ST. LUKE'S HOSPITAL
Cedar Rapids, Iowa

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S T A N D A R D O P E R A T I N G P R O C E D U R E S

REQUESTING, DISPENSING AND ADMINISTERING BLOOD PRODUCTS

PURPOSE

1. To provide guidelines for BLOOD AND BLOOD PRODUCT DEFINITIONS and modification
2. To outline requirements for PRETRANSFUSION COMPATIBILITY TESTING
3. To define TRANSFUSION ORDER REQUIREMENTS and INFORMED CONSENT as it applies to transfusion therapy.
4. To outline the required elements for PRETRANSFUSION SPECIMEN COLLECTION
5. To describe process for EMERGENCY ISSUE OF BLOOD
6. To outline the key elements and responsibilities for REQUESTING BLOOD PRODUCTS, DISPENSING BLOOD PRODUCTS to ensure patient safety and process efficiency. For nursing responsibilities see Blood Products Administration Procedure B-40
7. To define the acceptable and unacceptable fluids during BLOOD ADMINISTRATION
8. To outline the process for TRANSFUSING INCOMPATIBLE RED BLOOD CELLS
9. To define the ADVERSE REACTIONS TO TRANSFUSION
10. To describe the additional PATIENT SERVICES offered by blood bank
11. To outline the requirement for the AUTOLOGOUS, DIRECTED AND LIMITED BLOOD DONOR PROGRAMS
12. To outline the requirements for HANDLING AND STORAGE OF BLOOD PRODUCTS
13. To define and provide guidelines for the PERIOPERATIVE COLLECTION SERVICES

BLOOD AND BLOOD PRODUCT DEFINITIONS

The Circular of Information for the use of Human Blood and Blood Components is considered an extension of blood and blood component container labels as the space on those labels is limited. The Circular of Information contains sections on general information, side effects and hazards of transfusion, blood components descriptions, actions, indications, contraindications, dosage and administration. St. Luke's Hospital receives all of their blood products from Mississippi Valley Regional Blood Center (MVRBC).

Red Blood Cells: Contains approximately 160-275 ml of red cells (50-80g of hemoglobin) suspended in varying quantities of residual plasma, and/or additive solution with a hematocrit between 55-80%. All Red Blood Cell products are leukocyte reduced.

Thawed Plasma: Volumes vary and are stated on the label. One unit contains 180-330 ml of plasma. Thawed plasma expires 24 hours after thawing if stored at 1-6 degrees C.

Platelets, Apheresis: Contains a minimum of 3×10^{11} platelets suspended in a volume of plasma approximately 100-500 ml. All platelet products are leukocyte reduced.

Cryoprecipitated AHF: Available in frozen single or 5-unit pools. Individual units contain at least 80 IU Factor VIII:C and at least 150 mg of fibrinogen in approximately 25 ml of plasma. Cryoprecipitate expires within 4 hours after thawing.

Special Blood Product Modifications (may require consultation with a blood bank Pathologist)

Irradiation: Red blood cells and platelets will be irradiated to prevent proliferation of T lymphocytes, which is the immediate cause of GVHD. Fresh frozen plasma and cryoprecipitate do not contain cells and therefore are not irradiated.

The following patients must receive irradiated cellular products:

- Bone marrow transplant recipients
- Patients with congenital immunodeficiency with defective cell mediated immunity
- Patients receiving HLA-matched platelets
- Recipients receiving blood from relatives (i.e., genetically related)
- Patients with hematologic malignancy including Hodgkin's disease, lymphoma, leukemia and myelodysplastic syndromes
- Cancer patients enrolled in protocols that require irradiated blood products
- Patients receiving granulocyte transfusions

It is desirable to give irradiated cellular products for the following patients:

- Patients with aplastic anemia or unexplained cytopenias particularly if treated with anti-lymphocyte or anti-thymocyte globulin
- Nonhematologic cancer patients treated with multiagent chemotherapy or combined chemo/radiotherapy within the past year
- Infants < 1 year of age with unexplained illness such as growth failure, persistent diarrhea, recurrent or unusual infections, etc.
- Patients receiving fludaribine

It is generally not recommended to give irradiated cellular products to the following patients:

- Cancer patients without intense therapy
- Patients with HIV infection;
- Recipients of solid organ transplants (although GVHD has occurred in these patients, it has been caused by passenger lymphocytes in the organ graft, not the transfused blood products).

