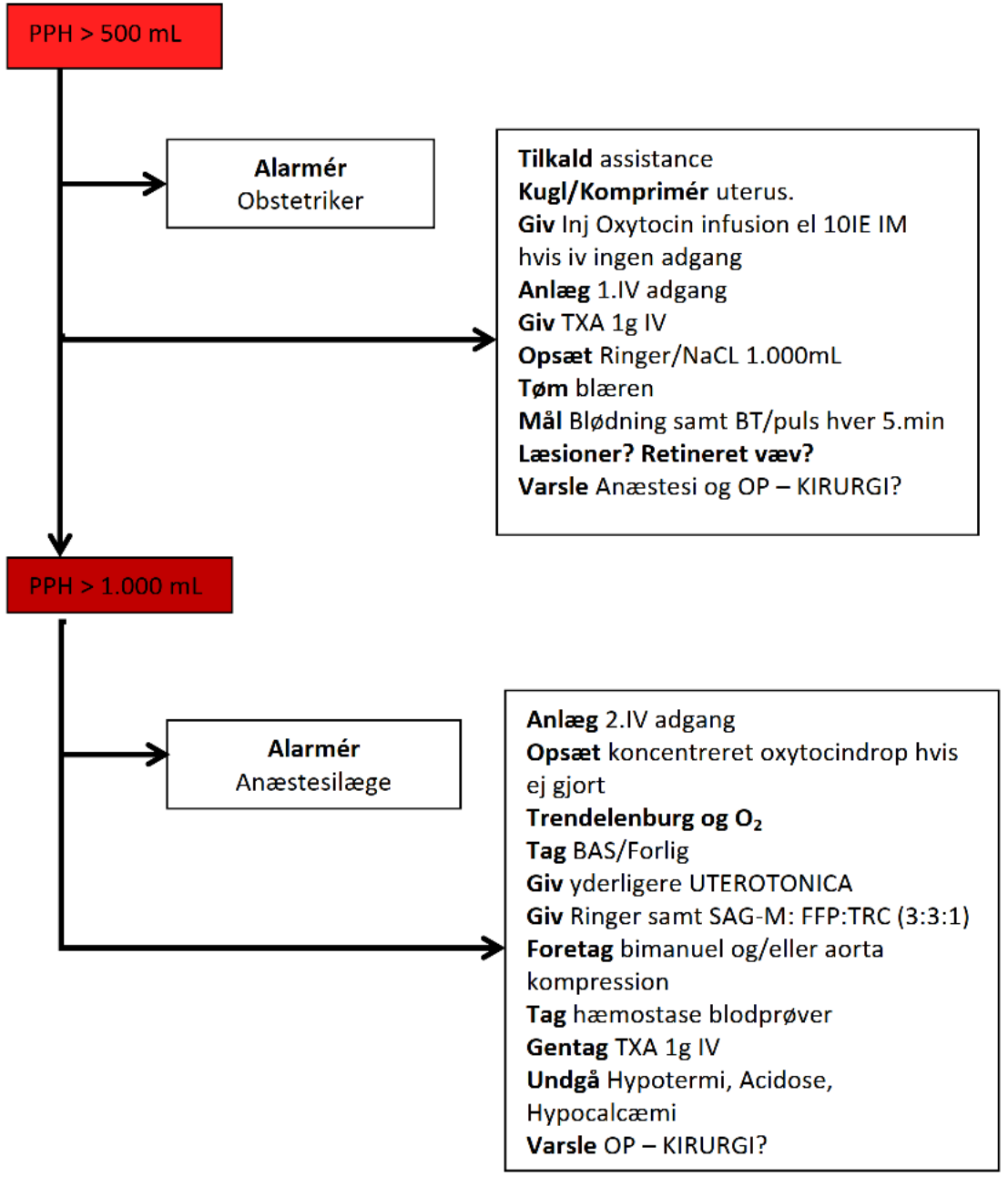
Validated 4 **Uterine massage for treatment of PPH**

Validated 5 **Tranexamic acid for treatment of PPH**

Validated 6 **Isotonic crystalloids for fluid resuscitation**



Gallos 2023. N Engl J Med 2023;389:11-21. DOI: 10.1056/NEJMoa2303966


PPH > 500 mL
Alarmér
Obstetriker
Tilkald assistance
Kugl/Komprimér uterus.
Giv Inj Oxytocin infusion el 10IE IM hvis iv ingen adgang
Anlæg 1.IV adgang
Giv TXA 1g IV
Opsæt Ringer/NaCL 1.000mL
Tøm blæren
Mål Blødning samt BT/puls hver 5.min
Læsioner? Retineret væv?
Varsle Anæstesi og OP – KIRURGI?
PPH > 1.000 mL
Alarmér
Anæstesilæge
Anlæg 2.IV adgang
Opsæt koncentreret oxytocindrop hvis ej gjort
Trendelenburg og O_2
Tag BAS/Forlig
Giv yderligere UTEROTONICA
Giv Ringer samt SAG-M: FFP:TRC (3:3:1)
Foretag bimanuel og/eller aorta kompression
Tag hæmostase blodprøver
Gentag TXA 1g IV
Undgå Hypotermi, Acidose, Hypocalcæmi
Varsle OP – KIRURGI?

