Quick Guide to Ordering and Administering Blood

Assessment and Consent

1. Assessment by a treating clinician to establish the transfusion needs of the patient.
2. Clinician obtains documented, informed patient consent for transfusion.

Patient Identification and Sampling

3. Obtain positive patient identification. Label the tube and form with patient details.

Blood Ordering

4. Complete blood request form.
5. Perform phlebotomy using labelled tube.

6. Has a second sample policy been implemented at your facility?

Yes

- Contact the blood bank to determine if the patient has a known record and draw the crossmatch sample.

No

- Inform the blood bank of the request.

7. Known record found?

Yes

- Continue to the next step, as below.

No

- Repeat patient identification, request form and sampling procedure for an additional sample.

8. Send samples and request forms to the blood bank.
9. Samples are tested, and compatible products are matched at the blood bank.
10. Products issued to ward.

Blood Receipt and Verification

11. Upon receipt of products, check that the producs are correct.

[Never leave the blood hamper open. Keep the lid closed at all times when not removing or checking blood products.]

Pre-Transfusion Checks

12. Check and record the patient's pre-transfusion baseline readings.
13. Positvely confirm patient identifcation and confirm match between patient and product labels.

14. Dicrepancies between patient and product identification?

Yes

- Do not transfuse.
- Contact the blood bank immediately.

No

- Connect the appropriate filter to the blood bag.
- Record the unit serial number and transfusion starting time in the patient's folder.

Transfusion Monitoring

15. Monitor the transfusion rate and observe for any signs of an adverse reaction, e.g., fever, chills, etc.

Adverse Reaction Management

16. Stop the transfusion and immediately contact the blood bank if an adverse reaction occurs.

Post-Transfusion Actions

17. Record the end time of transfusion in the patient's folder upon completion.
18. Return unused blood and empty blood hampers to the blood bank.

Use of Emergency Blood

In a life-threatening emergency with no time to wait for crossmatched blood, if the Rh status is unknown, perform the Rh Slide test to determine the patient's Rh

[Rh kits are available in all WCBS emergency blood fridges].

For healthcare worker education tools,
visit www.wcbs.org.za

Follow the steps below when ordering and administering blood

▲ Top

Assessment and Consent

1. **Assessment by a treating clinician to establish the transfusion needs of the patient.**

The treating clinician will assess the patient and decide if blood products may be necessary.

The decision to transfuse blood products must have clear medical justification.

All clinicians are to consider patient blood management (PBM) principles, as these demonstrate improved clinical outcomes.

PBM principles to consider before transfusing a patient:

- Consider clinical symptoms, not haemoglobin triggers alone.
- Don't give red cells for iron deficiency anaemia without hemodynamic instability.
- Give single red cell transfusions for non-bleeding patients.
- Reassess your patient before ordering additional units of blood.
- Avoid excessive blood sampling.

Clinicians must stay abreast of developments in transfusion medicine, such as clinical indications for specific blood products, PBM, and haemovigilance. They should be aware of the availability of leucocyte-depleted blood components and/or gamma-irradiated blood components.

2. **Clinician obtains documented, informed patient consent for transfusion.**

The treating clinician must obtain documented informed patient consent prior to transfusion.

The blood supply in South Africa is safe, but blood transfusion is not without risks, such as adverse transfusion reactions and transfusion-transmissible infections. The informed consent discussion must provide a clear, understandable explanation about:

- the medical indications for transfusion and treatment
- the specific blood products and the expected number of transfusion episodes
- the significant risks of a blood transfusion
- the benefits of a blood transfusion
- alternatives to an allogeneic blood transfusion — for example, designated donation and autologous transfusion
- the alternatives to a blood transfusion and their associated risks
- the possible consequences of not receiving the recommended treatment
- the patient's right to refuse a blood transfusion
- the opportunity for the patient to ask questions and provide informed consent for transfusion.

If the requested blood products are not available in the blood bank, an alternative product is issued after consultation with the clinician. The clinician is then responsible for discussing the benefits/risks of the alternative product with the patient and getting consent.

Informed consent must be documented in the patient's hospital record.

