CHOC CHILDREN'S
PEDIATRIC BLOOD USE GUIDELINES

BLOOD PRODUCT	UTILIZATION GUIDELINES
Whole Blood or Reconstituted Whole Blood	• Exchange transfusion • Extracorporeal Life Support (ECLS) • Replacement of more than one blood volume in 24 hours.
RED BLOOD CELLS (Infants ≤ 4 months old)	• Hemoglobin < 13g/dl and severe pulmonary or cyanotic heart disease or heart failure. • Acute loss of > 10% of blood volume or phlebotomy for laboratory testing when cumulative amount exceeds 10% of blood volume in a 1-week period. • Hemoglobin < 8g/dl in stable newborn infant & with clinical manifestations of anemia, such as tachycardia, tachypnea, recurrent apnea, and decreased vigor
RED BLOOD CELLS (Children > 4 mo. old)	• Preoperative hemoglobin <7g/dl when alternative therapy is not available or postoperative hemoglobin < 7g/dl with signs or symptoms of anemia. • Acute loss of >15% of blood volume or signs and symptoms of hypovolemia that is not responsive to fluid administration. • Hemoglobin <13g/dl and severe cardiopulmonary disease. • Hemoglobin <7g/dl in patients receiving chemotherapy. • Hemoglobin <7g/dl in patients with chronic anemia without expected response to medical therapy and signs or symptoms or anemia. • Hemoglobin <10g/dl for patients receiving radiotherapy • Complications of sickle cell disease, such as cerebrovascular accident, acute chest syndrome, or for preoperative preparation. • Chronic transfusion regimen for thalassemia or other red cell-dependent disorder
PLATELETS	• Platelet count < 20,000/ul in a non-bleeding patient with failure of platelet production • Platelet count < 50,000/ul and impending surgery or invasive procedure or in a patient experiencing hemorrhage • Diffuse microvascular bleeding following cardiopulmonary bypass or during use of an intra-aortic balloon pump with no significantly abnormal coagulation parameters • Diffuse microvascular bleeding and planned invasive procedure in a patient who has lost more than one blood volume in whom platelet count results are not yet available • Bleeding in a patient with a qualitative platelet defect, regardless of platelet count
GRANULOCYTES	• Requires Hematology consult • Bacterial sepsis in an infant <2 weeks of age with neutrophil count <3000/ul that is falling. • Bacterial sepsis or disseminated fungal infection that is unresponsive to antibiotics in a patient >2 weeks of age with neutrophil count <500/ul • Infection that is unresponsive to antibiotics and the presence of a qualitative neutrophil defect, regardless of the neutrophil count.
THAWED PLASMA	• Diffuse microvascular bleeding in a patient given more than one blood volume and coagulation test results not yet available • Microangiopathic hemolytic anemia (eg thrombotic thrombocytopenic purpura) being treated with plasma exchange. • Emergency reversal of Warfarin (coumadin) anticoagulation. • Deficiency of specific factors of the coagulation system when virus-inactivated concentrates are not available
CRYOPPT (AHF)	• Fibrinogen <80 to 100 mg/dl • Diffuse microvascular bleeding and fibrinogen <100 to 120 mg/dl • Von Willebrand disease or hemophilia unresponsive to 1-deamino-8-D- arginine vasopressin (DDAVP) and no appropriate factor concentrates available • Uremic bleeding (if DDAVP is ineffective or after tachyphylaxis) • Factor XIII deficiency

References:
Standards for Blood Bank and Transfusion Services, AABB, 33rd edition, 2022 (Level V)
Technical Manual, AABB, 20th edition, 2020 (Level V)
Circular of Information, For The Use of Human Blood and Blood Components, AABB, December 2021 (Level V)

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Reassess the appropriateness of Care Guidelines as condition changes and 24 hrs after admission. This guideline is a tool to aid clinical decision making. It is not a standard of care. The physician should deviate from the guideline when clinical judgment so indicates.