PBM in obstetrics – 3 pillars

1. Optimise red blood cell mass before birth
2. Minimise blood loss during birth
3. Correct severe anaemia with iron infusion & avoid unnecessary RBC transfusions

Results BeQuinT survey : baseline to start from!

2.1 Diagnosis and treatment of iron deficiency and anaemia in pregnancy

2.2 Immunohematology in the obstetric setting

2.3 Identification (and preparation) of patients at increased risk of peripartum bleeding

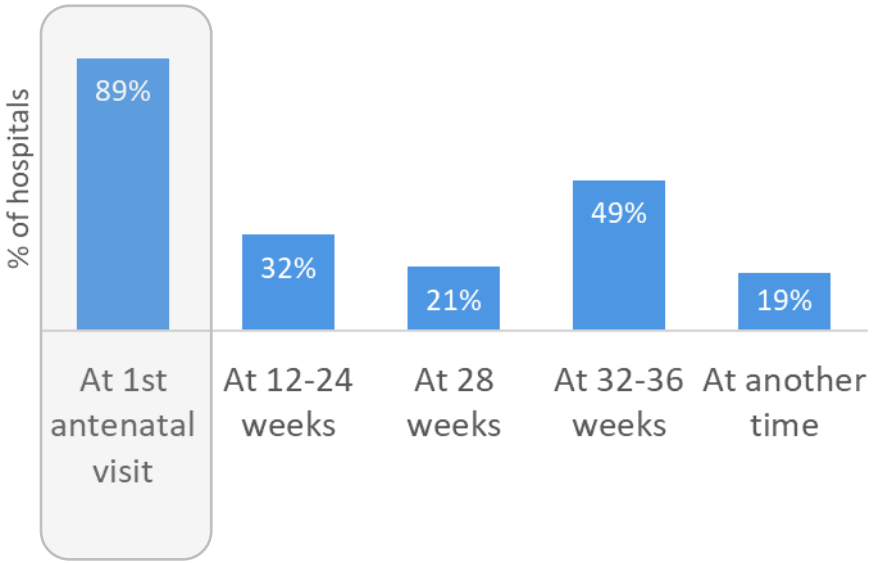
2.4 Management of peripartum bleeding

2.5 Screening and management of postpartum iron deficiency and anaemia

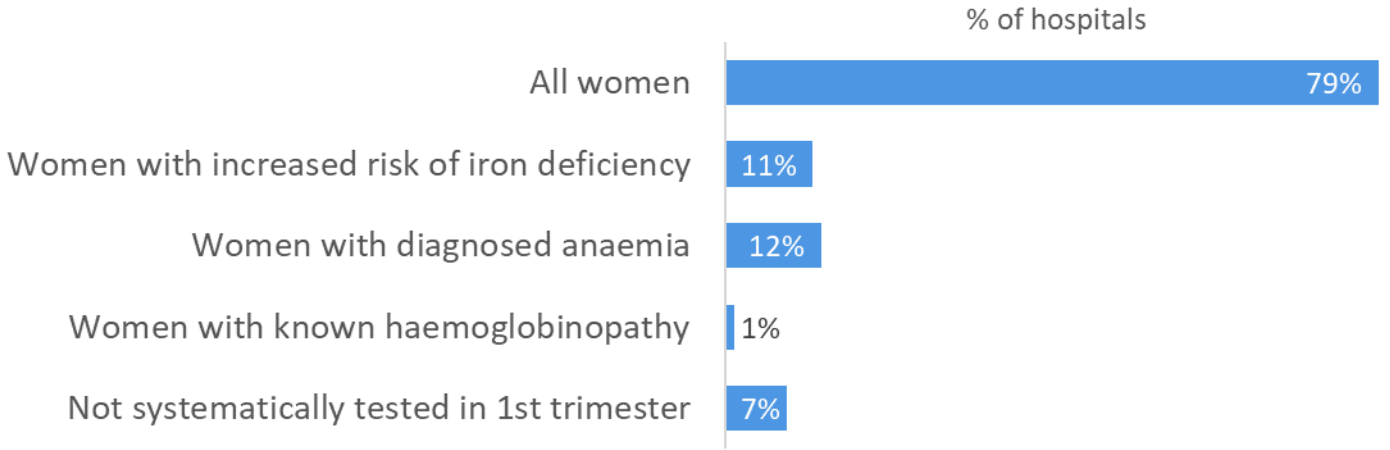
Excl. 9 hospitals without obstetric service