In circumstances where it is not possible to obtain informed consent, for example, in a life-threatening emergency, a comatose patient, or an unaccompanied minor patient, it is acceptable to proceed without consent in favour of the patient's best interests, provided such action is documented in the patient's hospital record.

The consent duration may vary from a single prescription to an episode of care or specific to the treating institution.

A Western Cape Blood Service patient information leaflet is available as an adjunct to the consent discussion.

A hospital or institution that employs clinicians and other healthcare professionals or permits them to practice in its facilities should educate and make medical staff responsible for obtaining informed consent.

▲ Top

Patient Identification and Sampling

3. Obtain positive patient identification. Label the tube and form with patient details.

Positively verify patient identification by asking for their full name/surname and date of birth, checking the hospital number on the patient's wristband prior to taking the sample (phlebotomy), and labelling the blood request form. This can be asked of the conscious patient themselves or a suitable responsible person.

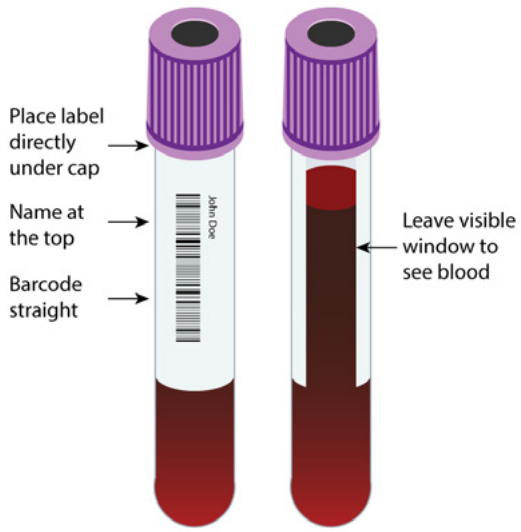
For a crossmatch and/or a group and screen request, use a 6 ml or 4 ml powder-coated EDTA tube.

Label the tube and form at the bedside before the phlebotomy.

Place the patient's hospital sticker vertically along the tube; otherwise, legibly write the patient's full name and surname, hospital number, emergency number/identity number/date of birth, and the date of sample withdrawal and ward identification. The emergency number/identity number/date of birth can substitute for the hospital number if it is not available.

In cord blood and maternal blood samples, when requesting blood products for the mother, label the form with the mother's hospital sticker.

Crosscheck the patient's details on the tube and form with the patient's hospital sticker.



For more information about blood transfusion, see the Clinical Guidelines for the Use of Blood and Blood Products in South Africa, 6th Edition.

▲ Top

Blood Ordering

4. Complete blood request form.

Never cover details with another patient's sticker. Place the sticker in the patient information section only.

Complete all the required information/key identifiers, including the following information:

- Hospital name and ward
- Patient's folder number
- Patient's full name and surname
- Patient's date of birth and identity number
- Patient's medical aid particulars
- Previous medical, obstetric and transfusion history
- Clinical diagnosis
- Reason for transfusion
- Number and type of blood component required
- Date and time when the blood or blood components should be available
- Surname and signature of phlebotomist
- Date and time when sample was drawn
- Requesting doctor's name
- Doctor's HPCSA medical practitioner number
- Doctor's practice number, if applicable

Where possible, please provide the ICD10 code and medical authorisation number.

In emergency cases, the available information as printed on the patient sticker will suffice.

The following information is required for billing purposes: medical aid scheme name and membership number; patient's full name/ surname, address, telephone number, cellphone number, and email address; and doctor's name and practice number.

A group and screen request is indicated when ordering blood for surgical procedures that only occasionally require intra-operative transfusion (fewer than 30% of cases).

5. Perform phlebotomy using labelled tube.

Do not take the sample from the intravenous drip set.

6. Has a second sample policy been implemented at your facility?

Yes

- Contact the blood bank to determine if the patient has a known record and draw the crossmatch sample. At this point, if you don't have the patient's transfusion history, contact the blood bank to find out if the patient has a previous transfusion record at the Western Cape Blood Service.

No

- Inform the blood bank of the request.

