



Oklahoma Blood Institute  
**TRANSFUSION TRIBUNE**

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**Why Are There Shortages of O Negative Blood?**

Only 7% of the Caucasian population, 4% of the African American population and less than 1% of donors of Asian background are O Negative. The recruitment staff works overtime to make sure O Negative red blood cells are available for our hospitals. However, over the past few months it has become increasingly difficult to keep up with requests for O-Negative red cells. OBI's O Negative collections have averaged 10%, which is well above the average found in the general population.

There may not be enough O Negative red cells and in some clinical situations such as massive transfusion, it is necessary to administer Rh Positive red cells. Deciding "who" and "when" to switch a patient to Rh positive red cells can be challenging.

Questions commonly arise about how often a patient will develop anti-D after receiving Rh positive blood. A recent study in *The Journal of Trauma*, 2005, reported that Anti-D formation was rare in trauma patients (.6%). Other studies have estimated the rate at 11%. The rate of alloimmunization to other red cell antigens is not higher than that seen in patients transfused with regular crossmatched units.

**How Can We Work Together To Conserve O Negative Red Cells?**

We want to make sure that O Negative units are available to patients that truly need them, so we have some suggestions based on practices used in other areas of the country. We need everyone's help conserving O Negative Red Cells.

**Recommendations**

**For emergency transfusion with unknown blood type:**

- Use up to 6 O Rh negative red blood cells for female patients under 50 years of age. Switch to O Rh positive if greater than 6 units are needed.
- Start with 2 O negative units: The type may be switched to O positive red cells at any time:
  - 1) For all males any age;
  - 2) For all females greater than fifty years of age;

3) If OBI has notified the hospital there is an O negative shortage situation.

- If massive transfusion protocols are in place, substitute O Rh positive in the second shipment if the patient is a male or a female greater than 50 years of age.
- Switch to type specific red cells as soon as a sample is ABO typed.

**For Emergency transfusion with Known blood type (no anti-D):**

- If the patient is Rh negative (O, A,B, or AB) issue up to 6 type-specific Rh negative units; after that time, switch the person to type specific Rh positive units (O,A,B, or AB). Consider switching sooner if the patient is a male or female >50yrs.

**Other Considerations**

- Consider stocking both O positive and O Negative red cells in emergency refrigerators. The O positives can be chosen by ER personnel for all males and females greater than 50 years of age, O negatives for females less than fifty years of age.
- Enforce policies by asking for samples from emergently transfused patients so type specific units can be issued before depleting the RH negative supply.
- Don't switch to O Rh negative after depleting A Rh negative or B Rh negative inventory.
- Use type specific units whenever possible and return short-date Rh negative products to OBI.

**References**

- i) Dutton RP, Shih D, Odelman BB, et al. Safety of Uncrossmatched Type-O Red Cells for Resuscitation from Hemorrhagic Shock. *Journal of Trauma* 2005;59:1445-1449.
- ii) Weiskopf RB, Webb M, Stangle D, Klinbergs G, Toy P. A Procedure for Rapid Issue of Red Cells for Emergency Use. *Arch Pathol Lab Med* 2005 Apr;129(4):492-6.
- iii) Frohn C, Dümbgen L, Brand JM, Görg S, Luhm J, Kirchner H. Probability of anti-D development in D- patients receiving D+ RBCs. *Transfusion* 2003 Jul;43(7):893-8.