



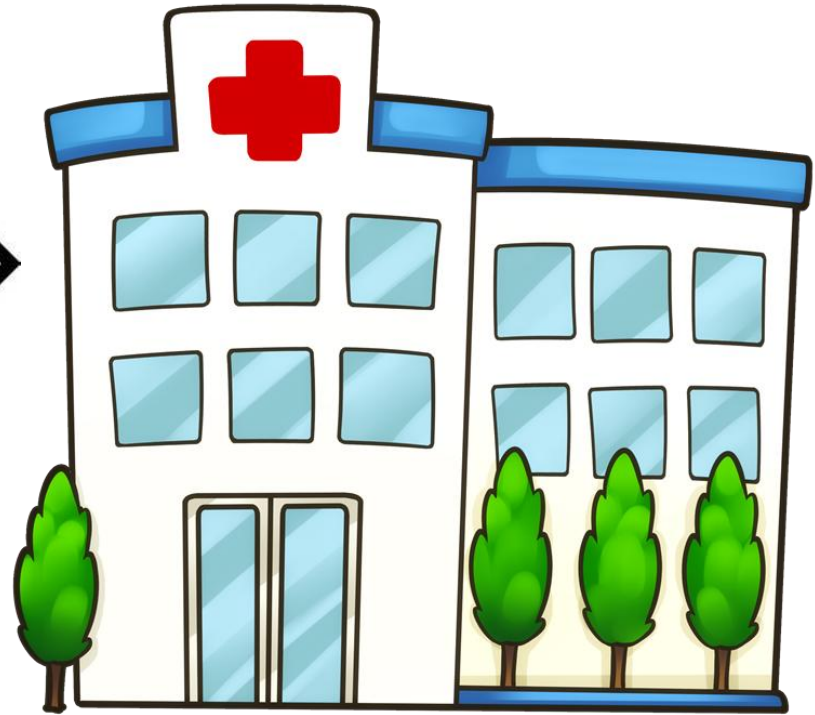
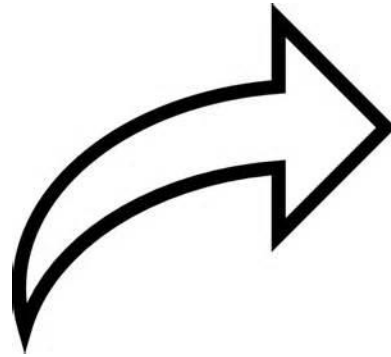
Community Blood Center