2.1 Diagnosis and treatment of iron deficiency and anaemia in pregnancy

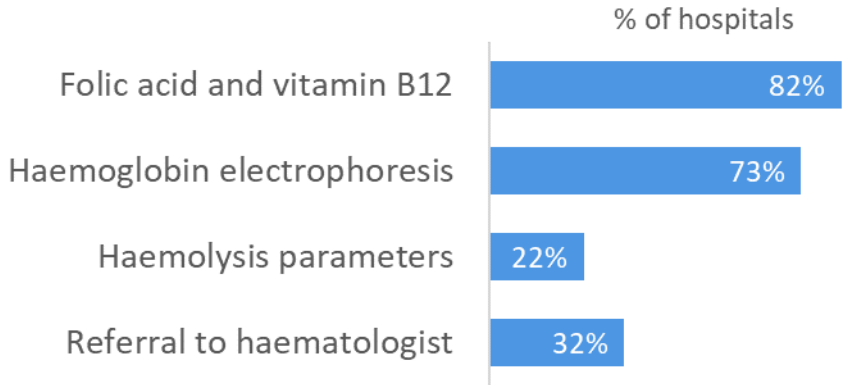
Timing full blood count



Whose serum ferritin is tested in the 1st trimester?



Additional blood testing in case of anaemia without iron deficiency



73% of hospitals with systematic **treatment** of **non-anaemic ID** with **oral iron** supplements in 2nd trim.

Health
Food Chain Safety
Environment

KCE report 248 – Assessment and screening during pregnancy

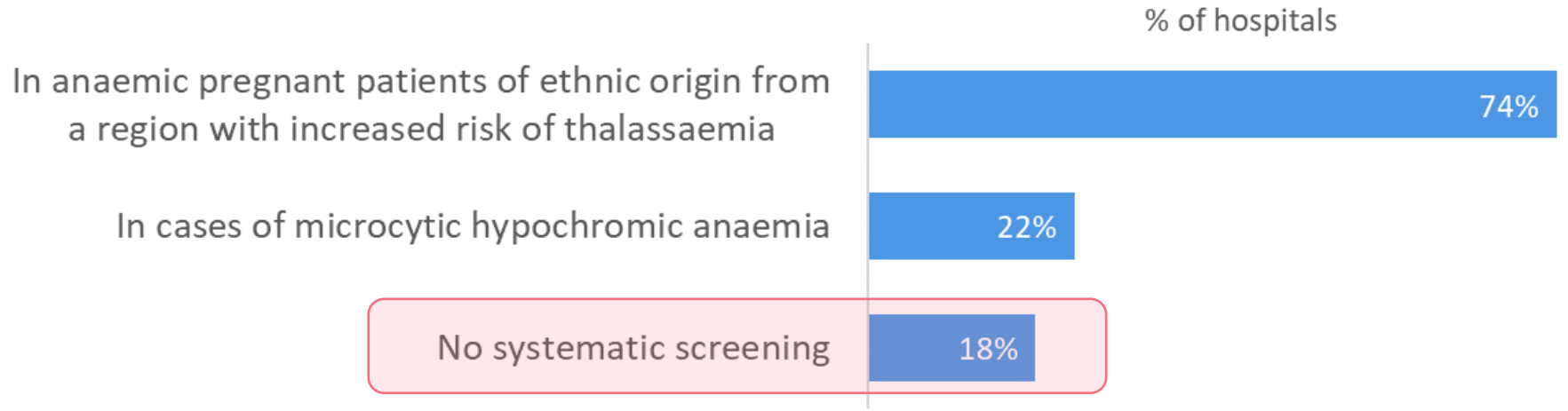
Recommendations anaemia	Strength of recommen-dation	Level of evidence
Offer to test each pregnant woman for anaemia in **early pregnancy.** In addition to the haemoglobin level, it is also useful to measure the MCV, MCH and MCHC levels. A second examination at the **beginning of the 3rd trimester** may be indicated ahead of childbirth. [KCE 2004]	Strong	NA (CBR)*
There is no evidence that platelet and leukocyte counts are useful during pregnancy. However, in Belgium, this test is often routinely performed in the laboratory at the time of anaemia detection. [KCE 2004, amended]	NA	NA

* Level of evidence from Australian 2014 guideline: CBR= Consensus based recommendation because insufficient evidence to support recommendation

