

## Top Ten Hints for Safe Transfusion Orders

1. Patient Identification is of paramount importance for safe transfusion. The most common cause of acute hemolytic transfusion reactions is mis-identification of the patient, due to the mislabeling of the blood sample used for cross-matching or failing to check the product being transfused.
2. Informed consent is required for transfusion of all blood products. The practitioner ordering the transfusion is responsible for obtaining and documenting the consent. Informed consent includes: advising the patient of the risks, benefits, and alternatives to the transfusion, and allowing him or her to ask questions before giving consent. All transfusions have potential adverse effects.
3. Use restrictive transfusion thresholds for red blood cell (RBC) transfusion in stable inpatients:
  - a. Stable patient without cardiovascular risk factors or acute coronary syndrome: 70 g/L
  - b. Patient with cardiovascular risk factors: 80 g/L
  - c. Patient with acute coronary syndrome: 80 g/L or, with serious symptoms, 90 g/L (based on expert opinion, a large RCT called MINT is underway to answer this question).
4. Transfuse one unit of RBC at a time in non-bleeding in-patients, and re-assess the patient and the Hb between units. A single unit of RBC raises the Hb by about 10 g/L in an average-sized adult. Transfusion of two units per episode may be reasonable in chronically-transfused outpatients or bleeding inpatients.
5. Order the infusion rate of all blood products, and consider pre-transfusion furosemide in patients at risk of transfusion-associated circulatory overload (TACO). The maximum infusion time for RBC, plasma and platelets is four hours. Risk factors for TACO include: age over 70 years, history of CHF, fluid overload, and renal dysfunction.
6. Use plasma for correction of the coagulopathy in patients with liver disease or disseminated intravascular coagulopathy who are bleeding or about to undergo an invasive procedure. Use plasma to correct the coagulopathy of massive transfusion. Do not use plasma for reversal of warfarin or other anticoagulants, or to correct a coagulopathy in a non-bleeding patient with no planned invasive procedure.
7. The correct dose of plasma is 15 mL/kg, or 3-4 units in an adult. Infuse immediately before the procedure to ensure adequate levels of coagulation factors during the procedure. Do not attempt lower the INR below 1.5-1.8 (the INR of plasma is 1.1 to 1.3 and therefore further correction is not possible).
8. Use prothrombin complex concentrate (PCC) if urgent reversal of warfarin is required (bleeding, or surgery within six hours). Intravenous Vitamin K, 10 mg, is given simultaneously to prevent rebound bleeding. If warfarin reversal is urgent (correction required in 24-36 hours), use intravenous Vitamin K. If warfarin reversal is for the purpose of correction of an asymptomatic elevated INR, to correct back to the therapeutic range, oral vitamin K is preferred.
9. The usual dose of platelets is one pool of buffy-coat prepared platelets or one apheresis dose, either of which will raise the platelet count by 15 -25 x 10<sup>9</sup>/L.
10. Report all suspected transfusion reactions to the Transfusion Medicine service (the "Blood Bank"). Other patients may be affected, as the donation is split into 3 parts and donors implicated in TRALI may need permanent deferral.

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