Leukocyte reduction

St. Luke's Hospital provides 100% leukocytes reduced red blood cell and platelet products. Leukocyte-Reduced components clearly benefit some patients with recurrent febrile or nonfebrile nonhemolytic transfusion reactions, patients at risk of alloimmunization to HLA Class I antigens, and patients at risk for Cytomegalovirus (CMV) infection. This protocol applies to red blood cell and platelet components. Leukocyte-reduction for red blood cells is achieved by a filtration method. Bedside filters are the primary option for adults. Leukocyte-reduced Red blood cells are prepared in the blood bank for neonates.

PRETRANSFUSION COMPATIBILITY TESTING

Blood Bank Specimen To Hold

The BB hold specimen is appropriate for patients who are unlikely to actually need a red blood cell transfusion, but may need a pretransfusion testing if a need arises. No testing is performed on the specimen until communication is received to initiate a type and screen and/or compatibility testing.

Type and Screen

Type and Screen only is appropriate for all patients who are unlikely (<25% chance) to actually need a red blood cell transfusion, but may need red blood cells to be available promptly if a need arises. A blood type (ABO and Rh) and antibody screen will be performed. The antibody screen detects the presence of clinically significant red blood cell alloantibodies in the recipient's plasma. The sample is stored in the blood bank and is valid for crossmatching three days after collection. (e.g., the date the sample is drawn + three days. A sample collected on Monday is good until midnight on Thursday.) If a Type and Screen has been ordered, and blood is subsequently needed, it may be requested by ordering a Prepare RBC in the computer.

Type and Prepare Blood Products
If the patient's current and previous antibody screens are negative, an immediate spin crossmatch is performed to detect ABO incompatibility only. This takes 15-30 minutes. When a patient has a clinically significant antibody, an antiglobulin crossmatch is performed and the donor's cells are tested for the corresponding antigen. This takes 45 minutes or greater.

TRANSFUSION ORDER REQUIREMENTS

A transfusion treatment is defined as the infusion of blood product(s) to fulfill a single clinical indication. One or more units may be needed to provide the correct dose for each single event. It is against hospital policy to write standing orders for transfusion. The patient should be evaluated at least once daily, and new transfusion orders written as needed. A physician's order must be placed in the computer for each transfusion event. The only exception is during surgery when the order may be written on the anesthesiology record. The order for transfusion must be written no more than 24 hours prior to the administration of the transfusion.

Each order must be ordered in Epic or written or transcribed on the Blood Component Transfusion Orders sheet. The order must include the complete name of the product (e.g., irradiated platelets), either the volume or the number of units, and the total administration time or rate of infusion. When more than one blood product type is ordered for transfusion, the physician may specify the transfusion sequence for the blood products. When the transfusion sequence is in question, consultation with a blood bank pathologist can be arranged.

An order for transfusion may be based on specific objective parameters, and may be written for more than one unit of a blood product (e.g., "If hemoglobin is <8, transfuse two units red blood cells over six hours"). However, each transfusion treatment requires a separate order.

INFORMED CONSENT

It is St. Luke's Hospital policy to obtain informed consent before transfusing blood components in nonemergency situations. Patients will be informed of the risks—including delayed transfusion reaction, benefits and alternatives of blood transfusion by a physician or licensed independent practitioner (LIP) by utilizing the Blood Transfusion pamphlets. The necessary documentation will become a part of the patient record. Exceptions may apply in emergency situations and for autologous transfusions. Members of the Medical Executive Committee (MEC) have approved three methods to facilitate obtaining informed consent before blood transfusions. They are as follows:

1. Blood Product Transfusion Consent- Refusal
2. Consent for Operation or Procedure includes a brief statement regarding transfusion of blood products.
3. Documentation that patient has received, revised and understands Blood Pamphlet.

