PURPOSE
To provide guidelines for the administration of Albumin via syringe method

SITE APPLICABILITY
BC Children’s Hospital only

EQUIPMENT
- Patient chart with blood product order and consent for blood transfusion
- Patient Identification band
- Personal Protective Equipment (PPE): gloves, goggles, +/-gown, mask
- Chlorhexidine/alcohol swabs
- Cap (for post transfusion CVC cap change)
- Sterile white cap (to cap of existing infusion)
- 50 mL syringe for albumin
- 18 gauge needle for aspirating albumin
- 10 mL prefilled syringes with 0.9% Normal Saline for priming & flushing the line
- Microbore 60” tubing
- Infusion pump “brain”
- Syringe pump

From Transfusion Medicine Laboratory
- Albumin
- Transfusion tag attached to bottle of Albumin
- Transfusion record

PRE-TRANSFUSION

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>ENSURE</strong> order for blood product exists.</td>
<td>Blood products shall be prescribed by a health care provider with blood prescribing privileges.</td>
</tr>
<tr>
<td>2. <strong>ENSURE</strong> that informed consent for albumin transfusion is complete and current.</td>
<td>Informed Consent is required by law for the transfusion of all blood products.</td>
</tr>
<tr>
<td><strong>Informed consent need not be obtained:</strong></td>
<td></td>
</tr>
<tr>
<td>• When urgent treatment is necessary to preserve a patient’s life and continuing health, and</td>
<td></td>
</tr>
<tr>
<td>• When it is not reasonably possible to obtain consent, and</td>
<td></td>
</tr>
<tr>
<td>• When there is no substitute decision maker</td>
<td></td>
</tr>
<tr>
<td>3. <strong>ENSURE</strong> that TML is aware of the planned transfusion. <strong>Complete/Send</strong> the Blood Component/ Derivative/Factor Concentrate Request form to TML.</td>
<td>To avoid unnecessary delay in transfusion.</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td></td>
</tr>
<tr>
<td>No cross match or ABO group required for albumin transfusion. Refer to blood product fact sheet.</td>
<td></td>
</tr>
<tr>
<td>4. <strong>ENSURE</strong> that the guardian is aware of the planned transfusion. <strong>Explain</strong> reason for transfusion and transfusion procedure to patient. <strong>Provide</strong> patient/guardian with the information pamphlet “Blood Transfusion Answers to Some Common Questions” if necessary.</td>
<td>Allow the guardian to prepare for the procedure. To ensure that the patient understands the reason for transfusion and the transfusion procedure.</td>
</tr>
<tr>
<td>5. <strong>ENSURE</strong> that a patient identification band/card is in place.</td>
<td>A missing identification band is a significant factor to patient misidentification and wrong product to</td>
</tr>
</tbody>
</table>
**ADMINISTRATION OF ALBUMIN**  
**SYRINGE METHOD**  
**NOT APPLICABLE IN NICU**

- **No identification band/card, No Transfusion**  
  `patient incidents. Transfusion should not be administered to patients who lack positive identification.`

6. **ENSURE** peripheral vascular access or central vascular access line of sufficient gauge is established for the transfusion based on clinical status of patient and urgency of transfusion, see table 1 below.  
  `Gauge or lumen size should be large enough to allow the flow within the specified administration time.`

<table>
<thead>
<tr>
<th>Patient Group</th>
<th>Lumen Size</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric</td>
<td>22 &amp; 24 Gauge</td>
<td>Suitable for blood product transfusion</td>
</tr>
<tr>
<td>Neonatal</td>
<td>≥ 26 Gauge</td>
<td>Suitable for blood product transfusion</td>
</tr>
</tbody>
</table>

**Central Venous Access Devices**

<table>
<thead>
<tr>
<th>Patient Group</th>
<th>Lumen Size</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>All</td>
<td>Suitable for blood product transfusion</td>
</tr>
</tbody>
</table>

**Cuffed & Uncuffed Peripherally Inserted Central Catheter (PICC)**

<table>
<thead>
<tr>
<th>Patient Group</th>
<th>Lumen Size</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric</td>
<td>3 French or greater</td>
<td>Suitable for blood product transfusion.</td>
</tr>
<tr>
<td>Neonatal</td>
<td>2 French or smaller</td>
<td><strong>DO NOT</strong> use for blood product transfusion.</td>
</tr>
</tbody>
</table>

**Uncuffed Double Lumen 4 French PICC**

<table>
<thead>
<tr>
<th>Patient Group</th>
<th>Lumen Size</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric</td>
<td>20 Gauge (= 3 French)</td>
<td>Suitable for blood product transfusion</td>
</tr>
<tr>
<td>Neonatal</td>
<td>23 Gauge (= 2 French)</td>
<td><strong>DO NOT</strong> use for blood product transfusion</td>
</tr>
</tbody>
</table>