▲ Top

Blood Ordering

7. Known record found?

Yes

Submit only a fully complete blood request form and crossmatch sample to the blood bank to avoid unnecessary delays. The blood bank will reject a sample and form with any of the following: No patient identification; patient details on form and sample do not match exactly; incorrect or expired sample tube; no date, time or phlebotomist signature on the form; insufficient sample volume. Use one form for one sample.

If the sample cannot be sent to the blood bank immediately, it can be stored between 2 °C and 6 °C. The sample must be less than 24 hours old (or less than 48 hours old from upcountry) when it is received by the blood bank.

The sample must be transported in a leak-proof container such as a plastic pouch or bag. The sample and request form must be stored separately.

Before sending the blood request form and crossmatch sample to the blood bank, make sure that the patient information on the sample and form match exactly. Make sure the doctor's name and contact number are written on the form in the event of a complication. Always include the date and time when the crossmatch blood sample was taken, along with who took the sample.

Save on blood bank after-hours service fees by ordering non-urgent blood products between 8:00 —18:00 on weekdays.

The blood bank turnaround time for a STAT crossmatch is 20 to 30 minutes, a full crossmatch is two hours, and a routine crossmatch is two hours or when required.

Hospitals/healthcare facilities using Western Cape Blood Service transportation of blood must contact the Transport Supervisor — telephone 021 507 6350 or 021 507 6352 — for every request to collect/deliver blood per patient. In an urgent, STAT, or emergency case, staff must also notify the blood bank. The Transport Supervisor will need the following details: caller name, hospital name, ward, patient's full name and surname (it must please be spelt aloud), hospital number, do you need blood collection from the hospital, do you need blood delivery to the hospital, can it wait for the routine run, is it urgent (meaning it cannot wait for the routine run).

No

- **Repeat patient identification, request form and sampling procedure for an additional sample.**

If no previous transfusion record is found, the blood bank will need a second sample from the patient, together with a separate blood request form. When drawing the second sample, follow the same procedure for positive patient identification.

Do not take the first and second samples simultaneously.

8. Send samples and request forms to the blood bank.

▲ Top

Blood Ordering

9. Samples are tested, and compatible products are matched at the blood bank.

At the blood bank, laboratory tests are carried out on the sample to determine the ABO and Rh status of the patient, to detect blood group antibodies and to test for serological compatibility with the requested component.

A group and screen involve the typing of a pre-operative sample from the patient for ABO and Rh groups and a screening test for clinically significant antibodies.

Blood is then only crossmatched if clinically significant antibodies are detected or there is unexpected blood loss during surgery.

When the blood bank requests a second sample, it will test both samples and perform an electronic crossmatch, in which case, compatible blood will be selected from the fridge and issued to the patient.

The blood bank will contact the clinician in the event of a crossmatch complication and where a specific blood product may not be available to suggest an alternative blood product.

Communication between blood banks and clinicians is key. There may be instances where providing Rh-incompatible red cell concentrate is life-saving and should not be withheld. However, this must be done after careful consideration of the long-term impact on women of childbearing age.

10. Products issued to ward.

Before issuing blood for the patient, the blood bank will verify the patient's details, check all products are correctly labelled, inspect the products for leaks, clots, haemolysis and any abnormality, check whether the patient's details on the hamper label are correct, pack blood products into the hamper, sign the issue documents and perform a final check to ensure that the correct signed issue document is placed in the correct hamper. The blood bank will ensure that the necessary responsibility stickers are affixed to both issue documents and blood units for STAT requests.

For more information about blood transfusion, see the Clinical Guidelines for the Use of Blood and Blood Products in South Africa, 6th Edition.

▲ Top

Blood Receipt and Verification

11. Upon receipt of products, check that the products are correct.

When blood products are received in the ward, check that the blood inside the hamper is for the right patient, then close the hamper immediately. The instructions for checking the blood in the hamper upon receipt in the ward are as follows:

Step 1:
Check the unit particulars against the delivery note.

Step 2:
Check that the temperature of the blood product is correct.

- Red cell components are transported between 2 °C to 10 °C.
- Platelet and thawed plasma must be stored at room temperature, i.e., 20 °C to 24 °C until infusion.

Step 3:
The cable tie should only be cut when the unit is about to be transfused.

