

Their Life in Your Hands

What can the GP do?

Kathryn E Griffith

GP York

RCGP Clinical Champion for Kidney Care

Declaration of interests

- Dr Griffith was a principal in General Practice with Unity Health in York for over 20 years
- She is RCGP Clinical Champion for Kidney Care
- She is a Clinical Tutor on the Bradford University Course for PwSI in Cardiology
- She was a member of the NICE CKD and Anaemia Management in CKD Guideline Update Groups
- She is a member of the Think Kidneys AKI National Project Board
- She is chair of the National CKD Audit Project Board

Role of the GP

- GP responsible for assessing and referring all patients for non urgent surgery
- GP responsible for commissioning surgery from secondary care
- Expectation that procedures will be safe and efficient with lowest risk to patient
- Post operative complications add to risk and thus length of stay and cost of procedure
- Complications increase the need for support to patients in discharge

York scheme to improve patient outcomes



NHS

Vale of York

Clinical Commissioning Group

Why you should stop smoking before your operation

We all know that smoking affects our long term health. Smoking also greatly increases the risk of complications during and after surgery.

You can reduce this risk if you stop smoking as early as possible before your operation.

You are strongly advised to use this opportunity to stop smoking for good.

Does stopping smoking before an operation do any good?

There is good evidence that stopping smoking before your operation:

- **Reduces** lung, heart and infectious complications.
- **Reduces** bone healing time for fracture repair after fracture.
- **Reduces** length of stay in hospital.
- **Reduces** anaesthesia related complications.
- **Decreases** wound healing time. The wound cannot heal as effectively if you smoke, as not only is there a reduced blood flow, but a lower level of oxygen in the blood.
- **Reduces** breathing problems. (If you smoke you have a one in three risk of post operative breathing problems. This can be reduced to one in ten if you stop smoking eight weeks before the operation.)

What is prevalence of preoperative anaemia?

- Depends on definition of anaemia and population studied
- In US population >65 years **11%** in men and **10.2%** in women (Guralnik 2004) using WHO criteria
- Study of cardiac surgery patients from Papworth hospital (Hung et al 2011)
- Anaemia by WHO classification was found in **54.4%** preoperative patients for CABG and valve replacement
- Non cardiac surgery single centre study Toronto of surgical patients in a tertiary centre(Beattie et al 2009)
- **39%** non emergency pre-operative patients had anaemia

Does it matter? Outcome in Cardiac surgery patients worse with pre operative anaemia

