

## PRACTICE GUIDELINE

Effective Date: 7-16-04

Manual Reference: **Deaconess Trauma Services**

**TITLE: AUTOTRANSFUSION OF BLOOD USING PLEUROVAC CHEST DRAINAGE SYSTEM**

**PURPOSE:** To provide rapid and safe re-infusion of patient's own shed blood as treatment for hypovolemic shock.

**DEFINITIONS:** Autotransfusion: The collection and re-infusion of the patient's own (autologous) blood, abbreviated "ATS."

**GUIDELINES:**

1. These guidelines are written specifically for using the Pleurovac A- 9250 Blood Recovery Water Seal Chest Drainage System. See appropriate package inserts and/or the booklet. This guideline offers a brief summary of this procedure. More details can be obtained from package inserts and the above-referenced booklet.
2. Indications: Autotransfusion is useful as an adjunct or as a replacement to banked blood in trauma patients who are at risk of or are in hypovolemic shock. The procedure referred to in this guideline is autotransfusion of blood collected from a patient's hemothorax via chest tube. This system should be used on all trauma patients who have a chest tube inserted for a hemothorax or who are at risk for a hemothorax. The reinfusion of the collected blood is optional and depends on the patient's condition and need.
3. Equipment:
  - a. Pleurovac Model A-9250.
  - b. Model A-1650 Self-Filling ATS Bag.
  - c. In-line Pall Blood Filter for re-infusion.
4. Procedure:
  - a. Blood collection:
    - i. Follow all steps in the product package insert.
    - ii. In general, the basic steps are:
      - a) Prepare Pleurovac according to insert instructions.
      - b) Connect the patient chest tube to the Model A-9250.
      - c) Connect Model A-1650 ATS bag to the Pleurovac as per insert instructions.
  - b. Re-infusion:
    - i. When approximately 500 ml of blood has collected in the ATS bag, proceed with preparing the collected blood for re-infusion.
    - ii. Close the A-9250 chest ATS access line and remove the spike port cap.
    - iii. Insert the ATS bag spike into the chest drain ATS access spike port using a firm, twisting motion. Position the ATS

bag below the base of the chest drain.

- iv. Open both clamps. Holding the ATS bag 2-4 inches below the base of the chest drain, gently bend the ATS bag upward where indicated to activate the blood transfer. When activated, the self-filling ATS bag will begin to fill and expand as blood enters from the chest drain.
  - v. Once blood evacuation is completed and the filled ATS bag is ready for disconnection, close both ATS access line and ATS blood bag clamps.
  - vi. Remove the ATS spike from the ATS access line spike port and insert into the ATS bag spike holder.
  - vii. Recap the ATS access line spike port and position the ATS access line in the holder located on top of the chest drain.
  - viii. Displacing air by gently squeezing ATS bag will allow more blood volume into the bag.
  - ix. Prime IV blood administration set and microemboli blood filter with sterile saline.
  - x. Invert in-line ATS bag with spike port pointing upward and remove tethered cap, using sterile technique. Insert saline filter spike into ATS bag spike port. Return ATS bag to upright position and place on IV pole.
  - xi. Open filtered air vent located on top of ATS first, then open the IV clamp to complete priming. Evacuate all remaining air in the IV circuit. Close IV clamp when fully primed. IV is now ready for patient connection.
  - xii. For non-pressure infusion, open filtered air vent for maximum flow rated.
  - xiii. For pressurized infusion, filtered air vent must remain closed.
- c. Cautions:
- i. Purge all air from entire IV circuit, prior to patient connection, to prevent air emboli.
  - ii. Stop infusion before re-infusing all of the blood. Do not re-infuse the entire blood contents through the blood filter and IV set, as air emboli can result.
  - iii. Make sure all clamps and vent caps are in the proper position at the appropriate time during the procedure.
  - iv. Do not re-infuse the collected blood after four hours.
  - v. Be aware of “contraindications:”
    - a) Intra-operative or post-operative coagulopathy of DIC.
    - b) Pericardial, mediastinal or system infections.
    - c) Pulmonary or respiratory infection or infestation.
    - d) Presence of malignant neoplasm.
    - e) Enteric contaminated cavity from which the blood is collected (particularly with esophageal tear or tear of diaphragm coupled with GI tear).
    - f) Inadequate renal or hepatic function.

g) Wounds more than three hours old.

5. Complications:

- a. Inadvertent re-infusion of enteric contaminated blood.
- b. Air and/or particulate embolism.
- c. Microemboli.
- d. Infusion of blood collected more than six hours previously could result in sepsis.

**REFERENCES:**

- ❖ Deaconess Trauma Guideline Manual, ENDOTRACHEAL INTUBATION AND AIRWAY MANAGEMENT.
- ❖ Deaconess Trauma Guideline Manual, EMERGENT THORACOTOMY.
- ❖ Deaconess Critical Care Policy and Procedure Manual, Document No: A – 13; AUTO TRANSFUSION.
- ❖ Deaconess Hospital Policy and Procedure Manual, MASSIVE BLOOD TRANSFUSION.
- ❖ Deaconess Laboratory Policy and Procedure Manual, BLOOD USAGE REVIEW PROGRAM.

<b>REVIEWED DATE</b>	<b>REVISED DATE</b>
JAN 05	JAN 08
JAN 06	
JAN 07	