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# Evaluation and Improvement Of The Iron Infusion Services

# QUALITY IMPROVEMENT PROJECT REGISTRATION 05/2024

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## Welcome to Our

# Presentation



The Iron Infusion dedicated services were designed to achieve a better quality of care FOR our Obstetric population.

The Iron Infusion Clinic is located within the Rosie Maternity Unit (Clinic 22)..



## QIP DETAILS

THE IRON INFUSION SERVICE AT THE ROSIE MATERNITY WAS  
ESTABLISHED IN SEPTEMBER 2022 TO MEET THE DEMAND OF OUR OBSTETRIC  
POPULATION.

IT WAS BRANDED AS AN OUTSTANDING SERVICE BY CQC IN JULY 2023.

WE CARRIED THIS SERVICE EVALUATION & QI TO ENSURE GOOD PRACTICE AND TO  
LOOK FOR AREAS OF IMPROVEMENT AND POSSIBLE INNOVATION.



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## ACTION PLAN

• TO OPTIMISE THE INVESTIGATIONS PRIOR TO IRON INFUSION.

• TO CREATE PATIENT FEEDBACK FORM

• TO INTRODUCE FLYER TO INCREASE AWARENESS

ABOUT THE CLINIC SERVICE

• TO INNOVATE THE EXISTING PATIENT INFORMATION  
LEAFLET BY ADDING A QR CODE



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- Our aim is to evaluate the iron infusion (Monofer) service provision at the Rosie Maternity, Cambridge University Hospitals and to establish the improvements that have been made thus far.
- We will assess the clinical benefits and cost effectiveness of a dedicated parenteral iron infusion (PII) all within the maternity unit at a large tertiary teaching and research institution.
- Also, identifying any gaps or areas which would require further improvement.  
Setting the goals and implementing strategies to achieve the goals.

- Iron deficiency anemia (IDA) is the most common nutritional deficiency, with more than 2 billion people affected worldwide significant problem in the developed world. Anemia increases fetal and maternal morbidity and risk of postpartum haemorrhage (PPH).

Effective and quick replacement of iron remains the mainstay in compacting IDA risks and outpatient iron infusion clinic provides an opportunity for such intervention.

# INTRODUCTION

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•Data was retrospectively collected using the EPIC electronic medical records system from September 2022 to May 30th, 2024. Inclusion criteria were all women who received PII in the Iron Infusion Clinic. Referrals to the clinic were

based on hospital guidelines, including the failure of, or intolerance to oral iron supplementation, or urgent clinical need for intravenous iron therapy. IDA were confirmed by laboratory results.

•Also demonstrate are various factors involved in the service as a whole.

**Efficacy of Iron Infusion, Gestational age, Requirement of Repeat Iron Infusion, Referral Source**

## Number of patients and how we came to this number?

- Retrospective audit and QIP

- Period of audit is September 2022 until May 2024.
- Total number identified from EPIC were 336 patients.
- Out of the 336 patients, 194 patients were correctly identified as receiving iron infusion and 100 patients were repeat patients (1/3rd) attending for the second half of Iron Infusion (Monofer) dose.
- We excluded patients who did not have anaemia or haemoglobinopathies such as sickle cell/Thalasemia. Also patients who declined the infusion or those who delivered prior to their respective appointment were excluded.

Age range of the patients was between 15 years to 46 years of age.

### Gestational age

- Gestational age ranged from 17 weeks to 39+5 onto the postnatal period. 172 out of the

## Age Range

194 patients (88%) were antenatal and the remaining 22 out of 194 patients (22%) were postnatal.

## BMI Range

- BMI ranged between 17kg/m<sup>2</sup> to 49.7kg/m<sup>2</sup>.