7. **ENSURE** a dedicated line for the administration of albumin.  
   - Albumin is compatible with 0.9% Normal Saline, Plasma-Lyte and D5W

8. **PERFORM** a pre transfusion patient assessment within 30 minutes of commencing the transfusion and **PRIOR** to removing cap on the syringe. **Record** baseline vital signs:  
   - Heart rate
   - Blood pressure
   - Temperature
   - Respiratory rate
   - Include O₂ Saturation level, chest auscultation and a review of fluid balance for patients who are considered high risk e.g. patients with coexisting medical conditions such as renal failure or cardiovascular disease or patients who have experienced previous transfusion reactions.

   **Identify any clinical manifestations that may be cause for delaying the transfusion e.g. fever.**  
   **Identify any preexisting clinical manifestations that may be confused with a transfusion reaction e.g. fever or pre-existing rash.**

   **Identify any existing clinical manifestations that may predispose the patient to a transfusion reaction e.g. Transfusion Associated Circulatory Overload.**

9. **ADMINISTER** pre medications as ordered.  
   `Pre medication should be administered at a suitable time before infusion begins to allow for...`
<table>
<thead>
<tr>
<th><strong>ADMINISTRATION OF ALBUMIN</strong></th>
<th><strong>SYRINGE METHOD</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NOT APPLICABLE IN NICU</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **10. DOCUMENT** findings of pre transfusion assessment including any pre-medication related to transfusion preparation, e.g. diuretics or antihistamines. | Establish baseline levels so that any transfusion-related deviations in patient’s clinical condition will be recognized. |
| 11. Arrange for the **TRANSPORT** of albumin immediately prior to initiation of planned infusion. Complete the Blood Release Request Form. | Avoid delays in initiating the transfusion. Ensure that the person transporting the blood product obtains the right blood product for the right patient. Avoid wastage. |
| **Only one bottle of albumin is requested at a time for each patient (in non-emergency situations).** | Facilitates completion of task in a timely manner. |
| 12. **ASSEMBLE** required equipment. | To avoid unnecessary wastage To prevent the entry/growth of microorganisms as albumin contains no preservative |
| 13. **START** the transfusion within 20 minutes of issue. | Albumin is stored at room temperature. These methods may damage the product and cause harm to the patient. |
| **Note:** | |
| • If the transfusion cannot be started return the albumin to TML immediately. | |
| • The transfusion must be completed within 4 hours of spiking the bottle. | |
| • Consult TML if there are concerns about completing the transfusion within the four hour time limit. | |
| **Never** store albumin products in unapproved fridges such as ward or medication fridges. | |
| **Improvised warming** such as putting albumin in hot water must **never be used.** | |
| 14. **PERFORM** the pre transfusion check: | To ensure that the **Right Patient** receives the **Right Product.** |
| **Note:** | |
| The pre transfusion check must be completed by **two health care providers**, with required competencies, **one of whom shall initiate the transfusion.** | |
| **Visual Inspection.** | |
| The integrity of the albumin product is checked for: | |
| • Turbidity | • Particulate matter |
| • Abnormal colour | • Leaking syringe |
| **Albumin that appears abnormal should not be transfused without further investigation.** Contact TML @ 7388 for an explanation of abnormal appearance. | |
| **Initial check** | |
| **CONFIRM** that Informed Consent exists. | |
| **COMPARE** the patient details: | |
| • First and last name | |
| • DOB | |
| • MRUN on | |
| • Front sheet of the patient chart | |
| • Blood product order | |
| • Product Tag | |
| • Transfusion record | |
CHECK the order for:
- Specific blood product e.g. albumin
- Concentration of albumin
- Volume in mLs
- Date of the transfusion
- Rate or duration of infusion
- Pre/post transfusion medication orders

Note:
⚠️ Administration of 25% albumin in error, instead of 5% albumin, could result in circulatory overload.

The information on the albumin label, product tag & transfusion record must match.

COMPARE details on the albumin label, the product tag and transfusion record.

Patient information:
- First & last name
- DOB
- MRUN

Product information:
- Concentration of albumin
- Lot numbers
- Expiry date

⚠️ Check for any TML comments.

Final check in the presence of the patient
1. Ask guardian, where possible, to state their infant’s full name and date of birth and compare to patient details on patient identification band/card.
2. Compare the patient details:
   - First and last name
   - DOB
   - MRUN
3. With patient details on:
   - Patient identification band/card
   - Product Tag
   - Transfusion Record

⚠️ If you find any discrepancies in the patient identifiers DO NOT proceed. Contact TML @ 7388 immediately

⚠️ The product tag must remain attached to the product for the duration of the transfusion.

