Transfusion Medicine Quality Manual
Guidelines for Visual Inspection of Blood Components and Blood Products

1.0 Policy Statements

1.1 All Regional Health Authorities shall develop and implement policies, processes and procedures that comply with Provincial Blood Coordinating Program policy to ensure blood components and products shall be visually inspected upon receipt, prior to transport and prior to issue

1.2 Blood components and blood products shall be inspected for abnormal appearance, and date of expiry:

1.2.1 Upon receipt;

1.2.2 Prior to transport; and

1.2.3 Prior to issue.

1.3 Visual inspections shall be documented.

1.4 Blood components and blood products that fail visual inspection shall be quarantined in accordance with facility policy. Action shall be documented.

2.0 Linkages

Canadian Blood Services Visual Assessment Guide
http://www.transfusionmedicine.ca/sites/transfusionmedicine/files/PDF/VAG_en.pdf

Emergency Issue of Blood Components
http://www.health.gov.nl.ca/health/bloodservices/pdf/emergency_issue_blood_components.pdf

Guidelines for Transport of Blood Components and blood Products From Facility to Facility, NL2012-041, Version 1
http://www.health.gov.nl.ca/health/bloodservices/pdf/guidelines_for_transportation_of_blood_components_and_products_from_facility_to_facility_vers1.pdf

Issuing and Returning Blood Components and Blood Products Within a Facility
http://www.health.gov.nl.ca/health/bloodservices/pdf/issuing_returning_blood_components_blood_products.pdf

Issuing Blood Components and Blood Products
http://www.health.gov.nl.ca/health/bloodservices/pdf/issuing_blood_components_ver_2.pdf

Returning Blood Components and Blood Products Into Inventory
http://www.health.gov.nl.ca/health/bloodservices/pdf/returning_blood_components.pdf

3.0 Scope

3.1 All Transfusion Medicine Laboratory Technologists
3.2 All health care professionals who transfuse blood products and blood components.

4.0 General Information

4.1 Canadian Blood Services routinely tests platelets derived from whole blood or apheresis for bacterial contamination.
4.2 Visual Appearance of Blood Components

	Red Cells	Platelets	Plasma	Cryoprecipitate
Hemolysis	Bright cherry red color	n/a	Pink/red tinge	Pink to red tinge
Red cell contamination	n/a	Light pink tinge	Light pink tinge to a marked red discoloration	Light pink to a marked red discoloration
Lipemia	Appear to be a lighter shade of red with increased opacity	Milky white color with increased opacity	Milky white color with increased opacity	Milky white color with increased opacity
Icterus	n/a	Bright yellowish brown	Bright yellowish brown	Bright yellowish brown
Bacterial contamination	Dark purple to black in color	Increased opacity, clot and fibrin stands present , grey discoloration, and excessive and unusual air bubbles	Increased opacity, clots and fibrin strands, and excessive and unusual air bubbles	Increased opacity, clots and fibrin strands and excessive and unusual air bubbles
Particulate matter	Contain clots and/or white and opaque masses	Contain clot and fibrin strands and/ or white and opaque masses	Contains various size clot, fibrin and white opaque masses	Contains various size clots and cellular aggregates
Discoloration	Greyish, brown plasma/supernatant	Pink, red, bright orange or green, yellow or brown	Pink, red, bright orange or green, yellow or brown	Pink, red bright orange/yellow, bright green, or brown

Source: Canadian Blood Services Visual Assessment Guide January 2009

4.3 Lipemia and icterus appearances in red blood cells, platelets, plasma and cryoprecipitate are acceptable conditions for transfusion.

5.0 Process

5.1 Quality Control

5.1.1 Blood components and/or blood products that do not meet visual inspection criteria must not be released from inventory for transfusion and shall be quarantined.