⇔ 89% of hospitals: full blood count at 1st antenatal visit

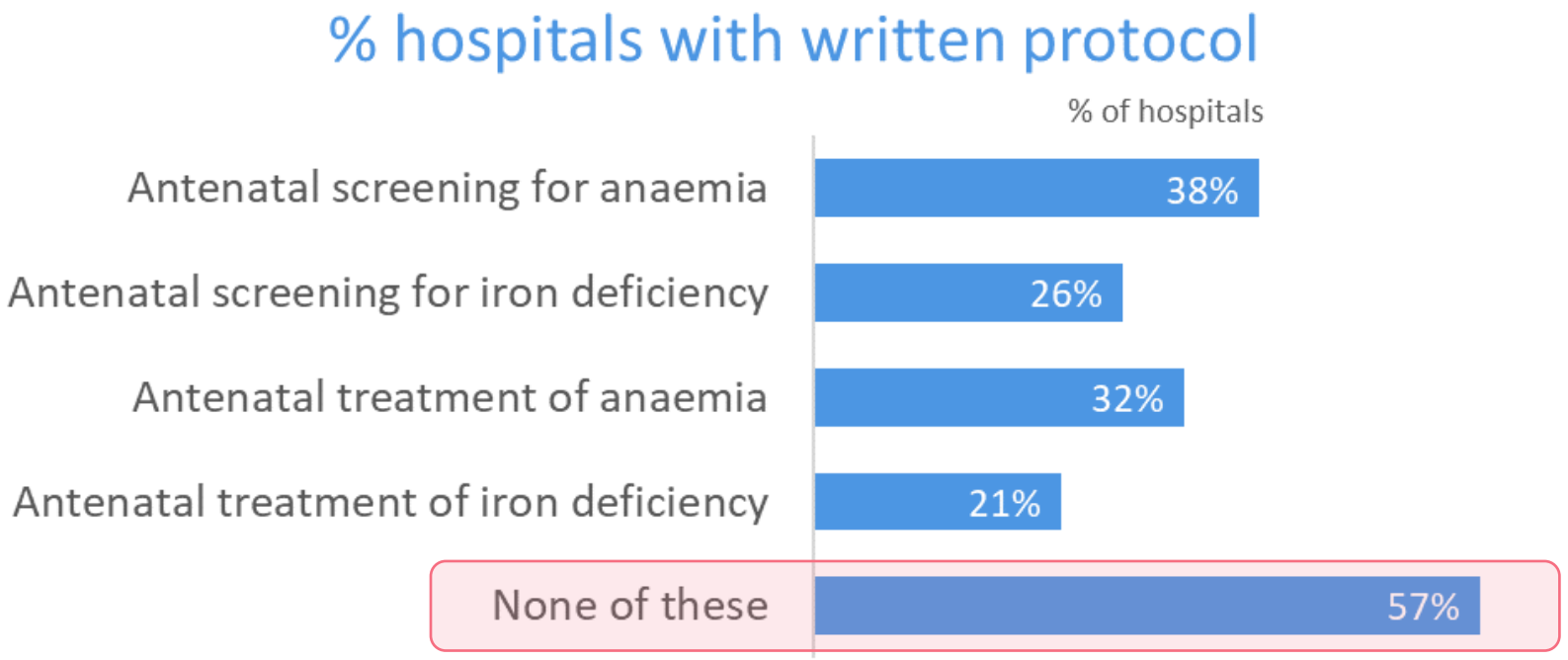
⇔ 49% full blood count at 32-36w

Systematic screening for haemoglobinopathies in pregnant patients



Systematic serum ferritin testing in patients with proven haemoglobinopathy:
81% of hospitals

[n=95]


% hospitals with written protocol
% of hospitals
Antenatal screening for anaemia
38%
Antenatal screening for iron deficiency
26%
Antenatal treatment of anaemia
32%
Antenatal treatment of iron deficiency
21%
None of these
57%

[n=95]

Aim IH in obstetrics: preventing Haemolytic Disease of the Newborn

Haemolytic Disease of the Newborn:

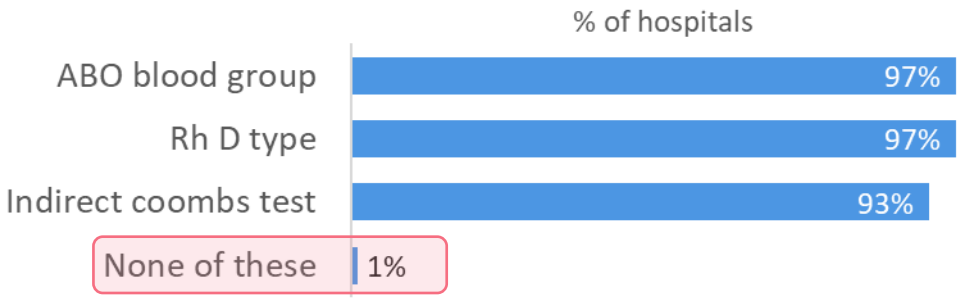
- Estimated incidence of HDN: 3 to 8/100.000 per year
- Before anti-D prophylaxis: responsible for 1% of fetal losses

Red cell antibodies during pregnancy:

