

Beaumont

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Applicability All Beaumont Hospitals

Special Transfusion Requirements For Patients Greater Than Four Months Old - Blood Bank

Document Type: Policy

I. PURPOSE AND OBJECTIVE:

The purpose of this document is to provide requirements relating to patients' special transfusion requirements.

II. SCOPE:

- A. This document applies to special transfusion requirements for patients greater than 4 months old. Some examples of special transfusion requirements include the following:
1. Irradiation
 2. CMV-seronegative components (CMV)
 3. Washed components
 4. Aliquots
 5. Blood warmers
 6. Human Leukocyte Antigen (HLA) matched or crossmatched platelets; refer to Transfusion Medicine policy, [Selection of Platelets, Plasma, and Cryoprecipitate for Patients Greater Than Four Months Old](#), Section V.O Patients with Special Platelet Considerations.
 7. Hemoglobin S negative RBCs; refer to Transfusion Medicine policy, [Handling Patients with Sickle Cell Disease and Thalassemia](#).
 8. Jehovah's Witnesses

- B. This document does not apply to neonates (less than 4 months old); refer to Transfusion Medicine policy, *Selection of Blood Components for Neonatal Transfusion*.
- C. For policies relating to ABO and Rh considerations of red blood cells (RBCs), refer to Transfusion Medicine policy, [RBC Crossmatch Guidelines](#).
- D. For patients requiring granulocyte transfusions refer to Transfusion Medicine policy, [Granulocytes by Apheresis](#).

III. DEFINITIONS / ABBREVIATIONS:

- A. **Neonates:** Patients from birth to four months old.
- B. **Special transfusion requirements:** A patient's need for a component that has been modified or that contains special attributes; i.e., neonates have the special transfusion requirements found in a standard neonatal RBC unit.
- C. **BBIS:** Blood Bank Information System
- D. **Designee:** Any Blood Bank technical director, or transfusion medicine fellow.
- E. **DB:** Dearborn Blood Bank
- F. **FH:** Farmington Hills Blood Bank
- G. **GP:** Grosse Pointe Blood Bank
- H. **RO:** Royal Oak Blood Bank
- I. **TR:** Troy Blood Bank
- J. **TTW:** Taylor, Trenton, and Wayne Blood Banks

IV. POLICIES:

A. Unclear Test Orders

1. Unclear test orders must be clarified with the patients' caregivers.

B. Review of Special Transfusion Requirements

1. The Blood Bank may become aware of special transfusion requirements via computer generated reports, verbal orders from medical personnel, Blood Product Dispense Form, previous special messages in the Blood Bank computer, etc. When a technologist becomes aware of an order with special transfusion requirements, they should consider whether the special transfusion requirement is indicated, as described throughout this document. The technologist proceeds as follows:
 - a. If a previous special message for irradiation is present in the Blood Bank computer, the technologist provides components that meet the special transfusion requirement, or
 - b. The technologist should consult the Medical Director or designee (MD) to review the special requirement if they have any question about whether any special transfusion requirements are indicated.

- i. RO, TR, FH: The technologist should document and submit the *Medical Review of Special Transfusion Requirements* form (Attachment)
- ii. DB,GP, TTW: The technologist should contact the Medical Director in person, by phone, or email with patient name and MRN to request a review.
- iii. The MD will review the patient's chart and determine whether the special transfusion requirement is indicated. MD will notify the requesting technologist and will document this review either on the *Medical Review of Special Transfusion Requirements* form, directly on the order shingle or via email to the department supervisor/designee.
- iv. If a decision from the Medical Director is not immediately received for any reason, the technologist shall provide products to meet the special requirement until a decision from the medical director is obtained.
- v. Once a decision is made the technologist will update the patient's Profile Notes to reflect the decision. A Note will also be added to the patient's computer record indicating the review of the requirement. For example, the **IRRRV** special message "Irradiation Indication reviewed by MD: _____. Irradiated Products Required/Not Required.", **CMVRV** "CMV Indication reviewed by MD: _____. CMV Neg Products Required/Not Required.", and additional comment codes (i.e. **PATH** "Pathologist comment: [enter comment]") or a free text Note can be added to the computer record with any additional notes requested by the reviewing physician.
- vi. If a decision is made that the special transfusion requirements are not indicated, the technologist will also update the patient's Special Requirements field to end date the applicable Special Requirement.
- vii. The documentation of the review will be stored in the designated *Special Transfusion Requirement Review File* or Binder at each site.
- viii. Under most circumstances it is not necessary to request a review for every product order but the technologist should request another review by the Medical Director if there is any evidence of a new diagnosis, or pending diagnosis (mass, abnormal labs) which requires irradiation regardless of previous review notes in the computer.

