

## Introduction:

In the UK, the prevalence of anaemia was found to be 24% in a multi-centre national study [1]. Iron deficiency with or without anaemia, is associated with maternal fatigue, potentially, poorer quality of life and increased risk of postpartum depression [1]. A serum ferritin level of  $<30\mu\text{g/l}$  in pregnancy is indicative of iron deficiency.

Pregnancy Anaemia Management Scotland (PRaMS), a Scottish Government supported national project to reduce antenatal anaemia by treating iron deficiency, is currently being implemented. A pilot for this project was underway in our institution in March 2021 which included screening ferritin levels at booking and 28 weeks rather than wait for anaemia to develop and then check ferritin levels.

We sought to identify compliance with screening and prevalence of iron deficiency at booking and 28 weeks. We also investigated the prevalence of anaemia pre-delivery and postnatally in this cohort.

## Methods:

Ethical approval was obtained. Our electronic record system was used to identify all deliveries in March 2021 along with patient demographics, type of delivery, estimated blood loss, pre-delivery and postnatal haemoglobin levels. Clinical portal was searched to identify ferritin levels checked in pregnancy and haemoglobin's not recorded on our electronic system. Patients who did not have a 3rd trimester delivery were excluded. Data was analysed with excel.

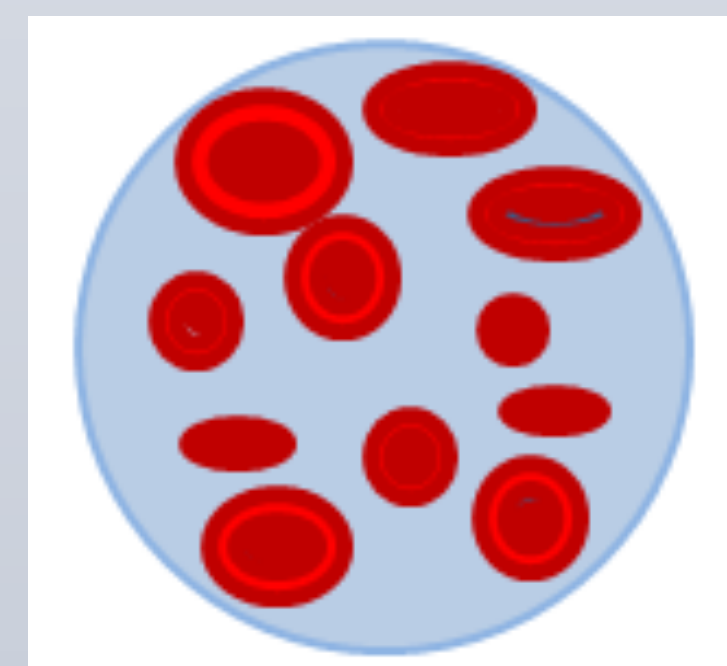
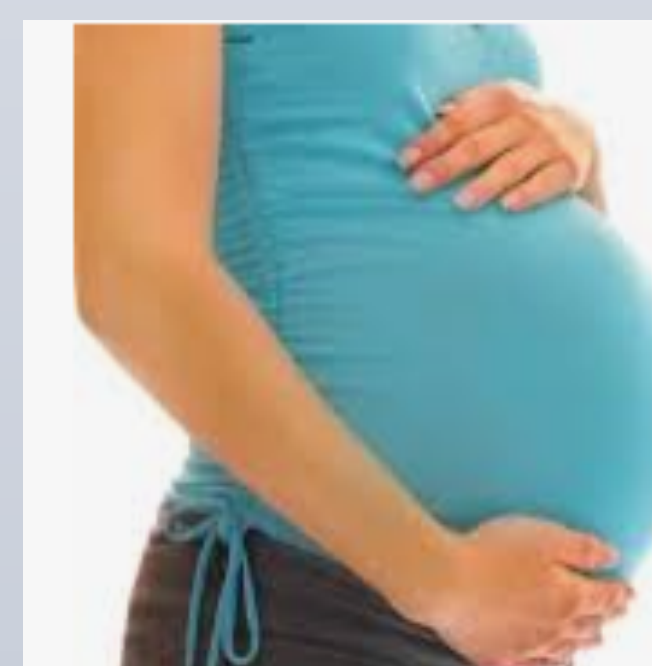
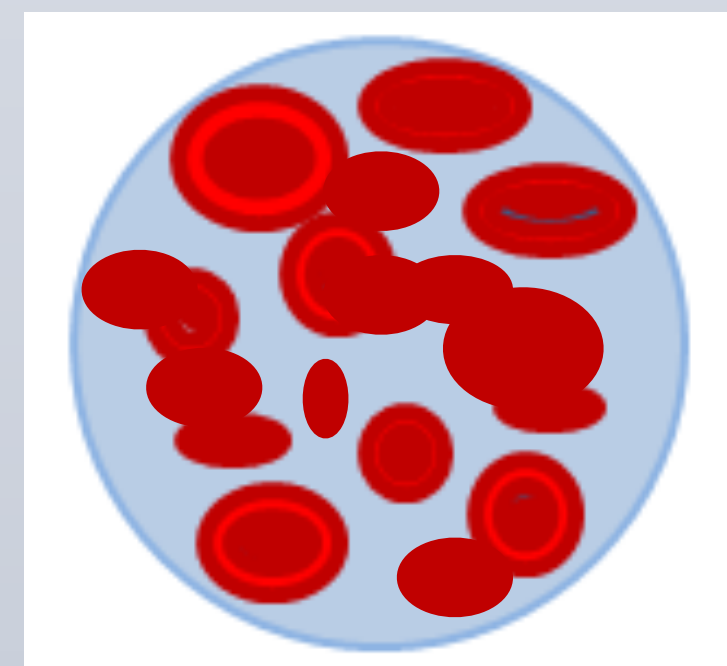


