Perioperative Anaemia
The QAH Story

November 2018

Dr Heidi Lightfoot *Core Anaesthetics Trainee*
Dr Shirley Lobo *Consultant Anesthetist*
Queen Alexandra Hospital

Definitions

WHO definition of anaemia: haemoglobin <130g/dL

The most common cause in the surgical population is **iron deficiency** [1,3]

The most common treatment is **blood** transfusion [3]

Patients requiring blood transfusions during major surgical intervention have poorer outcomes [2]

1. *World Health Organisation 2014*
2. *Klein et al. Anaesthesia June 2016*
3. *Preoperative anaemia Clevenger et al Anaesthesia 2015*

Anaesthesia
Peri-operative medicine, critical care and pain
Association of Anaesthetists

Original Article | Free Access

The incidence and importance of anaemia in patients undergoing cardiac surgery in the UK – the first Association of Cardiothoracic Anaesthetists national audit*

A. A. Klein, T. J. Collier, M. S. Brar, C. Evans, G. Hallward, S. N. Fletcher, T. Richards, on behalf of the Association of Cardiothoracic Anaesthetists (ACTA)

First published: 18 March 2016 | https://doi.org/10.1111/anae.13423 | Cited by: 25

Anaemic patients

Higher mortality - **2 times more likely to die**

Higher transfusion requirements for small haemoglobin changes (10g/dL)

Longer hospital stays (median 2 days)

Death linked to severity of anaemia and to gender

Drivers for change

NICE

Patient blood management

National blood transfusion services

Implementation of perioperative medicine programmes to support the RCoA curriculum

Best Practice references: Cambridge (Klein), Cardiff (Evans)

ACSA/CQUIN

Anaesthesia
Peri-operative medicine, critical care and pain

Association of Anaesthetists

Consensus Statement | Open Access

International consensus statement on the peri-operative management of anaemia and iron deficiency

M. Muñoz ✉, A. G. Acheson, M. Auerbach, M. Besser, O. Habler, H. Kehlet, G. M. Liumbruno, S. Lasocki, P. Meybohm, R. Rao Baikady, T. Richards, A. Shander, C. So-Osman, D. R. Spahn, A. A. Klein

First published: 20 December 2016 | https://doi.org/10.1111/anae.13773 | Cited by: 49

Recommendations

1. Peri-operative care pathway
2. Investigate anaemia in all surgical procedures with expected blood loss > 500 ml.
3. Iron deficiency = serum ferritin level < 30 $\mu g.l^{-1}$
4. Postpone major, non-urgent surgery to diagnose and treat anaemia
5. Target haemoglobin ≥ 130 $g.l^{-1}$ in both sexes
6. Oral iron if surgery scheduled 6–8 weeks after diagnosis
7. Daily/alternate day oral iron and nutritional advice
8. Intravenous iron as front-line therapy if oral not tolerated/surgery < 6 weeks away
9. Start the diagnosis and treatment of anaemia and iron deficiency as early as possible; ideally as soon as the decision to undertake surgery is made.

Portsmouth experience

Efforts since at least 2013; effective roll-out since 2017

Who?

new evidence on new thresholds: PPOG

When?

is a delay acceptable?

Where?

