

- Fresh frozen plasma is widely used, but there are limited specific indications for its use, and evidence for efficacy in many clinical settings is minimal.
- The use of fresh frozen plasma may be appropriate in patients with a coagulopathy who are bleeding or at risk for bleeding when a specific therapy or factor concentrates are not appropriate or unavailable.
- Fresh frozen plasma generally is indicated in hemorrhaging patients for replacement of labile plasma coagulation factors (e.g., massive transfusion, cardiac bypass, liver disease, or acute disseminated intravascular coagulation).
- Fresh frozen plasma may be indicated, in conjunction with vitamin K, in cases of excessive warfarinization, in which there is potentially life-threatening bleeding
- Compatibility tests before transfusion are not necessary, but plasma should be ABO group compatible with the patient's RBCs, and volume transfused depends on the clinical situation and patient size.
- initial dosing of 10 to 15 mL/kg is recommended, and efficacy should be monitored by laboratory tests of coagulation function

- Cryoprecipitate is prepared by thawing fresh frozen plasma between 1°C and 6°C and recovering the precipitate, which is refrozen. The component contains factor VIII, fibrinogen, factor XIII, von Willebrand's factor, and fibronectin and is principally indicated for fibrinogen deficiency or dysfibrinogenemia when there is clinical bleeding, invasive procedures, trauma, or acute disseminated intravascular coagulation

- Activated protein C
- Recombinant activated protein C has antithrombotic, anti-inflammatory, and profibrinolytic properties and is finding a role in the treatment of patients with severe sepsis.

- Factor VIIa
- factor VIIa is dependent on tissue factor, which is usually available in limited quantities within the circulation, its clinical use is safe from a thrombosis-inducing point of view, and its use is now being recommended as a "panhemostatic agent."
 - Factor VIIa initiates the extrinsic coagulation pathway only when complexed to tissue factor at sites of injury.
 - It may have a role in a wide range of hemostatic disorders (e.g., massive blood transfusion, liver disease, uremia, severe thrombocytopenia, and platelet disorders).

FFP

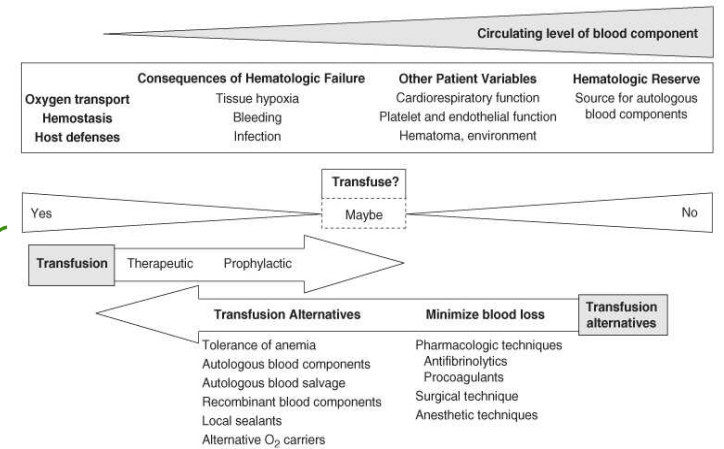
cryoprecipitate

recombinant blood products

blood transfusion therapy

red cell concentrates

platelet concentrates



- Platelet transfusions may benefit patients with platelet deficiency or dysfunction
- Prophylactic transfusion of platelet concentrates is indicated in patients with bone marrow failure when the platelet count is less than $10 \times 10^9/L$, and there are no associated risk factors for bleeding or less than $20 \times 10^9/L$ in the presence of additional risk factors
- In patients with qualitative defects in platelet function, platelet count is not a reliable indicator for transfusion, and transfusion decisions and monitoring of efficacy must be based on the setting and clinical features
- Platelet transfusions are indicated in hemorrhaging patients in whom thrombocytopenia is secondary to marrow failure and is considered a contributory factor to the bleeding.
- In massively hemorrhaging patients, platelet transfusions, in conjunction with correcting plasma coagulation factor deficits, are indicated when the platelet count is less than $50 \times 10^9/L$ or less than $100 \times 10^9/L$ in the presence of diffuse microvascular bleeding.
- The transfusion of platelet concentrates is not generally considered appropriate when thrombocytopenia is due to immune-mediated destruction, in patients with thrombotic thrombocytopenic purpura and hemolytic uremic syndrome, or in uncomplicated cardiac bypass surgery.