It is important for optimal patient care, for compliance with accrediting requirements and to protect ourselves legally that informed consent be obtained for blood transfusions – unless it is precluded by the patient's condition. Consent does not have to be obtained before each individual transfusion episode, but should be obtained with each outpatient visit and with each inpatient diagnosis. If an inpatient primary diagnosis changes and the patient's reason for getting blood changes, then a new consent is needed. For example, if an open heart patient receives blood for OR and then develops a GI bleed, a second consent is needed for the transfusion therapy needed for the second diagnosis.

PRETRANSFUSION SPECIMEN COLLECTION

Refer to the following policy:
7000-09 Blood Collection (for non-laboratory personnel)

Patient identification includes patient name, medical record number (or B-band number), collect time, collect date and collector's identification (e.g., initials or code). The specimen label must be hand-written from the patient armband on the patient directly onto the test tube manufacturer label and must be legible and complete. Specimens that are not collected as specified in the above policies cannot be accepted. Specimens that are unlabeled, illegible or incomplete cannot be accepted. Unacceptable samples must be discarded and will need to be recollected. The order is placed in the computer and must include the physician's name and code number. Indicate the tests and/or or blood components needed, and the date/time needed. Special requirements (such as irradiation) should be noted.

A Red Armband (B-Band) with the patient's name will identify ONLY those patients that do not have permanent hospital inpatient identification (MRN) at the time they are drawn for pretransfusion testing. These patients are generally seen in the ED, Labor and Delivery or as Oncology outpatients. The B-Band must remain on the patient until all blood (requested using the blood drawn with a B# as the patient identifier) have either been transfused or released (up to 3 days). The B# must be documented on the patient's chart and must be used as the patient identifier at the bedside when blood is administered. Blood Bank personnel will identify those crossmatches that were done by printing the B# on the Transfusion Record (unit tag). The B-Band must be reaffixed to the patient if for some reason it was removed (for IV access). It is not adequate to fasten the band to the patient's bed, clothing or chart. The person who removed it must refasten the B-Band to the patient as soon as possible.

EMERGENCY ISSUE OF BLOOD

In life threatening situations requiring red cell transfusion, emergency release of group O negative red blood cells or ABO/Rh type specific red blood cells may be released prior to the completion of pretransfusion testing. Call Blood Bank Services at extension 8058 to make arrangements.

The ordering physician assumes responsibility for release of blood or component(s) for transfusion before the completion of all required laboratory testing by signing the Release for Emergency Transfusion of Blood and Blood Component(s).

Use of group O red blood cells for patients of untested ABO group:
Patients whose ABO group is untested will receive group O red blood cells. As soon as possible a properly labeled sample should be sent to the Blood Bank to request additional units.

If additional units are requested before the sample arrives, Blood Bank personnel will: (a) issue the number of red cell units requested as group O Rh negative cells; (b) inform the requesting physician that only group O Rh negative cells will be issued until the ABO group can be determined and a sample is required. Blood Bank will continue to issue O Rh negative units until a current blood sample is tested for ABO/Rh. A Pathologist may approve the use of Rh positive units when O Rh negative units are in short supply.

Use of ABO/Rh type-specific blood for patients of known ABO group:
Historical information for ABO/Rh is not used for the release of ABO/Rh type specific red blood cells. Only when time permits to allow testing for ABO and Rh type (5-10 minutes after patient sample arrives at the Blood Bank), the patient will receive ABO/Rh type-specific red blood cells. ABO/Rh type-specific RBCs can be released 5-10 minutes after a patient blood sample has been recieved in Blood Bank. This blood is released solely on the basis of ABO and Rh(D) type (i.e., before the antibody screen and other pretransfusion tests, as needed, are completed). Thus, its use is appropriate for massive blood loss where delay due to complete compatibility testing would significantly endanger the patient's life.

