

SINGLE UNIT TRANSFUSION GUIDELINE

Background: In the past, it was accepted practice that a transfusion of a single unit of red cells was either insufficient or unnecessary, so a transfusion of two or more units became commonplace. As a consequence, some patients were over transfused and put at risk of complications such as Transfusion Associated Circulatory Overload (TACO). It is now recognised that a restrictive transfusion practice is often associated with better clinical outcomes supporting the premise that single unit red cell transfusion in anaemic non-bleeding patients below the threshold for transfusion, will be sufficient to improve symptoms and achieve the restrictive target haemoglobin. Multicentre randomised, controlled trials have demonstrated that a restrictive approach to red blood cell transfusion in non-bleeding adult patients decreases transfusions without increasing mortality or adverse events. Implementation of a single unit transfusion policy has been shown to reduce the number of transfusions performed and therefore, reduce the risk to the patient associated with allogenic blood transfusion.

This single unit transfusion guideline applies only to stable, normovolaemic patients who do not have evidence of clinically significant bleeding.

- All stable non-bleeding patients who require a blood transfusion should be transfused a single unit and reviewed before administration of a second unit.
- The transfusion of each unit should be an independent clinical decision based on the risk, benefits and alternatives.
- The re-assessment of patients must include a clinical review to identify signs and symptoms of anaemia and a repeat Hb measurement, if required.
- The decision to transfuse must be based on symptoms and not only on the patient's haemoglobin level. Signs and symptoms may include dyspnoea, tachycardia, chest pain, hypotension, increased heart rate and decreased oxygen saturation.

NBTC indications for red cell transfusion:

Acute blood loss (R1)

Hb < 70g/L (R2)

Hb < 80g/L for patients with cardiovascular disease (R3)

Hb < 90g/L for patients with severe sepsis/ traumatic brain injury/acute cerebral ischaemia (R4)

Hb < 100g/L for acute coronary syndrome

These indications should be used when making the decision to transfuse for each unit. Consider the patient's target haemoglobin level.

- Take into account the patient's weight when making the decision to transfuse a single unit. Transfusing a volume of 4ml/kg will typically give a Hb rise of 10g/L and should only be applied as an approximation for a 70-80kg non-bleeding patient (SHOT 2012). For adults weighing less than 50kg and children, volume should be calculated based on body weight and an equivalent volume transfused.
- Patients with anaemia of unknown cause should be tested for haematinic deficiencies and treated accordingly before commencing with a red cell transfusion.

- **Only transfuse if the patient is symptomatic.**
- **Only transfuse a second unit if symptoms of anaemia have not resolved.**
- **Ensure the safety and efficacy of red cell transfusion by confirming every unit transfused is a clinical decision where the expected benefit outweighs the risk.**
- **Obtain informed consent from the patient or responsible guardian prior to authorising the transfusion and document the reason for transfusion in the notes.**

This guideline has been produced in conjunction with Algorithm for Reviewing Requests for Red Cells in the laboratory.