1. **Principle**

To ensure products that are received, issued for transfusion or shipped out of the facility are visually checked for signs of contamination and/or spoilage.

1. **Scope and Related Policies**
   1. Blood products shall be inspected for abnormal appearance upon receipt by the transfusion service. This process shall be documented. Blood components and blood products not passing inspection shall be quarantined until appropriate disposition is determined and the shipping facility informed.9.1
   2. All blood components and blood products shall be inspected for abnormal appearance immediately before issue and the visual inspection shall be documented. If an obvious abnormality is detected, the unit must not be issued and the blood supplier shall be notified regarding the final disposition of the product. Any such notification must be documented.9.1
   3. All blood components and blood products shall be inspected for abnormal appearance immediately before packing for transport. This inspection shall be documented. Components or products with obvious abnormalities shall not be shipped for transfusion.9.1
   4. Products modified in an “open system” in the hospital TS must have the expiry time recorded on/attached to, the product container at the time of preparation.
   5. If a product is identified that appears abnormal a search should be made of the inventory for any other product prepared from that donor unit. The product must be quarantined until appropriate disposition is determined.
2. **Specimens – N/A**
3. **Materials**

**Supplies:** Blood products to be inspected

CBS Hospital Return Voucher

1. **Quality Control**
   1. The blood component or plasma protein product containers must be visually inspected to ensure that the seals and ports have not been broken.
   2. The blood component or plasma protein products that do not pass visual inspection criteria must be discarded.
   3. Inspection of the blood component or plasma protein product should be performed at the following times and be documented on the appropriate form or in the LIS TM module:
      * On receipt from the blood supplier or other facility
      * Before the product is issued for transfusion
      * Before the product is shipped to another facility
      * When the product is returned from another location within the hospital
2. **Procedure**

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| * 1. Determine if the product is in date. | * + 1. Verify against the expiry date on the product label |
| * + 1. Discard any outdated products. See IM.005 – Final Disposition of Blood Components and Plasma Protein Products Not Suitable for Transfusion – Manual Procedure. |
| * 1. Determine whether the product has been modified in the hospital (pooled, modified, divided, etc.).  |  |  | | --- | --- | | *If* | *Then* | | The product was modified | a new expiry date and time label must be attached to the product container | | * + 1. If there is no expiry label on the product, determine if an expiry label was required by checking with the technologist who performed the component preparation.   See Procedural Notes 8.2. |
| * 1. Visually inspect the blood component. See Figure 1, page 8. | * + 1. Red Blood Cells - Inspect the unit for the following abnormalities:        1. Port(s) are open or port covers are not intact. Port covers should be intact and not have blood or plasma in them. Components that have been modified must have at least one original port with cover intact.        2. Inspect the red cell mass for discoloration.   Compare the color of the red cells in the segment(s) to the color of the blood in the donor bag. The colors should be similar.   |  |  | | --- | --- | | *If* | *Then* | | the red cell mass appears black or purple | suspect hemolysis in the unit. This may occur either by physical destruction of the red cells or by bacterial contamination | | the red cell mass appears lighter or bright red | this could indicate an incidental arterial blood collection. See Procedural Notes 8.3 |  * + - 1. Inspect the plasma or supernatant for discoloration.   Bacterially contaminated plasma may appear a grayish murky color or appear purple or brown.  A bright red color may indicate significant red cell hemolysis  Centrifuge or let the unit settle and observe the plasma carefully (ideally comparing to other units). Optional testing may include a plasma hemoglobin level   * + - 1. Observe the unit for size (weight) and the presence of SAGM (nutrient/ anticoagulant).  |  |  | | --- | --- | | *If* | *Then* | | the unit appears small and there is no visible supernatant on the RBC unit | the additive solution may not have been added. |  * + - 1. Mix the unit and observe for large clots. * Units known to have clots should not be used for transfusion |
| * + 1. Document the results of the visual inspection. |
| * + 1. Red cell components that meet visual inspection criteria are suitable for processing into inventory, shipping to another facility or issue for transfusion purposes. |
| * + 1. Red cell products that do not meet acceptable visual inspection must be quarantined. See 7.1– Reporting. |
| * 1. Platelet and Plasma Products- Inspect the units for the following abnormalities: | * + 1. Port(s) are open or port covers are not intact. Port covers should have at least one original port with cover intact. |
| * + 1. Observe the product for significant hemolysis or RBC contamination. * If the product is Rh undesignated, appears to have red cell contamination and is intended for an Rh negative child or female of childbearing age, consult Medical Director or designate concerning infusion of Rh Immune Globulin. Rh negative plasma products should be given to this type of patient whenever possible. See CSP.001 – Selection of Blood Components for Transfusion and QCA.010 – Medical Director Consultation Protocol * Inspect platelets for the presence of excessive aggregates. If present, obtain authorization from a Medical Director or designate to use |
| * + 1. Inspect for discoloration: * Bacterially contaminated plasma may appear a grayish murky color or appear purple or brown * Intense yellow plasma may indicate an abnormal bilirubin level |
| * + 1. If plasma is frozen, inspect the bag for signs of breakage. * If the unit is broken, discard the unit. See IM.005 – Final Disposition of Blood Components and Plasma Protein Products Not Suitable for Transfusion – Manual Procedure. |
| * + 1. Document the results of the visual inspection. |
| * + 1. Plasma and platelet products that meet visual inspection criteria are suitable for processing and receipt into inventory, shipping to another facility or to issue for transfusion purposes. |
| * + 1. If a plasma or platelet component does not meet acceptable visual inspection it must be quarantined. See 7.0 – Reporting. |
| * 1. Plasma Protein Products- Perform a visual inspection to ensure the packaging is intact and there is no sign of breakage or leakage. Inspect the products when reconstituted and/or issued for the following abnormalities. | * + 1. Observe for cloudiness  |  |  | | --- | --- | | *If* | *Then* | | cloudy | compare to unopened bottle/vial | | cloudier than unopened | See reporting 7.0 | |
| * + 1. Confirm sterile cap covers are intact, if not see 7.0 – Reporting |