Save a Life. **Right Here, Right Now.**

 **New York** *Blood Center*

Jovona Powelson, B.S. MLT (ASCP)
Director of Laboratories

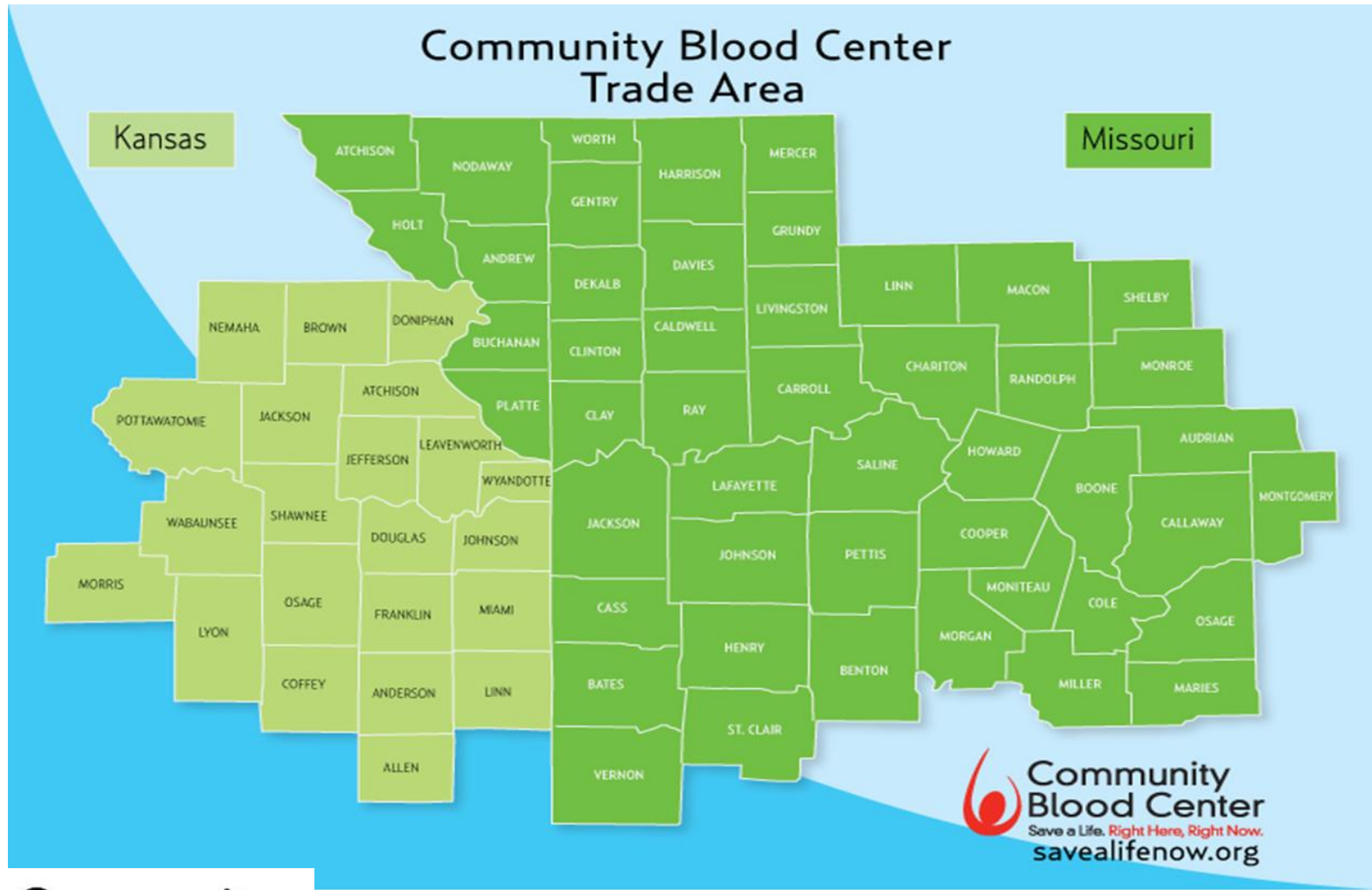
Blood Products From the Donor to You



Objectives

- Deliver a brief virtual tour of a blood center.
- Describe the number of donors needed to meet the needs of area hospitals (where do we get our donors?).
- Describe the process of producing blood components from whole blood donations.
- Discuss the role of laboratory tests to ensure the safety, purity and potency of blood products.
- Describe the distribution of products to area hospitals.
- Outline the Quality System.
- Outline the Therapeutic Apheresis services.
- Outline the Immunohematology Reference Lab Services

Donor Recruitment



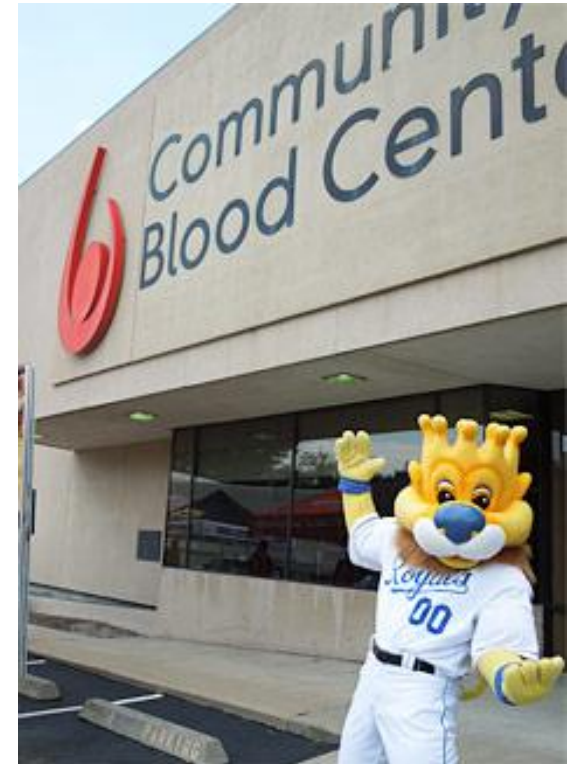
Donor Recruitment

How many blood donors are needed DAILY to meet the needs of the KC Metro area?

