



# **THE APPROPRIATE CLINICAL USE OF BLOOD AND BLOOD PRODUCTS**

Information Sheet for Clinicians

## The appropriate use of blood and blood products

Blood transfusion is an essential part of modern health care and has also demonstrated its efficacy in secondary health care in developing countries.

Used appropriately, transfusion can save life and improve health. However, it always carries potential risks for the recipient and should be prescribed only for conditions with significant potential for morbidity or mortality that cannot be prevented or managed effectively by other means.

Transfusion is often unnecessary for the following reasons.

- 1 The need for transfusion can often be avoided or minimized by the prevention or early diagnosis and treatment of anaemia and conditions that cause anaemia. The patient's haemoglobin level can often be raised by iron and vitamin supplementation without the need for transfusion. Red cell transfusion is needed only if the effects of chronic anaemia are severe enough to require rapid raising of the haemoglobin level.
- 2 Blood is often unnecessarily given to raise a patient's haemoglobin level before surgery or to allow earlier discharge from hospital. Where possible, anaemia should be corrected and depleted iron stores replaced before planned surgery.
- 3 Transfusions of whole blood, red cells or plasma are often given when other treatments, such as the infusion of normal saline or other intravenous replacement fluids would be safer, less expensive and equally effective for the treatment of acute blood loss.

- 4 Patients' transfusion requirements can often be minimized by good anaesthetic and surgical management, including:
  - ◆ Using the best anaesthetic and surgical techniques to minimize blood loss during surgery
  - ◆ Stopping anticoagulants and anti-platelet drugs before planned surgery, where it is safe to do so
  - ◆ Minimizing the blood taken for laboratory use, particularly in children
  - ◆ Salvaging and reinfusing surgical blood losses
  - ◆ Using alternative approaches such as desmopressin, aprotinin or erythropoietin.

## Safe blood transfusion

Before prescribing blood or blood products for a patient, it is always essential to weigh up the risks of transfusion against the risks of not transfusing.

The transfusion of red cell products carries a risk of serious transfusion reactions and the transmission of infections, such as HIV, hepatitis B, hepatitis C, syphilis, malaria and Chagas disease.

Plasma can transmit most of the infections present in whole blood and can also cause transfusion reactions. There are very few indications for its transfusion and the risks very often outweigh any possible benefit to the patient.

Any blood product can become contaminated with bacteria and is very dangerous if it is manufactured or stored incorrectly.

The risks associated with blood transfusion depend on:

- ◆ The incidence and prevalence of transfusion-transmissible infections (TTIs) in the blood donor population
- ◆ The effectiveness of procedures for blood donor recruitment, selection, screening, deferral and exclusion: blood donated by regular voluntary non-remunerated donors carries a lower risk of transfusion-transmissible infection than blood donated by family/replacement donors while paid blood donors generally have the highest incidence and prevalence of TTIs
- ◆ The quality of screening of all donated blood for TTIs
- ◆ The quality of blood grouping, compatibility testing and component preparation
- ◆ The efficiency of the blood cold chain for the storage and transportation of blood products
- ◆ The reliability of the system for ensuring that patients receive blood that is compatible with their blood group, red cell antibodies and other special requirements
- ◆ The clinical use of blood and blood products only when no alternatives to transfusion are available.

Every prescriber of blood should be familiar with the local system for the collection, screening and processing of blood and understand any limitations that it may impose on its safety or availability. In particular, knowledge of the occurrence, distribution and spread of transfusion-transmissible infections is essential to informed judgements about the risks and benefits of transfusion.

Other than in the most exceptional life-threatening situations, blood should not be transfused unless it has been obtained from appropriately selected donors, has been screened for TTIs and has been

tested for compatibility between the donor's red cells and antibodies in the patient's plasma.

All patients should be monitored before, during and after transfusion.

## Prescribing blood and blood products

Prescribing decisions should be based on national guidelines on the clinical use of blood, taking individual patient needs into account. However, responsibility for the decision to transfuse must ultimately rest with individual clinicians.

The key principle of clinical transfusion practice is that transfusion is only one part of the patient's management. The decision to transfuse blood or blood products should always be based on a careful assessment of clinical and laboratory indications that transfusion is necessary to save life or prevent significant morbidity. It should also be based on knowledge of the resources available for managing patients and the safety of the blood and blood products available.

The extent to which blood is used appropriately depends on a range of factors, such as the effectiveness of programmes to reduce nutritional anaemia and the availability of intravenous replacement fluids. Many of these factors are beyond the immediate control of prescribers of blood. However, it is the responsibility of individual clinicians to ensure that their own clinical decisions on transfusion are appropriate for their patients.

Remember that, when used correctly, blood can be life-saving. Inappropriate use can endanger life and may cause a shortage of blood for other patients who require it.

## **Prescribing blood: a checklist for clinicians**

**Always ask yourself the following questions before prescribing blood or blood products for a patient**

- 1 What improvement in the patient's clinical condition am I aiming to achieve?
- 2 Can I minimize blood loss to reduce this patient's need for transfusion?
- 3 Are there any other treatments I should give before making the decision to transfuse, such as intravenous replacement fluids or oxygen?
- 4 What are the specific clinical or laboratory indications for transfusion for this patient?
- 5 What are the risks of transmitting HIV, hepatitis, syphilis or other infectious agents through the blood products that are available for this patient?
- 6 Do the benefits of transfusion outweigh the risks for this particular patient?
- 7 What other options are there if no blood is available in time?
- 8 Will a trained person monitor this patient and respond immediately if any acute transfusion reactions occur?
- 9 Have I recorded my decision and reasons for transfusion on the patient's chart and the blood request form?

**Finally, if in doubt, ask yourself the following question.**

- 10 If this blood was for myself or my child, would I accept the transfusion in these circumstances?