Never leave the blood hamper open. Keep the lid closed at all times when not removing or checking blood products.

For more information about blood transfusion, see the Clinical Guidelines for the Use of Blood and Blood Products in South Africa, 6th Edition.

▲ Top

Pre-Transfusion Checks

12. Check and record the patient's pre-transfusion baseline readings.

Record the patient's temperature, pulse, respiratory rate and blood pressure before a transfusion.

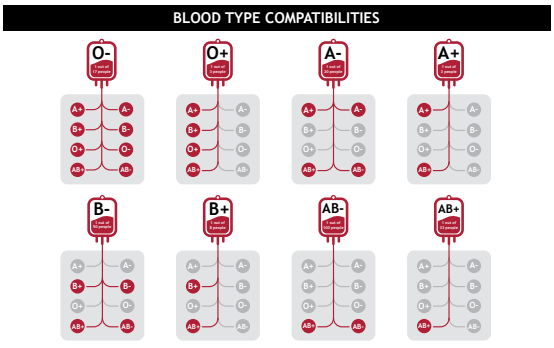
13. Positively confirm patient identification and confirm match between patient and product labels.

It should always be assumed that one has the wrong patient or unit until all identification has explicitly been checked.

- Two staff members must be present. One reads the information aloud from one source, and the other compares the information to another source, to check that it matches exactly.
- Start by asking the patient 'what is your name?'
- Extra care must be taken to identify the unconscious, anaesthetised, or unidentified patient by checking identity bands, written records, and requisition forms. Only if all identification is in order may the transfusion be initiated.
- If the patient is to receive autologous or designated units, these should be administered first. If a patient has both autologous and designated units available, autologous units should be given before designated units. If a patient has both designated and non-designated units available, designated units should be given before non-designated units.
- Recheck the clinician's order against the component received to verify you have received the correct component type.
- Perform the following cross-checks.

	Blood Unit	Issue Document	Patient's Folder
ABO/Rh	*	*	*
Patient's First Names	*	*	*
Patient's Last Names	*	*	*
Patient's Date of Birth	n/a	*	*
Patient's ID Number	n/a	n/a	*
Patient's Folder Number	*	*	*
Donation Serial Number	*	*	n/a
Blood Product Expiry	*	*	n/a
Blood Product Name	*	*	* blood request form
Blood Product Quantity	n/a	*	* blood request form

- Compatibility between the donor and the recipient must be verified as having been confirmed.



▲ Top

Pre-Transfusion Checks

- If possible, the patient's ABO and Rh groups should be confirmed from previous transfusion records in the patient's folder.
- The compatibility test has been carried out. In emergencies, where the blood bank personnel have indicated that compatibility testing was incomplete at the time of issue, the treating clinician assumes full responsibility for the transfusion.
- The treating clinician should always carefully inspect the container and the blood component therein before infusing to ensure that the hermetic seal of the container is intact and shows no evidence of being pierced or damaged after the container was filled, and that the expiry date of the blood/product has not passed.
- The colour of a red cell concentrate unit should not be significantly darker than the attached segments. Plasma in the unit should not be murky, purple, brown, or red. Platelet units will be a cloudy yellow/straw colour and should not contain grossly visible aggregates. Thawed fresh frozen plasma (FFP) will be clear, varying from yellow to straw-coloured. Cryoprecipitate will usually be a cloudy straw colour.

14. Discrepancies between patient and product identification?

Yes

Do not transfuse. Contact the blood bank immediately.
If any abnormalities are noted, the blood component should not be transfused and must be returned to the blood bank.

No

Connect the appropriate filter to the blood bag by inserting the filter spike into the unit port. Red blood cells (RBCs), whole blood, cryoprecipitate and FFP are administered through a standard blood-recipient set or Y-type giving set. These have 170 µm to 240 µm mesh filters to prevent the transfusion of clots or coagulation debris. The filter should be covered with blood to ensure the full filtering area is used.

A platelet administration set should preferably be used for platelets, although the standard filter administration set may also be used in an emergency. The latter results in a greater loss of the available platelets due to a larger surface area for adhesion. The use of microaggregate (40 µm) is not recommended.