DSU

Timing

Organisational problem, not just clinical problem

Achievements so far

A working pathway for patients

- robust admin flow
- efficient DSU pathway

Patient feedback

Trust-approved SOP for DSU

Guideline for Perioperative Management of Anaemia

- approved by Trust, CHAT, Surgery/Anaesthetics

Outcomes

- length of stay, blood transfusion

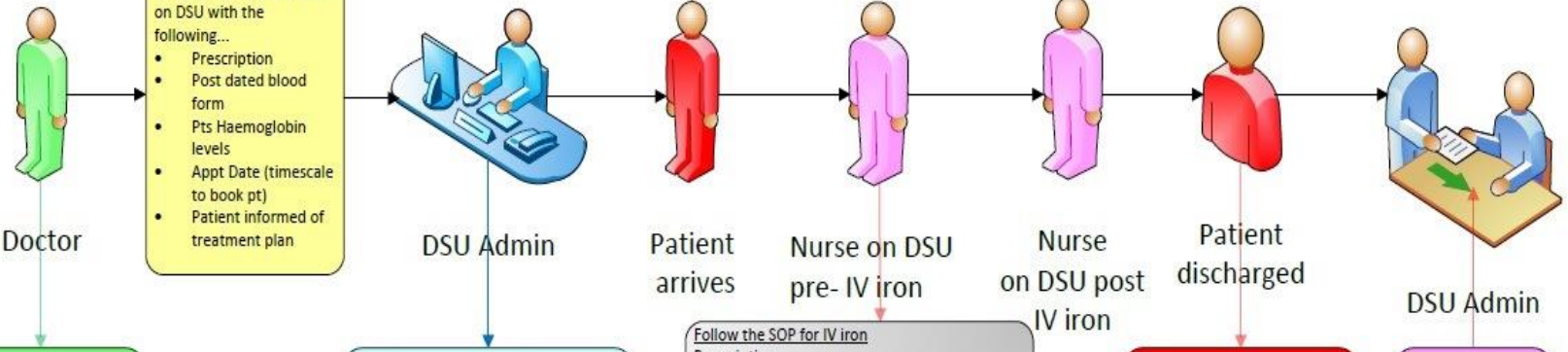
Engagement with **all** cancer specialities

Some equipment (from Pharmacosmos)

Some database

A growing TEAM!

Patient Flow: IV Iron Infusion-Elective Surgical patients



Doctor

Referrals from the following sources:
- Surgeon
- Anaesthetist
- Surgical Nurse Practitioner
- POA Nurse Practitioner
- GP

Referrals from the Doctor to be forwarded to admin on DSU with the following...
- Prescription
- Post dated blood form
- Pts Haemoglobin levels
- Appt Date (timescale to book pt)
- Patient informed of treatment plan

DSU Admin

DSU admin to book appt on PAS and send out letters/leaflet + phone the patient to confirm appt. (as short notice appointment)

All information to be stored in the red folder in reception

Admin to inform the DSU coordinator of any upcoming appointment.

Aim fixed slots 2 per week (1x tues 0845, 1x weds 0845)

Patient arrives

Patient collected by nurse, from DSU reception

Nurse on DSU pre- IV iron

Follow the SOP for IV iron
Prescription
Blood form post dated for 7-10 days time.
Patient identity bracelet applied
Brief medical history taken using local anaesthetic - DSU document
Obs to be taken pre/post administration
IV Iron letter to be generated via EPRO by the DSU staff

IV cannula inserted by Nurse Practitioner.
Gynaecology
1. Bleep 1329 (Sister)
2. Bleep 1307 (SHO)
Urology
Bleep 1548 (Rapid access team)
Colorectal
Bleep 0022 (GI Nurse Practitioner)

In case of emergency, contact Duty Anaesthetist on Bleep 1622

Nurse on DSU post IV iron

Patient to sit on the ward for 30 minutes post infusion of IV Iron
Post procedure obs to be taken, as per SOP.

Patient given:
Post infusion Information leaflet (existing leaflet)
DSU leaflet with Contact details (DSU 8-5, ED 5-8)
IV Iron administered letter completed on EPRO (*This letter is the Discharge letter)*

Letter to be scanned and sent to GP

DSU nurse to contact POA to inform them that the IV Iron has been administered, and the POA team to add this to the e.POA

