

## INDICATION CODES FOR TRANSFUSION IN ADULTS – AN AUDIT TOOL 2020 Update

The indications for transfusion provided below are taken from national guidelines for the use of blood components in adults (see references). Amalgamation into this summary document aims to act as a prompt for clinicians to facilitate appropriate use and to enable robust documentation of indications.

Each indication has been assigned a number, to permit reproducible coding, when requesting blood or for documentation purposes. Specific details regarding the patient's diagnosis and any relevant procedures to be undertaken should also be provided at request either on a written request form, electronic blood order or by telephone when the request is urgent.

These are current guidelines and may change depending on new evidence. The last evidence review was in January 2020.

### **Red cell concentrates**

Dose - in the absence of active bleeding, use the minimum number of units required to achieve a target Hb. Assume an increment of 10g/l per unit for an average adult.

#### **R1 Acute bleeding**

Acute blood loss with haemodynamic instability. After normovolaemia has been achieved/maintained, frequent measurement of Hb (including by near patient testing) should be used to guide the use of red cell transfusion – see suggested thresholds below.

#### **R2 Hb $\leq$ 70g/L stable patient**

Acute anaemia. Consider a Hb threshold of 70g/l and a target Hb of 70-90g/l to guide red cell transfusion. There are different recommendations (based on weak evidence) from other organisations e.g. Association of Anaesthetists.

#### **R3 Hb $\leq$ 80g/L stable patient and acute coronary syndrome**

Use an Hb threshold of 80g/l and a target Hb of 80-100g/l.

#### **R4 Chronic transfusion-dependent anaemia**

Transfuse to maintain an Hb which prevents symptoms. Suggest an Hb threshold of 80g/l initially and adjust as required. Haemoglobinopathy patients require individualised Hb thresholds depending on age and diagnosis.

#### **R5 Radiotherapy - maintain Hb $\geq$ 100g/L**

There is some evidence for maintaining an Hb of 100g/l in patients receiving radiotherapy for cervical and possibly other tumours.

## **R6 Exchange transfusion**

### **Fresh frozen plasma**

Dose – 15-20 ml/kg body weight, often equivalent to 4 units in adults.

### **F1 Major haemorrhage**

In the trauma setting transfuse empirically in a 1:1 ratio with red cells. Other settings give FFP in at least a 1 unit:2 unit ratio with red cells until results from coagulation monitoring are available. Once bleeding is controlled, further FFP should be guided by abnormalities in PT and APTT (keep PT/APTT ratio of  $<1.5$ x mean normal), or by the use of viscoelastic haemostatic assays in a near-patient setting.

### **F2 PT Ratio / INR $> 1.5$ with bleeding**

Clinically significant bleeding without major haemorrhage. FFP required if coagulopathy. Aim for a PT and APTT ratio of  $\leq 1.5$ , or local protocol range for near-patient viscoelastic assays.

### **F3 PT Ratio / INR $>1.5$ and pre-procedure**

Prophylactic use when coagulation results are abnormal e.g. disseminated intravascular coagulation and invasive procedure is planned.

### **F4 Liver disease with PT Ratio/INR $> 2$ and pre-procedure**

FFP not usually required before invasive procedure if PT ratio/INR is  $<2$  and if there is no significant risk of bleeding.

### **F5 TTP / plasma exchange.**

### **F6 Replacement of single coagulation factor**

### **Prothrombin complex concentrate**

Dose should be determined by the situation and INR. Local guidelines should be followed.

**PCC1 Emergency reversal of VKA for severe bleeding** or head injury with suspected intracerebral haemorrhage.

**PCC2 Emergency reversal of VKA pre-emergency surgery**

### **Cryoprecipitate**

Dose – 2 pooled units, equivalent to 10 individual units, will increase fibrinogen by approximately 1g/l in an average-sized adult. Cryoprecipitate should be used with FFP wherever there is a requirement for volume, except in the rare setting of isolated deficiency of fibrinogen.

**C1 Clinically significant bleeding and fibrinogen  $<1.5$ g/L ( $<2$ g/L in obstetric bleeding)**

**C2 Fibrinogen  $<1$ g/L and pre-procedure, with a risk of bleeding**

### C3 Bleeding associated with thrombolytic therapy

### C4 Inherited hypofibrinogenaemia - fibrinogen concentrate not available

#### **Platelet concentrates**

Dose – for prophylaxis, do not routinely transfuse more than 1 adult therapeutic dose. Prior to invasive procedure or to treat bleeding, consider the size of the patient, previous increments and the target count.

#### *Prophylactic platelet transfusion*

#### **P1 Plt <10 x 10<sup>9</sup>/L in reversible bone marrow failure**

Not indicated in chronic bone marrow failure if not on intensive treatment, and not bleeding.

#### **P2 Plt 10-20 x 10<sup>9</sup>/L with sepsis / haemostatic abnormality, or other additional risk factor for bleeding**

#### *Prior to invasive procedure or surgery*

#### **P3 To prevent bleeding associated with invasive procedures**

To raise the platelet count above the following thresholds for these procedures:

- **P3a Plt >20 x 10<sup>9</sup>/L - central venous line**
- **P3b Plt >40x10<sup>9</sup>/L - lumbar puncture/spinal anaesthesia**
- **P3c Plt >50x10<sup>9</sup>/L - pre-percutaneous liver biopsy / major surgery**
- **P3d Plt >80x10<sup>9</sup>/L - epidural anaesthesia**
- **P3e Plt >100x10<sup>9</sup>/L - critical site surgery e.g. CNS / eye**

Transfusion prior to bone marrow biopsy is not required.

#### *Therapeutic use to treat bleeding (WHO bleeding grade 2 or above)*

#### **P4a Major haemorrhage - Plt <50 x 10<sup>9</sup>/L**

#### **P4b Empirically in a Major Haemorrhage Pack / Protocol**

#### **P4c Critical site bleeding e.g. CNS - Plt < 100 x 10<sup>9</sup>/l**

#### **P4d Clinically significant bleeding - Plt < 30 x 10<sup>9</sup>/l**

#### *Specific clinical conditions*

#### **P5a DIC pre-procedure or if bleeding**

#### **P5b Immune thrombocytopenia (emergency treatment pre-procedure / severe bleeding)**

#### P6. Platelet dysfunction

#### **P6a Consider if critical bleeding on anti-platelet medication**

#### **P6b Inherited platelet disorders directed by specialist in haemostasis**

#### **Sources**

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