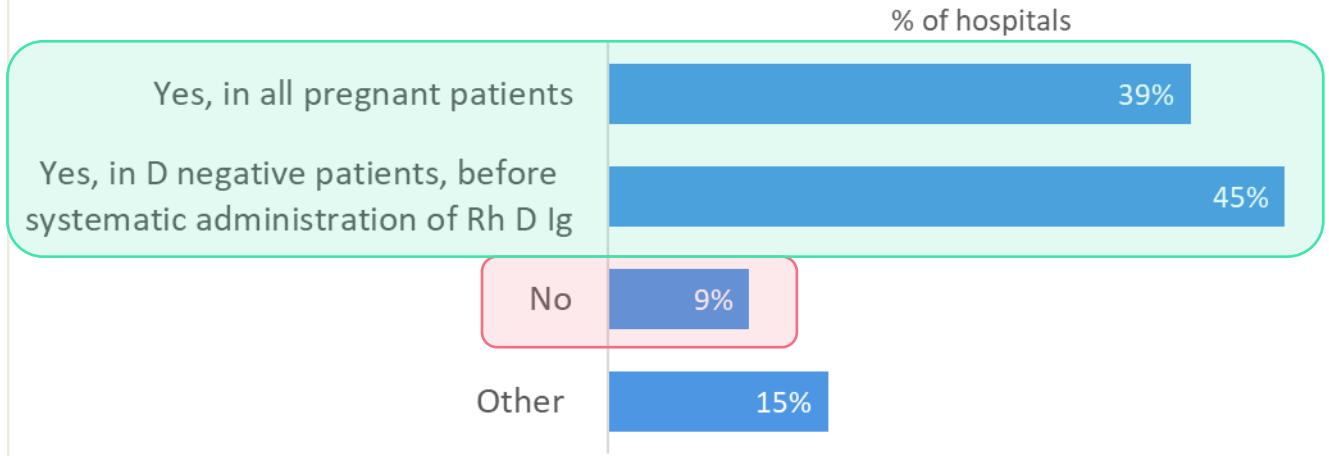
- 15% of pregnancies: ABO incompatible
  - 4% HDN
- 1% of pregnancies during first trimester: development of red cell antibodies:
  - 60% not linked to HDN
  - 40% linked to HDN
    - 8% anti-D
    - 32% non-anti-D (mostly anti-K, anti-c, anti-E)

Myle AK et al. Pediatric Health med Ther. 2021; 12: 491-498.

Systematic blood testing in first antenatal visit



Systematic testing of indirect coombs at 28 weeks of pregnancy



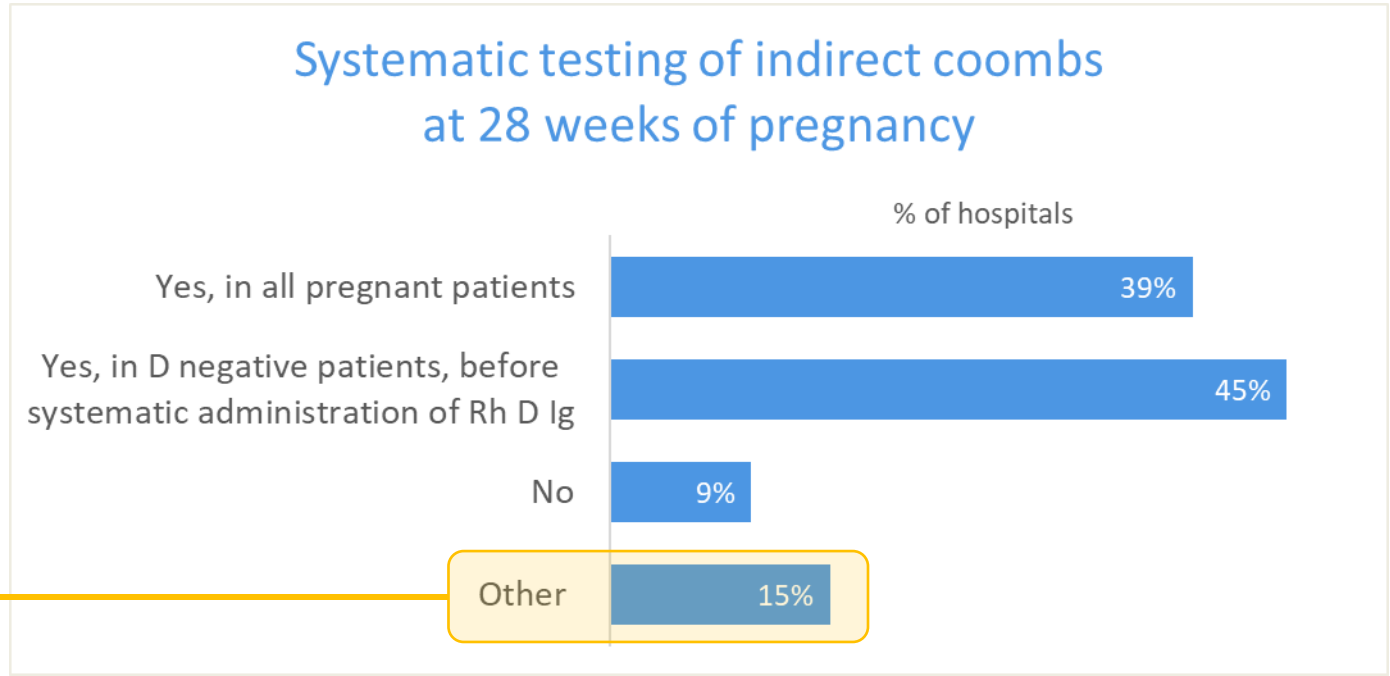
[n=95]