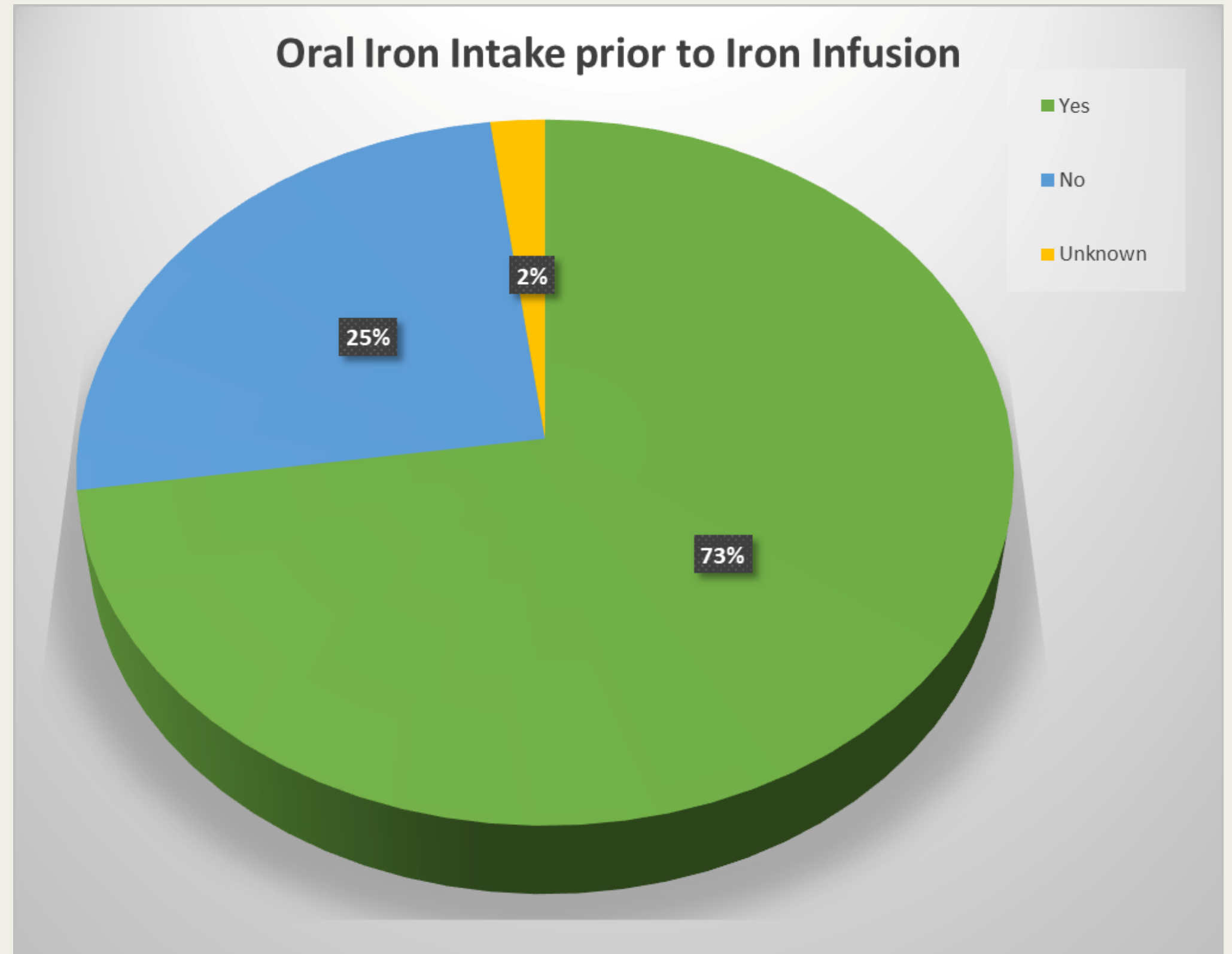
The frequent value was 28kg/m<sup>2</sup> and average value was 26.91kg/m<sup>2</sup>.

# Oral Iron Prior to Iron Infusion

- From the EPIC notes we gathered that 141

patients (73%) said yes to oral iron prior to iron infusion. Although it isn't specific in most cases how long they had been on oral iron.

- 49 patients (25%) did not take oral iron prior to iron infusion and remaining 4 patients (2%) were unknown whether or not they had oral iron from the EPIC notes.



