

A national survey of availability of Clauss fibrinogen testing in obstetric units across the UK

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Introduction

- Postpartum haemorrhage (PPH) is the leading cause of maternal morbidity in the UK¹
- Coagulopathy (fibrinogen <2g/L) predicts very severe PPH and adverse maternal outcomes.² Fibrinogen is the first coagulation factor to fall during PPH and is the primary target for replacement in PPH
- Timely recognition and correction of fibrinogen may improve maternal outcomes in PPH
- Point of care (POC) coagulation tests can measure fibrinogen contribution to clot strength at the bedside and can be used to guide treatment of coagulopathy

National PPH guidelines advise:

- A coagulation screen that includes Clauss fibrinogen should be checked in PPH >500mL
- Clauss fibrinogen levels should be maintained >2g/L during PPH

National practice regarding coagulation testing in PPH, including Clauss fibrinogen, has not been described

Aim

To describe routine Clauss fibrinogen testing in UK maternity units

Method

A survey was circulated to UK obstetric units in two distributions:

1. All UK obstetric anaesthetic leads via an Obstetric Anaesthetists Association (OAA) Survey
2. All 36 maternity units participating in the OBS UK Trial

The survey asked two questions:

1. Is Clauss fibrinogen routinely included in a coagulation screen in your maternity unit?
2. Does your maternity unit have POC coagulation testing available?

