Essentials for bedside transfusions for health care professionals

This document is an aide memoire and not designed to be a training document. Individuals not trained in transfusion should not be performing transfusion related tasks.

- ✓ **Blood transfusions help improve and save lives**
- ✓ **Transfusions can result in reactions in recipients and errors along any of the steps in blood transfusion can result in significant patient impact**
- ✓ **It is important that all staff involved in blood transfusions are familiar with the processes, risks and benefits and those involved in administration must be trained, competent, regulated and registered healthcare professionals**

The nine steps in transfusion and key points to remember

1. REQUEST
2. SAMPLE TAKING
3. SAMPLE RECEIPT
4. TESTING
5. COMPONENT SELECTION
6. COMPONENT LABELLING
7. COMPONENT COLLECTION
8. PRESCRIPTION
9. ADMINISTRATION

Critical points in the laboratory

Critical points where positive patient identification is essential

*Note: Once a decision to transfuse is made, the authorisation or prescription may be written at variable times during this sequence, but **must be checked at the final stage**.*

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Blood transfusion is a complex multistep process involving several different healthcare professionals

Correct patient identification is crucial, both at the time of blood sampling and at the time of transfusion

Staff need to be vigilant and verify every step they perform in the process. An example of a transfusion checklist can be found here: https://www.shotuk.org/wp-content/uploads/myimages/Safe-Transfusion-Practice-Transfusion-Checklist-July-2020.pdf

Transfusion errors can result in major harm or patient death

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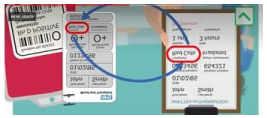
Pre-transfusion sampling and administration essentials

Pre-transfusion blood sampling and transfusion request

1. •Blood sample labelling must be full and correct and must comply with the minimum labelling criteria
2. •Labelling errors result in sample rejection. This causes delays and result in transfusion errors
3. •Remember: Positive Patient Identification – It is essential that patients must be asked to state their name and DOB. Also check authorised transfusion documentation and the compatibility label against wristband
4. •A minimum of two group and screen blood samples are required in the laboratory, consisting of one historic group and one current valid confirm group
5. •Inform transfusion laboratory regarding the urgency of transfusion along with component required and any specific requirements

<u>Essentials for labelling blood samples:</u> Use 4 identifiers - First name, surname, date of birth and unique identification number. In Wales, need address as well



Pre-transfusion checks- these checks must be undertaken at the patient's bedside

- Check the patient is consented and the blood component has been prescribed
- Check the component to be transfused is the right one and for the right patient- Where 2 person checking is in place this must be a double independent check by 2 trained clinical staff – always check local policy
- Ensure positive patient identification- It is essential that patients must be asked to state their name and DOB. Also check authorised transfusion documentation and the compatibility label against wristband
- Check the unit – donation number of the unit against the compatibility label, specific requirements and unit integrity - expiry date and visual check

Selection and use of administration sets

- •Use CE-marked blood transfusion set (170-200µm integral mesh filter). The administration set should be changed at least every 12 h (or according to the manufacturer's instructions)
- •Peripheral IV, central IV or intraosseous access suitable for blood transfusions
- •Confirm rate of transfusion
- •***Note that the giving set must be changed between red cell and platelet transfusions***
- •All devices/ equipment must be certified for use with blood components and used in accordance with manufacturer's instructions

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Documentation and monitoring

Administration

Pre-Administration checklist **must** be completed for all patients in line with DoH CAS alert CEM/CMO/2017/005. A risk assessment for transfusion-associated circulatory overload should be completed where possible

Record administration in the patient's notes and prescription chart- details about the component, donation number, date, time, signature in real time

Patient Monitoring 1/2

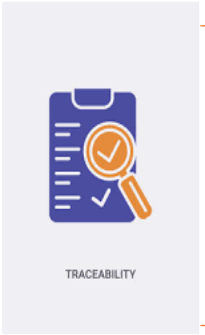
The patient must be kept under close **observation** throughout the transfusion

Observations (check local policy): minimum requirements include Pulse, Temp, BP and RR and should be done up to 1 hour before the transfusion, 15 mins after commencement and within 1 hour after completion