Do not add drugs or medication to blood or blood components. Crystalloid solutions with no calcium and/or dextrose additives may be mixed with blood. Because of the serious risk posed to the patient by bacterially contaminated blood components, containers with a perforated or broken seal must not be used unless it is known that the container was entered aseptically, in which case the infusion must be commenced within four hours and completed within six hours of the container being opened or entered. Blood components should be transfused through a sterile, pyrogen-free transfusion set with a filter designed to retain particles potentially harmful to the recipient. A filter with a pore size of 150 µm to 240 µm is recommended.

The administration set should be changed:
- When there is a transfusion reaction, to prevent potentially harmful blood from entering the patient's system.
- Between red cells and other blood products and between red cell transfusions of different ABO groups.
- Before infusing other fluids, such as dextran and Ringer's lactate.
- Every 12 – 24 hours in patients requiring long-term transfusion.

▲ Top

Pre-Transfusion Checks

Insert the cannula

- Blood is usually transfused through a large needle or cannula, the size of which is selected according to the calibre of the patient's veins. Almost any peripheral vein is suitable for transfusion, but the forearm veins are preferable as the patient's movement will not be restricted.
- Meticulous skin care and aseptic techniques cannot be over-emphasised in transfusion therapy, as blood acts as an ideal culture medium for bacterial growth. The proposed site for venipuncture should be cleaned with the recommended hospital antiseptic, working from clean to dirty areas. Ideally, gloves and a sterile field should always be used to position the cannula for transfusion, especially in immunocompromised or long-term transfusion patients. The site should never be re-palpated after cleansing. During transfusion, the transfusion site should be visible through a transparent dressing so that any inflammation or infiltration may be seen immediately. The transfusion cannula should be repositioned if inflammation or infiltration is observed.

Warming blood.

- Red cell components should not routinely be pre-warmed unless rapid infusion of four or more units is anticipated.
- Blood warmers designed for the purpose should be used. Red cell components must not be warmed above 37 °C.
- Units that have been warmed prior to infusion should be clearly identified as such by a suitable method indicating the date, time, and temperature.
- Infusion of warmed red cells should be completed within six hours of warming. Warmed blood that is not infused cannot be reissued.
- Frozen FFP shall be thawed between 30 °C and 37 °C; not exceeding 37 °C. After thawing, the expiry time shall be six hours. Once thawed, it should be stored or transported at a temperature not exceeding 24 °C.

- **Record the unit serial number and transfusion starting time in the patient's folder.**

  Record the unit serial number, transfusion date, and transfusion start and finish time in the patient's folder. The information should be retained permanently in the patient's folder.

For more information about blood transfusion, see the Clinical Guidelines for the Use of Blood and Blood Products in South Africa, 6th Edition.

▲ Top

Transfusion Monitoring

15. Monitor the transfusion rate and observe for any signs of an adverse reaction, e.g., fever, chills, etc.

Rate of transfusion.

- The rate of transfusion depends on the patient's clinical condition. A patient in acute shock from massive blood loss will require rapid transfusion, whereas the rate should not exceed 2 ml per minute in a patient with chronic anaemia.
- For the first 30 minutes, a relatively slow rate of 5 ml per minute is recommended. The rate can be increased if there is no sign of an untoward reaction.
- Blood transfusions must be completed within six hours of entry of the unit.
- Blood components not used immediately should be stored at the temperature specified by the blood bank.
- Blood components no longer required for a specific patient must be returned to the blood bank either for correct storage (only if still contained in the original hamper packaging with no broken seals) or for disposal.

Observe the patient closely for the first 30 minutes of the transfusion to detect any untoward reaction and maintain the desired transfusion rate. A reaction encompasses all instances where infusions are followed by evidence of infection, intravascular haemolysis, or any other sign/symptom after the infusion that appears to be attributable to it.

In cases of major blood loss, ideally, the central venous pressure (CVP), pulse, blood pressure (BP), respiratory rate, and urinary output should be monitored every 15 minutes throughout the transfusion. In less severe cases, the recipient's vital signs should be checked every 30 minutes after the initial 30-minute observation. Patients at risk of circulatory overload should be observed for 12 - 24 hours after transfusion.