If this product is not the intended product for your patient another patient may be at risk i.e. another patient may be about to receive the wrong product.

15. DOCUMENT the checking procedure by signing the transfusion record.

Record:
- Signature of both staff members who carried out the pre transfusion check
- Date of transfusion
- Start time.

To confirm that the pre transfusion checking procedure has been completed.

To ensure that patient information and product details on the transfusion record and product tag are identical.

To ensure that the product has not expired.

To ensure that required special requirements and/or modifications have been met.

The majority of transfusion-associated mortality is due to patients receiving the wrong product, or blood intended for another patient. The bedside check is a vital step in preventing serious transfusion error. Vigilance in checking to ensure that the right product is given to the right patient is mandatory.
16. Immediately after the verification checks have been completed INITIATE the transfusion:
   • **Wash** hands; apply personal protective equipment and prepare field and equipment.
   • **Flip** off plastic cap on top of the bottle and expose rubber stopper.
   • **Clean** the exposed rubber stopper with alcohol swab.
   • **Attach** filter needle, if supplied by manufacturer, to a sterile disposable plastic syringe.
   • **Insert** needle into the area delineated by the raised ring in the center of rubber stopper. The stopper should be penetrated perpendicular to the plane of the stopper within the ring. The bottle should be on a flat surface.
   • **Aspirate** the required volume of albumin from the bottle into the syringe. **Include** additional volume to allow for discard in the microbore tubing.
   • **Remove** and discard the needle from the syringe.
   • **Remove** product tag from albumin bottle and attach to albumin syringe.
   • **Attach** the microbore tubing to the syringe.
   • **Prime** the microbore tubing with albumin.
   • **Load** syringe into syringe pump and prime using prime option on pump. **Label** pump channel.
   • **Program** pump to run at prescribed/appropriate infusion rate, see table 2 below. **Confirm** the programmed rate and volume to be infused.
   • **Clamp** IV. **Delay** existing infusion for the durations of the transfusion.
   • **Disconnect** existing infusion. **Place** sterile white cap on disconnected line to maintain sterility.
   • **Clean** connection cap. **Flush** with 0.9% Normal Saline and **Clamp**.
   • **Connect** blood product line to patient’s IV access and **Start** transfusion.

**Note:**
- Use filter needle if supplied by manufacturer.
- **Do not re-enter the albumin bottle** once required volume of albumin has been aspirated into syringe.
- **The product tag must remain attached to the product for the duration of the transfusion.**

**Table 2: Infusion Rates for Non-Emergency Situations for all patients**

**INFUSE** each bottle at 1 mL/kg/hr, **up to a maximum of 50 mL/hr** (when product reaches the patient), for the first 15 minutes.
**ADJUST** the flow to the prescribed infusion rate, if there are no signs or symptoms of a transfusion reaction during the first 15 minutes.

To prevent **microbial contamination of product.**

⚠️ The product tag must remain attached to the product for the duration of the transfusion.

Prevent errors in the rate of infusion

To prevent **microbial contamination of product.**
ADMINISTRATION OF ALBUMIN
SYRINGE METHOD
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<table>
<thead>
<tr>
<th>5% Albumin</th>
<th>25% Albumin</th>
</tr>
</thead>
<tbody>
<tr>
<td>As per prescribers’ orders for remainder of infusion.</td>
<td>As per prescribers’ orders for remainder of infusion.</td>
</tr>
<tr>
<td>▶ The maximum infusion rate should not exceed 1.5 mL/kg/hr</td>
<td></td>
</tr>
</tbody>
</table>

### Note:
- Infusion rate should be adjusted to individual requirements, based on initial assessment and monitoring of the patient’s status.

*If a severe allergic reaction such as anaphylaxis occurs, symptoms usually appear early in the transfusion.*

#### 17. MONITORING
- **INSTRUCT** the guardian to inform a HCP immediately if they observe:
  - Hives
  - Difficulty in breathing
  - Nausea/vomiting
- Patients will be aware of the:
  - Signs and symptoms of a transfusion reaction
  - Actions to take should they experience a transfusion reaction

