

# Guidelines for Use of Group O Rh Negative RBCs: Best Practices

## Introduction

Appropriate use of Group O Rh Negative (O Rh Negative) Red Blood Cells (RBCs) is essential to maintain an adequate community supply and ensure RBC availability for those patients for whom there is no alternative. While utilization and inventory of O Rh Negative RBCs will depend on a variety of factors (e.g. overall transfusion volume and type of patient populations served at the facility; distance from blood supplier; frequency and number of emergency release and massive transfusion activations) consistent practice at both large and small healthcare institutions can support equal access for this limited resource.

If similar policies have not been implemented at your facility, the recommendations listed below should be considered for adoption to effectively maintain an adequate O Rh Negative RBC supply.

## Appropriate Indications for Use of Group O Rh Negative RBCs:

1. O Rh Negative patient for routine (non-emergent) transfusion (e.g. up to 6 units in 24-hour period).
2. O Rh Negative patient with anti-D.
3. Female of childbearing potential (commonly cited as <50 years of age) when blood type is unknown and emergent transfusion.
4. Intrauterine transfusion.
5. Non O Rh Negative neonate/infant less than 4 months of age where ABO, Rh type-specific units are not available.
6. Non O Rh Negative patient requiring phenotypically matched or antigen-negative units where ABO, Rh type-specific, phenotype compatible units are not available.
7. For transfusion support of allogeneic ABO-incompatible bone marrow or hematopoietic stem cell transplant recipient when no alternative blood type is available.

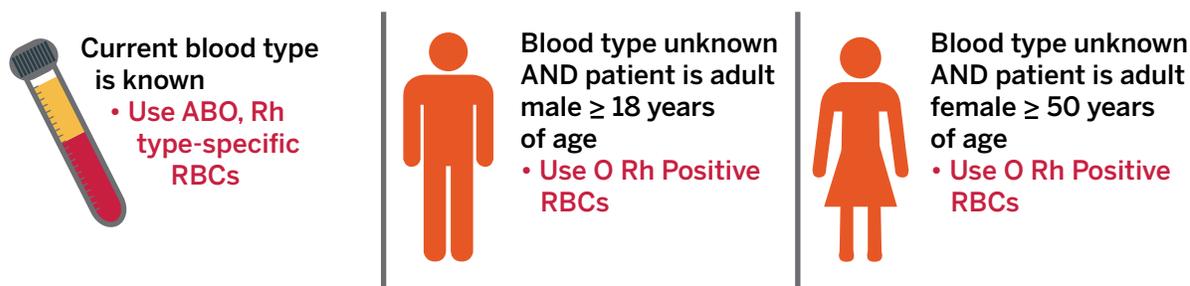
## Allowable Indications for Group O Rh Negative RBCs\*:

1. For emergency-release uncrossmatched RBCs (e.g. 1-2 units; massive transfusion not activated) when blood type is unknown.  
**Limit to no more than 2 units.** Switch to patient's blood type once known. Otherwise switch to O Rh Positive RBCs for on-going transfusion need, unless female of childbearing potential.
2. For non O Rh Negative patient when unit is approaching expiration. See table below for recommended time frame to transfuse based on annual transfusion volumes.

Hospital Total RBC Usage	# of RBC Units Transfused / YR	When to Transfuse Short Dated O Rh Negative RBCs
Very High / High	>8,000	On day of expiration
Moderate	5,000 - 8,000	Within 48 hrs of expiration
Low / Very Low	<5,000	Within 72 hrs of expiration

\*These indications should be monitored for policy compliance and to limit excess overstocking of O Rh Negative RBCs.

## Emergency Situations or Massive Transfusion – Avoid Use of O Rh Negative RBCs WHEN:



## When to Use O Rh Positive RBCs for O Rh Negative Patients:

### Large Volume Transfusion or Massive Transfusion Protocol Activation

- Establish a “trigger” (e.g. after 6 RBCs issued) for when to switch to O Rh Positive RBCs in an O Rh Negative adult male (e.g.  $\geq 18$  years of age) or female of non-childbearing potential (e.g.  $\geq 50$  years of age) who does not have anti-D.
- When O Rh Negative female of childbearing potential requires exceptionally large volume transfusion and there is on-going hemorrhage, switching to O Rh Positive RBCs should be considered to manage hospital inventory and community resources. Such policy requires consultation with the transfusion service medical director and patient’s provider.

### Shortage of O Rh Negative RBCs

- Each hospital transfusion service should define what constitutes “shortage of O Rh Negative RBC” and processes that can be implemented to conserve supply.
- The transfusion service medical director should be consulted to triage O Rh Negative RBCs during such storages.
- In extreme shortage, the use of O Rh Positive RBCs may be considered for routine transfusion in O Rh Negative adult male or female older than child-bearing potential, provided they do not have anti-D and not transfusion-dependent. These situations should be evaluated on a case-by-case basis in consultation with the transfusion service medical director and patient’s provider.

### References:

1. FACTSHEET Blood Group O RhD Negative Red Blood Cells Information for Clinical and Laboratory Staff. NHS Blood and Transplant. Factsheet 4, version 1. Issued July 2012.
2. National Advisory Committee (NAC) on Blood and Blood Products Position Paper: Utilization and Inventory Management of Group O RH(D)-Negative Red Cells. March 9, 2017. Available at: [https://www.nacblood.ca/resources/guidelines/downloads/FINAL%200-neg\\_for%20NAC\\_Mar9\\_17%20ed.pdf](https://www.nacblood.ca/resources/guidelines/downloads/FINAL%200-neg_for%20NAC_Mar9_17%20ed.pdf)
3. NBTC recommendations on the appropriate use of group O RhD negative red cells. Revised April 2009. Available at: <https://www.transfusionguidelines.org/uk-transfusion-committees/national-blood-transfusion-committee/responses-and-recommendations>
4. BSH Good Practice Paper – Appropriate use of O D negative red cells (presentation by Dr. Suzy Morton). Available at: <http://www.bloodstocks.co.uk/pdf/Appropriate-Use-of-O-D-Neg-RBC.pdf>
5. Dunbar NM, et al. O- product transfusion, inventory management, and utilization during storage: the OPTIMUS study. *Transfusion* 2018;58:1348-1355.

*These guidelines are recommendations only.* These recommendations should not be construed as dictating any particular course of management, treatment or care, nor does the use of such recommendations guarantee a particular outcome.