- A. 300
- B. 600
- C. 900
- D. 1200

Donor Recruitment

- 70% of blood collected from mobiles
- 30% collected from neighborhood centers



Donor Recruitment

Where are the blood drives?

Businesses (small or large)	22%
High Schools	22%
Community Organizations	17%
Faith Based Organizations	17%
Hospitals	9%
Community Colleges and Universities	7%
Civic Organizations	6%

Donation Process

Donating blood takes less than 60 minutes.

- Registration (5-8 minutes).
- Mini-physical -pulse, blood pressure and hemoglobin (12-15 minutes).
- Hydration (5 minutes).
- Blood draw (10-12 minutes).
- Post-donation snack (10-12 minutes).

Donor Recruitment: A Delicate Balance



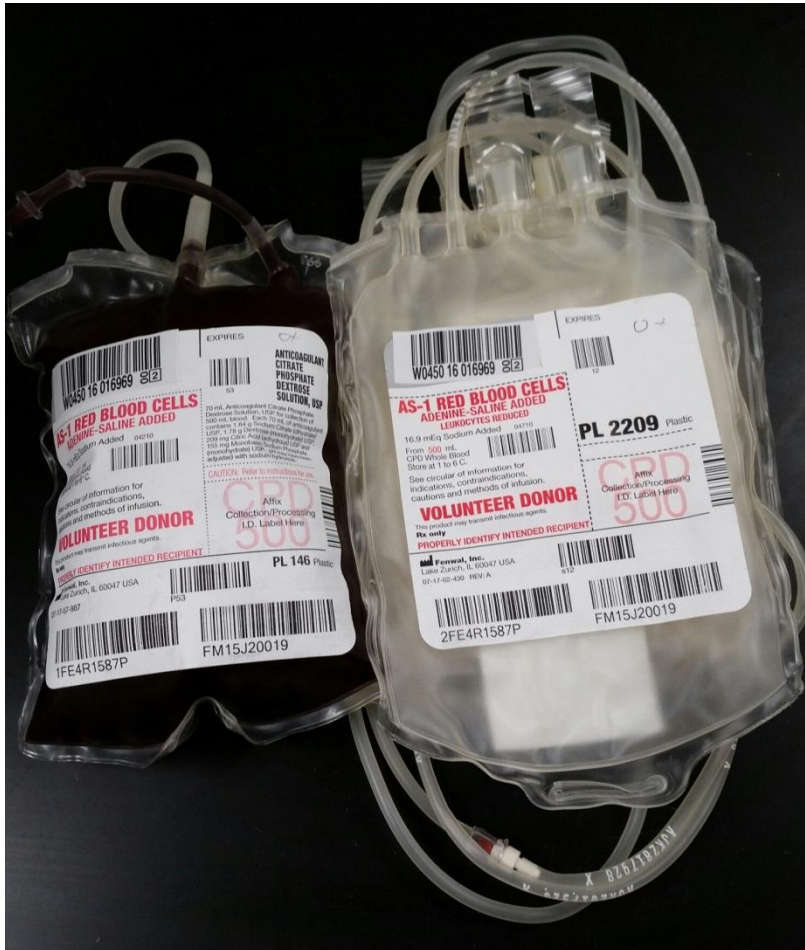
Collection Site/ Registration



Whole Blood / Apheresis Collection



LR Red Blood Cells, LR Apheresis RBCs