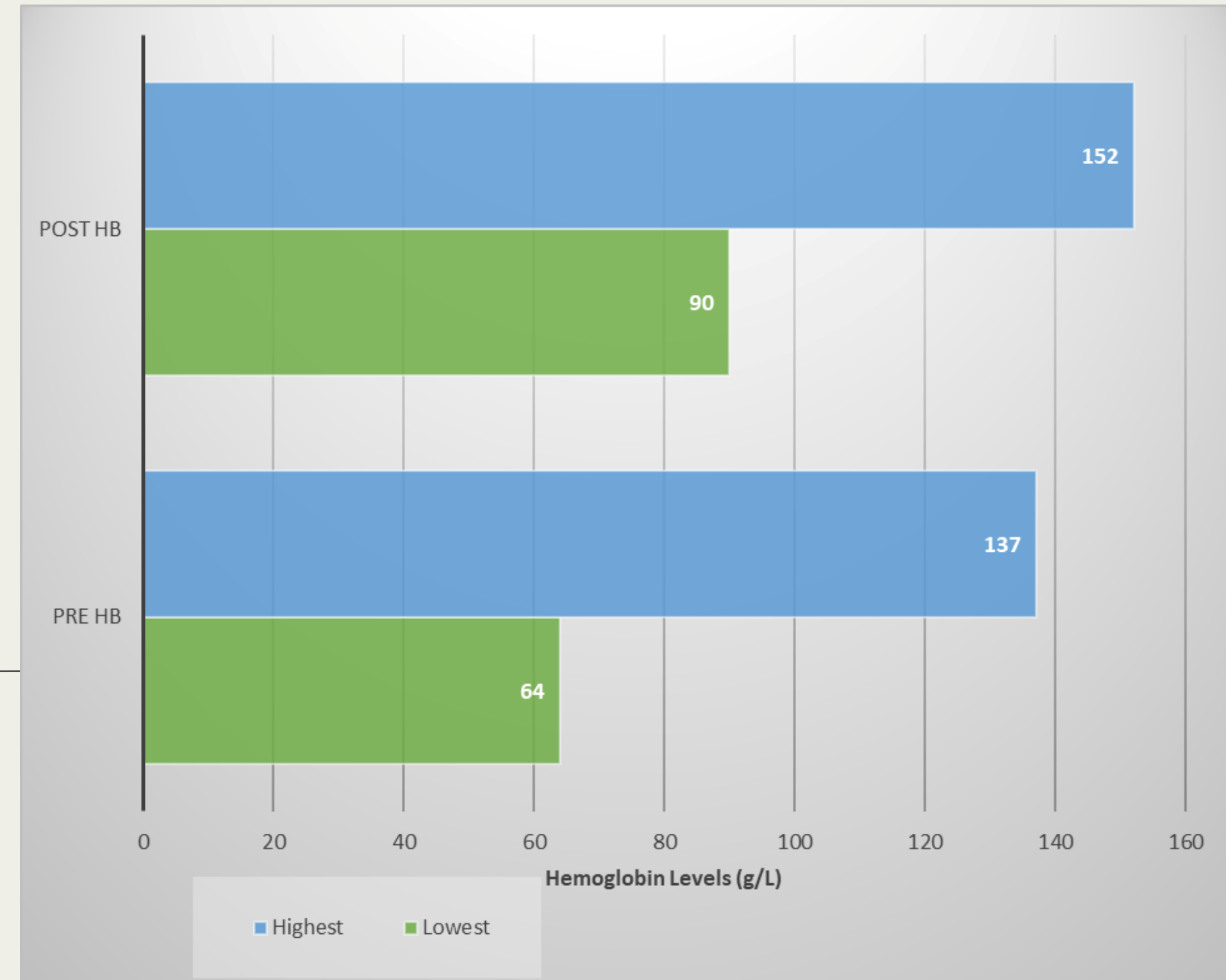
The graph illustrates both pre and post hemoglobin levels and the lowest to highest levels of each group.

- Pre-Infusion HB level ranged between 64 g/L -> 137g/L

- Post-Infusion HB level ranged between 90g/L -> 152g/L

It is noted the highest-level HB pre iron infusion was 137 which was outside of the inclusion criteria. However it was a referral from a hematology doctor.

Other HB levels which seem higher would also be due to the postnatal estimated blood loss volume.



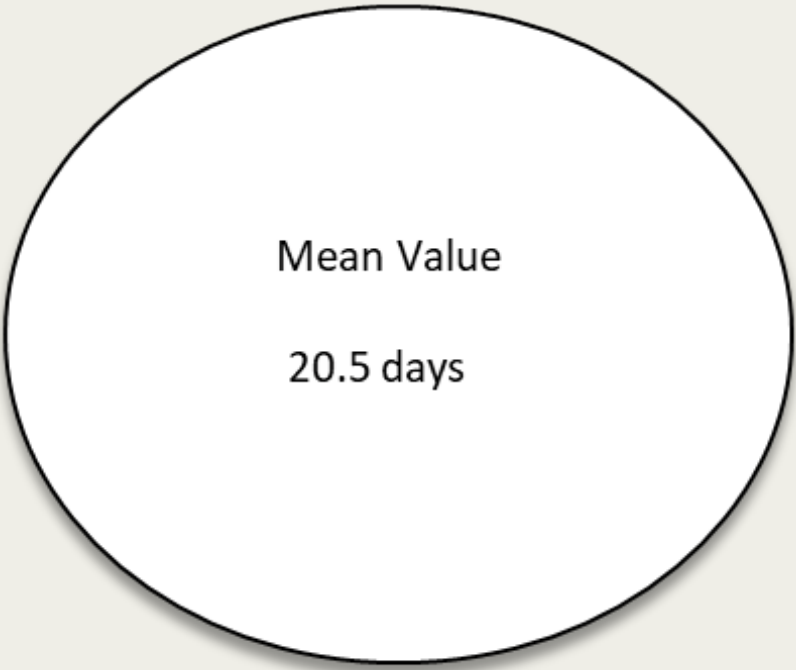
## Pre and Post Infusion Tests Checked For Ferritin Levels?

