World Health Organization

Clinical Transfusion Process and Patient Safety

AIDE-MÉMOIRE

for National Health Authorities and Hospital Management

Blood transfusion is an essential, life-saving intervention in the clinical management of patients. All patients requiring transfusion should have reliable access to safe blood products, including whole blood, labile blood components and plasma-derived medicinal products. Transfusion should be appropriate to patients' clinical needs, provided in time and correctly administered.

Patient safety in blood transfusion depends on both the safety of blood products and the safety of the clinical transfusion process – a process that encompasses a series of inter-connected steps including the prescription and ordering of blood products; patient identification; collection and labelling of patient blood samples; pre-transfusion compatibility procedures and issue of blood; collection and transportation of blood units within the hospital; handling of blood units in the clinical area; blood administration; monitoring of patients; and management of adverse transfusion events.

An appropriate and correct clinical transfusion process ensures patient safety and contributes to improved health and survival. However, transfusion carries the risk of adverse events including errors, transfusion reactions and transmission of infections. The most important cause of serious transfusion reactions and death is wrong blood transfusion due to errors during the clinical transfusion process, such as incorrect identification of patients, blood samples or blood units; sampling and labelling errors; laboratory errors; clerical errors; improper storage and handling of blood; failure to perform the final bedside check prior to blood administration; and lack of patient monitoring during transfusion.

Errors during the clinical transfusion process can be prevented by the strengthening of hospital systems and processes for clinical transfusion, the training of hospital staff and the implementation of standardized procedures throughout the clinical transfusion process.

Words of advice

- **Ensure an adequate and reliable supply of safe blood products and transfusion alternatives**
- **Establish policies and systems for safe clinical transfusion and patient safety in all health facilities performing transfusion**
- **Establish hospital transfusion committees and designate transfusion safety officers in hospitals**
- **Provide training for all clinicians, nurses, laboratory/blood bank staff, pharmacists and other personnel involved in the clinical transfusion process**
- **Ensure the implementation of standardized procedures throughout the clinical transfusion process, including patient identification, blood administration and patient monitoring**
- **Establish haemovigilance systems to monitor, report and investigate adverse events associated with transfusion**

Checklist

Hospital requirements

- ❑ Adequate stock of safe blood products
- ❑ Adequate number of qualified, trained staff
- ❑ System for patient identification
- ❑ Clinical transfusion process integrated into hospital quality system, including documents and records
- ❑ Functioning hospital transfusion committee
- ❑ Transfusion safety officer
- ❑ Patient information and consent
- ❑ Suitable hospital blood bank infrastructure

Transfusion guidelines and protocols

- ❑ Clinical and laboratory indications for the use of blood products
- ❑ Standard blood request form
- ❑ Blood ordering schedules for elective surgery
- ❑ Standard operating procedures for the clinical transfusion process

Transfusion in the clinical area

- ❑ Rational use of blood products on the basis of patients' clinical needs
- ❑ Accurate patient identification
- ❑ Proper collection and accurate labelling of patient blood samples
- ❑ Correct handling of blood units
- ❑ Safe blood administration, including final bedside check of patient identity, blood units and documents
- ❑ Monitoring of patient before, during and after transfusion
- ❑ Managing adverse transfusion events

Hospital blood bank/transfusion laboratory

- ❑ Blood stock management
- ❑ Blood cold chain for storage and transport-ation of blood products
- ❑ Pre-transfusion compatibility procedures, including labelling and issue
- ❑ Retention and storage of patients' blood samples
- ❑ Recording and investigation of adverse transfusion events

Monitoring and evaluation

- ❑ Haemovigilance system for the monitoring, reporting and investigation of adverse transfusion events
- ❑ Indicators for monitoring quality and safety of the clinical transfusion process
- ❑ Analysis of haemovigilance data, followed by corrective and preventive action
- ❑ Regular review of blood use and transfusion practices

Key elements

Hospital requirements for safe clinical transfusion and patient safety

National health authorities and hospital management are responsible for assuring patient safety throughout the clinical transfusion process. Effective systems and mechanisms, including communication, coordination and monitoring, should be in place to ensure that hospital transfusion requirements are implemented in each department, clinical discipline and service in every hospital.