First-response treatment (tissue)

3 recommendations

Updated 1 **Uterotonics for treatment of retained placenta**

Updated 2 **Antibiotic prophylaxis for manual removal of retained placenta**

Validated 3 **Umbilical vein injection of oxytocin**

First-response treatment (tissue)

3 recommendations

Validated

Umbilical vein injection of oxytocin

Umbilical vein injection of oxytocin is recommended for the treatment of retained placenta only in the context of rigorous research. (Research-context recommendation)

No. of patients		Effect		Certainty
UVI with oxytocin solution	Expectant management	Relative (95% CI)	Absolute (95% CI)	
131/282 (46.5%)	159/264 (60.2%)	**RR 0.73** (0.56 to 0.95)	**163 fewer per 1000** (from 265 fewer to 30 fewer)	⨁⨁◯◯ LOW

Desirable effects	— Don't know	— Varies		— Trivial	— Small	✓ Moderate	— Large
Undesirable effects	✓ Don't know	— Varies		— Large	— Moderate	— Small	— Trivial
Certainty of the evidence	— No included studies			✓ Very low	— Low	— Moderate	— High
Values				— Important uncertainty or variability	— Possibly important uncertainty or variability	✓ Probably no important uncertainty or variability	— No important uncertainty or variability
Balance of effects	— Don't know	— Varies	— Favours expectant management	— Probably favours expectant management	— Does not favour either	✓ Probably favours UVI with oxytocin	— Favours UVI with oxytocin
Resources required	✓ Don't know	— Varies	— Large costs	— Moderate costs	— Negligible costs or savings	— Moderate savings	— Large savings
Certainty of the evidence on required resources	✓ No included studies			— Very low	— Low	— Moderate	— High
Cost-effectiveness	✓ Don't know	— Varies	— Favours placebo/no treatment	— Probably favours placebo/no treatment	— Does not favour either	— Probably favours oxytocin	— Favours oxytocin
Equity	— Don't know	— Varies	— Reduced	— Probably reduced	— Probably no impact	✓ Probably increased	— Increased
Acceptability	✓ Don't know	— Varies		— No	— Probably No	— Probably Yes	— Yes
Feasibility	— Don't know	— Varies		— No	— Probably No	✓ Probably Yes	— Yes

Non-invasive temporizing measures

Invasiv

Validated 5 Uterine balloon tamponade

Validated 6 Uterine artery embolization

Validated 7 Surgical interventions (hysterectomy, arterial ligation)