Complete compatibility testing (blood type, antibody screen and immediate-spin crossmatch) can be completed in 60 minutes under optimal conditions for emergency patients. Requests for large quantities of blood, delays due to other emergency work simultaneously in progress or the detection of unexpected antibodies may increase this time.

REQUESTING BLOOD PRODUCTS

Following review of the physician's order, Nursing Service personnel will request blood and/or blood products by sending a "Request to Issue Blood Components" to the blood bank. Type and Screen or Blood Bank Specimen to Hold samples are stored in the blood bank for three days after the collect date (day of collection is day zero).

Order Hints for ordering Fresh Frozen Plasma (FFP), Cryoprecipitate (CRYO), and Platelets (PLT):

- Plasma products such as FFP, CRYO, or PLT only require a historical blood type on file. These products do not require a crossmatch. If needed, Blood Bank will instruct the floor to order a BB Specimen to Hold and perform a blood type.
- Please indicate as a comment the time and date the products will be infused. If the order is for surgery also indicate the surgery time and date.

The request for blood products most often can be met within one hour unless the patient has special transfusion needs. If the patient testing workup requires referral to a reference laboratory, the request for blood products could take up to 48 hours. When the request for blood and/or blood products has been processed by the laboratory, the status of routine blood product availability may be referenced by Nursing Service personnel in the computer system. Delays will be called by the Blood Bank.

DISPENSING BLOOD PRODUCTS

For blood dispensed via the Pneumatic Tube System (PTS), the RN or authorized OR staff will complete the "Request to Issue Blood Components" form with the following information: Requested by, date time, blood component type, MD ordering transfusion (computer no.), B# (if applicable), tube station number, patient location, room number, and three (3) patient labels. The RN will retain the pink copy for tracking and ordering purposes and send the form to Blood Bank PTS # 911 in a clear carrier. All information must be completed in a legible manner. Blood Bank personnel will process the request, returning the requested blood product and "Request to Issue" form in a red carrier. Immediate confirmation of receipt is documented by Nursing Service personnel on the request form and returned to Blood Bank Services via the red carrier. Blood can be picked up in the blood bank (e.g., when the PTS is down). Transport personnel should bring the patient's name, MRN, B-Band # (if needed) and the physician information.

BLOOD ADMINISTRATION

Before sending for blood, the transfusionist should ensure that the patient has consented to having a blood transfusion and that venous access has been established.

Refer to the following Patient Care Services Procedure (Generic)
Blood Products Administration Procedures (B-40)

ACCEPTABLE for use with transfusion	
0.9% saline	Only solution approved for mixing with blood

UNACCEPTABLE with transfusion	Reason
5% dextrose in water	causes RBC clumping and hemolytic
5% dextrose in 0.2% saline	causes RBC clumping and hemolysis
Lactated Ringer's solution	causes clotting
Any other solutions	causes agglutination and hemolysis

Immediately before starting the blood transfusion, gently mix the blood unit by gentle inversion. Administration instructions are printed on the label of each unit. Note: Do not mix containers of blood components together prior to transfusion.

Rate of infusion: Blood products should be transfused at a rate tolerated by the patient. The transfusion should be completed in less than 4 hours because of the dangers of bacterial proliferation and red cell

hemolysis at room temperature. If the desired volume of red cells cannot be infused within 4 hours, the blood product should be ordered as an aliquot(s). Call Blood Bank for these special requests. Adult patients receive split units. Requests for pediatrics and neonates may be prepared in pre-filtered syringes for administration.

TRANSFUSING INCOMPATIBLE RED BLOOD CELLS

On rare occasions it may not be possible for the Blood Bank to provide red blood cells that are serologically compatible with the recipient. This can occur in patients with autoantibodies, alloantibodies to high-incidence antigens and multiple antibodies. Blood Bank must inform Pathologist when incompatible red blood cells are not available. Transfusion options must be discussed with the patient's physician. If incompatible red blood cells are to be transfused, each unit must be accompanied with BB327F_Transfusionist's Instructions for Invivo Crossmatch.