Hospitals should maintain close liaison with blood centres to ensure that adequate stocks of safe blood products are available at all times. Replacement fluids, pharmaceuticals and devices should also be available as alternatives to transfusion.

Staff involved in the clinical transfusion process, including clinical, laboratory, nursing and other staff, should be qualified, adequate in number and provided with ongoing training.

The failure to correctly identify patients is one of the principal causes of medical errors in hospital procedures. A system of patient identification, including the use of wristbands, should be put in place to enable staff to correctly identify patients before commencing any procedures.

In each hospital, the quality system should cover the entire clinical transfusion process, including the development of documents such as standard operating procedures, standard forms, labels and records (patient, clinical, laboratory and transfusion) to ensure traceability between the patient, blood unit and blood donor.

Hospital management should establish a functioning transfusion committee which has authority and responsibility to develop, monitor and implement its transfusion policy. It should also designate a transfusion safety officer(s) to liaise between the transfusion committee, clinical disciplines and services on a day-to-day basis to promote consistency in the implementation of transfusion guidelines and protocols.

Patients should be provided with sufficient information to enable them to give informed consent for blood transfusion.

There should be a suitable infrastructure for the implementation of good pre-transfusion procedures in the hospital blood bank/transfusion laboratory.

Transfusion guidelines and protocols

Each hospital should implement national transfusion guidelines to ensure uniform standards and safe practices. These should include:

- Clinical and laboratory indications for the use of blood products and alternatives to transfusion
- System for requesting blood for transfusion in routine and emergency situations and use of a standard blood request form and blood ordering schedules for elective surgery
- Use of standard operating procedures to ensure consistency and reliability in the transfusion process.

Transfusion in the clinical area

While responsibility for the decision to transfuse ultimately rests with the attending doctor, patient safety in blood transfusion is the responsibility of all staff involved in the clinical transfusion process. This requires:

- Systematic assessment of the clinical need for blood transfusion
- Avoidance of unnecessary transfusions through the use of replacement fluids, pharmaceuticals and medical devices, where possible
- Rational use of blood products on the basis of patients' clinical needs
- Checking patient identity at the time of sample collection and prior to blood transfusion
- Collection and accurate labelling of patient blood samples
- Sending blood samples to blood bank with completed blood request forms
- Receipt, correct storage and handling of blood units in the clinical area
- Checking the integrity of blood units before transfusion
- Final bedside identification check of patient, documents and each blood unit before commencing transfusion
- Timely administration of blood products, including correct use of blood warmers and filters
- Recording of transfusion in patients' notes, including the identities of the prescriber and the person administering the transfusion
- Careful monitoring of patients before, during and after transfusion and follow-up
- Rapid management and reporting of adverse transfusion events.

Hospital blood bank/ transfusion laboratory

The hospital blood bank/transfusion laboratory is responsible for providing compatible blood for the right patient in a timely manner. This requires:

- Efficient blood stock management to ensure the timely availability of compatible blood and reduce wastage
- Correct storage of blood products to maintain their efficacy and safety
- Correct performance of pre-transfusion compatibility procedures on recently collected samples
- Accurate labelling of blood units with patients' details and issue for clinical use
- Effective blood cold chain for correct storage and transportation of blood products under suitable conditions
- Retention and storage of patient blood samples
- Investigation, reporting and recording of transfusion reactions, including:
  - Retrieval of implicated blood units and related documents from the clinical area
  - Obtaining appropriate blood and urine samples from the patient.

Monitoring and evaluation

Systems should be put in place at national and hospital levels for the monitoring and evaluation of the clinical transfusion process and patient safety.

The hospital transfusion committee should define steps to:

- Establish a haemovigilance system for the monitoring, reporting and investigation of adverse transfusion events in the hospital; this should be linked with regional and national haemovigilance systems, if possible
- Develop and monitor indicators, such as number of transfusion reactions and blood outdate rate, and assess trends in the quality and safety of the clinical transfusion process
- Analyse haemovigilance data for corrective and preventive action, where required
- Review blood use and transfusion practices, including clinical audits.

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