## Hemoglobin Levels Pre and Post Iron Infusion

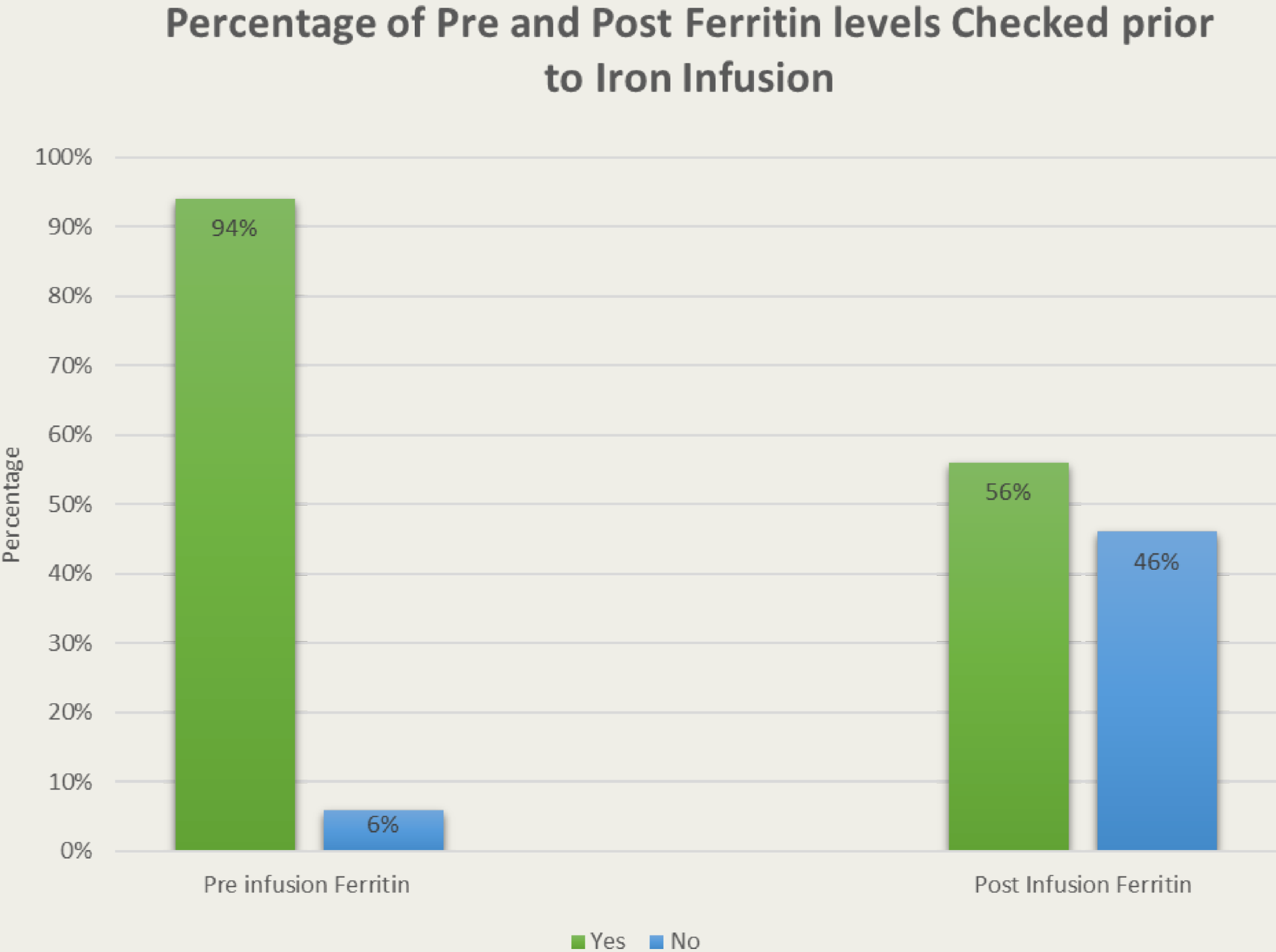
- Pre infusion ferritin was checked in 183 out of 194 patients (94%) and remaining 11 out of 194 patients (6%) did not have ferritin levels checked.

- Post infusion ferritin was checked in 104 out of 194 (56%) and it was not checked in 90 out of 194 patients (46%).