Patient discharged

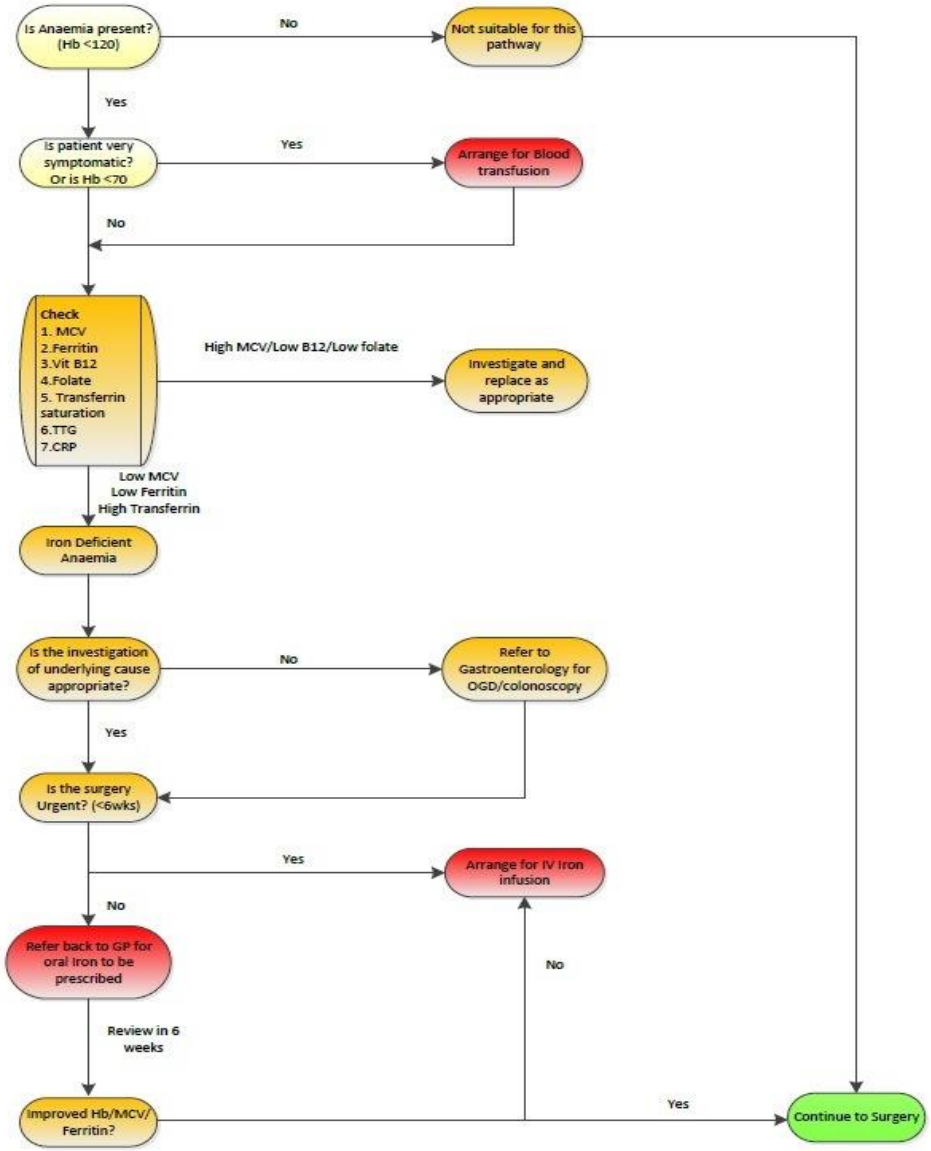
Pt to contact the hospital if a problem occurs within initial 24hrs (DSU 8-5, ED 5-8)
Blood form provided and advised on the day of infusion when to repeat

DSU Admin

Clinic outcome completed on PAS by the admin team and coded appropriately (X292) notes/ documentation to go to POA and be scanned into the e.POA