Other:

- together with glucose challenge test at 24 – 25 weeks (3)
- for all RhD negative patients without systematic administration of anti-D Ig (4)
- only for RhD negative mothers with unknown bloodgroup of baby, or known PCR RhD pos (NIPT) (1)

Other timing:

- 24 weeks (1)
- 32 weeks (1)
- 32-36 weeks (1)
- 37 weeks (1)
- between 24-28 weeks, 35 weeks and at birth (1)
- All patients at 32 weeks and all RhD- patients every month (1)



[n=95]

Guidelines

- Systematic testing of ABOD blood group and Indirect Coombs in 1st antenatal visit recommended!
- Repeating Indirect Coombs at 28 weeks: different guidelines!
- References for Belgium:
  - KCE report 248 – 2015
  - Domus Medica rapport – mei 2015
  - VVOG – 2023
  - Guide de consultation prénatale – 2e edition – Fevr 2022; publié avec CRGOLFB

TO DO: NATIONAL RECOMMENDATIONS BY WORKING GROUP

Risk of immunisation

- Without prophylaxis: 14,7%
- With routine postpartum prophylaxis: 1,6%
- With routine 3rd trimester prophylaxis: 0,5%

Crowther CA et al. Cochrane Database Syst Rev. 2000:(2):CD000020.

Rh D negative blood group with Indirect Coombs positive for anti-D

% of hospitals with written protocol that describes:	
Discussion with the lab whether likely to be **passive or preformed** allo-antibodies	41%
Women with **allogeneic anti-Rh D antibodies** do not need (or shouldn't receive) Rh D immunoglobulin	21%

[n=95, multiple answer]

Non-invasive prenatal test (NIPT) for determining fetal Rh D status

% of hospitals with written protocol that describes:	
In all Rh D negative pregnant women (who give consent)	15%

[n=95]

Availability is changing!

RIZIV/INAMI diagnostic rules:

- Rh D negative pregnant woman and invasive test
- Rh D negative pregnant woman with anti-D antibodies

Systematic administration of **antenatal** anti-Rh D prophylaxis to Rh D negative women

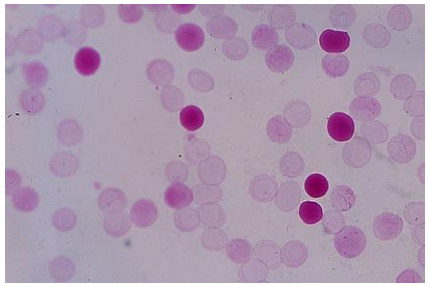
% of hospitals with written protocol that describes:	
No written protocol on anti-Rh D prophylaxis	51%
At 28 -30 weeks	47%
At 34 weeks	1%
Multiple times antenatal	1%

[n=95, multiple answer]

Antenatal anti-Rh D prophylaxis to Rh D negative women **after a sensitising event**

% of hospitals with written protocol that describes:	
Administration of antenatal Rh D Ig within 72h of sensitising event	69%
List of potentially sensitising events	47%
Assessment of feto-maternal bleeding volume after a sensitising event (after 20 weeks) to determine the dose of anti-D Ig	62%

[n=95, multiple answer]



Dosing: 1500 IU (300 µg) anti-D profylaxis for 15 mL FMT

After the delivery by Rh D negative women

% of hospitals with written protocol that describes:	
Assessment of feto-maternal bleeding volume to determine the dose of Rh D Ig	57%
Rh D type and Direct Coombs on cord blood or in newborn	**66%**
Systematic administration of Rh D Ig (at least 500 IU) within 72h of delivery of Rh D positive baby	**78%**

[n=95, multiple answer]

Protocol on prophylactic use of Rh D Ig in obstetrics

None of the previously discussed items in a written protocol:

15%

SHOT : Anti-D Ig Administration in Pregnancy - an aide memoire

International resources

Royal College of Obstetricians & Gynaecologists

Blood transfusion in obstetrics. Green-top Guideline No.47. May 2015

SHOT Serious Hazards of Transfusion

SHOT Bite No. 2 Anti-D Ig Administration.
SHOT Anti-D – an aide memoire.
SHOT – How IT systems can support safe practice in anti-D Ig management in pregnancy.