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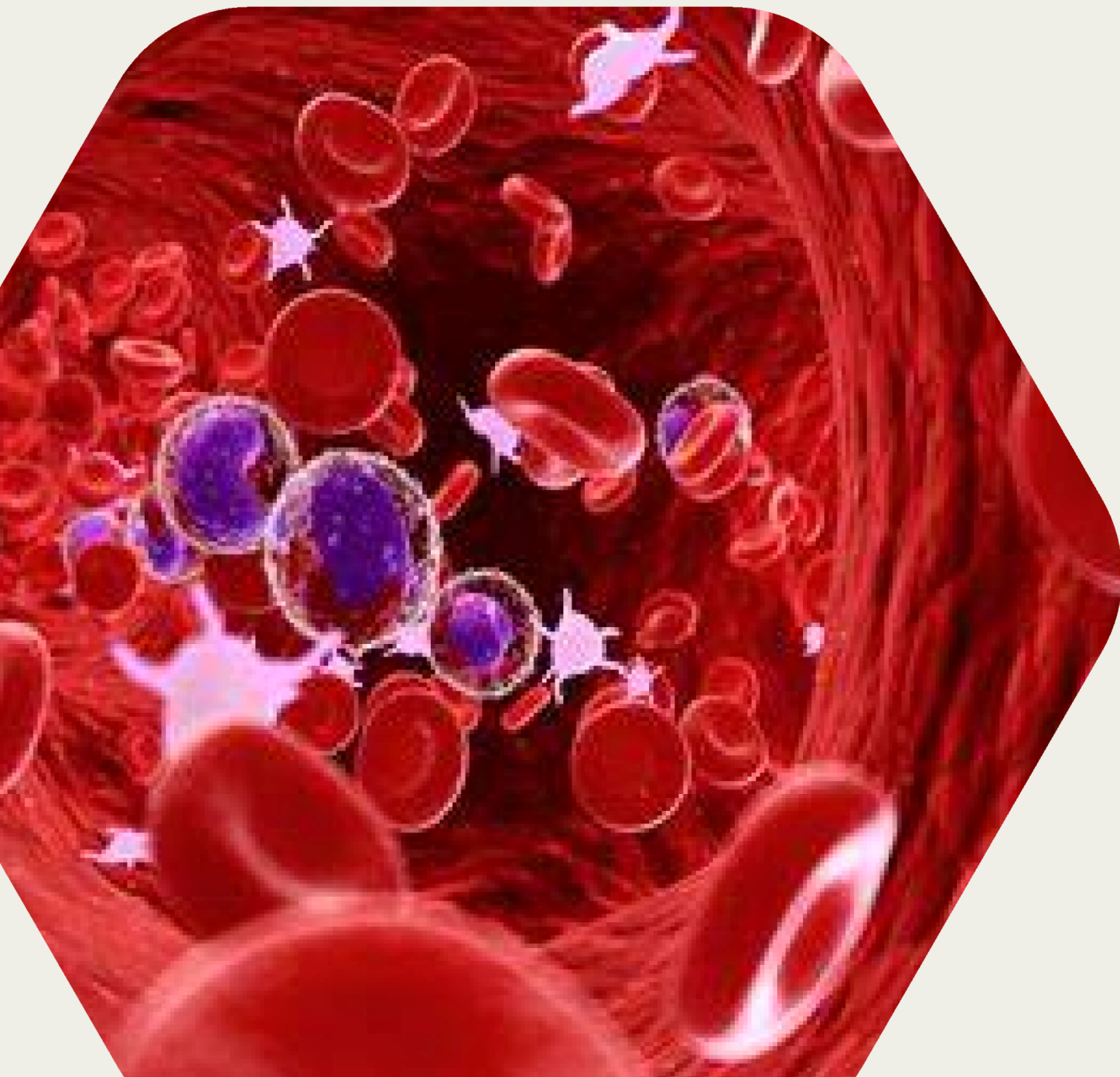


Referral time to the appointment varied.



# Average Estimated Blood Loss During Referral Time To Appointment

- The least wait time was 0 days therefore, same day Iron infusion following assessment.
- The longest wait time was 70 days which was actually for one patient.
- The average was 20 days to the appointment.



Estimated blood loss ranged between 100mls to 3.4L

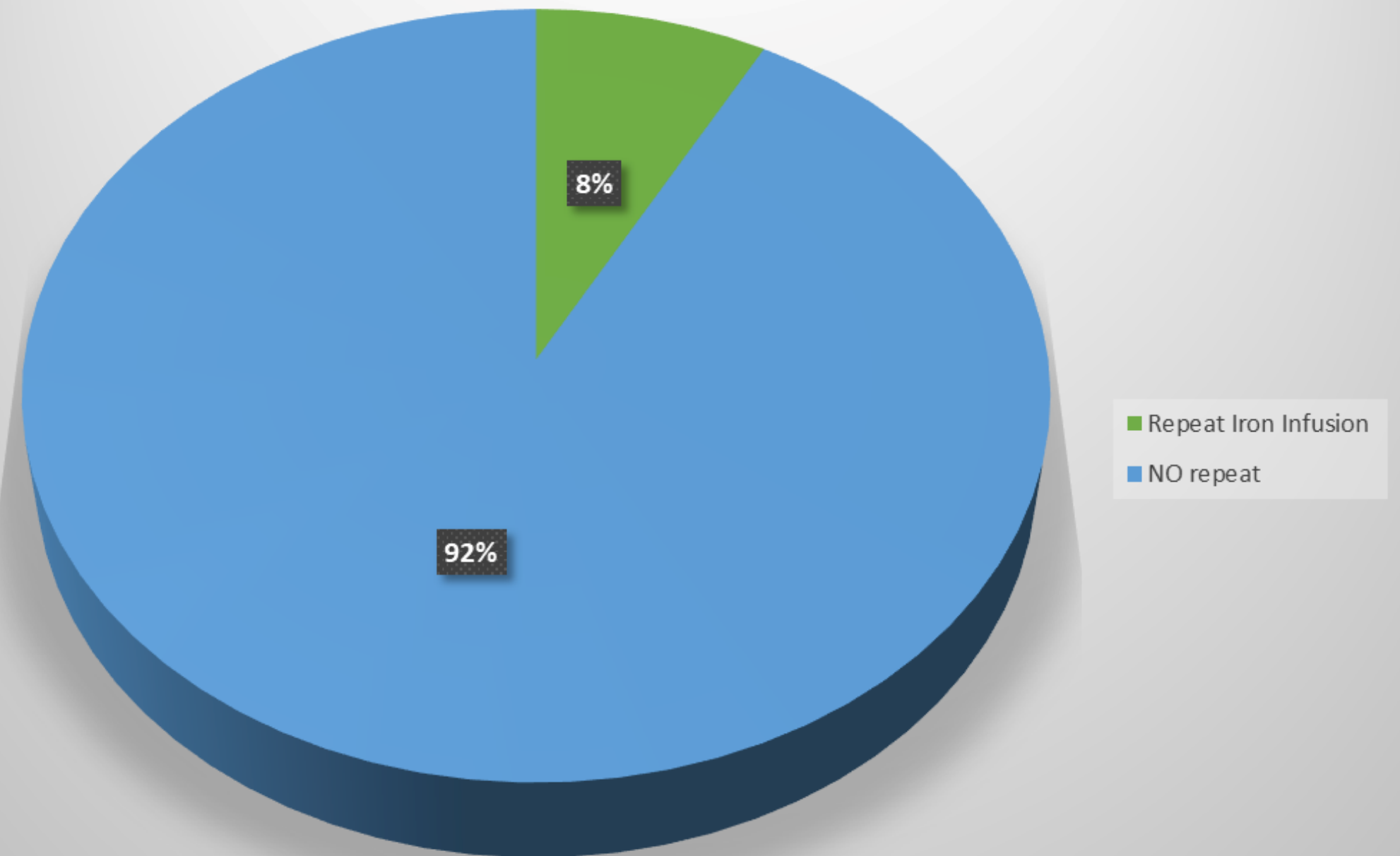
- The mean value calculated was an EBL of 520mls. Additionally, we must take into consideration there were 3 large values of EBL 2.2L, 2.7L and 3.4L which would have an effect on overall mean value.