C. Leukocyte Reduction

1. Generally, all allogeneic red blood cells (RBCs) and platelets that are received into inventory are leukocyte reduced by the blood supplier. All allogeneic RBCs and platelets dispensed from the Blood Bank should be leukocyte reduced.
2. Occasionally, a rare or directed donor RBC that is not leukocyte reduced by the blood supplier will be received. These units may need to be dispensed with a leukocyte reduction filter. The Medical Director should be consulted for any RBC received that is not leukocyte reduced.
3. If an autologous RBC that is not leukocyte reduced by the blood supplier is received, it is not necessary to dispense it with a leukocyte reduction filter.

D. Irradiation

1. Platelets, Granulocytes, Liquid Plasma and RBC that have never been frozen should be irradiated when indicated for patient. Note: Psoralen treated or pathogen reduced platelet products do not require irradiation.
2. Indications for irradiation
 - a. Selected immunocompromised patients; including congenital immunodeficiencies, DiGeorge syndrome, Wiscott Aldrich syndrome, and severe combined immunodeficiency (SCID).
 - b. Bone marrow transplant recipients
 - c. Hematologic malignancies including myelodysplastic syndrome
 - d. All platelet products including HLA and crossmatched platelets are irradiated with the exception of Pathogen Reduced (i.e. Psoralen treated) Platelets since the treatment lowers the risk of Transfusion Associated Graft versus Host Disease (TA-GVHD).
 - e. RBCs and platelets from directed donors
 - f. Granulocytes
 - g. Aplastic anemia or unexplained cytopenias, particularly if treated with antilymphocyte or antithymocyte globulin
 - h. Fludarabine therapy
 - i. Patients on medications that deplete/inactivate T cells (for example, Antithymocyte globulin or Alemtuzumab)
 - j. Patients on the oncology floor, Oncology Infusion Center, or the Short Stay Unit; refer to *Responsibility to order Irradiated Components*, below.
3. Not Indications for Irradiation
 - a. Patients with AIDS (Acquired Immune Deficiency Syndrome) due to HIV infection.
 - b. Solid organ transplant patients.
4. Responsibility to order Irradiated Components

It is the responsibility of the patient's physician to order irradiated components when they are indicated. However, the Blood Bank will attempt to provide irradiated components for the following patients:

 - a. Patients with a previous special message in the BBIS for irradiated components.
 - b. Patients in designated specialty units, such as Oncology floors, Oncology Infusion centers or in the Short Stay Units who do not have a Special Requirement for irradiated components shall have the special requirements confirmed with either Medical Director Review or ordering physician before issuing products. The patient Profile Note **IRRRV** should also be added to the patient record.
5. If necessary, irradiated blood products should be issued pending the review by the Medical Director for any patient where irradiation requirements are in question.

- a. Add patient profile Note PIRR (Pending Irradiation Review) patient profile in the BBIS.
6. If the Medical Director or Designee indicates to review the irradiation requirement at a future date, the Note will be added to the patient's profile with the approximate date when irradiation should be reviewed.

