Clinical Protocol

CP.XX.xxx

The objective of this document is to be a resource, not a replacement for institutional specific protocols. It is intended as a template for your perfusion team to edit and adapt into a resource that fits your institutional specific needs. These Clinical Protocols may also be superseded by the judgment of the healthcare professional considering the facts and circumstances of the individual case.

SUBJECT/TITLE: **AUTOTRANSFUSION**

PURPOSE: To provide a guideline and resource for cell saver collection and reinfusion in surgery utilizing a Latham Bowl device.

TARGET POPULATION: Autotransfusion is intended for the use in the collection, concentration, washing and reinfusion of autologous blood. Such areas of application may include, but are not limited to:

a. General Surgery
b. Cardiothoracic Surgery
c. Orthopedic Surgery
d. Vascular Surgery
e. Plastics/Reconstructive Surgery
f. Obstetrics/GYN Surgery
g. Neurosurgery
h. Postoperative treatment areas

DEFINITIONS: Autotransfusion is the collection of blood or blood products derived from a patient's own circulation (autologous blood) which is collected or shed from a wound of the body cavity during surgery for later reinfusion to the patient. Utilizing the Latham Bowl device, a centrifugal force separates the blood components relative to their respective densities as listed below. The higher density components will move farther from the axis of rotation than those of lower density. The remaining erythrocytes will be transfused, and all other blood components are washed out into the waste bag.

Autotransfusion indications for use are as follows:

1. Anticipated blood loss is equal to or greater than 1000 mL
2. Procedures where 20% of the patients are routinely transfused
3. Emergency procedures
4. Patients with rare blood types or incompatibilities
5. Patients with religious objections to allogeneic blood components. Refer to Jehovah's Witness Clinical Protocol

POLICY: The surgeon shall determine the need for autotransfusion.

All processed blood shall be reinfused by the anesthesiologist, except during the use of cardiopulmonary bypass.

PERFUSION PUMP CONSIDERATIONS:

Supplies required to conduct cell salvage begins with your institutions specific autotransfusion system, as well as the following ancillary equipment:

1. Preferred drip for field shed blood anticoagulation
    a. Heparinized saline - heparin units/ml should be determined by institutional policy
    b. Anticoagulant Citrate Dextrose (ACD)-should be determined by institutional policy
2. 0.9% NACL 3000cc for wash.
3. Blood collection bags, properly affixed with patients label, date/time collected, date/time expired, volume, and autotransfusionist.
4. Suction should be set at -150 mmHg or the utilization of an auto-regulated internal suction unit.
5. A blood filter for use of recovered blood reinfusion of at least 40 microns.

PROCEDURE:

1. Load disposable, and prepare the Autotransfusion device according to the manufacture specific Instructions For Use (IFU).

2. Avoid contamination of the following substances into the Autotransfusion system reservoir in accordance with AABB Guidelines.
    a. A more complete list can be found included in your manufacturer specific operator's manual.
    b. If you suspect possible contamination, address the attending Physician, however, the decision to use the volume is ultimately at MD’s discretion.
        i. Clotting Agents such as Gelfoam Powder, Surgicel, Gelfoam sponge, Helistat, Thrombin, Thrombogen, clotting agents in topical liquids, sponge/fabric materials, or microfibrillar products.
        ii. Irrigating Solutions such as alcohol, antibiotics, betadine, hypertonic solutions, hypotonic solutions, lactated ringers (in presence of citrate anticoagulant).

iii. Bone Cement, contaminants, or malignancy (tumor cells)
iv. Recommended actions are to avoid aspiration in the presence of the above substances.
v. Aspiration may resume after copious irrigation with 0.9% Sodium Chloride solution to an alternative suction container.

3. Criteria for reinfusion of autologous blood collection should be in accordance with the standards set forth by the AABB Guidelines.
    a. Blood shall be transfused within 8 hours from completion of blood processing at room temperature according to AABB Guidelines.
    b. Place a patient sticker on the reinfusion bag with the following unique identifiers- name, DOB, MRN, milliliters of volume collected, date and time of collection, Autotransfusionists' initials, and expiration time of 8 hours post collection.

WARNING: DO NOT RE-INFUSE VOLUME USING A PRESSURE BAG. This may cause fatal infusion of air.

WARNING: Do not allow the cell saver reinfusion bag to become empty between the reinfusions to the patient. If air does enter the reinfusion line, it must be purged before starting reinfusion.

CLINICAL ASSESSMENT/SCREENING:

A. Special Considerations:

1. Heparin should not be used on ATIII deficient patients or patients with Heparin Induced Thrombocytopenia (HIT). Institutional protocol will determine the alternative for anticoagulation necessary.

B. Quality Control:

1. Quality control should be performed on each cell saver on a consistent basis per hospital policy.
2. Quality Assurance should be an integral part of the provision of a program for perioperative autologous blood recovery and reinfusion.

RELATED DOCUMENTS:

A. Jehovah's Witness Clinical Protocol
B. Heparin-Induced Thrombocytopenia Clinical Protocol

REFERENCES:

1. AABB Guidelines for Blood Recovery and Reinfusion in Surgery and Trauma, 2020.
2. Ramírez, Gemma, et al. "Detection and removal of fat particles from postoperative salvaged blood in orthopedic surgery." *Transfusion* 42.1 (2002): 66-75.
3. Kelleher, A., Davidson, S., Gohil, M., Machin, M., Kimberley, P., Hall, J., & Banya, W. (2011). A quality assurance programme for cell salvage in cardiac surgery. *Anaesthesia*, *66*(10), 901-906.
4. Ferraris, Victor A., et al. "2011 update to the Society of Thoracic Surgeons and the Society of Cardiovascular Anesthesiologists blood conservation clinical practice guidelines." *The Annals of thoracic surgery* 91.3 (2011): 944-982.
5. Keeling, MARIE M., et al. "Intraoperative autotransfusion. Experience in 725 consecutive cases." *Annals of surgery* 197.5 (1983): 536.
6. Cross, M. H. "Autotransfusion in cardiac surgery." *Perfusion* 16.5 (2001): 391-400.

IMPORTANT INFORMATION ABOUT THESE PROTOCOLS:

If this protocol/process is adopted as is, the AmSECT logo must be removed and replaced with an institution specific logo.

This protocol/process encourages high quality patient care but observing it cannot guarantee any specific patient outcome.

This protocol/process should be reviewed or revised as warranted by institutional specific protocol, taking into account the evolution of technology and practice.

Review period: Review as changes occur or per institutional protocol.
Original hard copies and/or computer copies of this protocol are stored under the supervision of the Chief Perfusionist, Department of Cardiovascular Perfusion.

APPROVED BY: *(signature of CMO and CNE only required)*

Source:	*(originating department/committee)*
Effective Date:	*(can use 'created date' for this)*
Version Number:	*(should match # of revisions, use 1.0 if new document)*
Date Revised:	*MM/YYYY; all dates any content changes were made*
Date Reviewed:	

Signatures:

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	Date:
<*Insert Name, Title*>	
	Date:
<*Insert Name,* Chief Medical Officer >	
	Date:
<*Insert Name,* Chief Nursing Executive>	