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GLOBAL BLOOD SAFETY INITIATIVE

ESSENTIAL BLOOD COMPONENTS, PLASMA DERIVATIVES AND SUBSTITUTES

GENEVA
20-22 MARCH 1989



WORLD
HEALTH
ORGANIZATION

GLOBAL
PROGRAMME
ON AIDS

Health
Laboratory
Technology Unit



League of Red Cross
and Red Crescent
Societies

Essential blood components, plasma derivatives and substitutes

The Global Blood Safety Initiative (GBSI) is a cooperative endeavour to support the development of safe and effective blood transfusion services in all countries. Core participants are the World Health Organization's Global Programme on AIDS (WHO/GPA) and unit of Health Laboratory Technology (LAB), the League of Red Cross and Red Crescent Societies (LRCS), the United Nations Development Programme (UNDP) and the International Society of Blood Transfusion (ISBT). The Initiative is also supported by The World Federation of Hemophilia and other bilateral and multilateral development agencies and nongovernmental organizations.

This document was reviewed and endorsed by the GBSI Consultation on Developing and Strengthening Blood Transfusion Services, held in Geneva from 20 to 22 March 1989. A total of 23 specialists in blood transfusion medicine and haematology from 17 countries participated in the consultation. The participants are listed on the opposite page.

Blood components

This document lists the blood components which are considered essential and which must therefore be available in institutions where patients require replacement haemotherapy. The provision of these blood products, in addition to whole blood, usually depends on a system of centralized component production and does not necessarily mean that every blood collection facility must produce any of them.

Essential blood components are:

1. Red blood cells

- a) Concentrated, plasma reduced or resuspended red cells should be available whenever transfusion is required for the management of anaemia.
- b) Leucocyte depleted red cells may be necessary for patients who are transfusion dependent.

2. Plasma

- a) Frozen fresh plasma (FFP) is useful for the management of patients with disorders of haemostasis when specific clotting factor concentrates are not indicated or available.
- b) Cryo-poor plasma (CPP) is a useful source of coagulation factors, other than factor VIII, fibrinogen and factor XIII. It may also be used as a volume expander, but synthetic colloids are safer.

3. Cryoprecipitate

Cryoprecipitate is essential for treatment of haemophilia A when Factor VIII concentrate is not available. Cryoprecipitate is also essential for the treatment of von Willebrand's disease and for certain acquired disorders of coagulation (e.g., disseminated intravascular coagulation). FFP is the preparation of choice when cryoprecipitate is not available.

4. Platelets

Platelets can be provided for transfusion as platelet rich plasma, platelet concentrate or by apheresis.

Plasma derivatives

Albumin, Factor VIII, Factor IX and immunoglobulins are included in the WHO list of essential drugs. They are prepared by fractionation of plasma, but this technology is developed only in a few countries. It is useful, but not essential, for basic blood transfusion services.

The following approaches have been used to ensure availability:

1. Large scale fractionation;
2. International purchase of derivatives of acceptable quality;
3. National production of plasma for contract fractionation elsewhere;
4. Combinations of the above.

General availability of these derivatives depends upon international trade, but high cost inhibits their importation and they are often in short supply. It is therefore necessary to develop national strategies to ensure adequate supplies of the following alternatives:

Derivatives	Alternative
Albumin	Dextran, hydroxy-ethyl starch, gelatin, CPP
Factor VIII	Cryoprecipitate (frozen or lyophilised)
Factor IX	Plasma, CPP
Immunoglobulins	Selected plasma donations

Crystalloids and synthetic colloids must be available in all health care facilities in which patients with acute blood loss or burns are managed.

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