E. CMV Negative Special Transfusion Requirements

1. In the past, it was standard to provide CMV-negative RBCs and platelets for potential stem cell transplant recipients with CMV-seronegative status (IgG and IgM). CMV-negative RBCs and platelets are no longer provided for potential stem cell transplant recipients. However, CMV-negative products are still provided for neonates as described in Transfusion Medicine policy, *Policies for the Selection of Blood Components for Neonates*. Requests for CMV-negative blood products are therefore managed as follows:
 - a. If the patient has a historic special message for CMV negative products and the current order **does not** request CMV negative products, then it is not necessary to provide CMV-negative products. The following steps are performed (in the order they appear).
 - i. A Patient Profile Note will be added, for example, "CMV negative products are not required due to a change in protocol."
 - ii. The CMV-negative Special Requirement will be end-dated.
 - b. If a current patient order **does** request CMV negative products, then a request to review should be submitted to the MD regardless of whether or not the patient has a historic Special Requirement for CMV negative products.
 - c. If a CMV-negative Special Requirement was previously added as part of the neonatal protocol and the patient is now greater than four 4 months old, then a review should be requested from the Medical Director.

F. Washed Components

1. When an order is placed by the caregiver for washed products, this will NOT auto-generate a Special Requirement for washed products in the BBIS.
2. The Medical Director should be consulted for any order for washed products. If a decision is made that washed products are indicated, the appropriate Special Requirement should be added to the patient's profile in the BBIS, for example, "Washed RBCs only".
3. Indications for washed RBCs and platelets
 - a. Multiple, progressive allergic reactions
 - b. Hyperkalemic patient (critical hyperkalemia/clinically unstable) not undergoing dialysis , and "fresh" RBC unit is not available.
 - c. Neonates or fetal intra-uterine recipients, most often in cases of neonatal alloimmune thrombocytopenia (NAIT). The transfusion of unwashed platelet components procured from the mother to these recipients is strongly discouraged. For additional information refer to Transfusion Medicine policy, *Washing Platelet Components - Royal Oak*.

- d. IgA-deficient patients with anti-IgA antibodies
 - i. In addition to washed components, request for IgA deficient components may also be received. These components are special orders from the blood supplier.
 - ii. The Medical Director should be consulted if an order for washed or IgA deficient components are requested.
 - A. When washed RBCs or platelets are requested, the order is coordinated with Royal Oak, where they will be washed.
 - B. These patients may require "extra" washed RBCs in which case the cell washer should be set for an extra wash as described in Transfusion Medicine policy; *Washing Red Blood Cells - Royal Oak*.

G. Component Aliquots

1. Indications for which aliquots may be requested
 - a. Pediatric patients
Note: Components for neonates are routinely provided in aliquots as described in Transfusion Medicine policy, *Selection of Blood Components for Neonates*.
 - b. Patients who have experienced transfusion associated circulatory overload (TACO)
 - c. Patients with severe anemia
 - d. Patients with congestive heart failure
 - e. Patients with warm autoantibodies (WRM) or HTLA / Bg^a antibodies when incompatible units that are not phenotypically matched must be transfused. Refer to the following Transfusion Medicine policy, *Warm Autoantibody Investigations* / the policy *Determining whether to Aliquot Incompatible Donor RBC Units for Patients with WAAs and HTLA / Bg^a Investigations*.
 - f. Patients with passive CD38 antibodies.

H. The Use of Blood Warmers

1. Blood warmers are rarely indicated for routine transfusion services, and if used improperly they may cause damage or hemolysis to the RBCs. However, blood warmers may be useful for the rapid infusion of components during a trauma or surgery, for neonatal transfusion, or for patients with cold agglutinin syndrome.
2. It is the responsibility of the patient's physician to initiate the use of a blood warmer.
3. Blood warmers are not supplied by the Blood Bank. If a caregiver calls the Blood Bank with questions about obtaining a blood warmer, they should be instructed to call Anesthesia, Specialty Units (ED,OR,ICU) or Biomedical Departments.

I. HLA Matched or Crossmatched Platelets

1. HLA matched or crossmatched platelets may be ordered for patients who appear to be

refractory to platelet transfusions.