Patient Monitoring 2/2

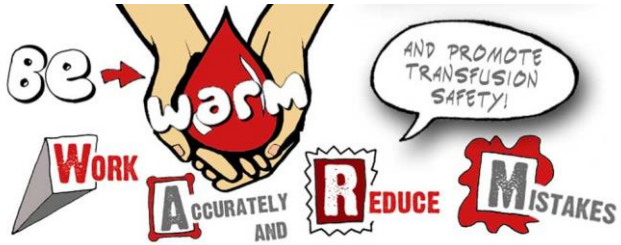
Additional (SaO2, urine output and fluid balance) and increased frequency of observations may be required according to the patient's condition e.g. risk of transfusion-associated circulatory overload (TACO) identified

Early recognition and prompt management of transfusion reactions is vital to ensure patient safety



Traceability and audit trail

Ensuring **100% traceability** is a legal requirement and confirmation of the administration should be provided to the laboratory by the clinical team with details of date and time recorded in the patient's clinical notes



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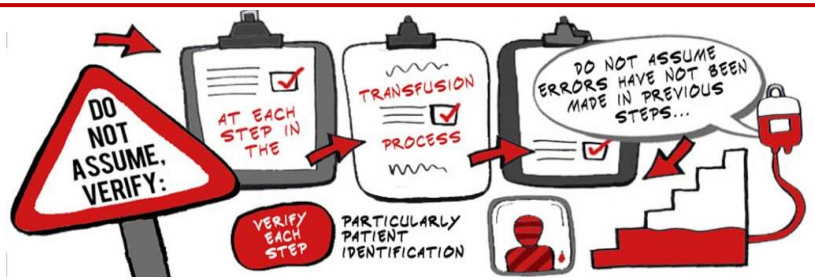

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Management of transfusion reactions

- **Transfusion reactions can occur very soon after the start of transfusion, during the transfusion or several hours later**
- **Some are life-threatening, others are minor**
- **Signs and symptoms may include fever, breathlessness, hypotension, itching, stridor, facial swelling, a feeling of doom**
- **Be particularly alert for transfusion-associated circulatory overload (increased risk with age and underlying diseases)**

Immediate Actions

- ✓ **Inform medical staff immediately**
- ✓ **Stop** the transfusion but maintain venous access
- ✓ Assess and maintain airway, breathing and circulation
- ✓ Treat the symptoms
- ✓ Confirm patient identification and compatibility of component

Depending on the type and severity of the reaction, it may be appropriate to continue the transfusion (slow rate if required). Guidance will be available from your local transfusion team. The patient will require close monitoring for any further deterioration.

Additional Actions:

- ✓ **Monitor patient observations:** Check temperature, pulse & respiration, blood pressure, urine output, Oxygen saturations.
- ✓ Review & monitor fluid balance
- ✓ Retain component bag & administration set
- ✓ Inform your transfusion practitioner and/or transfusion laboratory
- ✓ Document in patient notes
- ✓ Report as an incident
- ✓ Escalate to senior clinical team as needed and get additional help promptly

Investigations in severe reactions

- Full Blood Count (FBC)
- Coagulation Screen (including fibrinogen)
- Urea and Electrolytes
- Repeat Group and Screen and DAT

Others (to consider depending on symptoms and reaction type) Liver function tests (including bilirubin), LDH, haptoglobin, blood cultures for the patient, urine test for presence of haemoglobin, blood glucose, blood gases and Chest X-Ray.

Send the blood bag and giving set sealed back to the transfusion laboratory for further investigations. For management of transfusion reactions, see the flowchart at the end of this document and follow local protocols

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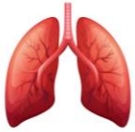
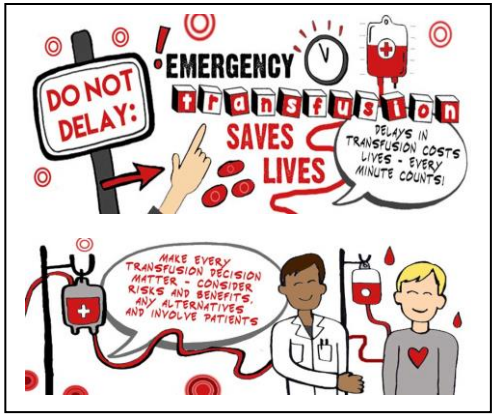
TACO checklist, component information and compatibility