NATIONAL BLOOD AUTHORITY AUSTRALIA

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists
Excellence in Women's Health

National Blood Authority. Prophylactic use of Rh D immunoglobulin in pregnancy care 2021

National resources

⇨NEED FOR UNIFORM GUIDELINES!

VVOG
VLAAMSE VERENIGING VOOR OBSTETRIE EN GYNAECOLOGIE vzw

Clinical guidance paper 2023.
Preventie en behandeling van allo-immunisatie van erytrocyten.

CRGB

Guide de consultation prénatale – 2e edition – fevrier 2022
COLLÈGE ROYAL DES GYNÉCOLOGUES OBSTÉTRICIENS DE LANGUE FRANÇAISE DE BELGIQUE

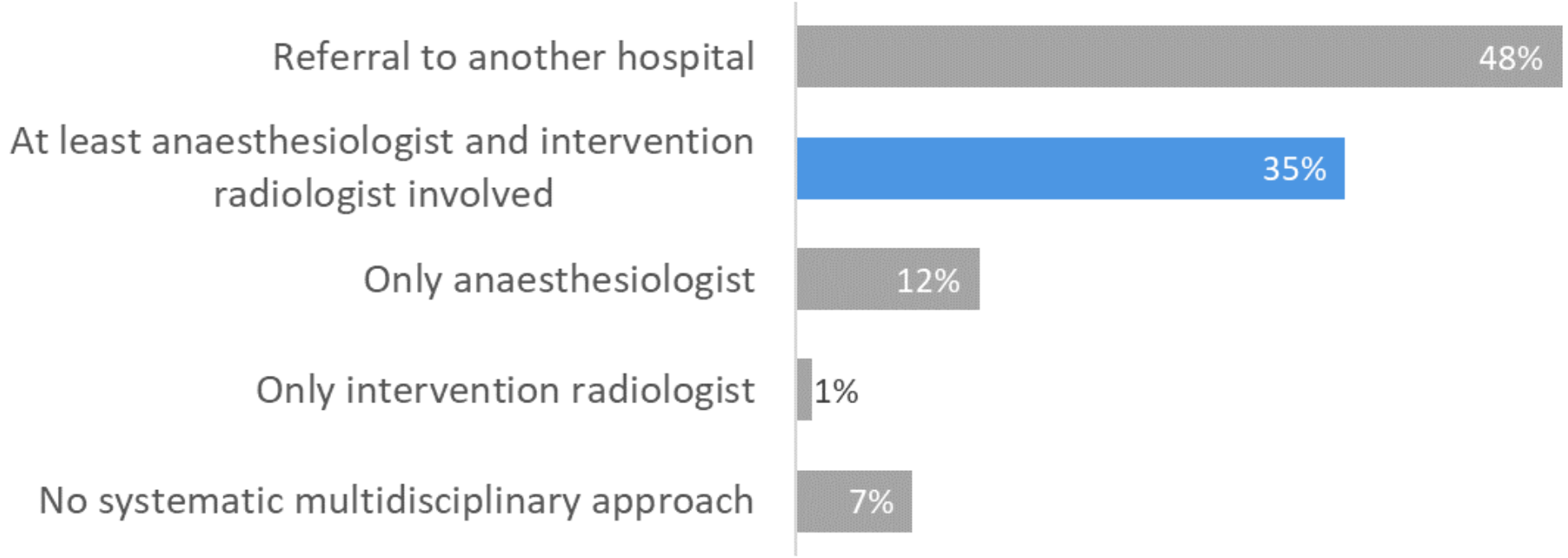
KCE
FEDERAAL KENNISCENTRUM VOOR DE GEZONDHEIDSZORG

KCE report 248 – 2015: what are the recommended clinical assesment and screening tests during pregnancy?

DOMUS MEDICA
ALLES VOOR HUISARTSEN

Richtlijn zwangerschapsbegeleiding - 2015

Systematic multidisciplinary planning and approach in pregnant patients with suspected Placenta Accreta Spectrum



[n=95]

Written protocol on multidisciplinary management of PPH

(activation of the protocol, gynaecological management, (Point-Of-Care guided) transfusion algorithm, embolisation, etc.)