Hung et al Anaesthesia 2011; 9:821-8

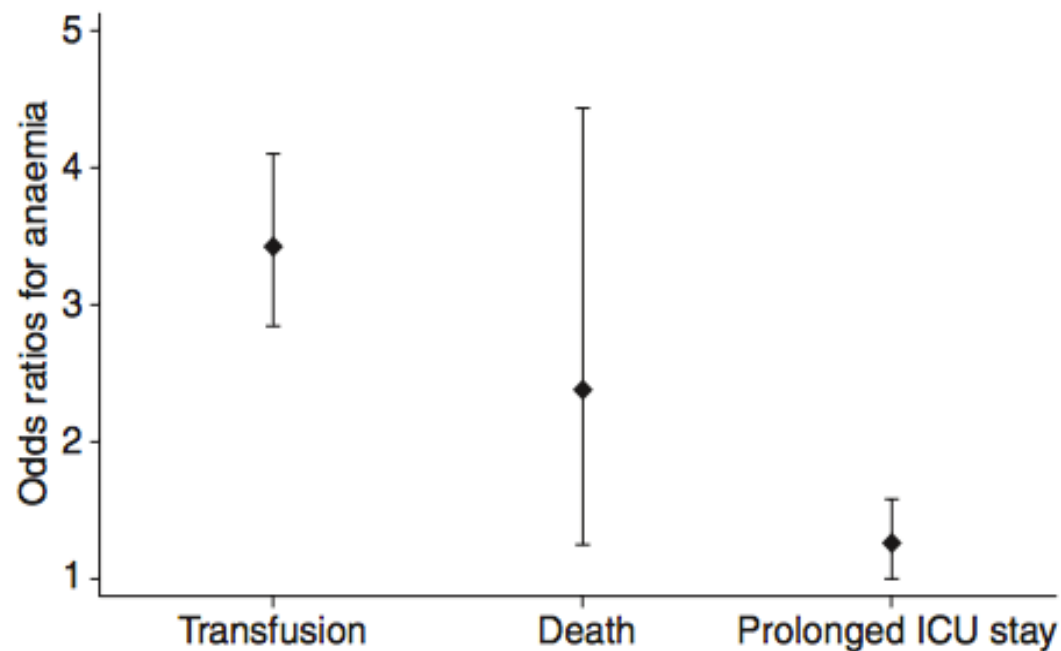


Figure 1 Odds ratio for each outcome for anaemic patients relative to non-anaemic patients. The error bars represent the 95% confidence intervals.

From: Risk Associated with Preoperative Anemia in Noncardiac Surgery: A Single-center Cohort Study
 Anesthesiology. 2009;110(3):574-581. doi:10.1097/ALN.0b013e31819878d3

Table 5. Causes of Death*

	Anemia, n (%)	No Anemia, n (%)	Total %
Cardiac†	29 (32.5)	10 (30.3)	(31.9)
Cerebrovascular	1 (1.1)	1 (3.0)	(1.6)
Respiratory‡	6 (6.7)	4 (12.0)	(8.2)
Pulmonary embolism	1 (1.1)	0	(0.8)
Septic	22 (24.7)	6 (18.1)	(22.9)
Hemorrhagic	8 (8.9)	0	(6.6)
Multiorgan failure	15 (16.8)	6 (18.1)	(17.1)
Cancer-related	6 (6.7)	6 (18.1)	(9.8)

Cause of death was ascertained in 122 of the 160 deaths; 38 death certificates could not be obtained (n = 28) or were not legible (n = 10).

* Cause of death was obtained from the death certificate. † Cardiac death was a combination of myocardial infarction, congestive failure, or cardiac arrest. ‡ Respiratory was either a respiratory arrest or hypoxic death. || Included septic shock, pneumonia, and abdominal anastomotic leak.

From: Risk Associated with Preoperative Anemia in Noncardiac Surgery: A Single-center Cohort Study
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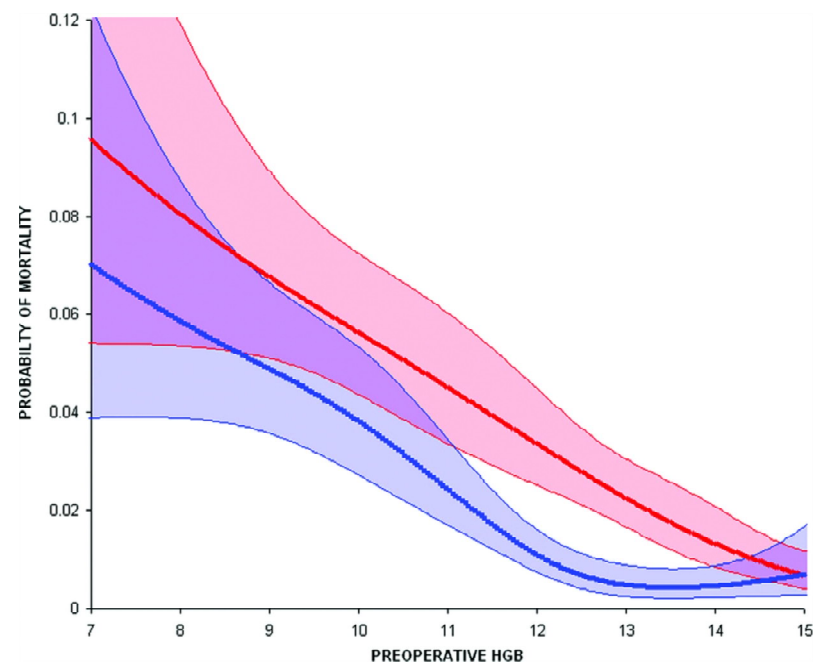


Figure Legend:

