

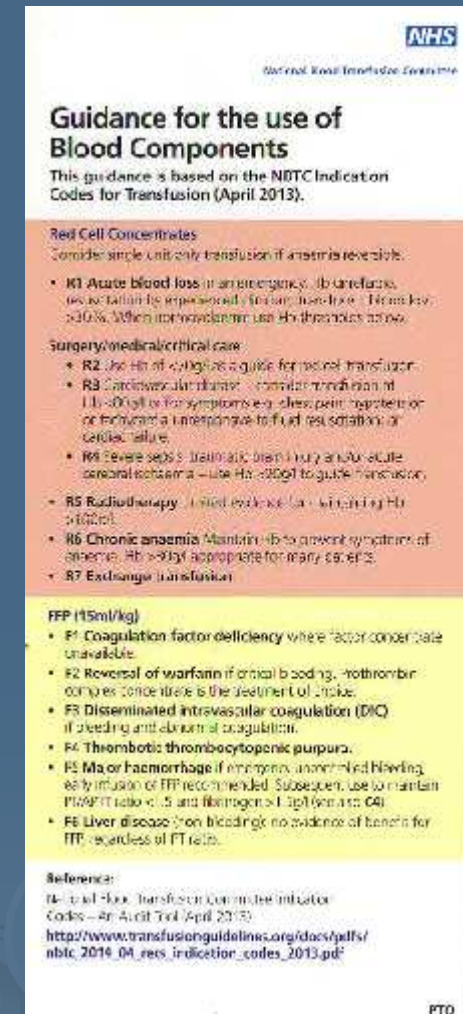
# Indications for Blood Transfusion

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- Transfusion of blood, whilst relatively safe in the UK, is not without risk.
- The most common preventable risk relates to errors in identifying patients correctly
- Donated blood is a gift to us and we must use it appropriately
- Each unit costs £120, but after lab costs and clinical time, giving a unit costs about £400

# When is transfusion appropriate in non bleeding patients?

- There are national guidelines with Indication Codes for when transfusion is appropriate and trigger haemoglobin levels to guide clinicians
- Over the last 14 years there has been a 20% reduction in RBC use. However studies still show that 20% of transfusions are for indications outside the national guidelines
- There is increasing evidence from large meta analyses that a restrictive RBC transfusion policy improves patient morbidity and mortality



# Transfusion Triggers: Acute Blood Loss

- Best assessment of blood need is by an experienced clinician
- In general, will need to transfuse after 30% blood loss (1500ml)
- Once normovolaemic aim to keep Hb above 70 g/l

# Transfusion Triggers: patients who are acutely unwell

e.g peri operative, medical or critical care

- Use Hb of **70g/l** as a guide for RBC transfusion
- Cardiovascular disease, consider transfusion at <80g/l
- Severe sepsis, traumatic brain injury or acute cerebral ischaemia use Hb < 90 g/l

*Be guided by symptoms rather than numbers*

# Transfusion Triggers: Chronic anaemia

- Maintain Hb to prevent **symptoms** of oxygen lack; e.g angina, syncope, breathless or tachycardia
- Hb >80g/l appropriate for many but some groups do better if Hb is higher
  - Patients known IHD      Hb over 80 g/l
  - Post chemotherapy      Hb 80-90g/l
  - Radiotherapy      Hb more than 100 g/l
  - CRF      Hb more than 100g/l

# Iron deficiency Anaemia

- Chronic IDA is not an indication for transfusion unless symptoms of end organ failure
- Oral iron if tolerated is first line, improving haemoglobin within weeks
- IV iron now safer and readily available within the RD & E, given over 15 to 30 minutes, blood counts improve within 7-14 days

# Why give 2 when 1 will do?


- The rule that 1 unit of blood increases Hb by 10 g/l only holds for someone of 70 kg
- In a 'little elderly lady' weighing 45kgs, the Hb may rise by 15 to 20 g/l after 1 unit
- It is very rare to need to transfuse to over 100 g/l

*Consider single unit transfusions in stable non bleeding patients*

**NHS**  
Blood and Transplant

**SINGLE Unit Blood Transfusions**  
reduce the risk of an adverse reaction

**Don't give two without review**



**THINK!**

- Is your patient symptomatic?
- Is the transfusion appropriate?
- What is the haemoglobin trigger level?
- What is the patient's target haemoglobin level?

**Each unit transfused is an independent clinical decision**

**DO!**

- ✓ Clinically re-assess the patient after each unit transfused.
- ✓ Only one unit should be ordered for non-bleeding patients.
- ✓ Document the reason for Transfusion.<sup>1</sup>

Further copies available from [NHSBT.CustomerService@nhsbt.nhs.uk](mailto:NHSBT.CustomerService@nhsbt.nhs.uk)

<sup>1</sup> British Committee for Standards in Haematology: Addendum to Administration of Blood Components, 2012. Version 1 – August 2014



# Is transfusion appropriate?

- A 78yr old patient with a chronic normochromic normocytic anaemia has a haemoglobin of 85g/l.
- What do the national guidelines say?
- Should you transfuse?

