

Remember, these are **tissue transplants**, with all the potential sequelae.

NCH Healthcare System

Pocket "Transfusion Criteria" for Packed RBCs and Platelets:

★ To transfuse **PACKED RBCs** (allo- or auto) you must use one or more of the following criteria:

- Medical:**
- RM1.Severe **anemia** (Hgb < 7.5).
 - RM2.....**Moderate anemia** (Hgb 7.5 – 10.0); **with active bleeding**.
 - RM3.....**Chronic anemia** (Hgb < 8.5; chemo/radiation pts, hemodialysis pts, etc.).
Symptomatic anemia, unable to be corrected by medical intervention. Choose one of the following:
 - RM4:** Sustained increase in heart rate (physiologic tachycardia > 100 bpm),
 - RM5:** Angina &/or **worsening** exertional dyspnea,
 - RM6:** **Increasing** claudication, or
 - RM7:** A decrease in Hgb > 1 gm/wk as an outpatient.
 - RM8. **Acute bleeding with shock** (blood loss > 25% / 750 cc of blood volume).
 - RM9. **Estimated blood loss (EBL)** exceeding either 1000 ml or 15% of blood volume. (If less, use crystalloids).
 - RM10. **COPD, CVD or sickle cell anemia.** Hgb must be < 9.5 gm/dl.
 - RM11. **Exchange transfusion** for patients with Sickle Cell Crisis.
 - RM12. **Hypertransfusion** for treatment of Sickle Cell disease.
 - RM13. Special **Pediatric / Neonatal** blood product need.
 - RM14. Other: Please Describe**
- Surgical:**
- RS15. Hgb < 10 gm/dl or Hct < 30%.
 - RS16. Documented active bleed prior to surgery (with Hgb < 9).
 - RS17. Pulmonary or cardiac history of insufficiency.
 - RS18. EBL > 25% / 750 cc.
 - RS19. Burn patients with Hct < 35% prior to surgery.
- In neurosurgical patients:**
- RS20. **Intraoperatively**, if there is bleeding from an **aneurysm, arterio-venous malformation** or **cerebral trauma**.
 - RS21. **Postoperatively**, in patients with cerebral vasospasm, if the hematocrit is < 30%.
 - RS22. Significant surgical blood loss with critical hemodynamic compromise.
 - RS23. **O.R. → ADD ON BLOOD NEED**
 - RS24. Other: Please Describe**
- Need Leukocyte Filter If pt. has **h/o febrile trxn rxns**, or needs **CMV negative equivalent** packed RBCs.
Need Irradiated If pt. is **severely immunocompromised / suppressed**. / (Takes 1 hour to irradiate).
Need Washed RBCs If pt. has **h/o severe allergic reactions (IgA deficient ?)** / (Need plenty of notification).

★ To transfuse **PLATELETS**, you must use one or more of the following criteria:

- Active bleeding with one of the following:**
- PB1. Platelet count 50,000/ul or less.
 - PB2. Platelet dysfunction with abnormal platelet aggregation studies.
 - PB3. Platelet count < 75,000/ul and/or suspected platelet dysfunction following adequate Heparin neutralization.
 - PB4. Massive transfusion with suspected dilutional thrombocytopenia.
 - PB5. Prolonged CPB with **documented intra or post-op abnormal ADP aggregation study**, with any platelet count.
 - PB6. Special **Pediatric / Neonatal** blood product need.
- Absence of active bleeding with one of the following:**
- P7. Platelet count < 15,000/ul.
 - P8. Platelet count < 50,000/ul (preop): For **minor invasive procedure** where hemostasis cannot be evaluated by direct observation. For **minor invasive procedures** such as LP, thoracentesis, IVcatheter insertion and minor surgery.
 - P9. Platelet count < 100,000/ul for **major invasive procedures**, or invasive procedures involving brain, spinal cord, epidural space, eye, ureter, or upper airway or for bleeding in these sites.
 - P10. Platelet dysfunction (congenital or acquired) not responding to DDAVP (available from the pharmacy), before invasive procedure.
 - P11. Special **Pediatric / Neonatal** blood product need.
 - P12. Other: Please Describe**
Refractory to platelet transfusion?
 - Blood bank will determine need for possible **platelet XM vs. HLA matched platelets** as needed. (CCI calculation).