Table 1. Mode of delivery

|                          | No. of patients | Percentage |
|--------------------------|-----------------|------------|
| <b>Caesarean section</b> | <b>170</b>      | <b>44%</b> |
| Emergency                | 81              | 21%        |
| Elective                 | 77              | 20%        |
| Not recorded             | 12              | 3%         |
| <b>Vaginal Delivery</b>  | <b>215</b>      | <b>56%</b> |
| Spontaneous Cephalic     | 166             | 43%        |
| Forceps                  | 23              | 6%         |
| Ventouse                 | 26              | 7%         |

Chart 1. Percentage of patients with ferritin  $<30$  a) in pregnancy, b) at booking, c) 3rd Trimester

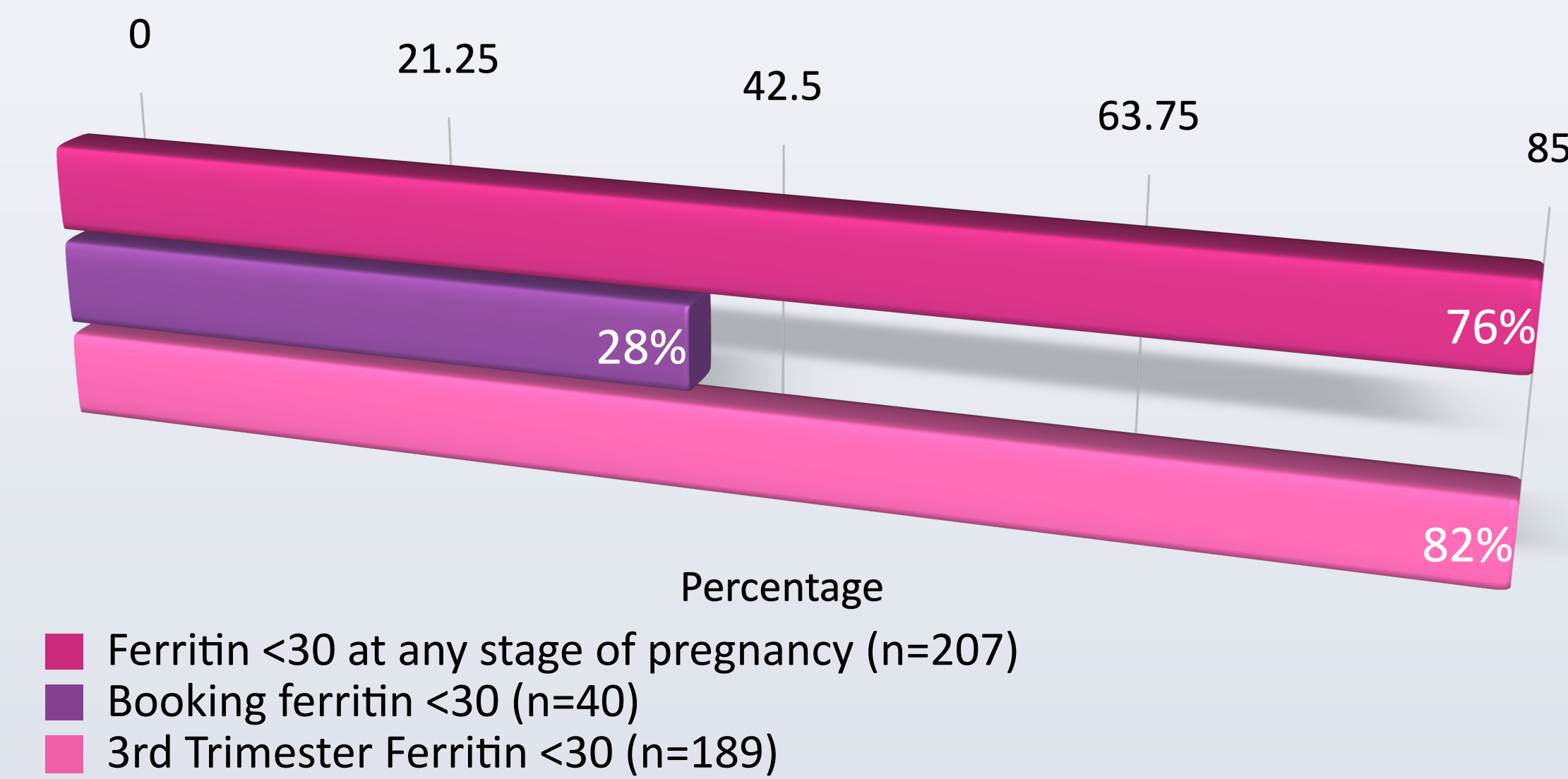


Chart 2. Percentage of patients who had ferritin level tested in pregnancy

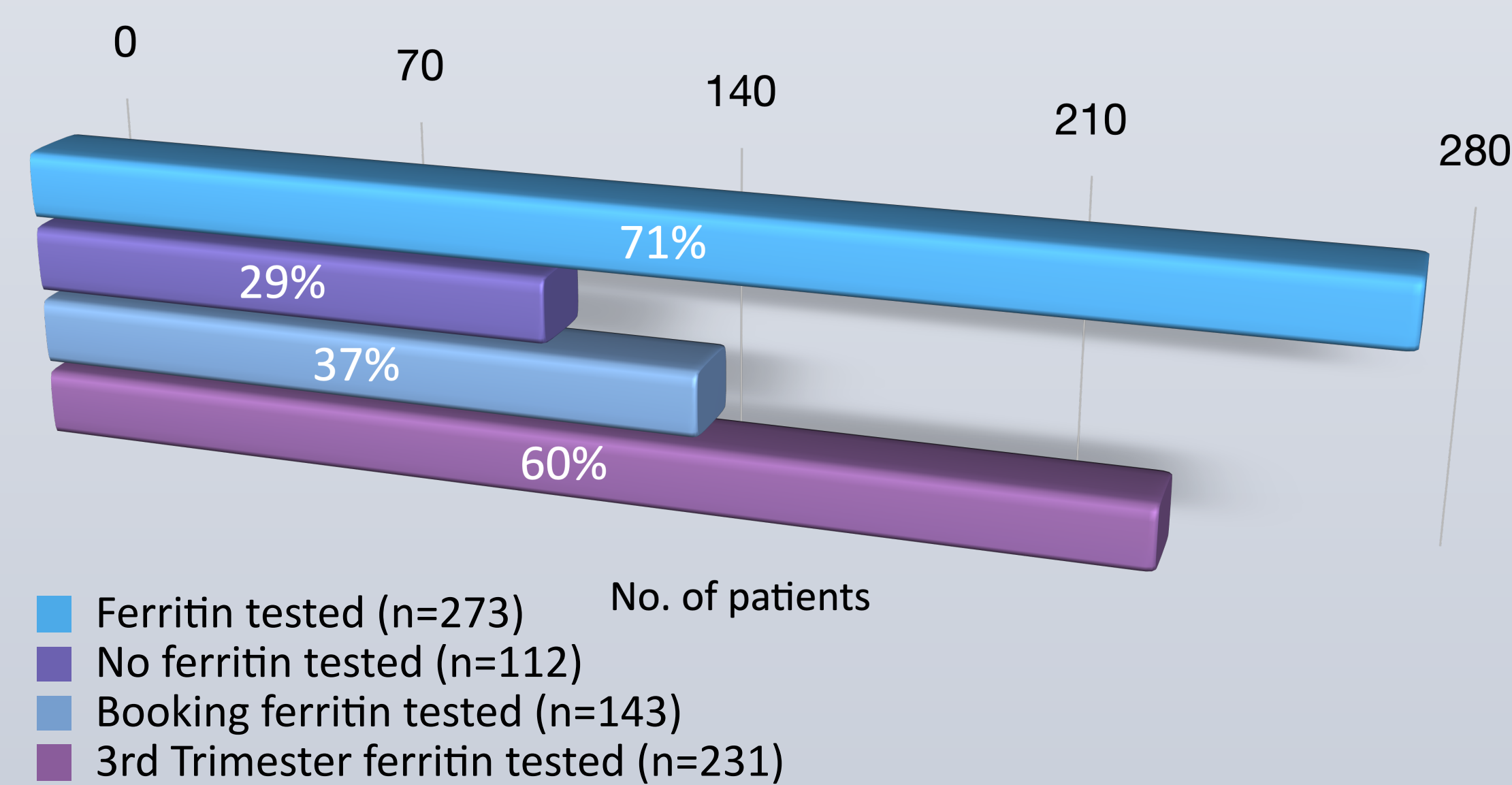
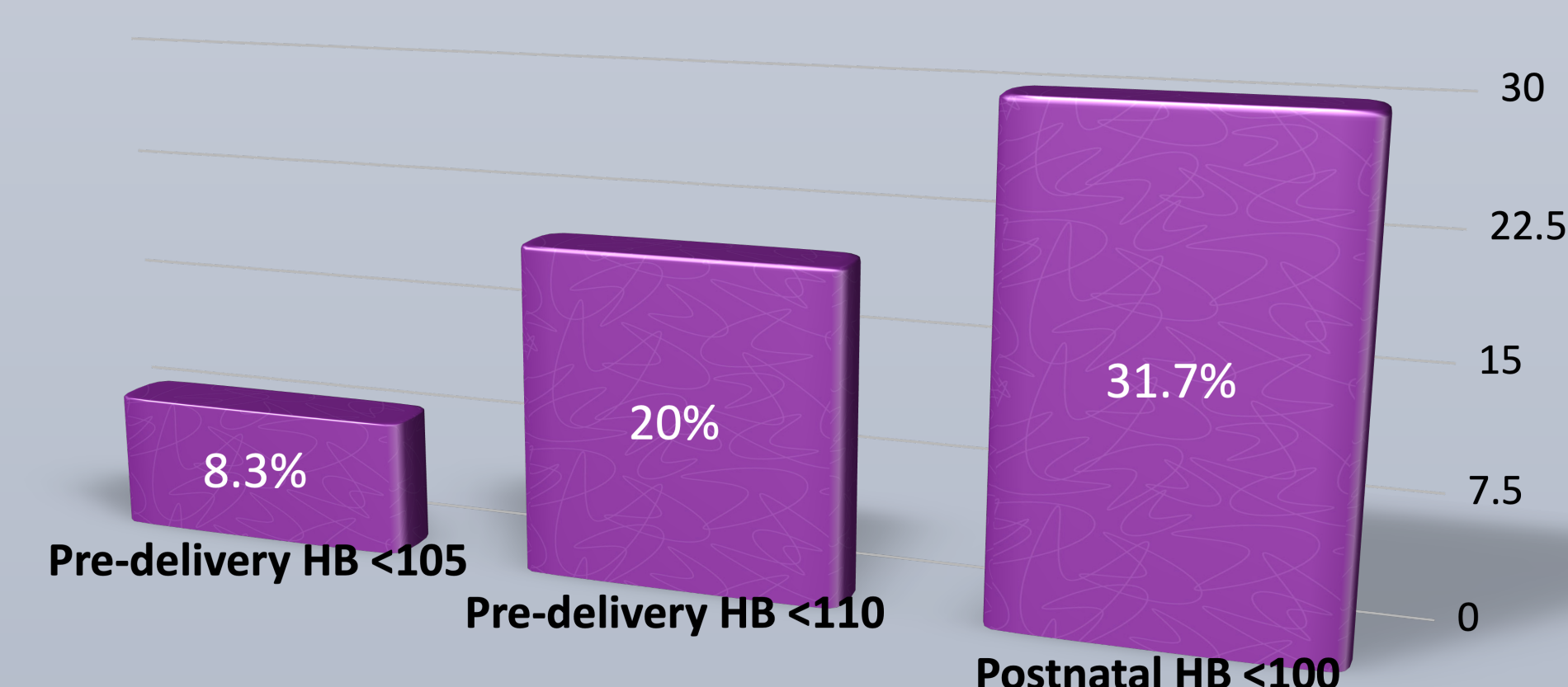