Shirley Lobo
Alan Jackson
Laura Crump
V7 Revised 04/10/2017

Management of Pre-Operative Anaemia

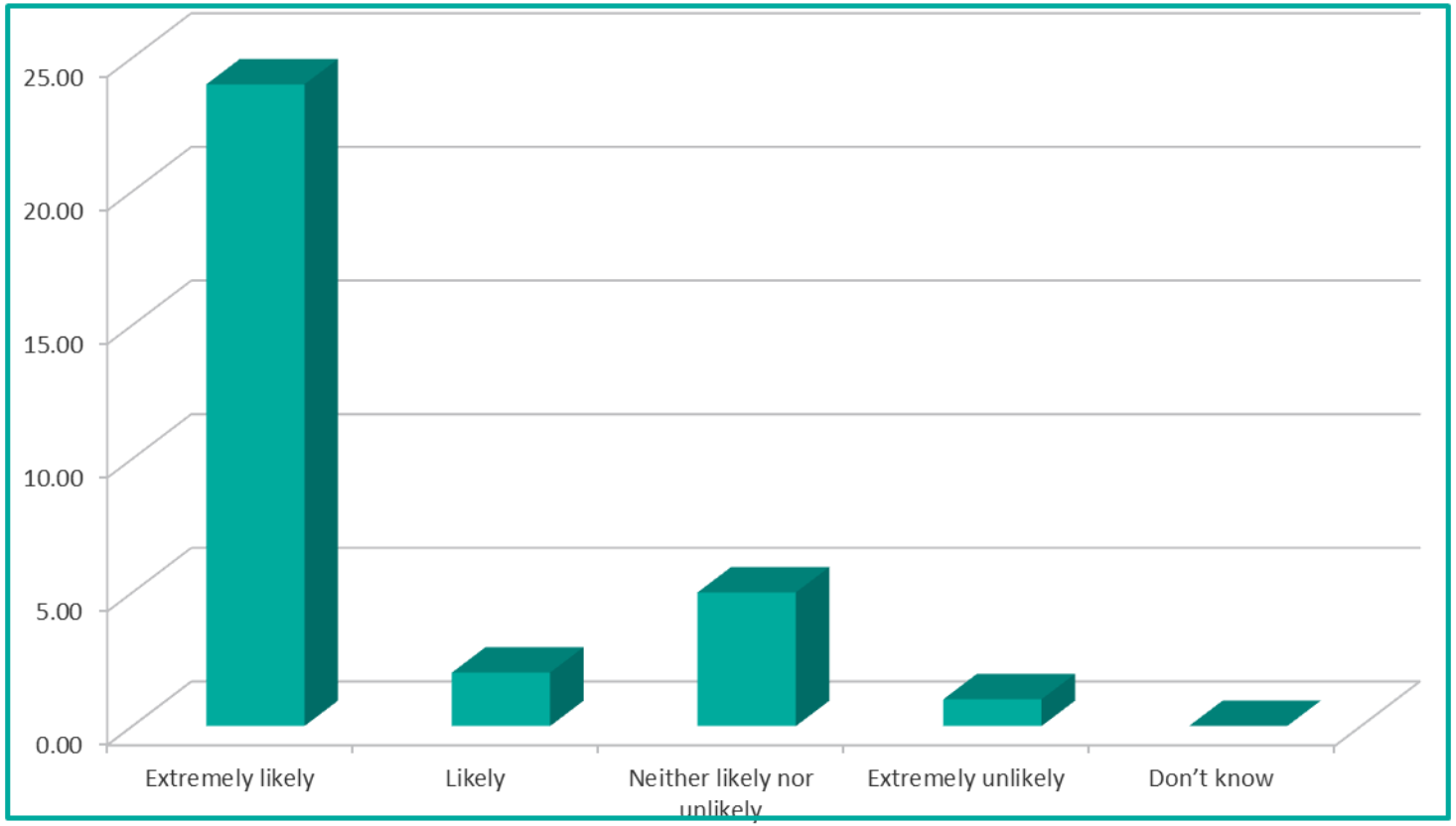


Revised - 04/10/17

Scheduled Care Improvement Programme

NHS Friends and Family

Would you recommend the service to a friend/relative?