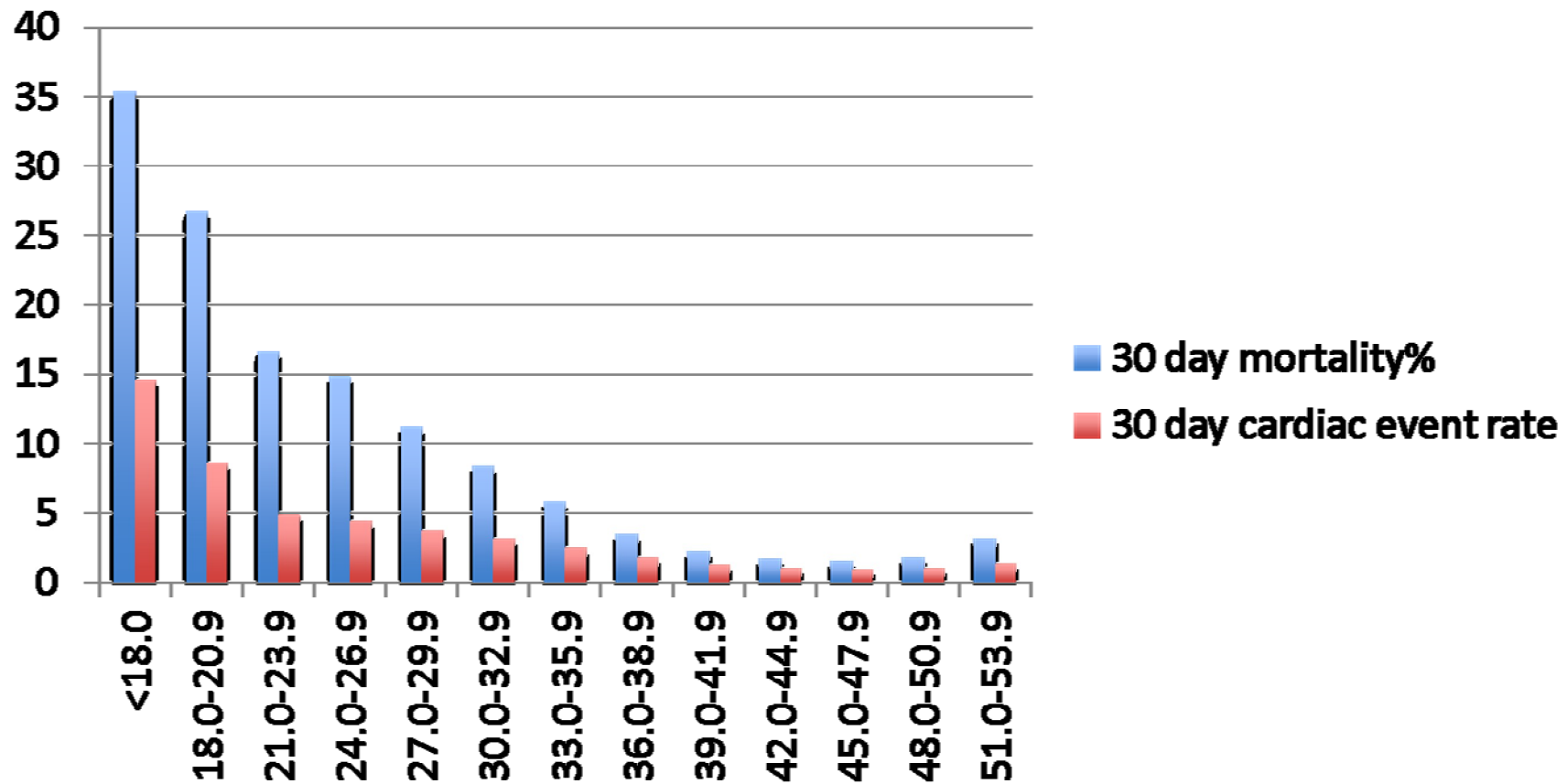
Fig. 1. Unadjusted cubic spline relationship for men and women (95% confidence intervals are indicated by the shaded areas) showing the relationship between preoperative anemia and 90-day mortality. The x axis represents the preoperative hemoglobin level in g/dl, and the y axis represents the probability of death.