	% of hospitals
Specific protocol on peripartum haemorrhage	85%
General protocol on massive haemorrhage	15%

[n=95]
PPH = peripartum haemorrhage

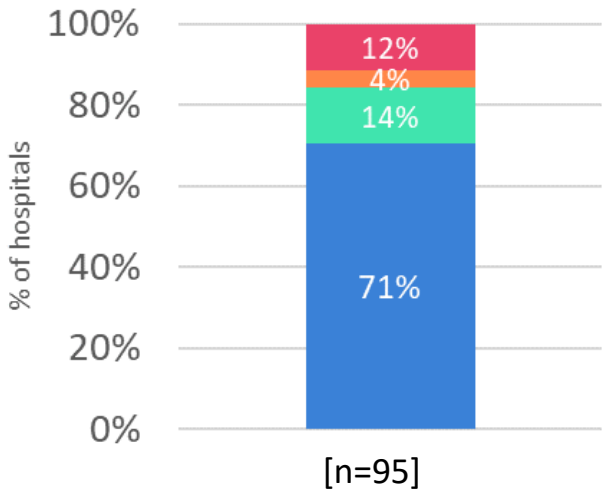
Involvement of anaesthesia in early stage of severe peripartum haemorrhage

(even in the absence of haemodynamic instability)

	% of hospitals
Yes	66%
No	34%

[n=95]

Systematic coagulation testing during serious peripartum bleeding

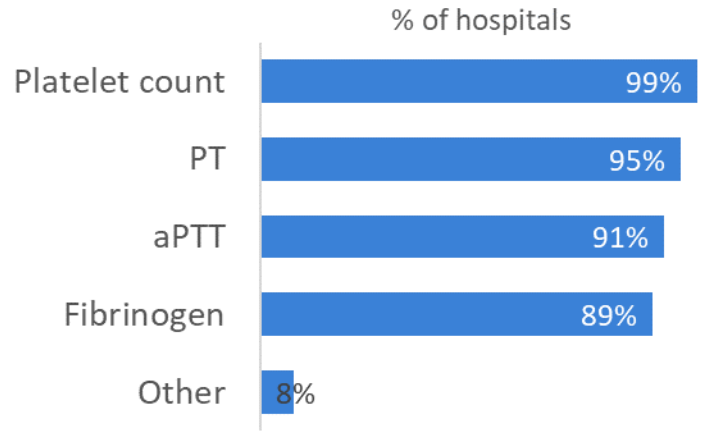


No systematic testing

By viscoelastic tests → [100%, n=4] → Correction of low fibrinogen < 2 g/L (or ROTEM: FIBTEM A5 < 12 mm)

By standard lab tests and sometimes by viscoelastic tests

By standard lab tests → Which standard coagulation tests? [n=80]



Cell salvage during C-section

	% of hospitals
Never	85%
In patients who refuse transfusion	11%
When RBC are not readily available	5%
Routinely in patients at high risk for PPH	6%

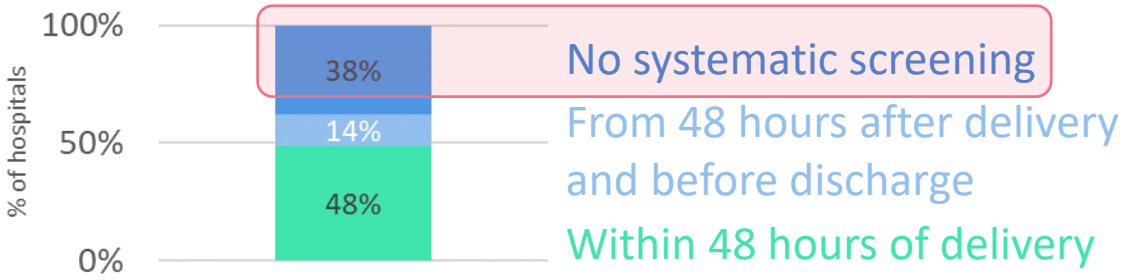
[n=95]
PPH = peripartum haemorrhage

Training on PPH management protocol in past 2 years

	% of hospitals
For obstetricians	55%
For midwifes	61%
For anaesthesiologists	17%
No training	33%