Note: Treatment with platelets only assumes a normal PT and PTT

Platelets are ordered by the **std. dose** (3.0 X 10¹¹ platelets). This is delivered with either a single donor Plateletpheresis unit or a "six-pak" (six random donor units pooled into one bag). A standard dose should increase the average non-refractory patient's platelet count by roughly 30 to 50,000/ul. With coagulopathy (DIC), fever, sepsis, drugs, etc. these values may be less. **Usual dose is one.**

NCH Healthcare System

Pocket "Transfusion Criteria" for Fresh Frozen Plasma (FFP), Albumin & Cryo:

★ **To transfuse FFP, you must use one or more of the following criteria:**

- F1. PT > 19.5 seconds (INR > 1.70) or PTT > 40 seconds (not due to heparin), with active bleeding or a scheduled surgical procedure.
- F2. Replacement of documented "isolated factor deficiency": ie, replacement of congenital deficiencies of Factor II, V, VII, X, XI, XIII
 - **Note:** For use in replacement of other isolated factor deficiencies: **Humate-P** (human derived vWF & factor VIII), **Koate** (human derived factor VIII), and **Benefix** (recombinant factor IX) are **available in the pharmacy**.
- F3. Replacement of multiple coagulation defects (i.e., liver disease unresponsive to Vit. K). Acute DIC.
- F4. Massive blood transfusions (> 5 units within 5 hours).
- F5. Pre-op reversal of **Warfarin (emergent only)**. For adults: **10-15 ml FFP /Kg**.
- F6. In surgical patients with Antithrombin III deficiency who require heparin to treat thrombosis. With known Antithrombin III deficiency: use Antithrombin III conc.
- F7. Thrombotic thrombocytopenic purpura (**TTP**); Cryopoor plasma could also be used.
- F8. Hereditary angioneurotic edema with C1 esterase deficiency resulting in life threatening edema.
- F9. Protein **C** or **S** deficiency.
- F10. Other: Please Describe**
Standard dosing is 10-15 ml of FFP / Kg of body weight.
 Note: Each bag of FFP contains approximately 180 ml. Allow 15-30 mins. to thaw.

Note: Treatment with FFP only assumes a normal platelet count.

★ **To transfuse Cryoprecipitate, you must use one or more of the following criteria:**

- C1. Fibrinogen ≤ 100 mg/dl.
- C2. Resuscitation of a patient with hemorrhagic shock and clinically inadequate hemostasis when the fibrinogen concentration is < 100 mg/dl or hypofibrinogenemia is clinically suspected and a fibrinogen level is pending.
- C3. Topically in combination with thrombin for intraoperative hemostasis (Fibrin glue).
- C4. Uremic patients who are bleeding or prior to an invasive procedure when DDAVP has failed.
- C5. Other: Please Describe**

Cryoprecipitate is used primarily for hypofibrinogenemia or for factor replacement (as described below), when other recombinant forms are not available. It has low volume for the amount of coagulation factors, and should be used instead of FFP when volume is a consideration. (**Note: allow 15-30 mins. to thaw**)

Cryoprecipitate contains: Coagulation factors (I, VIII, & XIII), von Willebrand factor (vWF), and fibronectin. It is primarily used for fibrinogen and factor XIII supplementation.

★ **To transfuse 5% Albumin, you must use one or more of the following criteria:**

- A1. Plasmapheresis according to Transfusion Services protocol.
- A2. In combination with diuretic for refractory edema.
- A3. Complications of severe cirrhosis.
- A4. Resuscitation in pediatric and adult burn patients.
- A5. Perioperatively in patients undergoing renal transplantation.
- A6. In neurosurgery patients for volume expansion in the patient with elevated ICP or cerebral edema. For augmentation of distal tissue perfusion in patients with cerebral ischemia due to vasospasm following subarachnoid hemorrhage, occlusive stroke or new neurological deficit following an endovascular embolization procedure.
- A7. Other: Please Describe**

Note: Albumin is never to be used as a simple volume expander in place of crystalloids.

American Association of Blood Banks Indications for Therapeutic Hemapheresis:

Category I – Standard and acceptable under certain circumstances, including primary therapy.

- Plasmapheresis:**
 Chronic inflammatory demyelinating polyneuropathy (CIDP)
 Cryoglobulinemia
 Anti-GBM antibody disease (Goodpasture's syndrome)
 Guillian-Barre syndrome
 Familial hypercholesterolemia
 Hyperviscosity syndrome
 Myasthenia gravis
 Posttransfusion purpura
 Thrombotic Thrombocytopenic Purpura (TTP)
- Cytapheresis:**
 Leukemia with hyperleukocytosis syndrome
 Sickle cell syndromes
 Thrombocytosis, symptomatic

Category II – Sufficient evidence to suggest efficacy; acceptable therapy on an adjunctive basis.

- Plasma Pheresis:**
 Cold agglutinin disease
 Protein-bound toxins (drug overdose, poisonings)
 Hemolytic Uremic Syndrome (HUS)
 Rapidly progressive glomerulonephritis
 Systemic vasculitis (primary or due to RA or Lupus)
 Acute renal failure due to myeloma kidney
- Cytapheresis:**
 Cutaneous T-cell lymphoma (cytoreduction or photopheresis)

Category III – Inconclusive evidence for efficacy or uncertain benefit-risk ratio.

Category IV – Lack of efficacy in controlled trials.