Mortality and preoperative haematocrit non cardiac surgery Wu et al JAMA 2007

Table 3. Thirty-Day Postoperative Mortality and Cardiac Event Rates by Preoperative Hematocrit Level*

Hematocrit, %	No. of Cases	30-Day Crude Mortality Rates, %	30-Day Crude Cardiac Event Rates, %	Adjusted Odds Ratio for 30-Day Death (95% Confidence Interval)	Adjusted Odds Ratio for 30-Day Death or Cardiac Events (95% Confidence Interval)
<18.0	129	35.4	14.6	2.42 (1.55-3.79)	2.41 (1.55-3.73)
18.0-20.9	304	26.8	8.6	1.68 (1.22-2.30)	1.52 (1.12-2.07)
21.0-23.9	1292	16.6	4.9	1.09 (0.89-1.33)	1.11 (0.93-1.34)
24.0-26.9	5172	14.9	4.4	1.33 (1.16-1.52)	1.27 (1.13-1.44)
27.0-29.9	14 339	11.2	3.7	1.25 (1.12-1.40)	1.25 (1.13-1.38)
30.0-32.9	24 678	8.4	3.1	1.21 (1.08-1.35)	1.19 (1.08-1.31)
33.0-35.9	35 742	5.8	2.5	1.22 (1.10-1.36)	1.20 (1.09-1.32)
36.0-38.9	51 314	3.5	1.8	1.15 (1.04-1.28)	1.12 (1.03-1.23)
39.0-41.9	66 487	2.2	1.3	1.04 (0.93-1.15)	1.10 (1.01-1.20)
42.0-44.9	61 928	1.7	1.0	1.02 (0.91-1.13)	1.06 (0.97-1.17)
45.0-47.9	34 354	1.5	0.9	1 [Reference]	1 [Reference]
48.0-50.9	11 358	1.8	1.0	1.12 (0.94-1.32)	1.12 (0.97-1.30)
51.0-53.9	2577	3.1	1.4	1.48 (1.15-1.91)	1.42 (1.13-1.78)

Mortality and Cardiac Event rate with preoperative haematocrit in non cardiac surgery patients (Wu 2007)



