What’s in Your Folder

- **RWJUH** Blood Transfusion Criteria Guidelines
  - Guidelines in ordering blood transfusions
  - Transfusion of special products
    - Irradiated blood components
    - “CMV seronegative donors” vs. “CMV safe”
  - Massive Transfusion Protocol
    - Trauma
  - Donor Source
    - Allogeneic (volunteer): Bank or Directed
    - Autologous Only
Prior to ordering blood or blood component

- The patient must have a valid “TYPE AND ANTIBODY SCREEN” sample
  - Each sample is valid for 3 days and expires at midnight of the 3rd day
- VERIFY THAT INFORMED CONSENT FOR TRANSFUSION OF BLOOD PRODUCTS IS CURRENT/SIGNED IN THE CHART.
  - Consent is valid for the duration of each hospitalization.
  - Outpatient consent is valid for 30 days only.
  - If the patient refuses transfusion of blood for any reason (i.e., Jehovah’s Witness), check the box
- For indications other than “Acute Blood Loss” one unit is released per order.
  - If more units are needed, contact the Blood Bank (extension: 2060)
Blood Type and Antibody Screen

- Includes a Compatibility and Crossmatch specimen
  - Lavender Top test tube
  - Valid for 3 days only
- A confirmatory sample is drawn:
  - If a patient does not have a historical blood type in our Blood Bank
  - As a separate (2nd) venipuncture
  - By a different person at a different time
RWJUH Informed Consent for Blood Products include the following:

- Benefits of blood transfusion
- Risks of blood transfusion
- Potential adverse effects…
  - …infection with Hepatitis B and C, HIV…
- Alternatives to volunteer/donor blood…
- Consent

Refusal of blood products is governed by the policy of “Center for Innovations in Bloodless Surgery and Medicine: Program Guidelines.” This must be reviewed with patient and/or family.
Blood Type: O POS (Jun23); Antibody Screen: NEG (Jun23)
Relevant Results

If no results for Type and Antibody screen appear in Relevant Result field, CHECK OFF “Blood Type and Antibody Screen”
New Criteria for Blood Transfusion

- Acute Blood Loss
- Hemodynamically stable:
  - Hgb ≤ 7 g/dL in ICU patients or
  - Hgb ≤ 8 g/dL in other patients
- Symptomatic (chest pain, orthostatic HTON or tachycardia unresponsive to fluid resuscitation) irrespective of hemoglobin
- Acute coronary syndrome with symptoms attributable to anemia irrespective of Hgb
- Exchange transfusion for sickle cell disease
- Transfusion dependent chronic anemia
- Whole Blood Exchange (neonatal exchanges)
- Other red cell indicator (specify below)
## Relative Risk of the most frequent Transfusion Transmitted Infections in the US

<table>
<thead>
<tr>
<th>Infection</th>
<th>Risk estimate /unit transfused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>1 / 277,000</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>1 / 1,930,000</td>
</tr>
<tr>
<td>HTLV II</td>
<td>1 / 2,993,000</td>
</tr>
<tr>
<td>HIV</td>
<td>1 / 2,135,000</td>
</tr>
</tbody>
</table>

*J Transl Med 2007; 5:25*
When Transfusing Blood/Components

- Transfuse one unit at a time
- All blood components must be transfused within four (4) hours after release from the blood bank
- Check post-transfusion blood counts after each unit prior to transfusing another unit
- If not transfused, return unit to the Blood Bank within:
  - 30 minutes for RBCs with ice on TOP of unit (temperature tags will change color if returned more than 30 min)
  - 60 minutes for FFP with ice or in cooler if > than one unit
  - 60 minutes for Cryoprecipitate at RT* with no ice / not in cooler
  - 2 hours for platelets at RT* no ice / not in cooler

* Room temperature
# 2013 Blood Product Wastage Prices

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>Avg. COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single donor platelets</td>
<td>$ 700</td>
</tr>
<tr>
<td>HLA matched platelets</td>
<td>$1600</td>
</tr>
<tr>
<td>Cryoprecipitate (5 pack)</td>
<td>$ 300</td>
</tr>
<tr>
<td>Red blood cells</td>
<td>$ 300</td>
</tr>
<tr>
<td>FFP</td>
<td>$ 60</td>
</tr>
</tbody>
</table>
If you suspect a Transfusion Reaction

- STOP the TRANSFUSION
- CONFIRM THE IDENTITY OF THE RECIPIENT
- All acute transfusion reactions must be evaluated promptly by a physician or a licensed individual practitioner (LIP) before additional products are transfused
- Please complete the Transfusion Reaction Report on Transfusion Record
  - Need SIGNATURE of RN and MD/LIP
**TRANSFUSION RECORD**

**STATEMENT OF IDENTITY OF PATIENT**
We certify that the identity of this patient has been confirmed with the ARMS as and there is no discrepancy between it and the information on this 362 and on the Blood Component label.

