

# Does Appropriate Diagnosis and Treatment of Iron-Deficiency Anaemia Prevent Blood Transfusion Following Massive Obstetric Haemorrhage?

Goyal A, Andreica C, Zulfiqar M, and Sukumaran S. George Eliot Hospital, Nuneaton, UK

## BACKGROUND

- Massive obstetric haemorrhage (MOH) is a leading cause of maternal mortality and morbidity<sup>1</sup>
- Iron-deficiency anaemia in pregnancy is common<sup>2</sup>
- Anaemia is a risk factor for mortality and morbidity from postpartum haemorrhage, with an increased severity of anaemia correlating with poorer outcomes<sup>3</sup>
- In the UK there is a current shortage of red cells for transfusion<sup>4</sup>

## AIM

In patients who had a massive obstetric haemorrhage, was antenatal iron-deficiency anaemia identified and treated appropriately, and did this reduce the need for postnatal blood transfusion?

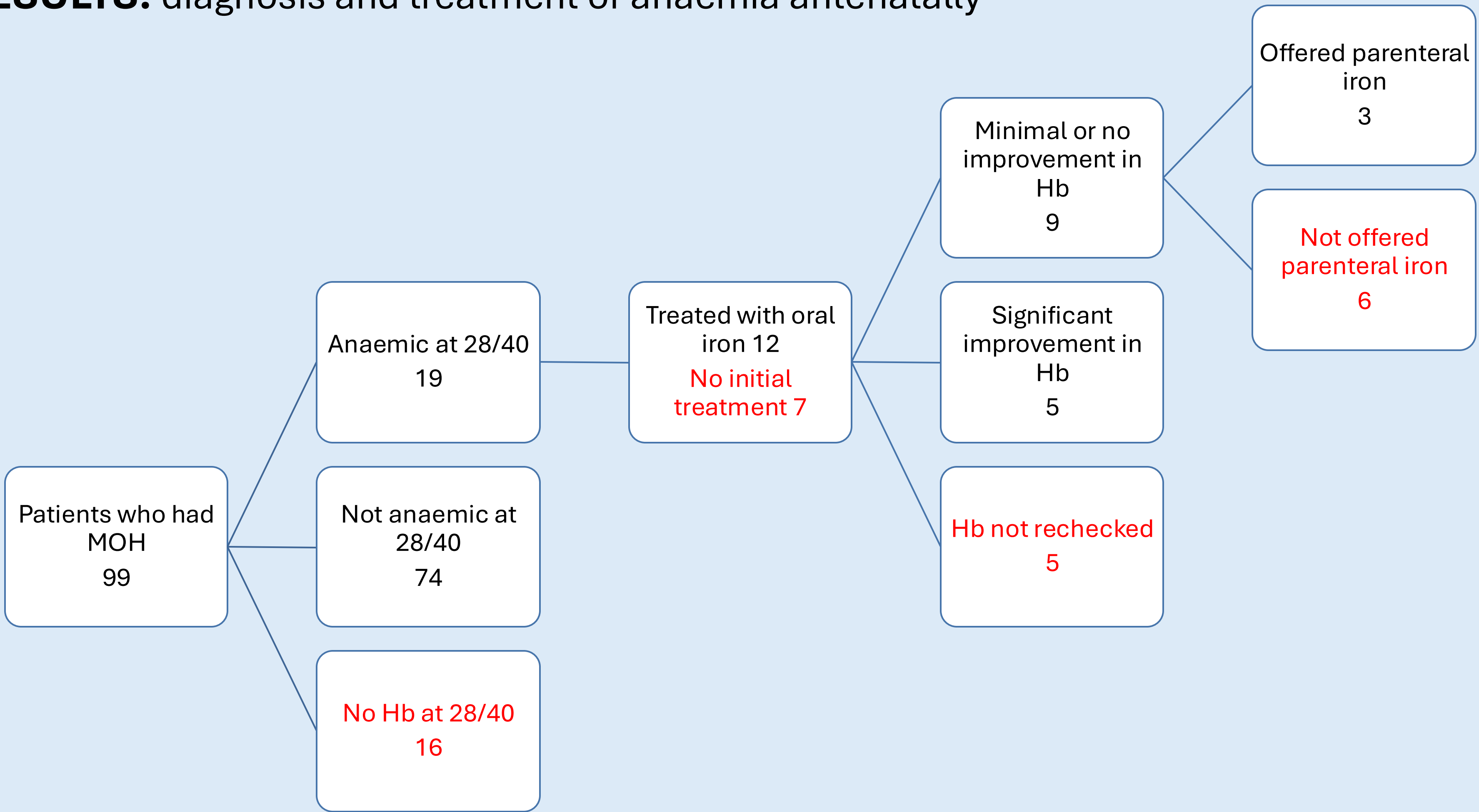
## METHODS

- Retrospective cohort study
- Conducted at George Eliot Hospital (a district general hospital with ~2000 births per year) over 12 months from Oct 2023-Oct 2024
- Included all women who underwent a massive obstetric haemorrhage (defined as  $\geq 1500$ ml blood loss)
- Anonymised data drawn from local data records
- Outcomes: primary = need for blood transfusion, secondary = pre-delivery haemoglobin

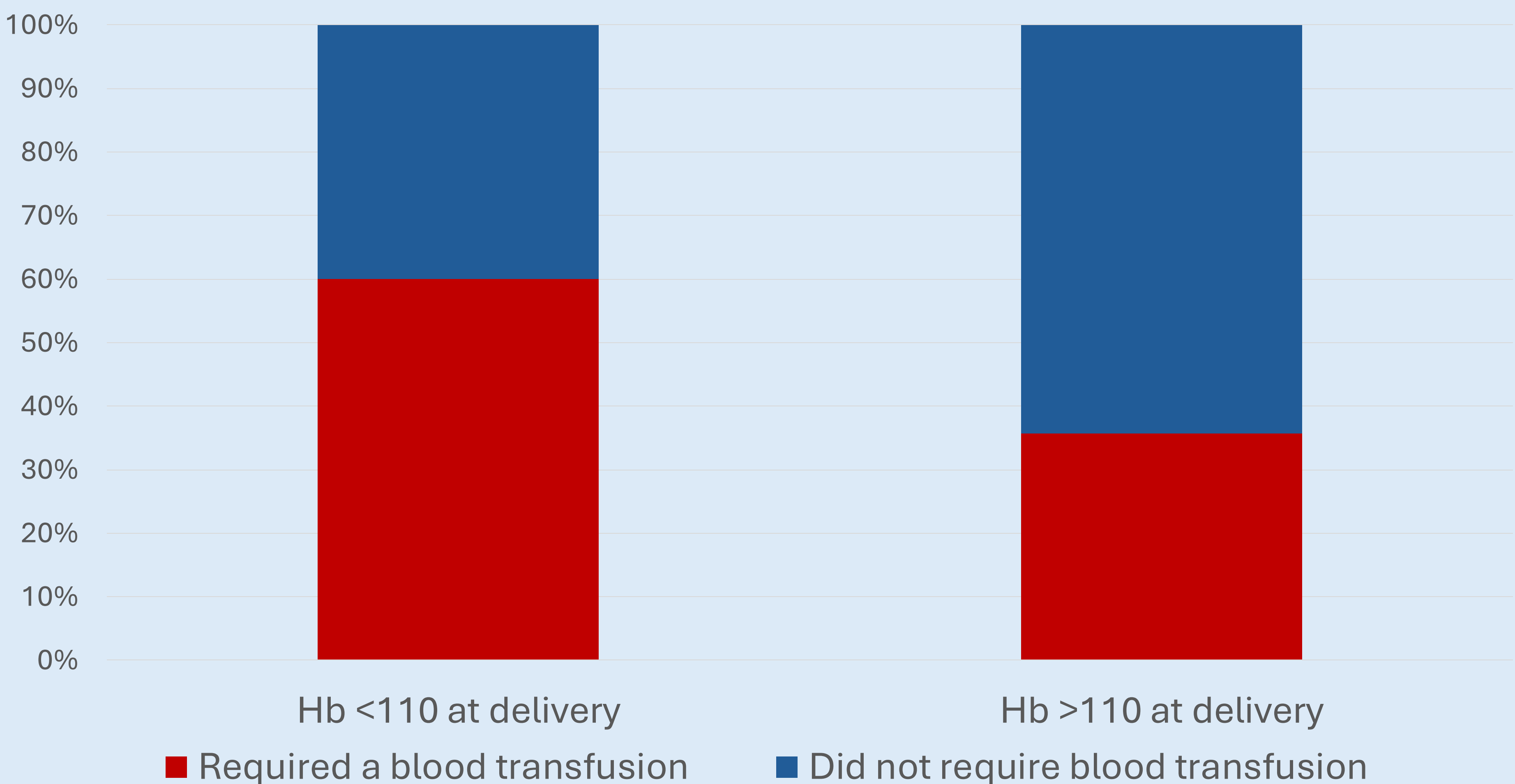
### Summary of recommendations from local guideline