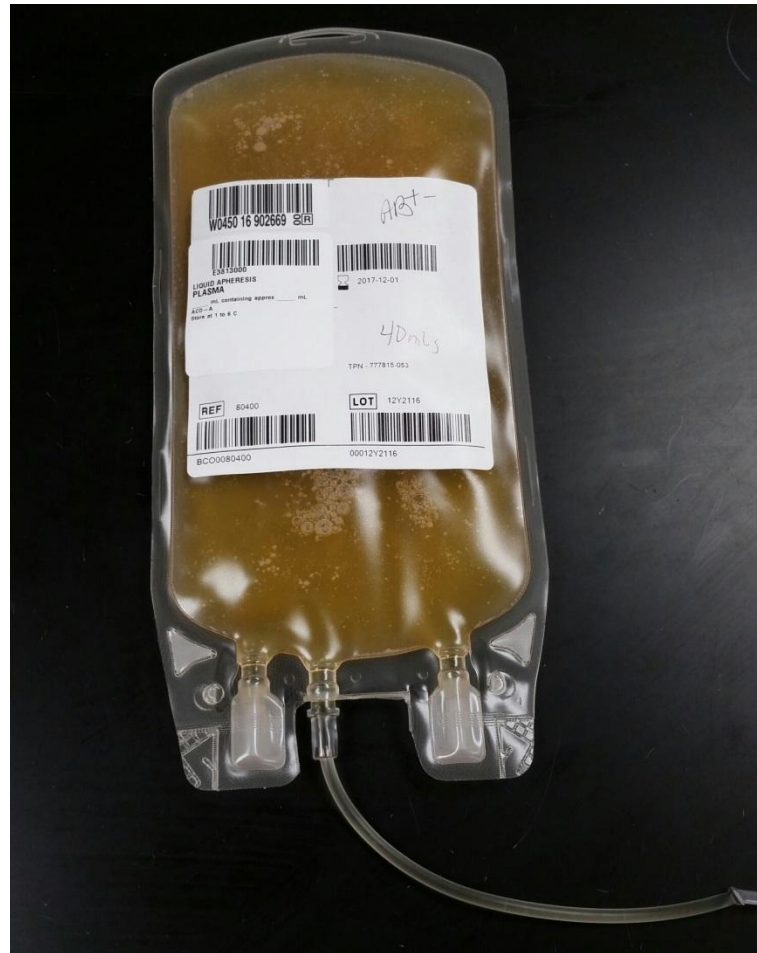


Apheresis Platelets



Apheresis Plasma

Can be collected concurrently with red cells or platelets.



Component Lab

- Products from each collection site are packed into the appropriate transport containers, and
- Delivered to the component lab for manufacturing,
- Donor tubes are packed into transport containers and shipped to our Donor Testing Provider (DTP).

Component Laboratory

Separation of RBCs and plasma from whole blood donations

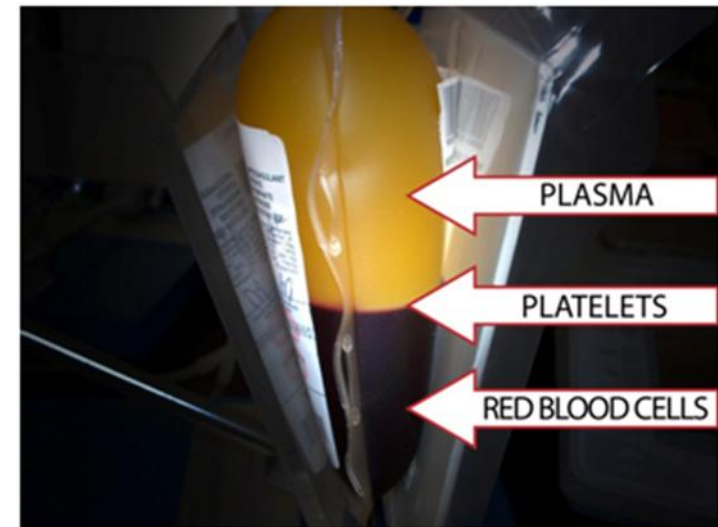
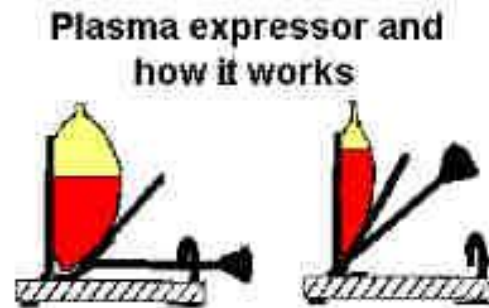
- Centrifugation in refrigerated centrifuge



Component Laboratory

Separation of RBCs and plasma from whole blood donations

- Plasma expressor



Component Lab



- Red Blood Cells are stored at 1 - 6°C.
- Controlled environment, monitored by Isensix.

