



BLOOD TRANSFUSION SAFETY

Information Sheet for National Health Authorities



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Blood Transfusion Safety
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Blood safety

Blood transfusion is a vital component of every country's health care delivery system. It can be a life-saving intervention, but it may also result in acute or delayed complications and carries the risk of the transmission of infections.

Between 5% and 10% of HIV infections worldwide are transmitted through the transfusion of infected blood and blood products. Many more recipients of blood products are infected by hepatitis B and C viruses, syphilis and Chagas disease.

More than 75 million units of blood are donated each year throughout the world. A significant proportion of these expose recipients of blood and blood products to unnecessary risk.

Less than 40% of the blood supply in developing countries is collected from voluntary non-remunerated blood donors, who are at significantly lower risk for transfusion-transmissible infections than family/replacement donors and paid blood donors. More than 18 million units of blood are not screened for transfusion-transmissible infections.

In addition, many transfusions are clinically unnecessary, providing little or no benefit to the patients who receive them and wasting a scarce resource that may result in a shortage of blood products for patients in real need.

The costs of unsafe blood

Blood is a national resource. It is the responsibility of governments to ensure that the blood supply is safe, adequate to meet the needs of patient populations and available to all who require it.

It is also the responsibility of governments to ensure that all clinicians are trained to prescribe blood and blood products only when clinically necessary.

This cannot be achieved without cost. However, an unsafe or inadequate blood supply is ultimately even more costly – in both human and economic terms.

The human costs of unsafe blood are incalculable – morbidity and mortality resulting from the transfusion of infected blood have far-reaching consequences, not only for the recipients themselves, but also their families, their communities and the wider society. Since a person can transmit the infection during the asymptomatic phase, it can contribute to an ever-widening pool of infection in the wider population.

The economic costs of a failure to control the transmission of infection have already been graphically demonstrated in countries with a high incidence and prevalence of HIV and AIDS – increased requirements for medical care, higher levels of dependency and the loss of productive labour place heavy burdens on overstretched health and social services and on the national economy.

While not the main route of transmission, blood transfusion is almost 100% effective in transmitting HIV and other infectious agents. The incidence of transfusion-transmitted infection – and its associated costs – will almost certainly increase in countries that do not take stringent measures to ensure the safety of their blood supplies.

An investment in safe and adequate supplies of blood is a cost-effective investment in the health and economic wealth of every nation.

National blood policy and plan

A national blood policy and plan are essential components of an efficient, cost-effective and sustainable national blood programme. They should define the measures that will be taken to meet the transfusion requirements of the patient population, equitably and when required, at minimum cost, with minimum wastage and with optimum safety and efficacy.

The policy should include an appropriate regulatory and legislative framework, including the development of new legislation or regulations, where necessary. It should also define national principles in relation to:

- ◆ Quality systems and initial and ongoing training
- ◆ The selection of blood donors
- ◆ Screening for transfusion-transmissible infections
- ◆ Red cell serology testing
- ◆ The preparation of blood components and plasma derivatives
- ◆ The clinical use of blood
- ◆ Records and information systems.

The national blood plan should define the functions, organization and management of a national blood transfusion service (BTS) and the delegation of responsibilities, where appropriate, to institutions, hospitals and non-profit, non-governmental organizations, such as the national Red Cross or Red Crescent Society or blood donor organizations.

The policy should also define the role and membership of a National Blood Transfusion Service Executive Committee, including taking

executive decisions within the mandate of the national blood policy and taking overall responsibility for the management of the BTS in accordance with the national blood plan.

Nationally-coordinated blood transfusion service

In 1975, Resolution WHA 28.72 of the Twenty-eighth World Health Assembly urged Member States to promote the development of national blood services based on voluntary non-remunerated blood donation. Because of a lack of national coordination and the fragmentation of services, only 35% of the 192 Member States have a national blood policy, relevant legislation and one specific organization responsible for the national blood programme.

The national coordination of the blood programme remains an essential component of the WHO strategy for blood safety because it is a prerequisite for the preparation of blood and blood products to optimal standards of quality and safety, including:

- ◆ The implementation of a national quality system for all aspects of the transfusion process
- ◆ The collection of blood only from voluntary non-remunerated blood donors from low-risk populations
- ◆ The screening of all donated blood for transfusion-transmissible infections, including HIV, hepatitis viruses, syphilis and other infectious agents, such as Chagas disease and malaria
- ◆ Good laboratory practice in blood grouping, compatibility testing, component preparation and the storage and transportation of blood products.

A nationally-organized or coordinated blood transfusion service requires formal government commitment, support and recognition as a separate, identifiable programme.

It also requires a budgeting and finance system that can ensure a sustainable blood programme through cost recovery and/or annual budget allocation.

A well-organized blood transfusion service is safer and more cost-effective than a hospital-based system. The coordination of services promotes adherence to quality standards, minimizes duplication and achieves economies of scale through national systems for blood donor recruitment, blood screening and processing, and the central bulk purchasing of essential consumables and other supplies.

A national programme for the education, motivation, recruitment and retention of low-risk blood donors, for instance, can achieve substantial cost savings in the collection and screening of blood compared with systems of family/replacement or paid donation. This is because a significantly lower proportion of donated blood from regular voluntary non-remunerated donors needs to be discarded because of evidence of transfusion-transmissible infection.

The appropriate clinical use of blood

Responsibility for the decision to transfuse ultimately rests with individual clinicians, but prescribers of blood do not work in isolation.

A reduction in unnecessary transfusions is dependent on the availability of simple alternatives to transfusion, including intravenous replacement fluids for the correction of hypovolaemia, and pharmaceuticals and medical devices to minimize the need for transfusion.

It also requires effective public health and primary health care programmes that enable the prevention, early diagnosis and treatment of conditions, such as anaemia and malaria, that might otherwise lead to the need for transfusion.

Each national health authority should develop a national policy and guidelines on the clinical use of blood, with appropriate supportive regulations, and ensure that all clinical staff and BTS staff involved in the transfusion process receive appropriate training, based on the national guidelines.

A National Committee on the Clinical Use of Blood and, at local level, hospital transfusion committees should also be established to monitor and audit the implementation of the policy and guidelines.