Areas for improvement

- Short notice appointments
- Lack of patient understanding

DSU Feedback

Prescriptions are incorrect

Occasionally unable to cannulate

Second Doses is not usually required

Time inefficient: 2-21 days (average 15 days)

Infusing incorrect patients

Blood Results

Plans: Stickers on notes (as per CWT)
Prioritise anaesthetic review of iron patients
Surgeons to request bloods in outpatients

	Tick if completed	Initial to say checked
Referral should included		
Prescription (weight should be annotated on the front)		
Patients Haemoglobin and Ferritin Levels (Annotated on the front of prescription)		
Post-dated blood form		
Timescale to book patient		
Patient Informed of Treatment Plan		
Appointment to be Booked		
Patient telephoned – With Appointment Date and Time Day Before Appointment		
Appointment Letter sent		
Leaflets sent to patient		
Appointment entered on DSU Central Calendar		
Complete day surgery local anaesthetic paperwork		
Notes Requested		
Treatment		
Admit Patient on PAS		
Ensure notes are available		
After Treatment		
Clinic Outcome on PAS		
Inform POA Group Mail Box that Patient has had treatment so that the POA can be updated		
Send notes to coding		

1st Infusion timings

In to Reception		3rd Stage		Cannula In	
Infusion Start		Infusion Finish		Cannula Out	

2nd Infusion timings

In to Reception		3rd Stage		Cannula In	
Infusion Start		Infusion Finish		Cannula Out	