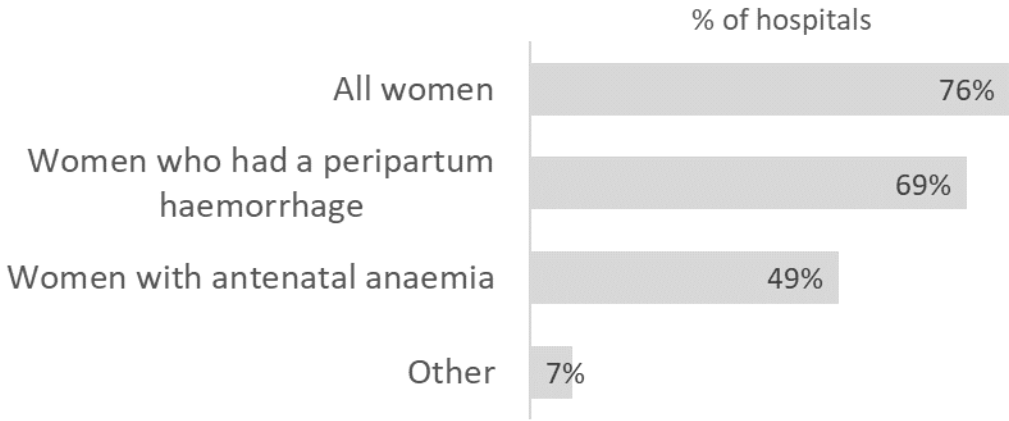
[n=95]
PPH = peripartum haemorrhage

Systematic screening for postpartum iron deficiency and anaemia

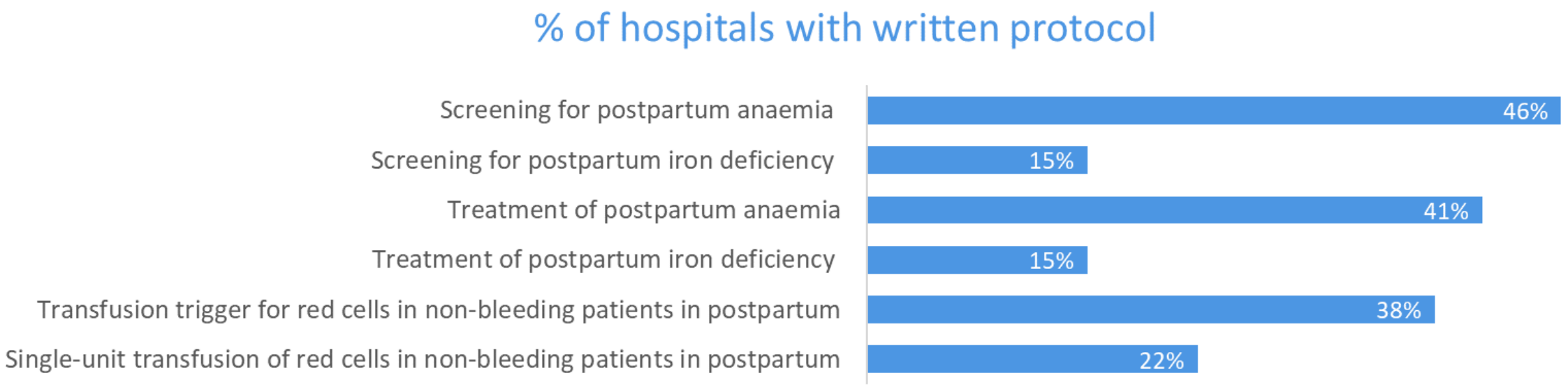


[n=95]

Who is systematically screened for postpartum iron deficiency and anaemia?



[n=59]


% of hospitals with written protocol
Screening for postpartum anaemia
46%
Screening for postpartum iron deficiency
15%
Treatment of postpartum anaemia
41%
Treatment of postpartum iron deficiency
15%
Transfusion trigger for red cells in non-bleeding patients in postpartum
38%
Single-unit transfusion of red cells in non-bleeding patients in postpartum
22%

[n=95]

Take home messages

1. **Anaemia** should be addressed early in pregnancy!

2. All obstetric units should have a uniform **written protocol** on the **treatment of IDA!**

3. Systematic **testing of blood group and antibodies** in first antenatal consult is needed

4. **Guidelines** on monitoring of **indirect coombs, antibodies and titers** during pregnancy should be **uniform!**

5. Need for **written and uniform protocols** concerning anti-D prophylaxis

6. **PCR** Foetal Rhesus D in **maternal blood** is more available

Take home messages

7. A **multidisciplinary** approach and planning should apply to all pregnant women at increased **risk for PPH!**

8. All obstetric units should have a **multidisciplinary protocol on the management of PPH** (including transfusion algoritm)

9. Everyone involved (gynaecologists, midwives, anesthesiologists) should be trained on a regular basis!

10. All obstetric units should have a **written protocol on the management of postpartum anemia** (to ensure optimal management and improve maternal (functional) outcome)

Goals BeQuinT working group PBM in obstetrics

1) **2024: Webinar(s) PBM in obstetrics**
   - Diagnosis and treatment of IDA in pregnancy
   - Postpartum hemorrhage management
   - Immunohematology in pregnancy

2) **Recommendations on how to implement PBM in obstetrics**

   (based on existing international guidelines)

BeQuinT working group PBM in obstetrics

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