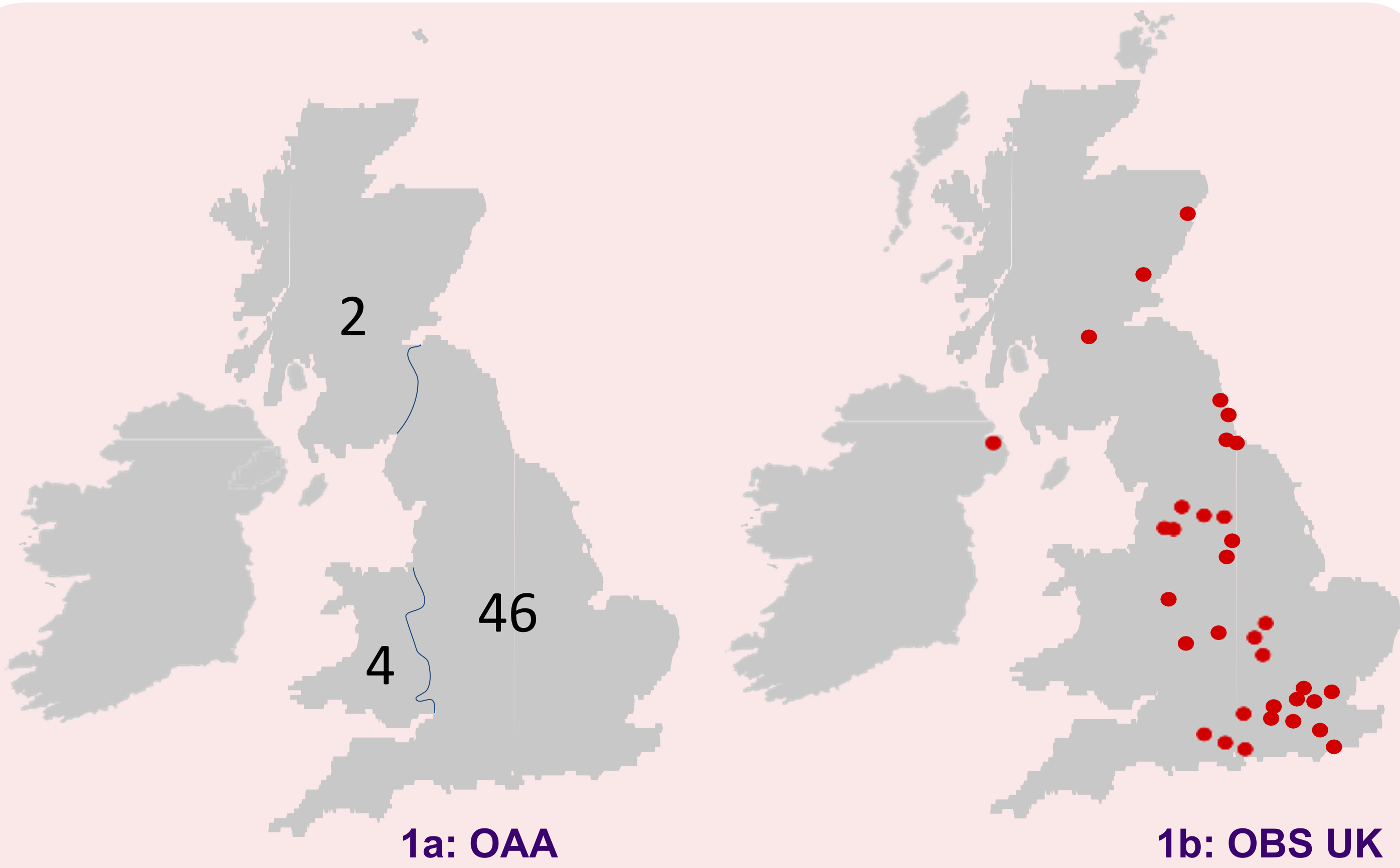


Figure 1: Geographical location of responding maternity units

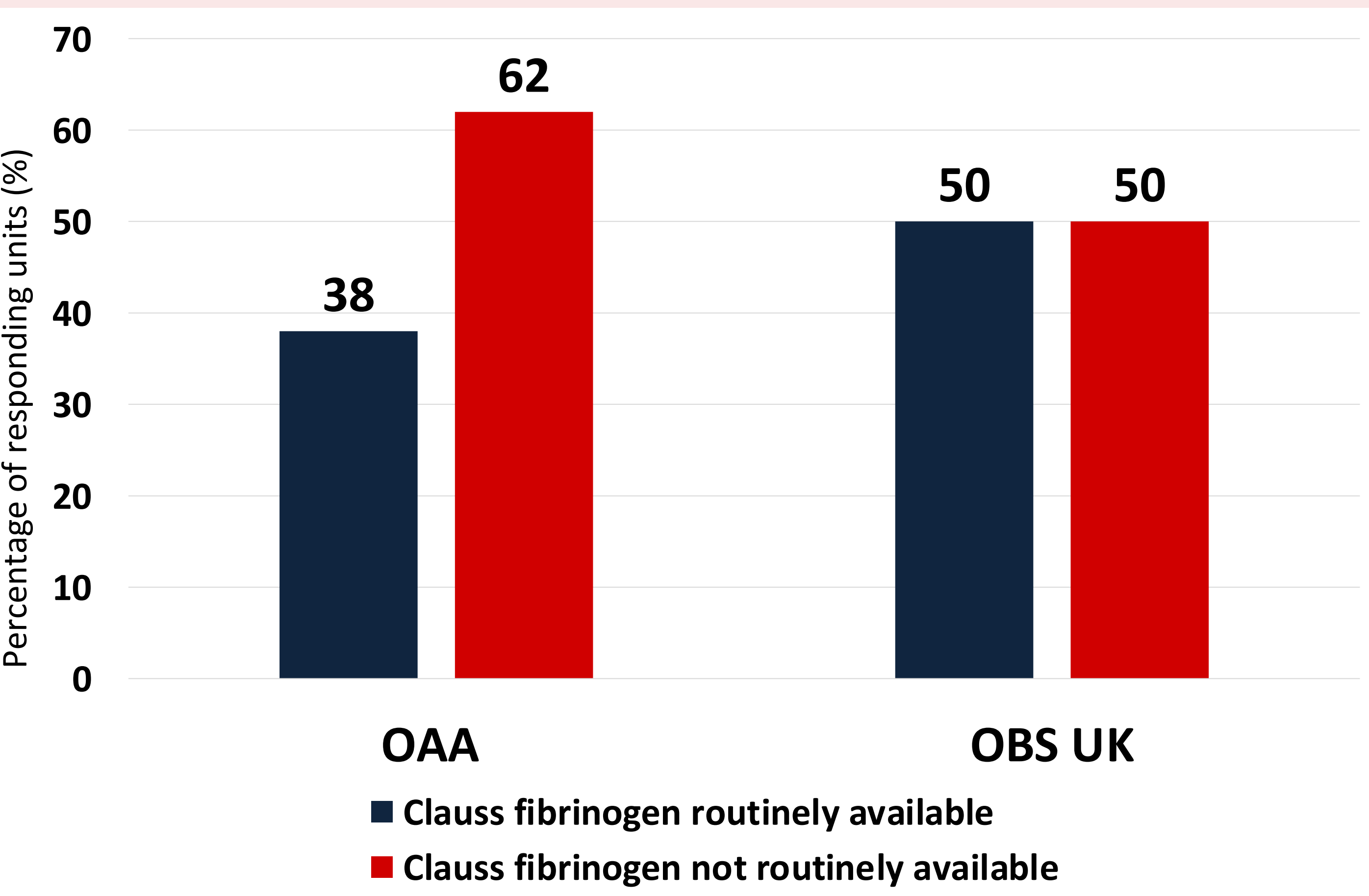


Figure 2: Percentage of units in which Clauss fibrinogen testing is routinely included in a coagulation screen

Results

Response rate

- **OAA**
25% (52/201) maternity units responded (Figure 1a)
- **OBS UK**
All (36/36) maternity units (Figure 1b)

Survey results

- **OAA**
62% (32/52) Clauss fibrinogen was NOT routinely included in a coagulation screen
Half (25/52) had not access to POC coagulation testing
- **OBS UK**
50% (18/36) reported Clauss fibrinogen was NOT routinely included in a coagulation screen
No units had access to POC coagulation testing on the labour ward (aligned with study eligibility criteria)

Discussion

- Clauss fibrinogen was NOT routinely included in a coagulation screen in many of the units surveyed
- POC testing was unavailable in many of the units surveyed
- Not all units using POC coagulation testing also routinely check Clauss fibrinogen

Lack of routine Clauss fibrinogen testing is a major cause for concern, potentially causing delays in timely identification of coagulopathy in PPH

Delays in recognition and suboptimal treatment of coagulopathy may exacerbate bleeding and worsen maternal outcomes

Ways of testing fibrinogen in the laboratory:

Prothrombin Time (PT) derived assays - may be inaccurate