Ongoing activity

Gynaecology audit

Urology audit

Audit of waiting times

Audit of referral process/patient flow

Patient feedback

Gynaecology audit

Audit period April 3rd – July 31st 2018

Total elective gynae operations: 285

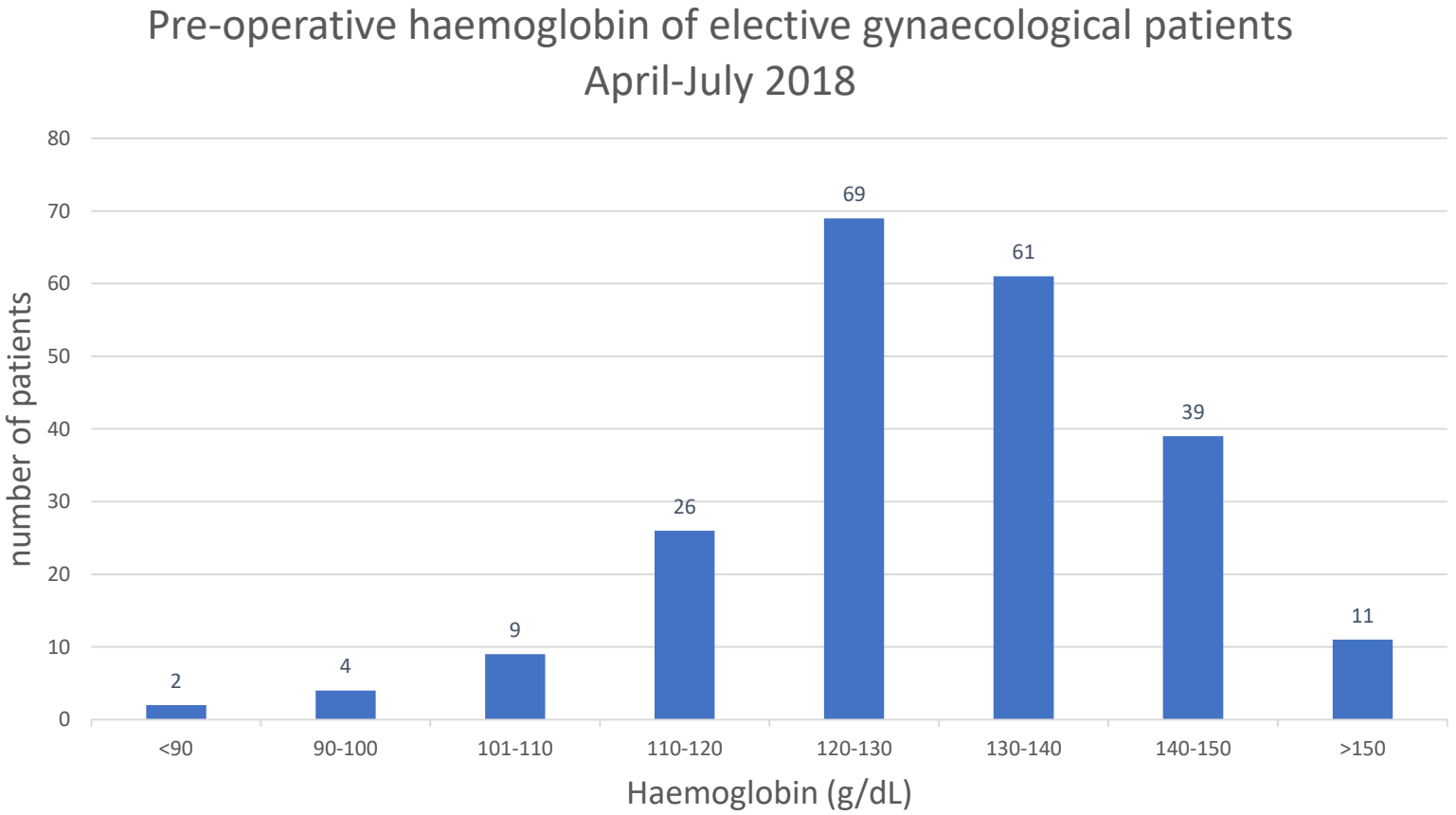
Average age 50

- Oldest patient 94
- Youngest patient 18