Start the transfusion slowly.
If patient condition permits, start the transfusion slowly at one ml per minute for the first 15 minutes. Observe the patient constantly for symptoms and signs of a reaction. Take vital signs prior to starting transfusion, whenever a reaction is suspected or, in the absence of a reaction, after the first 15 minutes, after 30 minutes, and after completion of transfusion.

If there is evidence of a transfusion reaction
Symptoms include fever, pain, apprehension, chills, sweating, tachycardia, or fall in blood pressure.
STOP the transfusion immediately, maintaining the IV with 0.9% saline.
Observe vital signs at least every 15 minutes throughout the reaction.
Refer to Patient Care Services Procedure (Generic) Blood Products Administration Procedures (B-40)

If patient condition warrants immediate transfusion:
Begin another unit of Red Blood Cells per physician order. The new unit also is likely to test as incompatible, but may be tolerated better. If further transfusions can be delayed, follow the transfusion reaction policy and resume transfusion after evaluation is complete. Blood Bank will contact a pathologist to discuss options.

If no symptoms or signs of transfusion reaction are noted after 30 minutes Proceed with the transfusion and monitor the patient per usual transfusion practices. Repeat the entire process for each incompatible Red Blood Cell unit transfused.

ADVERSE REACTIONS TO TRANSFUSION

In the event of a Transfusion reaction, STOP THE TRANSFUSION IMMEDIATELY. Keep IV line open with 0.9% sodium chloride. Nursing must notify the Blood Bank who will obtain appropriate blood sample, the hanging blood unit and attached tubing, and the completed nursing report for Transfusion Reaction Evaluation. Nursing must initiate a Transfusion Reaction Evaluation form. Nursing must notify the ordering/attending physician. The ordering and/or attending physician MAY NOT discontinue a Transfusion Reaction Evaluation. A Blood Bank Pathologist will review the Transfusion Reaction Evaluation results and if no evidence of hemolytic reaction, will notify nursing unit that it is acceptable to continue transfusion if so desired. If evidence of hemolytic reaction, the transfusion will be immediately discontinued and blood unit, with connected administration set, will be sent to Blood Bank. A post-transfusion urine must also be collected. Pathologist will notify ordering/attending physician. Results of the evaluation will be reported to the nursing station immediately after laboratory evaluation.

NOTE: Hemolytic Transfusion Reactions are a sentinel event and must be reported to Risk Management. Physician notification is dependent on the findings. Patient injury or death related to transfusion (e.g., ABO incompatibility or circulatory overload) must be reported to Risk Management immediately with mandatory reporting of fatalities to the Food and Drug Administration (FDA) within 24 hours of incident.

Types of adverse reactions, their symptoms and common causes:

