Appendix 4: Transfusion triggers

This guideline promotes best practice regarding blood and blood component use within NHS Borders.

1. Indications for Red Cell Transfusion:

1.1 Acute Blood Loss

An acute blood loss of greater than 20% of blood volume (about 1000ml loss) will often require transfusion. Do not delay ordering blood in situations where blood loss is acute and rapid.
If blood loss is very rapid, the hospital Major Haemorrhage Protocol should be activated by dialling 2222

1.2 Surgical Patients

Consider transfusion if:

- Pre-operative haemoglobin is less than 90g/L and surgery is associated with probable significant blood loss. Pre-operative anaemia MUST be investigated, as medical management may be more appropriate than transfusion
- Post-operative haemoglobin falls below 80g/L
- Significant co-morbidity e.g. age over 70, ischaemic heart disease, valvular heart disease and peripheral vascular disease. Seek to maintain Hb >80g/L.

1.3 Anaemia in Active Myocardial Infarction (Hb below 90g/l)

Transfusion to a Haemoglobin of 90g/L is desirable but to overshoot (Hb >100g/L) may be excessive. Evaluate the effect of each unit as it is given.

1.4 Anaemia in critically ill patients

It is recommended a transfusion threshold of 70g/L or below, with a target Hb range of 70-90g/L should be the default for critically ill patients. However, specific co-morbidities or acute illness related factors may modify clinical decision making. Transfusion triggers should not exceed 90g/L in most critically ill patients.

1.5 Chronic anaemia

Ensure appropriate investigation is instigated before transfusion e.g send samples for reticulocytes, ferritin, vitamin B12 and folate levels before transfusion.
Transfusion should not be instigated based on haemoglobin level alone. Symptoms, cause and alternative treatments should be considered first.

- Hb below 80g/L – consider transfusion, but evaluate after each unit.
- Hb between 80 and 100g/L and normovolaemic patients – consider transfusion only if symptoms and signs due to anaemia are present or there is significant co-morbidity. Fatigue/lethargy/tiredness alone are not sufficient reasons to transfuse.
- Consider transfusion if the following are due to anaemia:
  - Shortness of breath
  - Angina
  - Syncope/postural hypotension
  - ST depression on ECG
  - Tachycardia

Transfusion to haemoglobin above 100g/d is rarely indicated and the reason must be clearly documented.

- **THINK** before transfusion. Blood is in short supply, may be hazardous if used inappropriately and is expensive.
- **REASSESS** after **each** unit is given. Perform an **interval Haemoglobin** check. Do you need to give more?
- **STOP** if symptoms/signs due to anaemia resolve.

STOP if you have reached an adequate Hb i.e. above 80g/L in symptomless patients (90g/L in acute MI)

2. Platelet Transfusion Triggers

Clinical situation	Platelet Threshold/target
Reversible Bone marrow failure prophylaxis of bleeding	< 10
Reversible Bone marrow failure + sepsis prophylaxis of bleeding	< 20
Bone marrow failure + bleeding	no specific threshold
Bleeding or need for urgent surgery	no specific threshold
associated with antiplatelet agents	no specific threshold
Thrombocytopenia + requirement for invasive Procedure	no specific threshold
If no local guideless, discuss with Haematologist	

Threshold for procedures	
Diagnostic lumbar puncture	>50 x 10^9/L
Insertion/removal of epidural catheter	>80 x 10^9/L
Major surgery	≥ 50 x 10^9/L
Neurosurgery or ophthalmic surgery involving the posterior segment of the eye	>100 x 10^9/L
Percutaneous liver biopsy	>50 x1 10^9/L (consider trans-jugular biopsy if the platelet count is below this level).
Avoid prophylactic platelet transfusions in irreversible bone marrow failure such MDS, aplastic anaemia etc.	

3. Blood component infusion rates

Platelets Infusion rates:
should be infused over 30– 60minutes and commenced as soon as possible following receipt of the platelets. Do not refrigerate platelet units.

FFP infusion rates:
Typical dose12-15mL/kg and with infusion rate10-20mL/kg/hr, although more rapid infusion may be required when treating coagulopathy.

Cryoprecipitate infusion rates:
10-20mL/kg/hr and administered over 30 – 60 minutes per five unit pool. Typical adult dose is two five unit donor pools.