2. The Medical Director should be consulted to determine whether HLA or crossmatched platelets are indicated.
3. Once the MD makes this determination, the applicable patient profile Note(s) should be added. For example: **HLA YES (HLA Matched Products are recommended by Versiti Michigan. If HLA matched are unavailable give single donor platelets.)** replacing "Versiti Michigan" with the applicable Medical Director.
4. If HLA matched platelets are unavailable for a patient who requires HLA matched platelets, it is the responsibility of the patient's physician to determine whether to transfuse non-HLA matched platelets or to wait for HLA matched platelets.

Refer to Transfusion Medicine policy, [Selection of Platelets, Plasma, and Cryoprecipitate for Patients Greater Than Four Months Old](#)

J. Jehovah's Witnesses

1. Patients who are Jehovah's Witnesses may have certain wishes relating to transfusion. Some patients may not wish to receive any blood transfusions whatsoever, some may wish to receive only certain products or derivatives, some may wish to receive blood products only if necessary to save life, etc. If the Blood Bank becomes aware that a patient is a Jehovah's Witness, the following policies apply:
 - a. The patient profile Note **JHVWT (Jehovahs Witness)** should be added to the patient's profile in the BBIS.
 - b. Each time that a Blood Product Dispense Form is received for a patient with the Jehovah's Witness special message, then the technologist should notify the patient's caregiver, for example, that "Blood Bank historic records indicate patient is a Jehovah's Witness." This notification should be documented with a patient profile Note in the BBIS at the time of issue **JVHWT (Blood Bank historic records indicate patient is a Jehovah's Witness. Patient caregiver contacted before dispensing blood products. Caregiver: _____ Notification Date/Time:_____)**.
 - c. If multiple dispense forms are received for the patient in a very short time period (e.g., emergency, massive transfusion) and it is not feasible to notify the caregiver each time a component is issued, then this notification may be documented for only the first product issued in the emergency.

V. REFERENCES:

1. AABB, *Technical Manual*, current edition.
2. AABB, *Standards for Blood Banks and Transfusion Services*, current edition.
3. College of American Pathologists, *Transfusion Medicine Checklist*, current edition

Attachments

[Review of Special Transfusion Requirements Form 09112024](#)

Approval Signatures

Step Description	Approver	Date
	Kristina Davis: Staff Physician	10/17/2024
	Ann Marie Blenc: System Med Dir, Hematopath	10/10/2024
	Muhammad Arshad: Chief, Pathology	9/27/2024
	Jeremy Powers: Chief, Pathology	9/26/2024
	Ryan Johnson: OUWB Clinical Faculty	9/24/2024
	Masood Siddiqui: Staff Pathologist	9/23/2024
	Hassan Kanaan: OUWB Clinical Faculty	9/23/2024
	John Pui: Chief, Pathology	9/23/2024
Policy and Forms Steering Committee (if needed)	Kelly Sartor: Mgr, Division Laboratory	9/23/2024
	Suzanne Chahine: Medical Technologist Lead	9/20/2024
	Katherine Persinger: Mgr, Laboratory	9/20/2024
	Karrie Torgerson: Medical Technologist Lead [KS]	9/18/2024
	Teresa Lovins: Supv, Laboratory [KS]	9/18/2024
	Kristen DiCicco: Mgr, Laboratory	9/18/2024
	Fatima Bazzi: Supv, Laboratory	9/18/2024
	Hilary Morey: Medical Technologist Lead	9/17/2024

Ashley Beesley: Mgr, Laboratory	9/17/2024
Kelly Sartor: Mgr, Division Laboratory	9/17/2024
Kelly Sartor: Mgr, Division Laboratory	9/17/2024

COPY

Place accession label or patient information here

Medical Review of Special Transfusion Requirements

Tech / Date _____

Document patient name & MRN (or use sticker) and staple shingle / order to this form