- All women should have their haemoglobin measured at 28/40
- If the 28/40 bloods identify iron-deficiency anaemia, they should be commenced on oral iron
- A repeat haemoglobin should be taken after 4 weeks of oral iron
- If minimal improvement in the haemoglobin after 4 weeks of oral iron, they should have compliance checked, haematinimics measured and B12/folate deficiency treated, and if no further improvement after 2 weeks should be considered for parenteral iron<sup>5</sup>

## RESULTS: diagnosis and treatment of anaemia antenatally



## RESULTS: effects of optimisation of haemoglobin on postnatal blood transfusion



## RESULTS

- 34% of patients who had an MOH had substandard care regarding the identification and/or management of their antenatal anaemia
- Of all patients anaemic at 28/40, 74% had their Hb optimised to >110 by delivery
- Both patients who received parenteral iron had an Hb >110 by delivery, and neither of them required a blood transfusion following their MOH

## DISCUSSION

- There are a significant proportion of patients who are not receiving optimal care as per local guidelines
- Optimisation of antenatal haemoglobin decreases the risk of blood transfusion following MOH
- An approach to improving outcomes in this area should focus on
  - education for community midwives and obstetricians on appropriate initial management for antenatal anaemia
  - developing and disseminating a clear treatment algorithm for inadequate treatment response

## LIMITATIONS

- Small local sample size – inability to draw statistical significance and limited wider application
- Focused only on iron-deficiency anaemia - future work could widen scope to explore identification and treatment of other common causes e.g. B12/folate deficiency

## ACKNOWLEDGEMENTS & REFERENCES

Thank you to our supervisor Dr Suganya Sukumaran for conceiving and supervising this project.

1. MBRRACE-UK. Saving Lives, Improving Mothers' Care State of the Nation Report: Surveillance findings and lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths from thrombosis and thromboembolism, malignancy and ectopic pregnancy 2020-2022, and morbidity findings for recent migrants with language difficulties. Oxford: National Perinatal Epidemiology Unit, University of Oxford 2024.

2. Benson, A. E., Shatzel, J. J., Ryan, K. S., Hedges, M. A., Martens, K., Aslan, J. E., & Lo, J. O. (2022). The incidence, complications, and treatment of iron deficiency in pregnancy. European Journal of Haematology, 109(6), 633–642.

3. WOMAN-2 trial collaborators (2023). Maternal anaemia and the risk of postpartum haemorrhage: a cohort analysis of data from the WOMAN-2 trial. The Lancet. Global Health, 11(8), e1249–e1259.

4. NHS Blood and Transplant (2025) Blood stocks, Hospitals and Science - NHSBT. Available at: <https://hospital.blood.co.uk/business-continuity/blood-stocks/#:~:text=21%20May%202025%3A%20our,to%20declare%20a%20Red%20alert.> (Accessed: 06 June 2025).

5. Adapted from: George Eliot Hospitals. (2023). Anaemia in Pregnancy V5. MAT/GUI/67. George Eliot Hospitals.