217 patients had a pre-op haemoglobin measured

97 patients had a haemoglobin measured post-op

All elective gynae patients April-July 2018



Total number of patients anaemic at pre-op assessment: 105

Haemoglobin at pre-op assessment **<120g/dL: 39 (13%)**

Haemoglobin at pre-op assessment <130g/dL: 67 (23%)

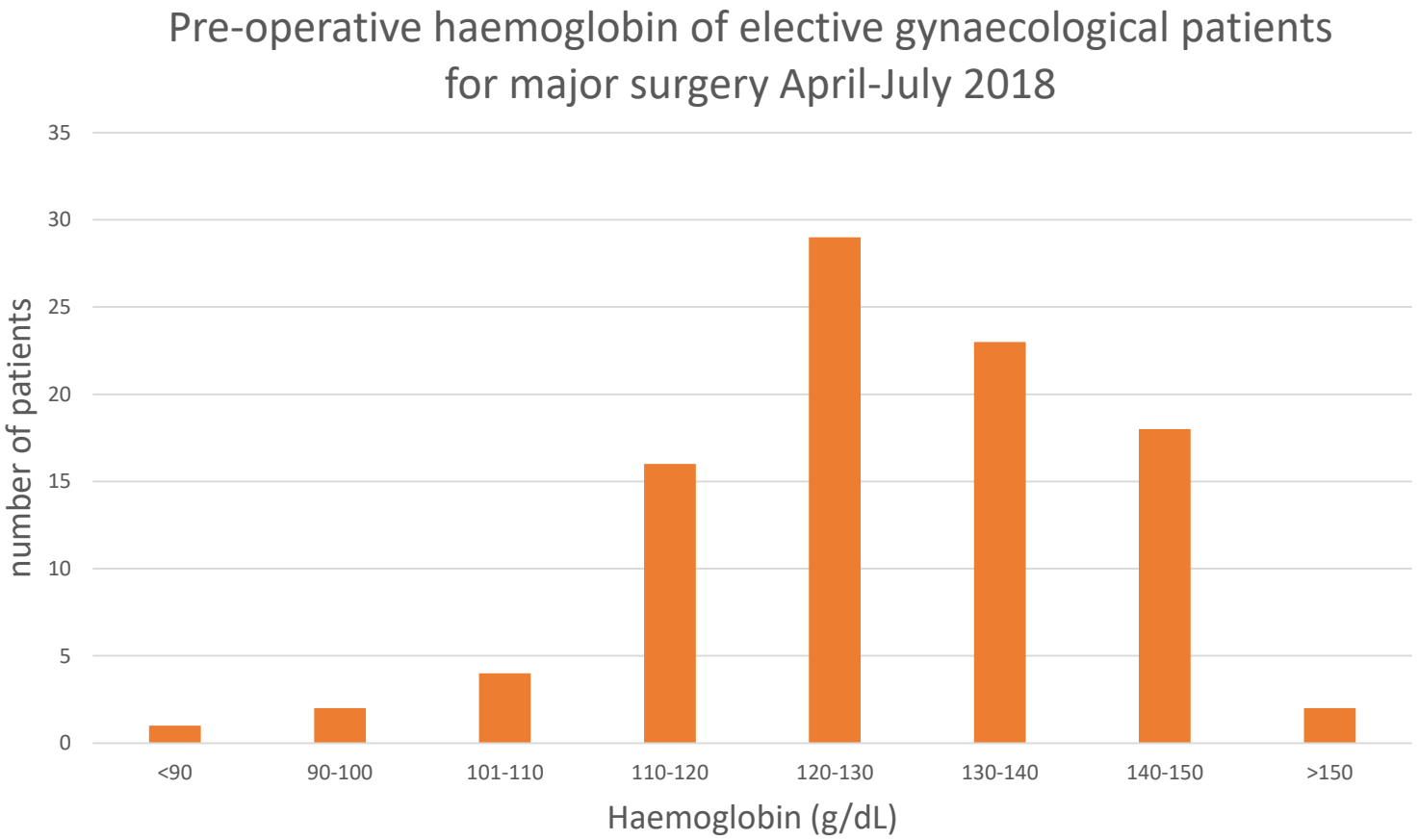
‘Major surgery’