5.1.2 Blood components and blood products shall not be used after the expiry date.

5.2 Procedure

5.2.1 All blood products and blood components shall be inspected for the following criteria:

5.2.1.1 Expiry date;

5.2.1.2 Intact and dry packaging;

5.2.1.3 Attached blood label and/or lot number; and

5.2.1.4 Intact ports and/or caps.

5.2.2 Red blood cells shall be inspected for the following criteria:

5.2.2.1 Discoloration;

5.2.2.2 Bacterial contamination;

5.2.2.3 Hemolysis;

5.2.2.4 Particulate matter;

5.2.2.5 Lipemia; and

5.2.2.6 Red cells in attached segments have the same appearance as red cells in the bag.

5.2.3 Platelets shall be inspected for the following criteria:

5.2.3.1 Discoloration;

5.2.3.2 Bacterial contamination;

5.2.3.3 Particulate matter;

5.2.3.4 Lipemia;

5.2.3.5 Red cell contamination; and

5.2.3.6 Icterus.

5.2.4 Plasma shall be inspected for the following criteria:

5.2.4.1 Discoloration;

5.2.4.2 Bacterial contamination;

5.2.4.3 Hemolysis;

5.2.4.4 Particulate matter;

5.2.4.5 Lipemia;

5.2.4.6 Red cell contamination; and

5.2.4.7 Icterus.

5.2.5 Cryoprecipitate shall be inspected for the following:

5.2.5.1 Bacterial contamination;

5.2.5.2 Hemolysis;

5.2.5.3 Particulate matter;;

5.2.5.4 Lipemia;

5.2.5.5 Red cell contamination; and

5.2.5.6 Icterus.

5.2.6 Blood products should be inspected for the following:

5.2.6.1 Turbidity; and

5.2.6.2 Discoloration.

5.2.7 If an abnormality or discrepancy is observed, the blood component and/ or blood product shall not be issued or transfused.

Note: Lipemia and icterus appearances in red blood cells, platelets, plasma and cryoprecipitate are acceptable conditions for transfusion.

5.2.8 Document visual inspection of blood components and blood products in the appropriate issue/transfusion record.

5.3 Guidelines

5.3.1 Inspection of blood products should take place in a well-lit area.

5.3.2 Acceptability Criteria of Blood Components

	Red Cells	Platelets	Plasma	Cryoprecipitate
Hemolysis	Some degree of hemolysis is acceptable and expected.	n/a	Some degree of hemolysis is possible depending on number of red cells in plasma.	Some degree of hemolysis is possible depending on the number of red cells in the plasma.
Red cell contamination	n/a	No standards of acceptability for red cell contamination for platelet units.	No standards of acceptability for red cell contamination of plasma units.	No standards of acceptability for red cell contamination of plasma units.
Lipemia	Blood components with lipemia are acceptable for transfusion.			
Icterus	Blood components with icterus are acceptable for transfusion.			
Bacterial contamination	Bacterially contaminated blood components are not acceptable for transfusion.			
Particulate matter	Units containing clots and/or fibrin strands, cellular aggregates, and/or cold agglutinins shall not be transfused. Units containing White Particulate Matter are acceptable for transfusion.	Units containing clots and/or fibrin strands and/or cellular aggregates shall not be transfused.	Units containing clots and/or fibrin strands, and/or cellular aggregates, shall not be transfused. Units containing White Particulate Matter are acceptable for transfusion.	Units containing clots and/or fibrin strands, and/or cellular aggregates, shall not be transfused. Units containing White Particulate Matter are acceptable for transfusion.
Discoloration	Discoloration due to hemolysis and lipemia are acceptable for transfusion. Discoloration due to bacterial contamination is not acceptable for transfusion.	Discoloration due to icterus (yellow), oral contraceptives (green), vitamin A or large quantities of carrots (orange) are all acceptable for transfusion.	Discoloration due to icterus (yellow), oral contraceptives (green), vitamin A or large quantities of carrots (orange) are all acceptable for transfusion.	Discoloration due to icterus (yellow), oral contraceptives (green), vitamin A or large quantities of carrots (orange) are all acceptable for transfusion.

Source: Canadian Blood Services Visual Assessment Guide January 2009

5.4 Materials (NA)

6.0 Acronyms (NA)

7.0 Definitions

Expiry date	The last day that blood components and blood products shall be used.
Icterus	Yellowish pigmentation of the body fluids caused by the deposition of bile pigments.
Inspect	To examine characteristics of a blood component and/or blood product and compare results with specific requirements.
Quarantine	Segregation of an unsuitable blood component or blood product to prevent its release.
Turbid	Thick or opaque with matter in suspension.

8.0 Records Management

8.1 The recipient transfusion data file in the transfusion medicine laboratory shall be retained indefinitely.

8.2 All transfusion records in the recipient's medical chart, including pre-transfusion serological tests results and worksheets for identification of atypical antibodies shall be retained in accordance with health care facility's retention policy for medical records.

8.3 Quality control of blood components, blood products, reagents and equipment shall be retained for 5 years.

8.4 Records of blood components inspection prior to release must be kept for a minimum of five years.

9.0 Key Words

Blood component, blood product, visual inspection

10.0 Supporting Documents

10.1 Process Flow/Algorithm (NA)

10.2 Tables/Charts (NA)

References

Canadian Society for Transfusion Medicine. (2011). CSTM standards for hospital transfusion service. Version 3. Ottawa: Author.

Canadian Standards Association. (2010). Blood and blood components, Z902-10.Mississauga (ON): Author.