Most frequent estimated blood loss among patients overall was 350mls

# Further of Iron Infusion

- 194 patients
- 172 patients were antenatal and 22 were postnatal • 92% of the antenatal patients did not require any further iron infusion.
- Only 8% of the antenatal patients required a further iron infusion.

Percentage of patients who required repeat iron infusion

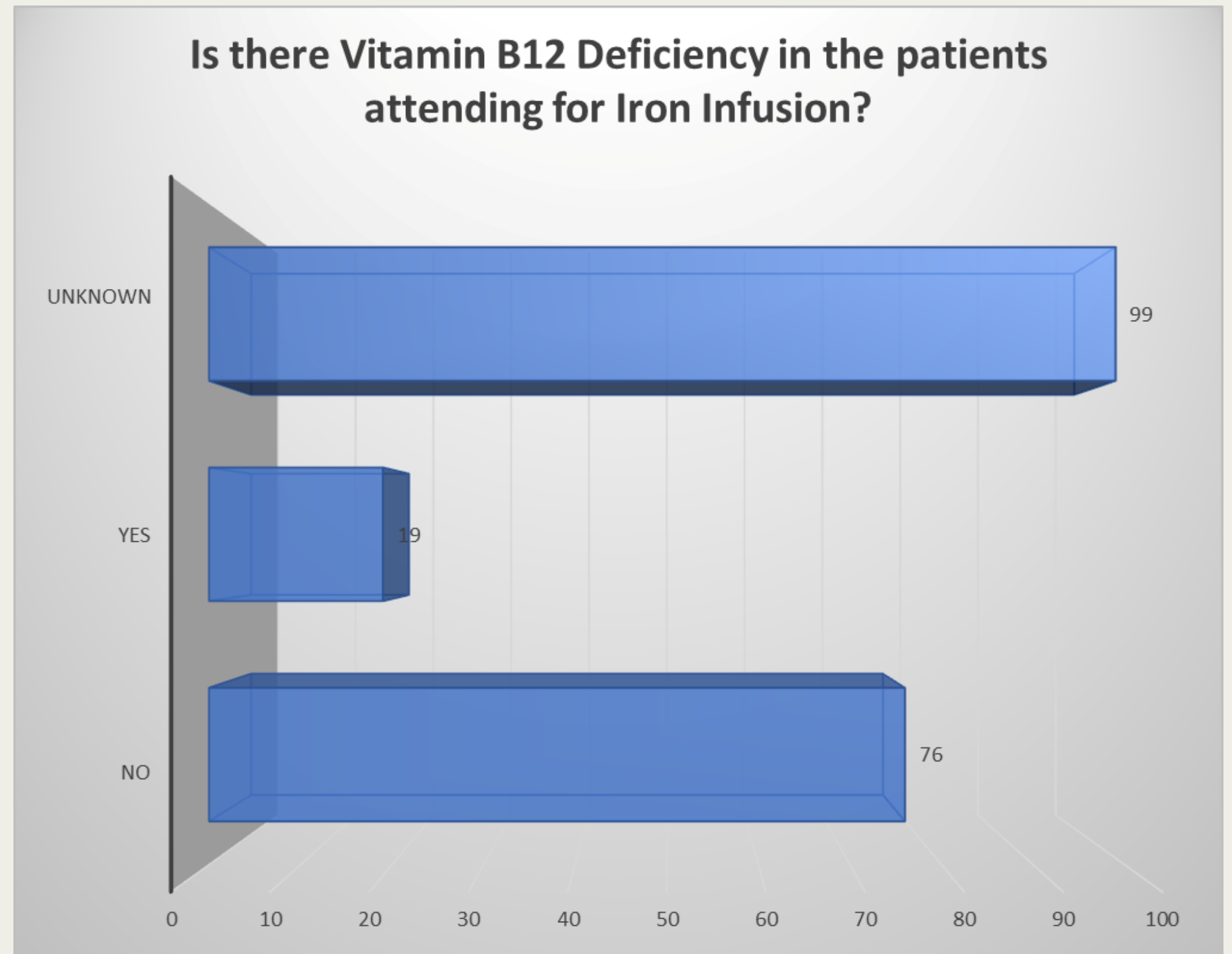


# Are Vitamin B12 Levels Checked And Is There Deficiency

- Vitamin B12 deficiency assessment is not part of the Iron Infusion Clinic. However, it would be a good service to add to the clinic in the future.

- 19 out of 194 patients (10%) had vitamin B12 levels checked.