**SIGNATURES:**
1. __________________________
2. __________________________

**Date:** ______________________ **StartTime:** __________________ **EndTime:** __________________

**Completed By:** __________________ **Volume Infused in mL:** __________________

- **BLOOD PRODUCTS NOT INFUSED MUST BE RETURNED TO TRANSFUSION SERVICE WITHIN 30 MINUTES**
- **Patient transfused in O.R. - See Anesthesia Flow Sheet**

### VITAL SIGNS

<table>
<thead>
<tr>
<th>TIME</th>
<th>PRE</th>
<th>10M</th>
<th>POST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

- **2°F Temperature Increase > 10.4°F noted for:**

- **Check here if transfusion reaction is suspected and follow the instructions on the back of this form to report a transfusion reaction.**
  - **Time of Reaction:** __________________
  - **Check appropriate boxes:**
    - Discrepancy in Patient Identification (Yes) **No**
    - Preceding (Yes) **No**
    - Microscopical (Yes) **No**
    - Histocompatibility (Yes) **No**
    - **Reason:**
    - **Other Information:**

- **Symptoms related to transfusion:**
  - **Urticaria/Hives**
  - **Diaphoresis**
  - **Hematuria**
  - **Chills**
  - **Nausea**
  - **Headache**
  - **Rash**
  - **Fever**
  - **Other Information:**

**Signature of Nurse:** __________________ **Date/Time:** __________________

**Transfusion Team:** __________________

**Chart Copy (A):**
Types of Transfusion Reactions

- **Hemolytic reactions**
  - Acute or Delayed

- **Non hemolytic reactions**
  - Allergic
  - Anaphylaxis
  - FNHTR (febrile non hemolytic transfusion reaction)
  - Microbial Contamination
  - TACO (transfusion associated circulatory overload)
  - TRALI (transfusion related acute lung injury)
  - Transfusion associated GVHD
Acute Hemolytic Transfusion Reaction

- Is a major cause of transfusion-related morbidity & mortality
- Commonly from ABO incompatibility
- Frequently preventable: policies are made to prevent occurrence
- The most common cause: CLERICAL ERROR
  - The BB ACCEPTS ONLY PROPERLY LABELED SPECIMENS
  - The BB REJECTS MISLABELED SPECIMENS
Acute Hemolytic Transfusion Reaction

- Hemolysis occurs within 24 hours of transfusion
- Commonly intravascular hemolysis from ABO incompatibility
- Fever, chills, N & V, hypotension, dark urine (hemoglobinuria), pain in infusion site or flank
- Mortality depends on volume transfused.
- Stop transfusion, send a purple top for hemolysis check.
- Avoid transfusions until work-up is completed.
**Allergic Reactions**

- “allergic to anaphylactoid to anaphylaxis”
- Involve skin, GI or respiratory
  - Skin: pruritus, hives, flushing
  - GI: nausea, vomiting, diarrhea, cramps
  - Respiratory: wheezes, dyspnea and stridors
- Anaphylaxis with hypotension
  - Recipients with IgA deficiency and anti-IgA antibodies
- Etiology from donor soluble plasma proteins or infusion of vasoactive substances
- Premedication for prophylaxis (diphenhydramine or hydrocortisone)
Febrile Nonhemolytic Transfusion Reaction

- ≥1°C rise in temperature or above 37°C
- Etiology from recipient antibodies to donor leukocytes or cytokine accumulation in the bag (esp. platelets).
- Chills, rigors, headache, nausea & vomiting
- Need to R/O hemolysis
  - Clerical and hemolysis check (DAT, visual hemolysis)
- Need to R/O bacterial contamination
Microbial Contamination

- Dramatic and catastrophic presentation
- Immediate reaction (up to 24 hrs)
- High fever, hypotension (shock), chills, nausea and vomiting
- Complications: shock, renal failure, DIC/death
- Risk factors: organism, volume and patient’s clinical condition
- Stop transfusion and draw blood cultures from patient. BB will culture unit.
Transfusion Associated Circulatory Overload (TACO)

- Common but preventable
- Rate of transfusion exceeds capacity of a compromised cardiovascular system
- Risk: pre-existing heart disease
- Dyspnea, cyanosis, JV distension
- LAB: CXR showing pulmonary edema or bilateral infiltrates and high BNP
- Prevention: Split unit and transfuse slowly
Transfusion Related Acute Lung Injury (TRALI)

- Acute life threatening respiratory distress within 6 hours of a transfusion of a plasma containing product
- Severity disproportionate to volume transfused
  - Must differentiate from a TACO
- Etiology: Donor antibodies (anti-HLA, anti-HNA)
- Bilateral noncardiogenic pulmonary edema
- Management: $O_2$, ventilatory support
Transfusion associated Graft vs. Host Disease (TA-GVHD)

- Very rare, incidence affected by genetic diversity
- Occurs 8-10 days after transfusion (3-30 days)
- Donor lymphocytes in unit recognize host as foreign and mount an attack on host tissues:
  - Fever, rash, diarrhea, elevated liver enzymes, pancytopenia
- High (99%) mortality rate
- Prevention: Irradiation of blood or cellular blood products (platelets) for patients at risk.
Indications for Irradiation

- Intrauterine transfusions and neonatal exchange transfusions
- Premature and low birth weight infants
- Congenital immunodeficiency syndromes
- Peripheral blood stem cell or marrow transplantation
- Hematologic malignancies (i.e., leukemia, lymphoma, multiple myeloma, Myeloproliferative and myelodysplastic syndromes)
- Blood products from blood relatives, crossmatched, HLA-matched or partially matched
- Solid tumors (only for neuroblastoma, sarcoma, Hodgkin disease)
- Granulocyte components
- Medications: Fludarabine, cladribine, pentostatin and Campath (anti-CD52)
For questions and more information call RWJUH Transfusion Services at Extension 2060