1. **Reporting**
   1. Quarantined units should be evaluated for quality. Unsuitable units should be discarded or returned to the supplier if directed to do so. See IM.005 – Final Disposition of Blood Components and Plasma Protein Products Not Suitable for Transfusion – Manual Procedure.
   2. Complete blood supplier’s return form using the link provided (www.blood.ca) under Hospital Customer forms. Document final disposition of component(s) in inventory log on computer or as per facility process.
2. **Procedural Notes**
   1. The shelf life of fresh and frozen blood components is documented in the Circular of Information for the use of human blood and blood components.
   2. If it is determined that the product should have an adjusted expiry label but does not, an incident report should be completed and submitted to a supervisor. The TS Medical Director or designate must authorize the release of the product. This authorization must be documented.
   3. Arterial blood donations do not result in harm to the recipient however the blood supplier should be informed if this is suspected to ensure appropriate donor follow up.9.4.
   4. Quarantine blood products not meeting visual inspection to ensure that they are not inadvertently used:
      1. Affix a note onto the unit(s) clearly stating “Quarantined – DO NOT USE”. Date and initial the note and record in computer if applicable.
      2. Place the product(s) in an area of the fridge (or preferably in another blood product storage refrigerator) that is clearly separated from general inventory and assigned units.
   5. If hemolysis is seen in the segment, it often does not correlate to hemolysis in the component.9.3
3. **References**
   1. CSTM Standards for Hospital Transfusion Services Version 3 – February 2011. Canadian Society for Transfusion Medicine, 5.1.1.5, 5.7.3.1, 5.6.1.3
   2. Circular of Information for the use of human blood and blood components. Canadian Blood Services, www.blood.ca.
   3. Roback JD, ed. AABB Technical Manual, 17th ed. Bethesda, MD: American Association of Blood Banks, 2011: 203.
   4. Incidental arterial phlebotomy of a whole blood donor. Parsons J et al. Transfusion 2014;54:1220.
   5. Kim DM, Brecher M et al. Visual identification of bacterially contaminated red cells. Transfusion 1992; 32: 222.
   6. Brecher ME. Bacterial contamination of blood products: transfusion-transmitted diseases (bacteria and parasites), 1998.
   7. Canadian Blood Services Visual Assessment Guide. January 2009 T05 021
4. **Revision History**

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| **Revision Date** | **Summary of Revision** |
| August 8, 2014 | * Revised name of manual * Revised sections 2.0 & 5.0 & 7.0 * Revised wording of section 6.3.1.2 to include “Compare the color of the red cells in the segment(s) to the color of the blood in the donor bag. The colors should be similar” and “If the red cell mass appears lighter or bright red, this could indicate an incidental arterial blood collection. See Procedural Notes 8.3” * Revised wording of section 6.3.4 to include “Red cell products that do not meet acceptable visual inspection must be quarantined. See 7.1- Reporting” * Revised and renumbered section 8.0; added section 8.3 * Updated list of references to include most recent editions |

**FIGURE - 1**



**Visual inspection of a blood bag: There should be no leakage, visible clots, discoloration or evidence of hemolysis. If noted this should be reported to the supplier on the appropriate form.**

**The results of the visual inspection must be documented at the time of receipt, issuing for transfusion or shipping to another facility.**