Chart 3. Percentage of anaemic parturients pre-delivery and postnatal



## Results:

Records from 385 parturients were included. 273 (71%) had at least one ferritin level checked in pregnancy. Of those who had a ferritin checked in pregnancy 76% had a ferritin  $<30\mu\text{g/l}$  at some point in pregnancy which should have triggered treatment with oral iron replacement. 143 (37%) had a booking ferritin checked in pregnancy and 231 (60%) had a 3rd trimester ferritin checked. 28% had both a booking and 3rd trimester ferritin checked.

Of those who had a booking ferritin checked 27% (n=40) had a ferritin  $<30\mu\text{g/l}$  (average 58, median 48, mode 50).

Of those who had a 3rd trimester ferritin checked 82% had a ferritin  $<30\mu\text{g/l}$  requiring oral iron replacement (average 21.52, median 14, mode 10).

One patient had a ferritin  $>270\mu\text{g/l}$  and this would have triggered further investigation.

All parturients (100%) had a pre-delivery haemoglobin level checked. Twenty percent of parturients had a pre-delivery haemoglobin  $<110\text{g/l}$ , 8% had a haemoglobin  $<105\text{g/l}$ . Seventy-five percent of parturients had a postnatal haemoglobin checked, 32% were  $<100\text{g/l}$ .

Average blood loss recorded in this cohort was 648ml, 21% of patients had a postpartum haemorrhage  $>1\text{L}$ .

## Discussion:

The prevalence of iron deficiency is extremely high in our cohort with more than 1 in 4 parturients triggering treatment with oral iron replacement at booking and more than 3 in 4 parturients requiring treatment in the third trimester. The rate of pre-delivery anaemia in our cohort is lower compared with the national average and also lower compared with previously collected local data. This may reflect increased detection and treatment of iron deficiency in our cohort with increased ferritin screening compared with old guidelines. Postnatal anaemia levels however remains high and will be the focus of further projects.

This data has been used to guide development of treatment pathways for PRaMS, we aim to re-audit once the pathway is fully established. A preventive approach, proactive identification and early intervention to improve low iron stores, improving compliance with new dosing regimes and patient centred education is necessary to improve anaemia in pregnancy.

## References:

1. Pavord S, Daru J, Prasannan N et al. UK guidelines on the management of iron deficiency in pregnancy. *Br J Haematol.* 2020;188:819-830. <https://doi.org/10.1111/bjh.16221>