Objectives:
On completing this module, you will be able to:

• Identify blood group systems
• Describe compatibility requirements
• List steps in pick-up process
• Discuss administration procedures
• Describe correct documentation components
• Identify transfusion reaction symptoms
Blood Product Administration

Blood Compatibility

Which blood type can your patient receive?

<table>
<thead>
<tr>
<th>If Your Patient is Type</th>
<th>They Can Receive Pack Red Blood Cells From</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>A+ A- O+ O-</td>
</tr>
<tr>
<td>O+</td>
<td>O+ O-</td>
</tr>
<tr>
<td>B+</td>
<td>B+ B- O+ O-</td>
</tr>
<tr>
<td>AB+</td>
<td>All Types</td>
</tr>
<tr>
<td>A-</td>
<td>A- O-</td>
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<tr>
<td>O-</td>
<td>O-</td>
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<tr>
<td>B-</td>
<td>B- O-</td>
</tr>
<tr>
<td>AB-</td>
<td>AB- A- B- O-</td>
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</tbody>
</table>

When a patient receives the **wrong type of blood**, the red blood cells can rapidly:

- agglutinate (clump)  OR  hemolyze (rupture)
Indeterminate Blood Type

- In some situations it may be difficult to determine a patient’s true ABO or Rh type due to a temporary or long-term clinical condition.

- In these cases, the laboratory will report the patient’s blood type as “Indeterminate” ABO/Rh and provide compatible blood.

Examples:
  - Unable to type weak D on a cord blood
  - Stem cell transplant patient during an engraftment period.
Blood/Blood Products Administration

Requires a physician’s order

- Blood Transfusion Order Set initiated by the physician for every blood/blood product transfusion order.
  - Paper forms may be used for transfusions in clinics when applicable

- Requires informed consent by the patient and/or family
- As required by the Paul Gann Act, the patient/family has been given information on transfusions – *A Patient’s Guide to Blood Transfusion* – unless not applicable.
Blood/Blood Products Pick-up

• Prior to picking up blood verify physician’s order
• Take and document pre-transfusion Vital Signs (VS) up to 60 minutes prior to transfusion (temperature, pulse, respirations and blood pressure) and assess for rash
  – If febrile, notify physician

• Start IV and give pre-medications
  – Start an IV using an appropriate gauge needle
  – Hang normal saline at a KVO rate

• RN, LVN, or Physician who will be transfusing the blood product signs a blood product pick-up slip (print from KPHC, or paper downtime form).
  – Slip includes the patient’s name, medical record number (MRN), & blood product
  – Signing means the blood product pick-up slip has correct patient, MRN, & blood product and patient meets the condition for transfusion.

Always verify that the name & MRN on the blood product matches the name and MRN on the pick-up slip before starting the read-back.
Blood Product Administration

Blood Products Pick-up

A two-person read back can be done between the Clinical Laboratory Scientist and a non-licensed person qualified by training to perform the read-back.

- Examples of non-licensed staff: Unit Assistant, Transporter, or Medical Assistant

Read-back the following with the Clinical Laboratory Scientist:

The front AND back labels of the blood bag compared with the Crossmatch Report.

- Patient’s name
- Medical Record number
- ABO / Rh of patient
- ABO of unit and Rh if applicable
- Unit number
- Expiration date and time if applicable
- Special requirements
- Compatibility
- Visual inspection done by lab
Blood Product Administration

Blood Product Pick-Up

Whole Blood approximate 500ml
Packed Red Blood Cells approximate 250 ml

ABO: The Blood Type & Rh Factor: (Positive or Negative)

Expiration Date

Unit Number: 13 Digits

Fresh Frozen Plasma

Platelet Concentrate: 1 unit/bag
Apheresis platelets = 4-6 platelet concentrates per bag
Important Points to Remember

- Transfusion is **initiated within 30 minutes** from removal from Transfusion Service, **or it must be returned** to Transfusion Service.

- Complete transfusion within **4 hours** from pick up

Routine administration:

- Give only **one** type of component at one time.

- In most cases, only **one** unit of blood may be picked up at one time (**Unless** the Nurse has informed the laboratory that the patient is acutely bleeding and the products will be transfused immediately, in which case a second unit may be authorized for pick up at the same time)

- **NEVER** pick up a blood product for more than one patient at one time.
Checking Blood Products at Bedside

Prior to transfusion verify physician’s order
Ask patient to state their name when possible

Use the following:
- Patient’s Armband
- Crossmatch Report
- Patient’s label on Blood Bag
- Blood Bag Face Label (Front of bag)

2 RNs, RN and LVN, or RN and physician must verify at PATIENT’S BEDSIDE:
- Patient’s Name
- Patient’s Medical Record Number
- Blood Unit Number
- ABO /Rh of unit and patient
- Compatibility result if applicable
- Special requirements if any
- Expiration Date of the unit

Both verifiers sign on “transfusion record” of Crossmatch Report.

Name and credentials of second verifier is also documented in KP Health Connect.
Starting Transfusion

✓ Explain procedure to patient/family

✓ Take and document pre-transfusion Vital Signs (VS) (temperature, pulse, respirations and blood pressure)

✓ Gently rotate & inspect for leaks or other abnormalities

   ❖ If anything appears abnormal, contact the blood bank or return the blood

✓ Attach blood or blood component to appropriate filter, if required.

