

Packed red blood cells

In [transfusion medicine](#), packed [red blood cells](#) (sometimes called stored packed red blood cells or simply packed cells) are red blood cells (RBC, also called erythrocytes) that have been collected, processed, and stored in bags as blood product units available for blood transfusion.

The collection may be from a “[whole blood](#)” (WB) donation followed by component separation, or by RBC apheresis (sometimes called “double-red,” due to the potential to donate two units' worth at once that way). The processing (often termed “manufacture,” since the end result is deemed a biologic biopharmaceutical product) and the storage can occur at a collection center and/or a blood bank. RBCs are mixed with an anticoagulant and storage solution which provides nutrients and aims to preserve viability and functionality of the cells (limiting their so-called “storage lesion”), which are stored at refrigerated temperatures for up to 42 days (in the US), except for the rather unusual long-term storage in which case they can be frozen for up to 10 years. The cells are separated from the fluid portion of the blood after it is collected from a donor, or during the collection process in the case of apheresis. The product is then sometimes modified after collection to meet specific patient requirements.

Indications

The packed cells are typically used in anemia that is either causing symptoms or when the hemoglobin is less than usually 70–80 g/L (7–8 g/dL).

In adults, one unit brings up hemoglobin levels by about 10 g/L (1 g/dL).

Repeated transfusions may be required in people receiving cancer chemotherapy or who have hemoglobin disorders.

Cross-matching is typically required before the blood is given. It is given by injection into a vein.

Recommended transfusion criteria

1. acute blood loss $\geq 15\%$ of patient's blood volume
2. in asymptomatic patient: hemoglobin (Hb) ≤ 8 gm or Hct $\leq 24\%$
3. symptoms of anemia at rest
4. preoperative Hb ≤ 15 gm or Hct $< 45\%$ in the neonate

Amount to transfuse

Adult: 1 U (250–300 cc) raises Hct by 3–4%

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