30 day composite **mortality** noncardiac patients

Combination of anaemia and other risk factors

Musallam et al Lancet 2011;378:1396

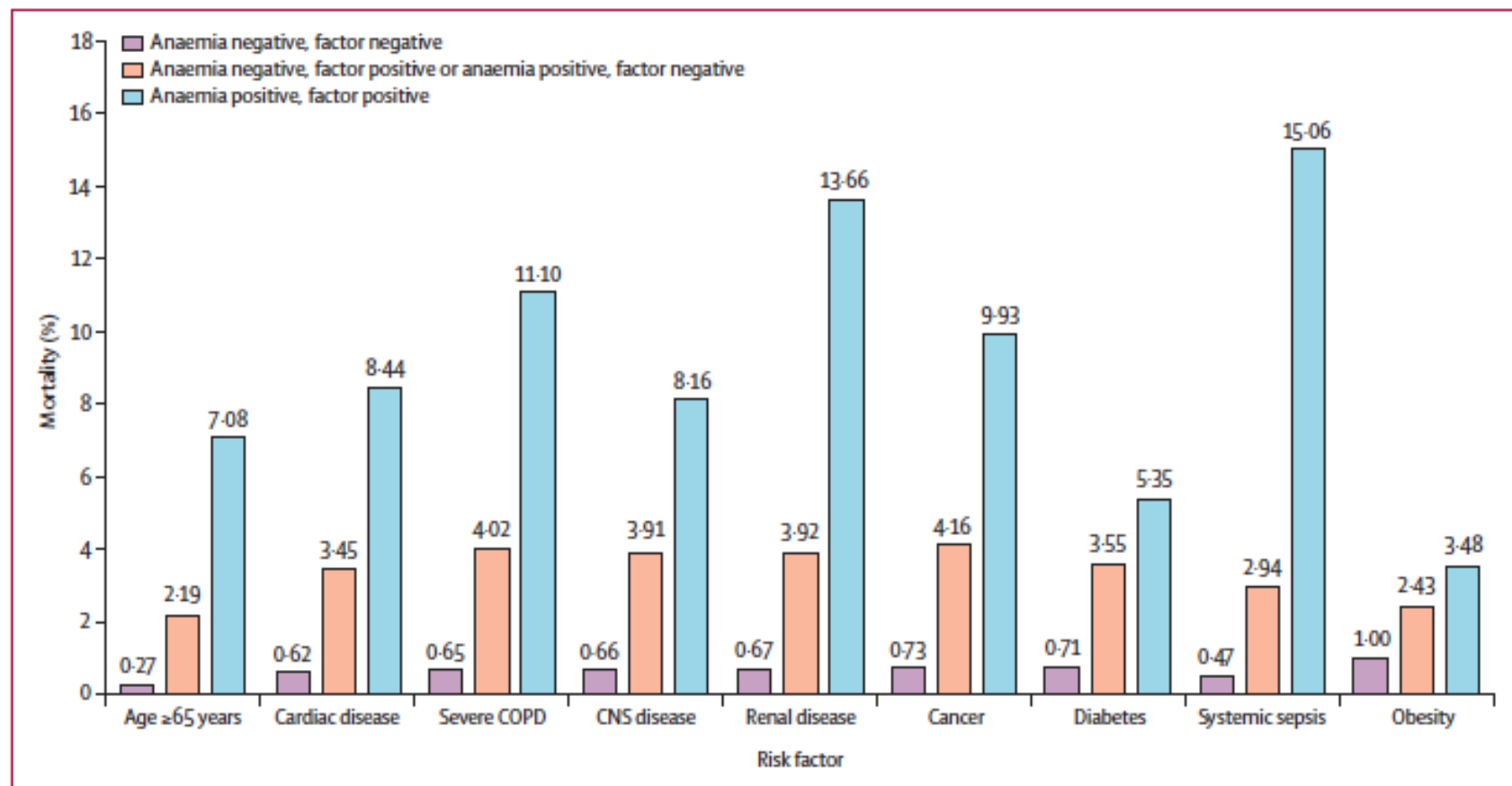


Figure 1: 30-day mortality, by anaemia and risk factor status
COPD=chronic obstructive pulmonary disease.