#### Table 3: Patient Monitoring During Blood Product Transfusion

<table>
<thead>
<tr>
<th>Neonatal (less than 4 months old)</th>
<th>Pediatric/Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measure Vital signs:</strong></td>
<td><strong>Measure Vital signs:</strong></td>
</tr>
<tr>
<td>• After 15 minutes <strong>times two</strong></td>
<td>• After 15 minutes</td>
</tr>
<tr>
<td>• 60 minutes after the start of the transfusion</td>
<td>• 60 minutes after the start of the transfusion</td>
</tr>
<tr>
<td>• Hourly for remainder of the transfusion</td>
<td>• Hourly for remainder of the transfusion</td>
</tr>
<tr>
<td>• Within 60 minutes of completion of the transfusion</td>
<td>• Within 60 minutes of completion of the transfusion</td>
</tr>
<tr>
<td><strong>Vital signs include:</strong></td>
<td><strong>Vital signs include:</strong></td>
</tr>
<tr>
<td>Heart rate</td>
<td>Blood Pressure</td>
</tr>
<tr>
<td>Respiration Rate</td>
<td>O2 Saturation level</td>
</tr>
</tbody>
</table>

### Note:
- **Increase observation for high risk patient’s e.g. unaccompanied infants / children, clinically unstable or unconscious patients.**
- **Monitor O2 saturation level & fluid balance in patients who are at risk of fluid overload.**
- **Serious and life threatening reactions can occur unpredictably and progress rapidly therefore patients must be closely monitored throughout the transfusion.**

#### 18. If a second bottle of albumin is required:
- **NOTIFY** TML 30 min before it is required
- **REPEAT** steps 11 to 17.

### Note:
Change the microbore tubing after administrating 2 syringes or every 4 hours, whichever ever comes first, and when changing to a different blood product.

#### 19. In the event of a suspected transfusion reaction:
- **STOP the transfusion immediately:**
  - Administer 0.9% Normal Saline
  - Reassess patient vital signs
  - Reconfirm unique identifiers on both patient and blood product
  - Seek assistance and **notify** physician.
  - Refer to Transfusion Reaction Procedure & Quick Reference guide and **complete** the Transfusion Reaction Report Form.

- To minimize patient harm.
- To keep the vein open.
- To seek direction for patient management.
- To ensure correct procedure is followed.
- To report the transfusion reaction.
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| 20.  | **COMPLETION** of infusion:  
  - Clean the connection between microbore tubing IV access.  
  - Disconnect the microbore tubing and syringe line.  
  - Flush the connection with 0.9% Normal Saline using pre filled syringe.  
  - Use minimum volume flush for fluid restricted patients.  
  - **Volume in the syringe allows for some discard in the microbore tubing.**  
  - **To ensure all the product is cleared from the connection.** |
| 21.  | **RETURN** to previously ordered intravenous solution or saline/heparin lock as per prescriber’s orders. |
| 22.  | **DISCARD** syringe and microbore tubing in biohazard container  
  - **Universal precautions.** |
| 23.  | **PERFORM** post transfusion blood work if ordered.  
  - **To monitor the response to the transfusion.** |
| 24.  | **DOCUMENT**  
  - Complete the transfusion record:  
    - Volume infused  
    - End time  
    - Transfusion reaction noted: yes or no  
  - Complete the product tag:  
    - Date/time transfused  
    - Transfused by  
    - Transfusion reaction noted: yes or no  
  - Complete patient notification tag section:  
    - Date of transfusion  
  - **Record in patients chart:**  
    - Vital signs  
    - Volume infused  
    - Patient’s response to transfusion  
    - All interventions related to transfusion  
    - If a transfusion reaction occurred record all S&S experienced by the patient  
  - At the time of the transfusion the patient’s medical chart shall be updated |
| 25.  | **FILE** transfusion record in patient’s chart.  
  - **To ensure full traceability of the product.** |
| 26.  | **GIVE** the guardian the patient notification tag. The notification tag may be filed in the patient’s chart and given to the guardian at discharge.  
  - **All patients who receive albumin should receive notification of the transfusion in writing.** |
| 27.  | **RETURN** the completed product tag to TML.  
  - **To ensure full traceability of the product.** |
| 28.  | **PERFORM** post transfusion blood work if ordered.  
  - **To monitor the response to the transfusion.** |
| 29.  | **OBSERVE** in-patients for signs & symptoms of a transfusion reaction post transfusion.  
  - **Transfusion reactions can occur after the completion of the transfusion.** |
| 30.  | For outpatients, **REVIEW** post transfusion care and give the “Heading Home after a Transfusion” form to the guardian. **Discharge** when clinically stable.  
  - **Patient/guardian should be aware of the potential of transfusion reactions and post transfusion care.** |
ADMINISTRATION OF ALBUMIN
SYRINGE METHOD
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REFERENCES


Product Monograph Albumin (Human) 5% & 25% Solution
Product Monograph Alburex® 5% & 25%