Remaining patients 90% did not have vitamin B12 levels checked.

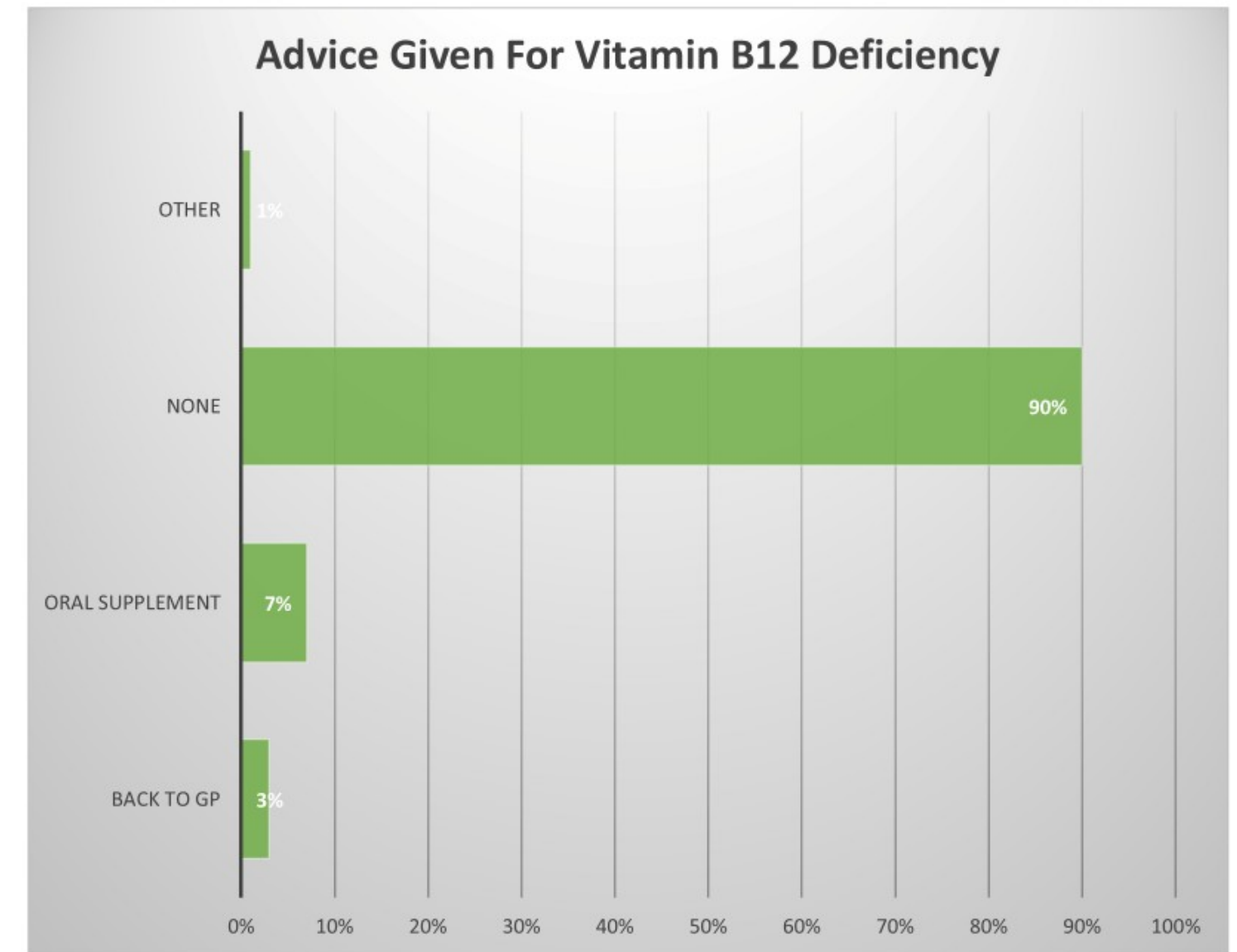




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# Advice Given For Vitamin B12 Deficiency

- We searched the EPIC notes to establish whether advise was being given to those patients attending for Iron Infusion.
- It was established that 7% of the patients were advised to take Vitamin B12 oral supplements.
- 3% of the patients were advised to return to their GP and 1% was told to repeat their bloods in 4 weeks.
- The remaining 90% of patients were either not given advise or it was not documented in the notes.