30 day composite **morbidity** noncardiac patients

Combination of anaemia and other risk factors

Musallam et al Lancet 2011;378:1396

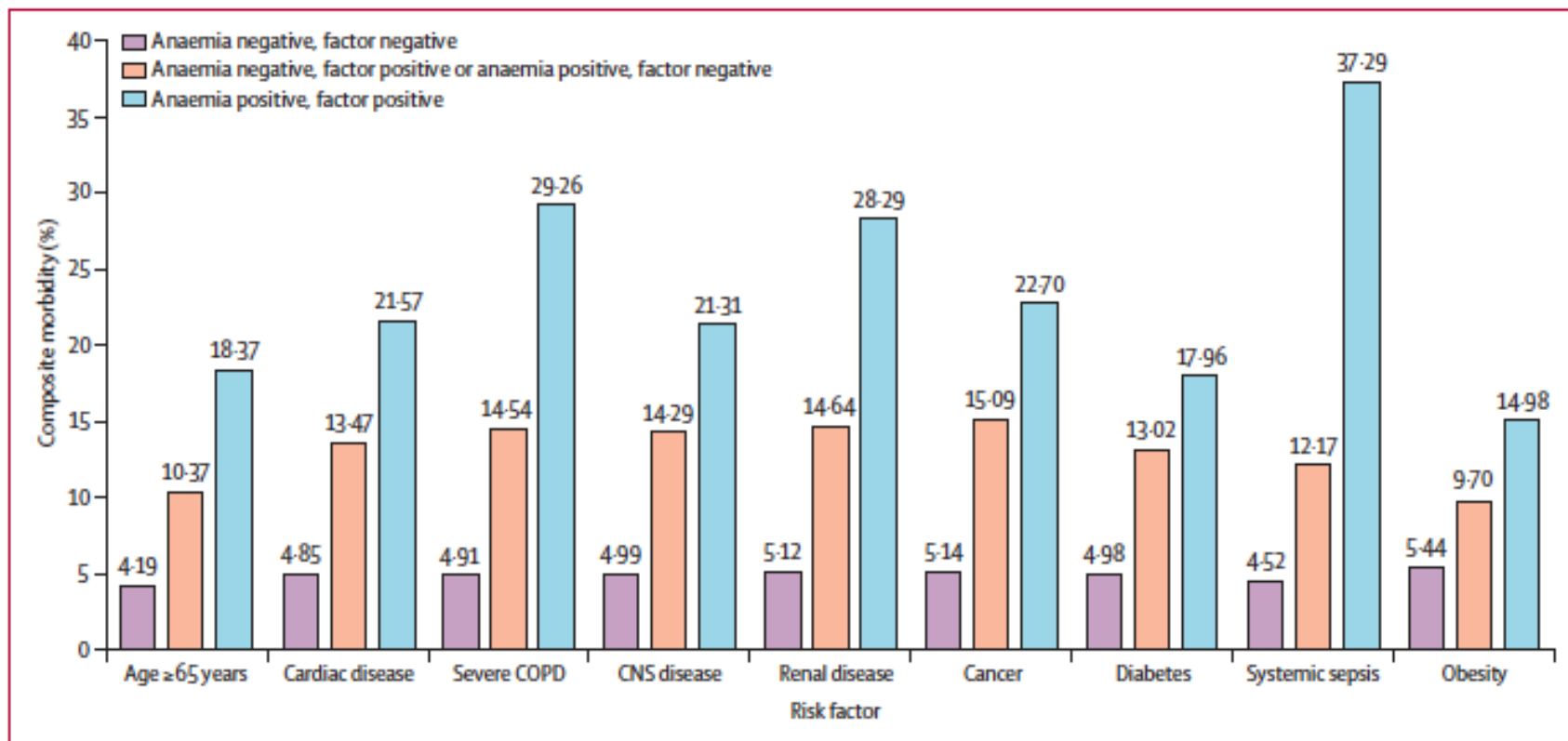


Figure 2: 30-day composite morbidity, by anaemia and risk factor status
COPD=chronic obstructive pulmonary disease.

Clinical Approach

- NICE guidance recommends that FBC should be measured in all patients in whom anaemia is suspected on the basis of history and examination
- Ideally this should be made at least **4 weeks** before surgery to allow evaluation and institution of treatment
- Usually arranged in pre operative assessment clinic ? 4 weeks before
- All patients over 60 will have FBC, U and E and ECG

Benefits of good pre-assessment prior to elective surgery

- Improved patient safety
- Improve patient understanding and awareness
- Improve quality of patient experience
- Decreased cancellation rates on day of surgery
- Facilitation of day surgery
- Decreased bed days
- Makes a happy anaesthetist!!

Network for the Advancement of Transfusion Alternatives (NATA) Guideline on preoperative anaemia in the elective orthopaedic patient

Goodnough 2011

- Recommendation 2
- Suggests that the target Hb before elective surgery be $\geq 12\text{g/dl}$ in females and 13g/dl in males
- This is a suggestion
- Delay of elective procedures allows evaluation and treatment of anaemia
- Benefits patients by reducing harm including exposure to blood transfusion

Evaluation

- Commonest causes
- Chronic blood loss (anaemia 57.6% right colon cancer and 42.2% left colon cancer, Dunne et al 2002)
- Nutritional deficiencies
- Anaemia chronic disease
- Normocytic/ microcytic/ macrocytic
- Check ferritin / B12/ Folate as required
- (All easy in primary care)

Management: First find the cause

- Rule out occult GI blood loss
- How many patients take aspirin for secondary prevention or NSAID for pain pre orthopaedic surgery??
- Could there be an undiagnosed GI cancer?
- It is more important to manage this
- Correction iron deficiency ? Oral
- Vitamin B12 and folic deficiency anaemia unusual but check especially over 60
- Anaemia of chronic disease common in CKD and heart failure may need iv iron and EPO

Is 4 weeks before surgery the best time to do this?