Type of Reaction	Etiology	Presentation	Therapeutic/Prophylactic Approach	Comments
Acute Hemolytic	• Red cell incompatibility	• Chills • Fever • Hemoglobinuria • Hypotension • Renal failure with oliguria • DIC • Back, abdomen, or chest pain • Pain along infusion site • Anxiety • Nausea and vomiting	• Keep urine output >1mL/kg/hour with fluids and IV diuretic • Analgesics (may need morphine) • Pressors for hypotension • Hemostatic components (platelets, Cryo, Plasma) for bleeding	• Least frequent, but most serious • Common cause is clerical error
Febrile, nonhemolytic	• Accumulated cytokines in platelet unit • Antibody to donor WBCs	• Fever • Chills/rigors • Headache • Vomiting • Temperature increase of 1 C or more from baseline	• Administer an antipyretic to reduce temperature • Give leukoreduced blood products • Transfuse at a slower rate	
Urticarial (Mild allergic)	• Antibody to donor plasma proteins	• Hives • Urticaria • Pruritus • Flushing of skin • Itching	• Slow the rate of transfusion • Administer/ premedicate with antihistamine	• Mild allergic reactions do not need to be call to the blood bank
Anaphylactic	• Antibody to donor plasma proteins (includes IgA, haptoglobin, C4) • Cytokines	• Hypotension • Urticaria • Bronchospams (respiratory distress, wheezing) • Local edema • Anxiety	• Fluids • Epinephrine • Antihistamine, corticosteroids, beta-2 agonists • IgA-deficient blood components	• No fever • Will occur after transfusion of only a small volume
Transfusion Related Acute Lung Injury (TRALI)	• WBC antibodies in donor • Other WBC-activating agent in components	• Hypoxemia • Respiratory failure • Hypotension • Fever • Bilateral pulmonary edema	• Supportive oxygen and blood pressure care until recover	• Defer implicated donors • Chest X-ray may be necessary
Bacterial Contamination	• Bacterial contamination of blood products	• Fever • Chills • Hypotension	• Broad spectrum antibiotics until sensitive testing in completed	
Circulatory Overload	• Volume Overload	• Dyspnea • Orthopnea • Cough • Cyanosis • Tachycardia • Hypertension • Headache	• Upright posture • Oxygen • IV diuretic	• Chest X-ray to rule out TRALI may be necessary

If the patient is having a mild allergic reaction it is not necessary to call the blood bank for a transfusion reaction workup. If the patient has a clinical presentation of hives, urticaria, pruritus, or flushing of the skin it is necessary to stop the transfusion and contact the patient's physician. It may be necessary to slow the rate of transfusion or stop the transfusion and administer an antihistamine after orders are received from the patient's physician. Laboratory staff in the blood bank will be a resource in determining the type of reaction. The blood bank can be reached at 8058.

THERAPEUTIC PATIENT SERVICES

The services listed below are available from MVRBC for both in-patients and out-patients. Therapeutic procedures can be scheduled by calling MVRBC at 563-359-5401.

Therapeutic Plasma Exchange (TPE) is the removal of patient plasma with replacement by other fluids, usually a combination of normal saline and albumin.

Therapeutic Cytapheresis is the removal of cells from the patient's blood (platelets, leukocytes) when they are suspected of causing symptoms or signs of hyperviscosity.

Therapeutic phlebotomy is available for treatment of polycythemia vera, hemochromatosis, etc. Call the Blood Bank at extension 8058 to assist with scheduling a phlebotomy through MVRBC.

AUTOLOGOUS DONOR BLOOD PROGRAM

Autologous blood donor program is the process of collection, storage, and reinfusion of a patient's own blood. Patients undergoing elective surgical procedures for which blood replacement is anticipated should be considered as candidates for preoperative blood donation. Advantages include the elimination of the risks of 1) infectious disease transmission; 2) alloimmunization to red cell, platelet, and leukocyte antigens; and 3) immune hemolytic, febrile, allergic, or GVH reactions. Preoperative autologous blood donation can provide a source of blood for persons who either have rare blood types or antibodies that make it difficult to find compatible blood.

Autologous blood will be discarded if not used by the intended patient. The patient will also be charged for the blood product if not used.

Patients undergoing procedures for which blood is made available by type and screen, rather than crossmatch, are usually not candidates because the risks, expense and inconvenience of predeposit are not justified.

Autologous donations can be set up by contacting MVRBC at 563-359-5401.

DIRECTED BLOOD DONOR PROGRAMS

Occasional requests are made for directed or limited donations (the patient selects her/his own blood donors) because it is felt that receiving blood from someone they know is safer than from the regular blood supply. To date, this belief has not been proven to be true.

Directed Donor Program: The service is for some patients who will need multiple blood transfusions and choose to have their blood donated by a selected donor(s) of their choice. Blood donors selected for Red blood cells, must be ABO/Rh compatible. Blood donors selected for Plasma, must be ABO compatible.

Blood donated for a specific patient will be discarded if the intended patient does not require transfusion. The patient will also be charged for the blood products not used.