TACO Checklist	Red cell transfusion for non-bleeding patients	If 'yes' to any of these questions
	Does the patient have a diagnosis of 'heart failure' congestive cardiac failure (CCF), severe aortic stenosis, or moderate to severe left ventricular dysfunction? Is the patient on a regular diuretic? Does the patient have severe anaemia?	1 • Review the need for transfusion (do the benefits outweigh the risks)?
	Is the patient known to have pulmonary oedema? Does the patient have respiratory symptoms of undiagnosed cause?	2 • Can the transfusion be safely deferred until the issue can be investigated, treated or resolved?
	Is the fluid balance clinically significantly positive? Is the patient on concomitant fluids (or has been in the past 24 hours)? Is there any peripheral oedema? Does the patient have hypoalbuminaemia? Does the patient have significant renal impairment?	3 • Consider body weight dosing for red cells (especially if low body weight) • Transfuse one unit (red cells) and review symptoms of anaemia • Measure the fluid balance • Consider giving a prophylactic diuretic • Monitor the vital signs closely, including oxygen saturation

Due to the differences in adult and neonatal physiology, babies may have a different risk for TACO. Calculate the dose by weight and observe the notes above.

Source: S Narayan (Ed) D Poles et al. on behalf of the Serious Hazards of Transfusion (SHOT) Steering Group. The 2019 Annual SHOT Report (2020).



Group O D-negative red cells are in short supply and their use should be prioritised based on gender and age. Group O D positive red cells can be used in cases of D negative adult males or women >50 years old with no known anti-D antibodies having major haemorrhage and requiring a significant number of units (>8 units). Ensure that the patient does not have any history of anti-D and is not on any chronic transfusion programme. Further details can be found in the 'NBTC appropriate use of group O D negative red cells 2019' guidance that can be accessed from this link: https://www.transfusionguidelines.org/uk-transfusion-committees/national-blood-transfusion-committee/responses-and-recommendations

Overview of different blood components

Component	Red blood cells	Fresh frozen plasma	Platelets	Cryoprecipitate
What it looks like				
Storage conditions	4 ±2°C	<-25°C (4 ±2°C once thawed)	22 ± 2°C with agitation Do not refrigerate	<-25°C (store at ambient temperature once thawed)
Shelf life	Up to 35 days from donation	36 months (24 hours after thawing) 5 days post thawing (unexpected major haemorrhage use only)	7 days (if bacteriologically screened)	36 months (use immediately and within 4 hours of thawing) Do not refrigerate
Average volume (mL)* (Adult components)	200-340mL	274mL	300mL (pooled buffy coats), 199mL (apheresis donation)	43mL (packs), 189mL (pools) from 5 donors (2 pools = 1 adult therapeutic dose)

*Neonatal and infant information can be found in BSH guidance https://onlinelibrary.wiley.com/doi/10.1111/bjh.14233

Red blood cell compatibility table

Recipient	Donor							
	O−	O+	A−	A+	B−	B+	AB−	AB+
O−	✓	✗	✗	✗	✗	✗	✗	✗
O+	✓	✓	✗	✗	✗	✗	✗	✗
A−	✓	✗	✓	✗	✗	✗	✗	✗
A+	✓	✓	✓	✓	✗	✗	✗	✗
B−	✓	✗	✗	✗	✓	✗	✗	✗
B+	✓	✓	✗	✗	✓	✓	✗	✗
AB−	✓	✗	✓	✗	✓	✗	✓	✗
AB+	✓	✓	✓	✓	✓	✓	✓	✓

Group O FFP only should be transfused to Group O recipients

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Preventing patient misidentification

DO's

- ✓ DO read all related local policies
- ✓ DO identify the patient as soon as they are admitted by asking the patient to state their full name and date of birth and other demographic details
- ✓ DO always place a wristband on the patient's wrist as soon as you have established their identity and explain the need to wear this
- ✓ DO regularly check the wristband details are legible. If not, replace it
- ✓ DO access communication support services as outlined in policy
- ✓ **DO ask the patient for their full name and date of birth at every intervention**
- ✓ **DO check the details against the wristband before carrying out any procedure or administration of medicines or blood**
- ✓ DO label any specimens after they have been taken before leaving the bedside, with the details from the identification wristband

DON'Ts

- × **DON'T read the patient details and ask them to confirm them**
- × DON'T accept a patient pointing to a name above the bed
- × DON'T rely on friends or family members for communication as there is a risk that this may not be accurate
- × DON'T label sample tubes and bottles before taking the specimen
- × DON'T take samples from more than one person at a time, ensure one patient, one sample, one request at any one time
- × DON'T label samples/check medications or blood away from the bedside. Remember the patient's identity is the most important part of the checking procedure
- × DON'T print off spare addressograph labels or use them for patient identification
- × DON'T label samples for someone else
- × DON'T expect phlebotomists to take samples when there is no wristband on the patient

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