- Is the pre op assessment clinic the best place to do this?
- Will they investigate and manage the causes of the anaemia?
- Circular of Information for Blood and Blood Products recommends that iron, vitamin B12, folic acid and erythropoietin are used instead of transfusion if the clinical condition of the patient permits time for the agents to stimulate erythropoesis, is 4 weeks enough?

Does oral iron supplementation help?

- Iron pre-load for major joint replacement
- Andrews et al Transfus Med 1997; 7: 281-6
- 100 patients Hb 4 weeks before hip or knee replacement
- 18% had anaemia, Hb <12 g/dl (mean 10.8) and given oral iron with increase Hb 1.1g/dl before admission
- Of other 82 patients with Hb >12g/dl, half were also given iron

Does oral iron supplementation help?

- Iron pre-load for major joint replacement
- Results
- In those who were not anaemic there was no increase in Hb before surgery
- However those given iron had drop of 0.4g/dl in the week after surgery compared to drop of 1.3g/dl in those not given iron suggesting that oral iron may be protective

Pre operative oral iron may reduce the need for transfusion

In both those with and without anaemia

What about in anaemia due to bleeding?

- Preoperative oral iron in colorectal surgery : pilot study
- What would happen if you gave patients with colorectal cancer oral iron at the time of diagnosis?
- Lidder et al Ann R Coll Surg Eng 2007; 89; 418
- 49 patients with colorectal cancer recruited from out patients in Plymouth in RCT, 40% anaemic
- Median treatment 14 days (range 12-56 days)

What about in anaemia due to bleeding?

- 22 given iron supplements and mean admission Hb 13.1 g/dl (range 9.6-17)
- Ferritin level had risen from 40microg/l to 73
P=0.031
- Non supplemented patients mean admission Hb 11.8 g/dl (range 7.8-14.7) P=0.040
- No difference in operative blood loss, duration or length of stay
- Supplemented group less likely to need a transfusion mean number of units received 0 (range 0-2) compared with mean 2 units (range 0-4 units) P=0.031 in those with no supplements
- Pre operative iron reduced the need for transfusion
- In patients with colorectal cancer

What about i.v. iron?

- If this is required it will require hospital referral
- Choice will depend on iron status, tolerance of oral iron and timescale before surgery
- Evidence base small in orthopaedic patients where there is a delay between admission and surgery
- May reduce post operative anaemia
- NATA recommended a large prospective RCT of i.v. iron in surgical patients (Beris et al 2008)
- Ehenawy et al also recommended RCT (Systematic Reviews 2015)
- So best evidence is for early detection and treatment of anaemia with oral supplements
- COULD BE DONE IN PRIMARY CARE

Could we do better?

Check BEFORE you refer

- What if all OCG **required** GP to include a recent Hb with all surgical referrals?
- Would this improve detection of pre operative anaemia?
- Would this give time to investigate the cause and correct the anaemia?
- Would this improve patient safety?

Example of existing orthopaedic form: not specific enough

Lambeth Integrated MSK Service: Referral Form: Patients aged 16 years and over

Is there a history of Cancer?

Screening tools

Keele STarT back screening score (high/med/low risk) www.keele.ac.uk/sbst/

OA/HIP/Knee joint replacement guidance completed

Indications of Inflammatory back pain ASAS Expert Criteria

Please attach all relevant investigations (including imaging).

Type	When/Where	Result
X-ray		
Scans		
Blood test	?	

Complete this section for peripheral joint problems only

Does the patient have any of the following symptoms?