**NO** medication is ever added to blood prior to or during a transfusion

**NO** calcium or glucose solutions can be run through same IV tubing as blood/blood components

✓ Document start date & time

Do not transport the patient during the first 15 minutes of a non-emergency transfusion. Patients with blood products infusing who are subsequently transported must be accompanied by RN or Physician.
Obtain first set of vital signs within 60 minutes to the start of the transfusion.

For the first 15 minutes, infuse slowly; closely monitor the patient for any reactions.

Continue to monitor the patient & document vital signs in Navigator:

- 15 minutes after start of transfusion
- Any VS taken during the transfusion

<table>
<thead>
<tr>
<th>Vital Signs</th>
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<tbody>
<tr>
<td>Temp</td>
</tr>
<tr>
<td>Temp Source</td>
</tr>
<tr>
<td>Heart Rate/Pulse</td>
</tr>
<tr>
<td>Resp</td>
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<tr>
<td>BP</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Temp Source</th>
<th>ORAL</th>
<th>TYPANIC</th>
<th>RECTAL</th>
<th>AXILLARY</th>
<th>CORE</th>
<th>SKIN PROBE</th>
<th>TEMPORAL</th>
<th>BLADDER</th>
</tr>
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Step 2 - Document Transfusion
### Signs and symptoms of a transfusion reaction may include:

- **Acute hemolytic/Incompatibility**: fever, flushing, back pain, wheezing, anxiety, bloody urine
- **Febrile**: (1°C or 2°F > baseline) typically only fever is present; however, may experience rigors, shaking, chills, hypotension, vomiting
- **Anaphylactic**: Dyspnea, wheezing, anxiety, hypotension, bronchospasm (severe cases)
- **Allergic**: Maculopapular rash and/or urticaria (*May not need to D/C transfusion for this type of reaction; follow physician orders)*

#### Transfusion related acute Lung Injury (TRALI)

*consider (within 6 hours of transfusion) when symptoms include :*

- acute shortness of breath, fever, chills, cyanosis, hypotension, and/or x-ray findings of pulmonary edema, without cardiac failure

#### Transfusion Associated Circulatory Overload (TACO)

*may occur with the transfusion of large volumes or rapid transfusion.*

Symptoms include:
- hypertension
- shortness of breath
- acute pulmonary edema **with** cardiac involvement.
STOP the blood transfusion immediately

- Maintain IV patency.
- Notify physician & Blood Bank.
- Stay with patient & monitor vital signs.
- Complete Transfusion Reaction Investigation Form.
  - Obtain blood and urine samples and label as Post-Transfusion.
  - Return form, unit of blood with administration set, and lab samples to Blood Bank.
- Document symptoms and interventions including notification and continuing assessment.
Blood Product Administration

Transfusion Reaction (Cont.)

✓ Notify the Blood Bank

✓ Complete the entire blue area of the Transfusion Reaction Investigation Form

(If transfusion vital signs have been entered in KPHC, your facility may not require documentation of the vital signs on the paper crossmatch form.)
Blood Product Administration

Finish documenting the transfusion in the KPHC Transfusion Navigator- 2 Steps

**Step 1**
- Pre-Transfusion
- Vital Signs
- Blood Product
- Transfusion
- Post Transfusion

**Step 2**
- Document Transfusion
- Transfusion Medication
- Flowsheet Data
- Complete Transfusion Order

**Order Status**
- Are you sure you want to change order status to Complete?
- Packed Red Blood Cells

**Transfusion Navigator**
- Step 1 - Check Transfusion Medication
- Medications
- Step 2 - Document Transfusion
- Step 3 - Complete Transfusion Order
- Now Orders
- Conditional Orders

**Transfusion**
- Status
- Rate of Transfusion (mL/hr)
- Method of Transfusion
- Symptoms of Transfusion Reaction?

**Post Transfusion**
- Post Transfusion Status
- Duration of Transfusion (hrs)
- Red Blood Cells Administered (mL)
- Normal Saline Administered (mL)
Completing Transfusion

- Complete chart & laboratory copies of Crossmatch Report:
  - Document completion/discontinued time.
  - Document amount transfused (unit packed cells).
  - Take & document post-transfusion VS only in KPHC
  - Discard blood bag in red-bagged containers.
  - Return the laboratory copy of the cross match report to Transfusion Service per local policy.
  - Place chart copy of the Crossmatch report in the min-rec.

- Obtain post-transfusion HCT, per physician order.

- If the patient is being discharged after the transfusion, provide written instructions regarding possible reactions.
1. A safety check is performed in the lab between a Clinical Laboratory Scientist (CLS) and the person picking up the blood and again between one RN and another licensed nurse or physician at the bedside. Safety checks require checking patient name, MRN, patient ABORh, blood unit number, blood product ABORh type and expiration and any special requirements. Cross checking should include the cross match form, the patient arm band, and both front and back labels of the blood product. T F

2. Common symptoms of transfusion reaction may include chills followed by fever, joint pain, and/or wheezing. T F

3. Patients must have a second IV line to infuse other medications/solutions if needed. T F

4. Blood should only be obtained from the blood bank when transfusion is ready to begin, and should be hung immediately once it is brought to the unit. Pre-transfusion vital should be done 60 minutes prior to transfusion, in case the patient is not stable enough for the transfusion. Once picked up from the lab, if there is an unexpected delay, blood may be returned within 30 minutes from when it was issued. T F

5. Transfusion Related Acute Lung Injury (TRALI) is a diagnosis of non-cardiogenic pulmonary edema with no there apparent cause, occurring within 6 hours of a transfusion. T F