Transfusion Requirement	Reason Review Needed
<input type="checkbox"/> Irradiated	<input type="checkbox"/> Historic message in BBIS <input type="checkbox"/> Patient location (e.g., SSU or oncology floor) <input type="checkbox"/> Type of doctor (e.g., oncologist) <input type="checkbox"/> Patient's diagnosis _____ <input type="checkbox"/> Ordered by physician (on shingle) <input type="checkbox"/> MD requested future review (RIB) <input type="checkbox"/> Other:
<input type="checkbox"/> CMV negative	<input type="checkbox"/> Historic message in BBIS (technologist can inactivate message for adults, purple sheet not required) <input type="checkbox"/> Ordered by physician (on shingle) <input type="checkbox"/> Other:
<input type="checkbox"/> Washed	Reason:
<input type="checkbox"/> HgbS negative	Reason:
<input type="checkbox"/> HLA / XM'd Platelets	Reason:
<input type="checkbox"/> IRR, CMV negative, and HgbS negative	Reason:
	<input type="checkbox"/> Neonatal protocol <input type="checkbox"/> Other:

Medical Evaluation Summary

Reviewed By:	Date:
Authorizing Pathologist	
Authorization Date	

Medical Review Indications – check all that apply

YES	NO	
<input type="checkbox"/>	<input type="checkbox"/>	Irradiate Blood Products (If no, MD removal of FYI flag in EPIC)
<input type="checkbox"/>	<input type="checkbox"/>	Review IRR at future date:
<input type="checkbox"/>	<input type="checkbox"/>	Use CMV Negative Blood Products
<input type="checkbox"/>	<input type="checkbox"/>	Use Washed Red Blood Cells
<input type="checkbox"/>	<input type="checkbox"/>	Other (please specify):

Patient Computer Instructions Update – Add a comment to include the indication for the special transfusion requirement (diagnosis), the reviewing MD, the date, and the updating tech.

Date of Update	
Updated By	

Indications for Irradiated Blood Components

Category	Some Specific Examples
Congenital Immunodeficiency Syndromes (affecting T cell function)	<ul style="list-style-type: none"> • Thymic hypoplasia (DiGeorges' Syndrome) • Wiscott-Aldrich syndrome • Lenier's disease • 5' Nucleotidase deficiency • Nonspecified immunodeficiency • Severe Combined Immunodeficiency (SCID)
Solid Tumor Malignancies	<ul style="list-style-type: none"> • Neuroblastoma • Glioblastoma • Rhabdomyosarcoma • Germ Cell Tumor • Multi-agent chemotherapy
Hematologic Malignancies	<ul style="list-style-type: none"> • Multiple Myeloma • Myelodysplastic Syndrome • Hodgkin's disease • Non-Hodgkin's lymphoma • Acute and chronic myelocytic leukemia (AML/CML) • Acute and chronic lymphocytic leukemia (ALL/CLL) • Aplastic anemia • Fludarabine treatment • Unexplained cytopenias
Intrauterine/Exchange Transfusions	<ul style="list-style-type: none"> • All intrauterine/exchange transfusions • All subsequent transfusions for babies post IUT
HLA/Selected Donors	<ul style="list-style-type: none"> • HLA selected/matched platelets • Crossmatched platelets
Directed Donors	All directed donations, including granulocyte transfusions and family member donors
Progenitor Cell Recipients	<ul style="list-style-type: none"> • Bone Marrow Transplant • Stem Cell Transplant • Cord Blood Transplant
Medications that Deplete/Inactivate T cells	<ul style="list-style-type: none"> • Antithymocyte globulin • Alemtuzumab

Irradiation NOT indicated for:

- Non-hematologic cancer patient without multiagent chemotherapy or combined chemo/radiotherapy
- Patient with HIV infection
- Solid organ transplant patient

Indications for Washed Red Blood Cells:

- Multiple, progressive allergic reactions
- IgA- deficient patient with anti-IgA antibodies
- Hyperkalemic patient (critical hyperkalemia/clinically unstable) not undergoing dialysis , and "fresh" RBC unit is not available.

CMV Negative Blood Products:

- RE: potential stem cell transplant recipients with CMV seronegative status (IgG and IgM); this was an indication in the past at this facility but is NOT a current indication.
- Neonates should receive CMV negative platelets and RBCs.