NEW 8 Criteria and protocols for transfusion of blood products

NEW 9 Fractionated blood products

NEW 10 Use of cell salvage

Overview

Cell salvage

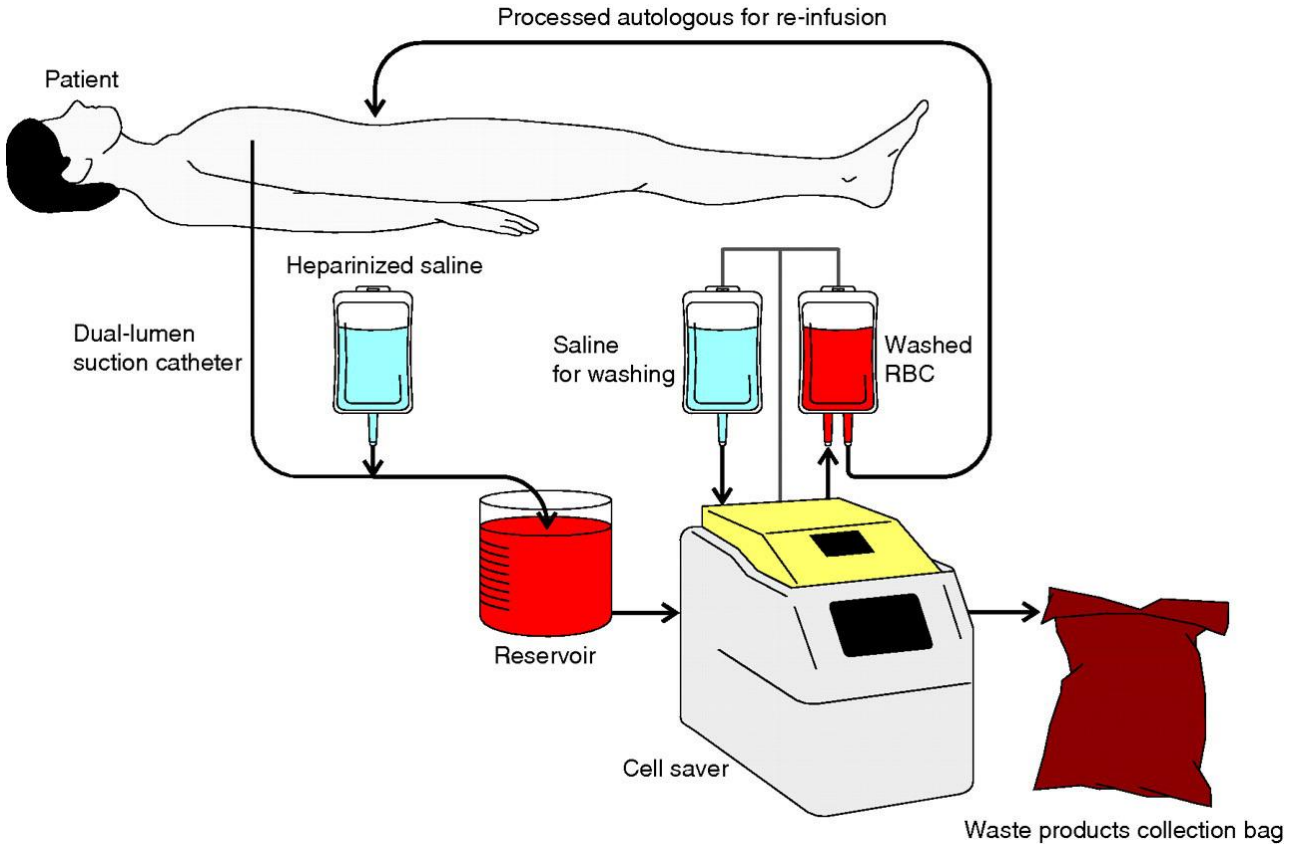


Image: https://www.bjanaesthesia.org.uk/article/S0007-0912%2817%2933465-7/fulltext

World Health Organization

Post-PPH supportive care

2 recommendations

Validated 1 Postpartum oral iron supplementation

NEW 2 Postpartum intravenous iron

Summary of evidence on benefits and harms

Effects of IV versus oral iron for iron deficiency anaemia after birth

Characteristics of studies involving over 100 women

Characteristic	Bombac Tavcar 2024	Breymann 2008	ElKhouly 2017	Holm 2017	Iyoke 2017	Seid 2008	Van Wyck 2007
Setting	Slovenia	Switzerland	India	Denmark	Nigeria	USA	USA
Participants	300 women with anaemia (Hb 70-100 g/L) within 48h after birth	329 women with anaemia (Hb <105 g/L)	252 women wit anaemia (Hb 70-100 g/L) with microscopic features of iron deficiency	200 women following PPH ≥700 ml and ≤1,000 mL or PPH >1,000 ml and anaemia (Hb >65 g/L)	284 women with anaemia (Hb 60–79 g/L) with microscopic features of iron deficiency	291 women with anaemia (Hb <100 g/L) after 10 days or less postpartum	361 women with anaemia (Hb ≤100 g/L)
Intervention	Ferric carboxymaltose 1000-2000 mg 1-2 doses	Ferric carboxymaltose at a maximum dose of 1000 up to 3 times	Ferrous sucrose Three divided doses (on day 1, 3 and 5)	Iron isomaltoside 1200mg once	Iron dextran Single infusion	Ferric carboxymaltose 1-3 infusions (max 1000 mg per infusion)	Ferric carboxymaltose(max 1000 mg per infusion)
Comparator	Ferrous sulfate 160 mg daily	Ferrous sulphate 100 mg twice daily for 12 weeks	Ferrous sulphate 150 mg twice daily for 6 weeks	Not fixed and recommended 40–50 mg oral iron daily	Iron hydroxide polymaltose once daily (100 mg elemental iron and SMS reminder)	Ferrous sulphate 325 mg (65 mg elemental iron) 3 times daily for 6 weeks	Ferrous sulphate 325 mg (65 mg elemental iron) 3 times daily for 6 weeks

Source:
Jensen MCH, Holm C, Jørgensen KJ, Schroll JB. Treatment for women with postpartum iron deficiency anaemia. Cochrane Database of Systematic Reviews 2024, Issue 12. Art. No.: CD010861.

Health systems interventions

4 recommendations

Validated	1	Formal PPH protocols for facilities
Validated	2	Formal referral protocols
Validated	3	Simulation drills for pre-service and in-service training
Validated	4	Monitoring the use of uterotonics after birth as a process indicator

Hvem er bedst?

	DSOG	WHO
Metodisk stringens	-	+
Grafisk præsentation	-	+
Observationelle studier	+	-
Implementering	+	-
Udgifter	$	$$$
Bedste arbejdsmiljø/fester?	+	-
Samlet