Clauss assays – direct measurement, accurate and reliable^{4,5}

Recommendation



All obstetric units should ensure that Clauss fibrinogen is routinely included in coagulation testing during PPH to optimise maternal resuscitation

1.NHS maternity statistics, England, 2022-23 - NHS England Digital. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics/2022-23> (Accessed: 29 April 2025).

2.Charbit, B. *et al.* (2007) 'The decrease of fibrinogen is an early predictor of the severity of postpartum hemorrhage', *Journal of Thrombosis and Haemostasis*, 5(2), pp. 266–273.

3.'Prevention and management of postpartum haemorrhage' (2016) *BJOG: An International Journal of Obstetrics & Gynaecology*, 124(5).

4. Stanworth, S.J. *et al.* (2022) 'Haematological management of major Haemorrhage: A British Society for Haematology Guideline', *British Journal of Haematology*, 198(4), pp. 654–667.

5.Oluwabori Bajo, E. (2021) 'Comparison of the Clauss and prothrombin time-derived fibrinogen methods in patients with dysfibrinogenemia, and verification of their reference interval', *Biomedical and Case Reports Open Access Open Journal*, 2(1), pp. 44–57.

6. Bell, S.F. *et al.* (2024) 'Relationship between the dual platelet-inhibited rotem® sigma fitem assay and Clauss fibrinogen during postpartum haemorrhage', *Anaesthesia*, 80(1), pp. 104–106.