Directed donations can be set up by contacting MVRBC at 563-359-5401.

HANDLING AND STORAGE OF BLOOD PRODUCTS

Delay in Delivery
Blood products should not be allowed to remain outside of optimal temperature conditions. Delays are all undesirable. Excessive warming and/or cooling of blood products promote bacterial growth. If the blood transfusion cannot be completed within the 4 hour time frame allowed, return the product to Blood Bank for proper disposal.

Storage: Red Blood Cells and Plasma products must never be stored in unmonitored refrigeration devices. If blood is stored in surgical suites, only designated refrigerators that meet certain standards must be used. Temperature records must be maintained for such refrigerators during periods of blood storage. Blood storage refrigerators will contain only blood, blood components, antiserums, reagents, and samples for Blood Bank work. The risk of contamination is too great to permit donor blood in the same refrigerator with other materials such as bacteriological specimens, food or other unrelated items.

Units may be issued to areas without monitored refrigeration, e.g., Labor & Delivery for C-sections, Adult Intensive Care Unit or the Emergency Department, by appropriately packing them in validated coolers. When the emergency circumstance no longer exist, the unused blood products must be returned to the Blood Bank within one hour.

Returning Blood Products: When unused blood products are returned from ancillary areas, the Blood Bank personnel will inspect and verify product storage conditions and temperature to assure product integrity. Patient accounts will be credited as necessary.

PERIOPERATIVE COLLECTION SERVICES

The Laboratory Medical Director is the responsible physician for perioperative collection services and participates in the development of policies and procedures related to the perioperative blood recovery program.

The risk/benefit ratio for blood salvage must be determined on an individual basis by the physician(s) involved in the patient's care. All physician orders for collection and potential reinfusion of autologous blood by Cell Saver Systems, Stryker Systems or normovolemic hemodilution will be appropriately documented. The use of a blood/fluid warmer will also be ordered by a physician and appropriately documented. All subsequent nursing and Blood Bank staff actions will also be fully recorded in a defined form.

Autologous Blood collected by Cell Saver Systems, Stryker Systems or normovolemic hemodilution will be appropriately labeled and will not be transfused to other patients. Autologous blood will be labeled with:

- the patient's first and last name
- medical record number, date and start time (from the initiation of collection)
- expiration date and time (6 hours from start time)
- the statement "For Autologous Use Only", signature of initiating autotransfusionist performing the collection.

Blood collected for Cell Saver Systems or Stryker Systems may be salvaged from body cavities, joint spaces, and other closed operative or trauma sites from clean surgical cases and subsequently reinfused. The use of reinfused blood from the Cell Saver System or Stryker Systems is prohibited in the case of sepsis, infection at the operative site or malignancy. Autologous blood collected by Cell Saver Systems, Stryker Systems or normovolemic hemodilution must begin reinfusion within 6 hours from the initiation of collection. The blood shall not leave the patient's beside to be stored in refrigeration. The blood is either reinfused or discarded.

The Autotransfusion Record, used with collections by Cell Saver Systems, will be completed by the initiating autotransfusionist. The original is placed on the patient's chart and copies are forwarded to the OR Desk/QI and Blood Bank. The Perioperative Report, used with normovolemic hemodilution collections

and fluid warmers, will be completed by the initiating healthcare professional and placed in the patient's chart. Use of Stryker Systems will be documented on the Parenteral Fluid – IV Therapy Flowsheet (B-4) and the I & O record as appropriate.

Hematocrit Quality Control will be performed quarterly for each Cell Saver System to ensure product quality. QC performed in the lab; results are documented and retained by Perfusion Services. Blood/fluid warmers are cleaned monthly and temperatures will be monitored and documented with each use on the Log for Fluid Warmers. Alarm checks and temperature calibration are performed and documented by BioMed Services every 6 months.

REFERENCES

1. Standards for Blood Banks, American Association of Blood Banks, (2011) 17th Edition.
2. Technical Manual, American Associations of Blood Banks, (2012) 28th Edition.

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