Single Unit Transfusion of Red Cells Guidance Resource

NHS National Services Scotland

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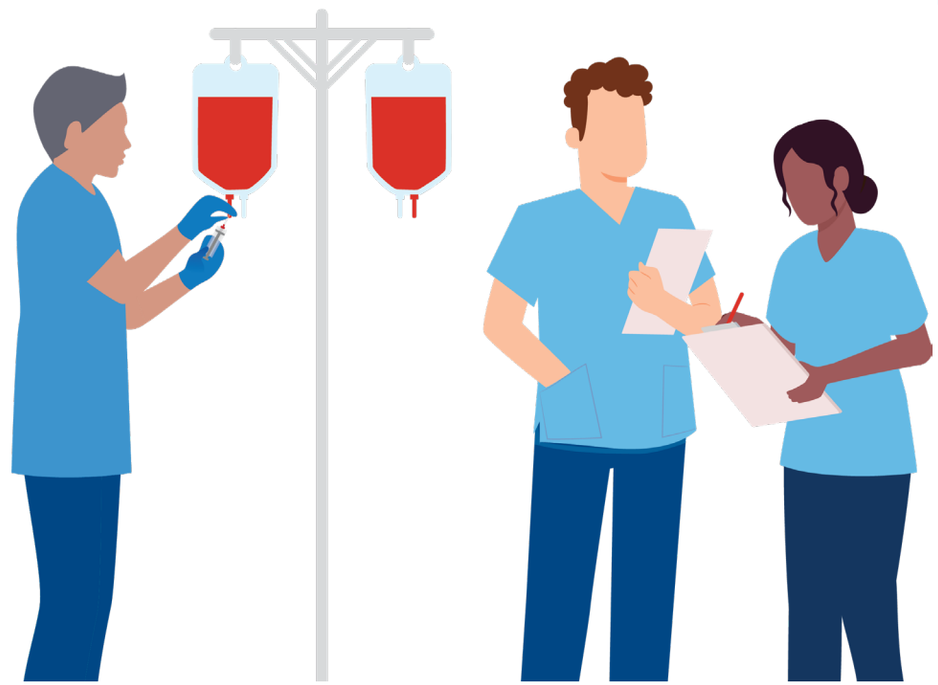
SCOTTISH NATIONAL BLOOD TRANSFUSION SERVICE®



Introduction

Blood transfusion is a supportive therapy and should only be considered when appropriate or where there is no alternative. Every decision to transfuse must be based on the clinical assessment of each patient and their individual needs. Transfusing a single unit at a time reduces inappropriate transfusion, thereby minimising any serious risks associated with transfusion such as transfusion associated circulatory overload (TACO).

Purpose

In adult patients with **stable anaemia** who are not actively bleeding **Single Unit** transfusion must be considered where red cell transfusion is clinically indicated.

Note - Transfusion therapy in severely bleeding patients should follow separate guidelines/evidence for this patient population.

Scope of Guidance

- All Healthcare Practitioners responsible for the clinical assessment, care planning and management of adult patients with stable anaemia who are not actively bleeding and where transfusion is clinically indicated.
- Laboratory staff and Hospital Transfusion Teams monitoring transfusions.

Single Unit Transfusion of Red Cells

Each unit transfused is an **independent clinical decision** and the decision to transfuse should never be made on the haemoglobin (Hb) level alone. Always fully clinically assess your patient.

When transfusion is clinically indicated **Think About Choosing One.** This can also reduce your patients' risk of Transfusion Associated Circulatory Overload (TACO). The National Transfusion Record includes the TACO risk assessment that must be completed before authorising the transfusion.

When authorising a single unit of red cells for transfusion always **consider the size, weight, and BMI** of the patient. A dose of 4ml/kg of donor red cells raises Hb concentration by approximately 10g/L.

Transfuse a single unit (or dose) of red cells to alleviate patient symptoms (e.g., dyspnoea, tachycardia, chest pain, hypotension, increased heart rate and decreased oxygen saturation). Remember it may take more than 24 hours for patients to report an improvement in symptoms after a transfusion.

Before you consider further transfusions **clinically reassess your patient and check their Hb** level after every unit of red cells transfused.

Key points

1. Clinically assess your patient.
2. Think About Choosing One (or appropriate dose).
3. Transfuse one single unit of red cells (or appropriate dose) to alleviate symptoms.
4. Clinically reassess your patient and check Hb before further transfusion.

Ensure informed consent is obtained with the patient or responsible person/guardian. It is important to seek early haematological advice for the management and discussion of alternatives in complex cases.

Remember blood transfusion is not risk free - only use when it is the most appropriate treatment

Does the patient require a blood transfusion?

If YES then give appropriate verbal and written information to the patient / carer.

Yes

Use restrictive red blood cell transfusion for patients who require red blood cell transfusions and **WHO DO NOT**

- **Have Major Haemorrhage**
- **Acute Coronary Syndrome**
- **Require Regular Blood Transfusions for Chronic Anaemia.**

1 Unit of Red Cells
Expect Hb increase of ~ 10g/L per unit based on body weight 70 kg

Consider a threshold of 70g/L and a Hb concentration target of 70-90g/L post transfusion

Consider a threshold of 80g/L with a target of 80 – 100g/L post transfusion for patients with Acute Coronary Syndrome

Consider setting individual thresholds for patients who require regular blood transfusions

No

Consider alternatives to transfusion

- Offer oral iron to patients with iron deficiency anaemia.
- Consider intravenous iron for patients who:

- Have iron deficiency anaemia but can't tolerate or absorb oral iron, or unable to adhere to oral iron guideline are (see NICE guideline)
- Have functional iron deficiency
- Have iron deficiency

- Introduction of a single-unit regime is generally encouraged to avoid TACO

- In patients with cancer or haematological malignancy a single unit regime has not been associated with adverse effects

Reassess and transfuse further units if **CLINICALLY INDICATED**

References

National Institute for Health and Care Excellence (2015) Blood transfusion. NICE guideline (NG24)
www.nice.org.uk/guidance/ng24/resources/algorithm-pdf-2178655021

b-s-h.org.uk/guidelines/guidelines/administration-of-blood-components

National Patient Safety Alert:Reducingrisksfor transfusion-associated circulatory overload (NatPSA/2024/004/MHRA - GOV.UK (www.gov.uk)

https://www.isbtweb.org/isbt-working-parties/clinical-transfusion/resources/patient-blood-management-resources/6-single-unit-transfusion.html

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