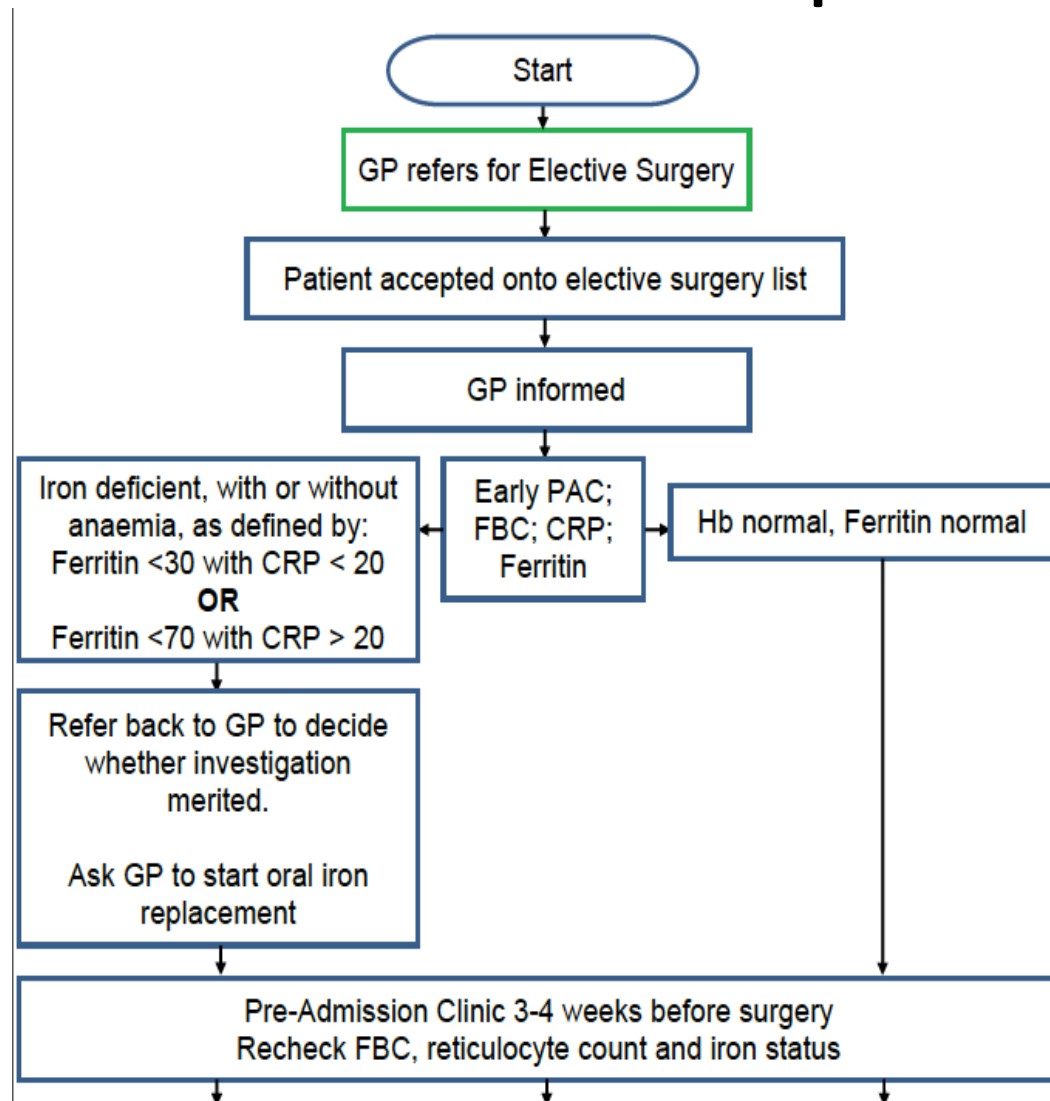
Swelling Locking Haemarthrosis Instability / Giving way

Are there any possible contraindications to joint injection

Infection (local or systemic)	Pregnancy / Breastfeeding	Bleeding disorder	Taking Warfarin / other anticoagulants	TB
Immuno suppression(Inc HIV +ve)	Other (e.g. poorly controlled Epilepsy, Hypertension, Diabetes, Hypothyroidism) (give details)			

Royal Cornwall Hospital Pathway

? Cut out 2 steps



Check BEFORE you refer

- Anaemia is common in surgical patients
- Anaemia is a serious medical condition
- Anaemia increases risk of death, septicæmia, organ failure, transfusion, prolonged hospital stay
- Detection, investigation and treatment is usually easy
- Anaemia management in primary care should improve patient outcomes

Check BEFORE you refer

- Anaemia is common in surgical patients
- Check FBC if you consider referral
- Anaemia is a serious medical condition
- If the patient is anaemic it may be more important to sort this out before you refer for an elective procedure
- Hb should be included on referral forms
- Detection, investigation and treatment is EASY
- Anaemia management in primary care should improve patient outcomes in elective surgery