



Legacy Transfusion Thresholds for Adults

Legacy transfusion thresholds have been established by the Legacy Transfusion Committee. The thresholds are considered to be evidence based and are modified as new data becomes available. Specific clinical situations may dictate practices that differ from these thresholds. All transfusions are subject to quality review.

<p>Red Blood Cells</p>	<p>*** RESTRICTIVE RBC THRESHOLDS ARE RECOMMENDED BY THE AABB IN 2016 ***</p> <ol style="list-style-type: none"> <u>Hemoglobin ≤ 7 g/dL</u> – Transfusion is appropriate (unless exceptional circumstances dictate otherwise) <u>Hemoglobin > 7 to 8 g/dL</u> – Transfusion may be appropriate in certain patient populations: <ol style="list-style-type: none"> Patients undergoing orthopedic surgery Patients undergoing cardiac surgery Patients with stable cardiovascular disease <u>Hemoglobin 8 to 10 g/dL</u> – Transfusion is generally NOT recommended but should be considered in certain patient populations: <ol style="list-style-type: none"> Patients with acute coronary syndrome with ischemia Patients with severe thrombocytopenia who are at risk of bleeding (hematology/oncology patients) Patients with symptomatic chronic transfusion-dependent anemia <u>Hemoglobin level > 10 g/dL</u> – Transfusion is generally NOT recommended (unless exceptional circumstances dictate otherwise) <p><i>One unit of RBCs increases the hemoglobin by approximately 1 g/dL (and the hematocrit by approximately 3 percentage points)</i></p>
<p>Platelets</p>	<p>*** ACTIVE BLEEDING ***</p> <ol style="list-style-type: none"> <u>Platelet count $< 50,000$ / microL</u> – Transfusion is recommended in bleeding patients <u>Platelet count $< 100,000$ / microL</u> – Transfusion is recommended in the patient with CNS, ocular, pulmonary bleeding <u>Platelet count $< 150,000$ / microL</u> (thrombocytopenia) and /or platelet dysfunction – Transfusion is recommended in patients having surgery with cardiopulmonary bypass <p>*** PREPARATION FOR AN INVASIVE PROCEDURE ***</p> <ol style="list-style-type: none"> <u>Platelet count $< 20,000$ / microL</u> – Transfusion is recommended for the following: <ol style="list-style-type: none"> Bone marrow aspiration/biopsy Endoscopic procedures for low risk diagnosis <u>Platelet count $< 30,000$ / microL</u> – Transfusion is recommended for the following: <ol style="list-style-type: none"> Bronchoscopy with bronchoalveolar lavage <u>Platelet count $< 50,000$ / microL</u> – Transfusion is recommended for the following: <ol style="list-style-type: none"> Lumbar puncture Endoscopic procedures for therapy Most major nonneuraxial surgeries <u>Platelet count $< 80,000$ / microL</u> – Transfusion is recommended for the following: <ol style="list-style-type: none"> Epidural anesthesia <u>Platelet count $< 100,000$ / microL</u> – Transfusion is recommended for the following: <ol style="list-style-type: none"> Neurosurgery or ocular surgery <p>*** PREVENTION OF BLEEDING ***</p> <ol style="list-style-type: none"> <u>Platelet count $< 10,000$</u> – Prophylactic transfusion is recommended in hospitalized patients <u>Platelet count $< 20,000$</u> – Prophylactic transfusion is recommended in outpatients <p>NOTE: Prophylactic transfusion is NOT recommended in nonthrombocytopenic patients having cardiac surgery with cardiopulmonary bypass</p> <p>NOTE: Transfusion recommendations is NOT defined for the patient receiving antiplatelet therapy</p> <p><i>One unit of apheresis-derived platelets (six units of whole blood-derived platelets) will raise the platelet count by approximately 30,000/microL in an average sized adult</i></p>

<p>Plasma</p>	<p>*** ACTIVE BLEEDING ***</p> <ol style="list-style-type: none"> 1. Transfusion is recommended in patients with multiple coagulation factor deficiencies (when alternatives are not practical or available, i.e. concentrates) <p>*** PREPARATION FOR AN INVASIVE PROCEDURE ***</p> <ol style="list-style-type: none"> 1. <u>INR > 2.0</u> – Transfusion is recommended in patients with multiple coagulation factor deficiencies for: <ol style="list-style-type: none"> a. Paracentesis 2. <u>INR > 1.5</u> – Transfusion is recommended in patients with multiple coagulation factor deficiencies for: <ol style="list-style-type: none"> a. Lumbar puncture b. Thoracentesis c. Transbronchial lung biopsy d. Subclavian / IJ line e. Renal biopsy f. Liver biopsy g. Hickmann, Groshong catheters <p>*** OTHER CLINICAL SCENARIOS ***</p> <ol style="list-style-type: none"> 1. Patients in need of plasma exchange procedures <p><u>Causes of multiple coagulation factor deficiencies include:</u></p> <ol style="list-style-type: none"> a. Liver disease b. Disseminated intravascular coagulation (DIC) c. Dilutional coagulopathy from resulting from massive blood component transfusion or volume replacement d. Warfarin effect e. Congenital factor deficiencies <p><i>One unit of plasma increases the coagulation factors by 20% (immediately following infusion) and plasma fibrinogen by 7 to 10 mg/dL</i></p>
<p>Cryoprecipitate</p>	<p>*** ACTIVE BLEEDING OR IMMEDIATELY PRIOR TO AN INVASIVE PROCEDURE***</p> <ol style="list-style-type: none"> 1. <u>Fibrinogen < 100 mg/dL or < 200 mg/dL during pregnancy</u> – Transfusion is recommended in patients with hypofibrinogenemia due to: <ol style="list-style-type: none"> a. Congenital or acquired fibrinogen deficiency b. Hemophilia A, von Willebrand disease, or Factor XIII deficiency (when concentrates not available) c. Disseminated intravascular coagulation (DIC) d. Uremic bleeding (unresponsive to non-transfusion therapy) <p><i>One unit of cryoprecipitate per 10 kg body weight will raise the plasma fibrinogen by approximately 50 mg/dL</i></p>
<p>Autologous and Directed Donor</p>	<p>*** Use is not recommended unless exceptional circumstances dictate otherwise ***</p>

***** For the management of adult patients with massive bleeding, please refer to protocol #: 915.6149 *****

***** For the management adult patients on ECMO, please refer to practice guidelines #: 901.5063 and 901.5066 *****

References:

- 1) Clinical Practice Guidelines From the AABB, Red Blood Cell Transfusion Thresholds and Storage, Carson JL et al., JAMA. 2016 Nov 15;316(19):2025-2035. doi: 10.1001/jama.2016.9185.
- 2) Platelet Transfusion: A Clinical Practice Guidelines From the AABB, Kaufman RM et al., Ann Intern Med. 2015 Feb 3;162(3):205-13. doi: 10.7326/M14-1589.
- 3) Technical Manual, American Association of Blood Banks (AABB), 18th ed
- 4) Blood Transfusion Therapy: A Physician's Handbook, American Association of Blood Banks (AABB), 11th ed
- 5) <https://www.uptodate.com>
- 6) <http://www.bloodworksnw.org/therapy/therapy2012.pdf>