# Transfusion in Patients who are not acutely bleeding

National Guidance ( NBTC 2013)

- In chronic anaemia aim to maintain haemoglobin levels so as to prevent symptoms of anaemia
- Transfusing when haemoglobin levels fall below 80g/l is appropriate for many patients

# So in this patient.....

- The haemoglobin is not at the trigger level for transfusion but clearly the decision must be made on individual symptoms
- If his symptoms do warrant transfusion, one unit is all he is likely to need.

# Is transfusion appropriate?

- 82 yr old man with a microcytic anaemia of 76 g/l, who is breathless on exertion but has no other symptoms
- The anaemia is being fully investigated
- Should you arrange a transfusion?

# Transfusion and Iron Deficiency Anaemia

- If you are concerned he is getting end organ symptoms, a single unit transfusion is all he should need until his iron levels improve
- Start oral iron, monitor his symptoms
- Repeat his haemoglobin in 2-3 weeks, if it is improving, no need for transfusion, continue with oral iron
- If it is not improving or he is intolerant of oral iron, consider iv iron infusion

# How many units to prescribe?

- An 84 yr old lady with a longstanding anaemia of chronic disease has a haemoglobin of 70g/l and is feeling breathless and a bit dizzy on standing.
- She weighs 50 kg
- How many units should you prescribe?

# Size Matters...

- Given her size every unit will increase her haemoglobin by at least 15g/l
- You could bring her in for 1 unit and check her haemoglobin and then bring her in again for another unit if needed, but in the community this may be difficult and you may want to give her 2 units to bring her Hb up to 100g/l
- If you prescribed 3 units, you would over transfuse her

# Transfusion in Community Hospitals

- RD&E supplies 800 units per year to 6 Community Hospitals in Mid and East Devon
- Service is much valued by patients



# Audit of GP prescribing of blood in Community Hospitals

- Transfusion Practitioner working in community voiced concern that GP prescribing of transfusions may have moved away from National Guidance
- 1 report of TACO, 2 near misses in the last 2 years

# Audit of Blood Transfusion in Community

- 3 months of Community Transfusions were audited ( Oct to Dec 2014)
  - Reason for Transfusion/ Diagnosis
  - Pre transfusion Haemoglobin
  - Numbers of units Transfused
  - Post Transfusion Haemoglobin

# Results

- Number of units transfused 182
- Number of patients transfused 50
- Number of transfusions 70
  
- Average age of patients transfused 86

# Reason for Transfusion

Diagnosis	Numbers of patients ( n=50)
Cancer	14
Iron deficiency anaemia	11
Haematological Diagnosis	10
Normochromic/ normocytic anaemia	8
Chronic renal failure	3
Angiodysplasia	2
Macrocytic anaemia, not investigated	1
Sepsis	1

# Pre Transfusion Haemoglobin levels

Pre Transfusion haemoglobin levels (n=70)

No Hb found	less than 60g/l	60 – 70 g /l	71- 80 g/l	81- 90 g/l	91- 100 g/l	Over 101 g/l
2	7	10	16	20	12	3

# How many units per transfusion?

1 unit	2 units	3 units	4 units
5	35	26	4

# Results

- Cancer, haematology diagnosis, iron deficiency and normochromic anaemia were the most common reasons for transfusion
- In 50% of transfusions the haemoglobin trigger was over 80g/l
- In 37% of transfusions 3 or more units of blood were transfused

# Actions after audit

- We moved to a policy where only 2 units would be cross matched per patient per day
- All requests for transfusion in the community would be reviewed by a member of the Hospital Transfusion Team (HTT)
- Write a GP update e learning module, advertised via Local Medical Committee newsletter



# Pre Transfusion Haemoglobin levels

	Pre Transfusion haemoglobin levels						
	No Hb found	less than 60g/l	60 – 70 g /l	71- 80 g/l	81- 90 g/l	91- 100 g/l	Over 101 g/l
audit	2	7	10	16	20	12	3
Re audit	1	5	14	27	17	9	4

# How many units per transfusion?

	1 unit	2 units	3 units	4 units
Audit	5	35	26	4
Re audit	5	66	5	1

# Results of Re audit

- Similar numbers of transfusions, 77 vs 70, 20 fewer units of blood prescribed in re audit
- 61% of transfusion triggers under 81 g/l in re audit compared with 50% in initial audit
- 8% of transfusions were for 3 units or more compared with 37% in initial audit

# Is there evidence of under transfusion?

- Risk is mitigated by having a member of the HTT review each request
- A few of the MDS patients have had to come in earlier for their transfusions having had 2 units rather than 3 units
- No evidence of under transfusion

# Learning points from the change in practice

- Haematology transfusion dependent patients need flexibility of larger transfusions
- Oral iron helps quickly in iron deficient patients, several examples where transfusion could be cancelled because haemoglobin had risen quickly eg 92 yr old man 2 weeks into oral iron, Hb increased from 74 to 96g/l
- Size does matter, 40 kg lady had a 2 unit transfusion for iron deficiency and her haemoglobin increased from 64 to 103 g/l

# 5 points to consider from today

- Base transfusion decisions on symptoms rather than numbers
- It is rare to need to transfuse to over 100g/l
- Use iron ( oral or iv) for iron deficiency anaemia, transfuse only for end organ symptoms
- Size does matter
- Consider single unit transfusions in stable non bleeding patients