For the purposes of this audit, ‘major’ surgery was defined as:

- operations such as TAH, BSO, oophorectomy, salpingectomy, vaginal hysterectomy
- could justify overnight stay
- scheduled to take >60 minutes

Number of patients having major surgery: 103

Major surgery patients



Of these, anaemic at pre-op assessment: 51

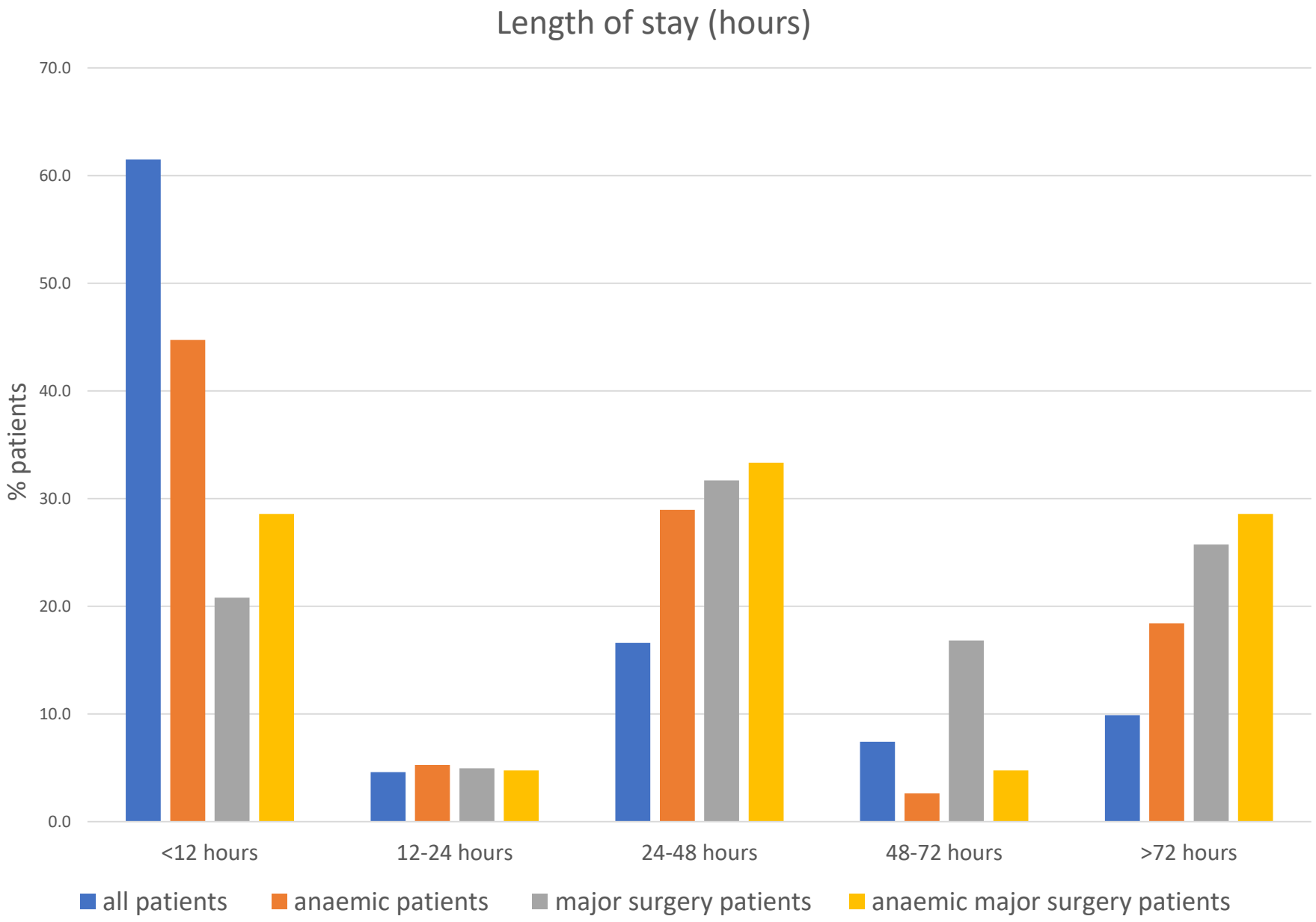
Haemoglobin at pre-op assessment **<120g/dL: 21 (20%)**

Haemoglobin at pre-op assessment <130g/dL: 30 (28%)

Length of stay

Average length of stay	hours
All elective gynaecology patients (all surgery; including day case)	27
Major surgery (regardless of starting haemoglobin)	55
Pre-op Hb <120 (all surgery)	41
Major surgery + pre-op haemoglobin <120g/dL	60

Length of Stay



Iron?

3 patients received iron transfusion pre-op:

All referred by GPs

5 patients commenced on oral iron post-op

Blood transfusion?

From the available information in *discharge summaries:* 2 patients received a peri-operative blood transfusion

- One post-op
- One pre-op

Data from *blood transfusion records:* 4 patients had a peri-operative blood transfusion

- 3 were post-op
- 2 were anaemic pre-op
- Average post-op drop in haemoglobin of 30g/dL
- Average improvement post transfusion 20 g/dL

Anaemic who had the right work-up?

Of the 106 patients that had a haemoglobin at pre-op of <130

25 had a ferritin measured = 23%

2 had a transferrin saturation measured = 2%

17 had a CRP measured = 16%

Conclusions

Anaemia is prevalent in this population

Anecdotal evidence: anaemia is tolerated because a gynaecological problem is presumed the cause

Anaemia may have important consequences such as increased LOS

Full investigation of anaemia +- pre-operative iron transfusion IS required

Action Points

Record blood transfusion in discharge documentation

Aim to develop ICE tab for ‘pre-op anaemia work up’

Re-audit in 3 months from action

Action Points

Short term

- IV iron database
- 5 days a week IV infusion service
- Hb to be discussed at **all** cancer speciality MDTs
- Procure equipment for improved service delivery
- Referral/access to virtual anaemia clinic

Long term

- database with quarterly reports
- waiting times less than 2 days
- all patients for elective surgery to have Hb >130g/dL
- minimise use of blood
- extend service to **all** specialities