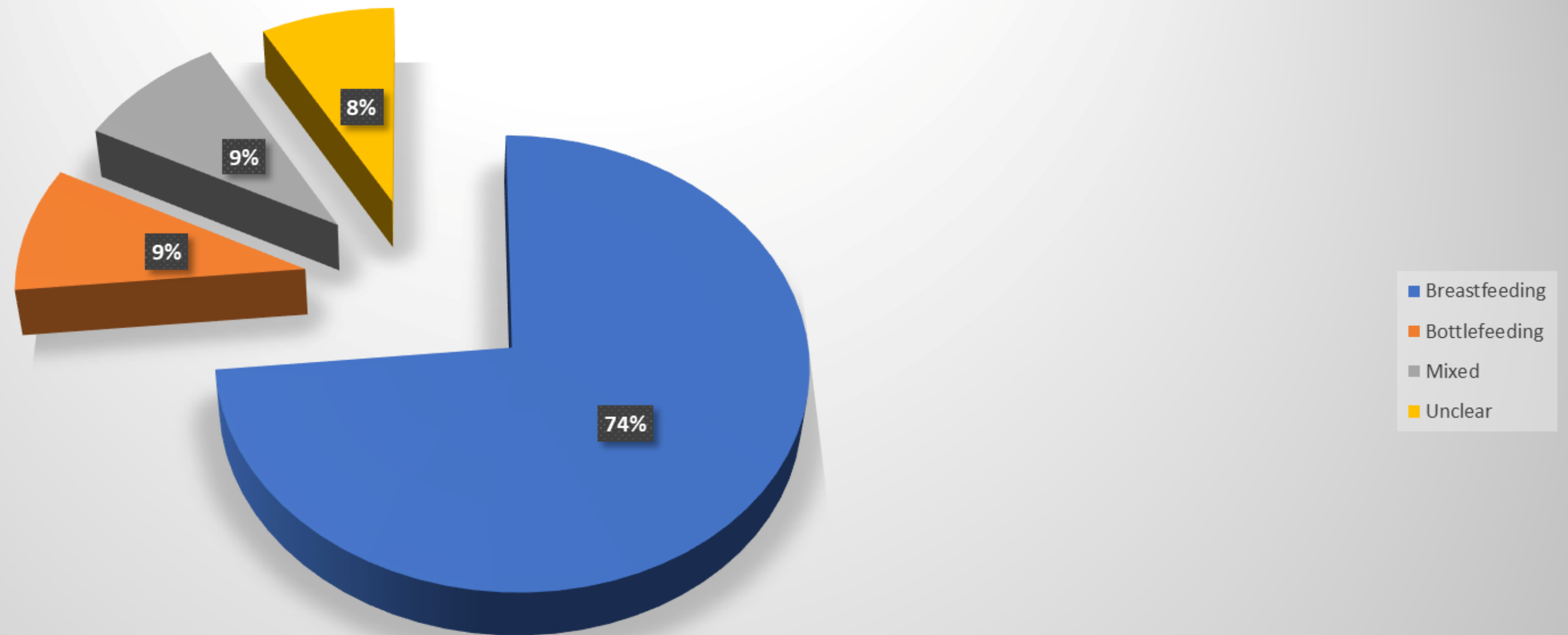


# **Reaction To Iron Infusion**

**2 out of 194 patients (1%) had a fishbane reaction to the iron infusion. Remaining 99% of patients did not have any reaction.**

# How many mothers were discharged breastfeeding vs bottle-feeding after iron infusion

Method Feeding At Time Of Discharge



## SUMMARY OF RESULTS:

- A total number of 194 fitted the inclusion criteria.
- 172 were antenatal patients and 22 were postnatal.
- Pre infusion ferritin was checked in 183 out of 194 patients (94%) and remaining 11 out of 194 patients (6%) did not have ferritin levels checked.
- Post infusion ferritin was checked in 104 out of 194 (56%) and it was not checked in 90 out of 194 patients (46%)
- The mean of the pre-Infusion HB level is 100 g/L, range between 64 g/L - 128g/L.
- The mean of the post Infusion HB level is 105.5 g/L, range between 90 g/L - 152g/L. • Seventy three percent of the patients included in the Service Evaluation (n= 141) received oral iron prior to the infusion, 25% did not take oral iron before, while only 2% were unknown.
- Ninety two percent of the antenatal patients (158) did not require any further iron infusion, with only 8% (14) requiring further treatment.



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# Thank you!

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ANY QUESTIONS?