For more information about blood transfusion, see the Clinical Guidelines for the Use of Blood and Blood Products in South Africa, 6th Edition.

▲ Top

Adverse Reaction Management

16. Stop the transfusion and immediately contact the blood bank if an adverse reaction occurs.

If a transfusion adverse reaction is suspected:

- Stop the transfusion immediately.
- Call for assistance and notify the patient's doctor.
- Keep venous access open for the patient with normal saline using a new drip set.
- Manage specific reactions, such as allergic reactions, fever, and dyspnoea.
- Verify the patient's identity and compare this to the details on the blood product to check that the correct blood product was transfused.
- Once the patient has been stabilised, notify the blood bank.
- Complete the report of a suspected adverse transfusion reaction form supplied by the blood bank and return it together with three post-transfusion EDTA samples, all used and unused units, and all giving sets still attached to the unit.
- Further management depends on the type and severity of the reaction.

Report every adverse transfusion incident (including suspected transmission of a transfusion-related infection), reaction and near-miss event to the blood bank, even when no adverse reaction is observed.

An adverse reaction is an undesirable response or effect in a patient that is temporally associated with the administration of blood or blood components. It may, but need not, be the result of an incident.

An incident is a case where the patient is transfused with a blood component that does not meet all the requirements for a suitable transfusion for that patient, or that was intended for another patient. An incident is thus comprised of transfusion errors and deviations from standard operating procedures (SOPs) or hospital policies, leading to an incorrect blood component transfusion (IBCT). An incident may or may not lead to an adverse reaction.

A near miss is an error or deviation from SOPs or policies that could have led to a wrongful transfusion or a reaction in a recipient but was discovered before the start of the transfusion.

Febrile, allergic, mixed allergic/febrile non-haemolytic transfusion reactions (FNHTRs), hypotensive and anaphylactic reactions are unpredictable and mostly unpreventable. This highlights the importance of transfusing blood and blood products only when truly required.

For more information about blood transfusion, see the Clinical Guidelines for the Use of Blood and Blood Products in South Africa, 6th Edition.

▲ Top

Post-Transfusion Actions

17. **Record the end time of transfusion in the patient's folder upon completion.**

18. **Return unused blood and empty blood hampers to the blood bank.**

    All used blood containers should be returned immediately to the blood bank. Ensure that hampers remain clean, remove all needles, and place the green stopper in the container's opened port.

    Return unused red cell concentrates to the blood bank:
    - Within 24 hours from the time issued.
    - Provided the unit remains attached to the hamper rod with the cable tie.
    - The storage temperature is between 2 °C and 10 °C.

For more information about blood transfusion, see the Clinical Guidelines for the Use of Blood and Blood Products in South Africa, 6th Edition.

▲ Top

Use of Emergency Blood

In a life-threatening emergency with no time to wait for crossmatched blood, proceed as follows:

1. For a Rh+ patient, select O+ emergency blood.
2. For a Rh- patient, select O- emergency blood.
3. If the Rh status is unknown, perform the Rh Slide test to determine the patient's Rh (kits are available in all WCBS emergency blood fridges).
4. If the Rh status is unknown and the Rh Slide test cannot be performed, select -
   - O+ emergency blood for a male patient.
   - O+ emergency blood for a female patient over childbearing age.
   - O- emergency blood for a female patient of childbearing age.
     - If the patient has received Rh+ blood, administer Rhesugam®. If Rhesugam® was not administered, counsel the patient regarding the risk of future Rh-incompatible pregnancy.
5. Remove only one unit of blood at a time from the emergency fridge.
6. Immediately complete the emergency blood form with the relevant patient's information.
7. Do not place an opened or partially used blood unit back in the fridge. Instead, return it immediately to your supplying blood bank.
8. In times of critical blood shortages, O- emergency blood should be prioritised for transfusion to Rh- women of childbearing age.

Ideally, the limit should be four units per emergency episode unless otherwise clinically indicated. A blood sample for crossmatching should be taken from the patient as soon as possible and urgently sent to the blood bank.

For more information about blood transfusion, see the Clinical Guidelines for the Use of Blood and Blood Products in South Africa, 6th Edition.