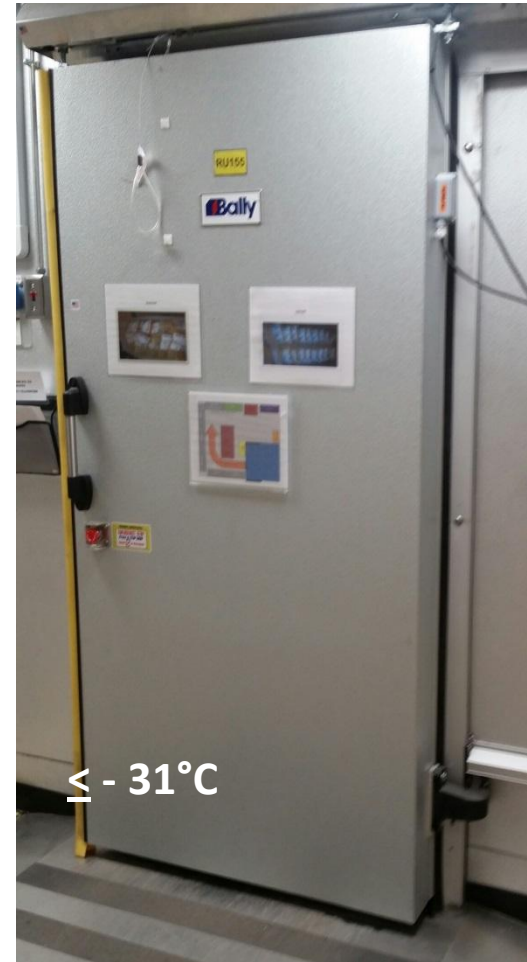
Component Lab

Plasma types:

- FFP and FP24 – transfusable
- Cryoprecipitate - transfusable
- Recovered plasma – sold to commercial manufacturers for reagents, etc.
- Liquid Plasma Type A.

Component Lab

Plasma products are frozen within 8 – 24 hrs. of collection.



Then Stored based on blood type, product type, and collection date.

Component Laboratory

Making cryoprecipitate pools

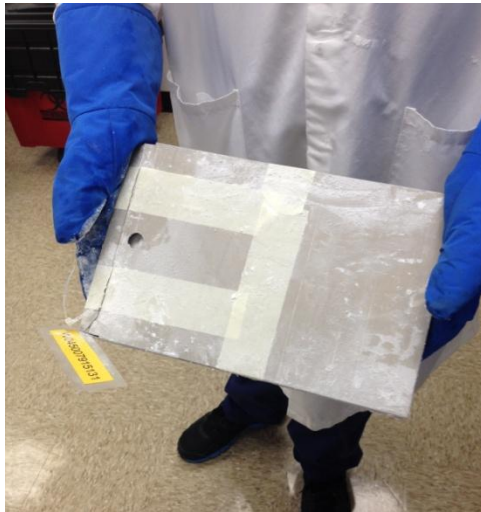


- 12 individual FP frozen with in 8 hours of collection
- Thaw in a circulating water bath at 6°C for up to 120 minutes
- Each pooled cryo contains cryoprecipitate from 5 FP products of the same blood type.

Component Laboratory

Other special procedures

- Modifications – attaching pediatric bags
- Saline washing of RBCs and PLTs
- Freezing and thawing of rare units (glycerolization/deglycerolization)



Donor Testing Tubes Packed / Shipped to DTP



Donor sample tubes
packed for transport

Packed into a shipping
container validated
for at least 24 hours



Donor Testing

- ABO/Rh
- Antibody Screen
- Infectious disease testing
- HLA antibody testing
- Parvovirus



Infectious Disease Testing

Disease	Testing for
Syphilis	<ul style="list-style-type: none">• Antibodies to <i>Treponema pallidum</i>
HTLV-I/HTLV-II	<ul style="list-style-type: none">• Antibodies to HTLV
HIV-I/HIV-2	<ul style="list-style-type: none">• Antibodies to HIV• NAT testing for viral RNA
Hepatitis B	<ul style="list-style-type: none">• Antibodies to core antigen• Viral surface antigen• NAT testing for viral RNA
Hepatitis C	<ul style="list-style-type: none">• Antibodies to HCV• NAT testing for viral RNA
Chagas	<ul style="list-style-type: none">• Antibodies to <i>Trypanosoma cruzi</i>
West Nile Virus	<ul style="list-style-type: none">• NAT testing for viral RNA

Which tests are pooled?

- A. All infectious disease tests
- B. Only HIV testing
- C. All NAT testing
- D. Chagas



Selective Infectious Disease Testing

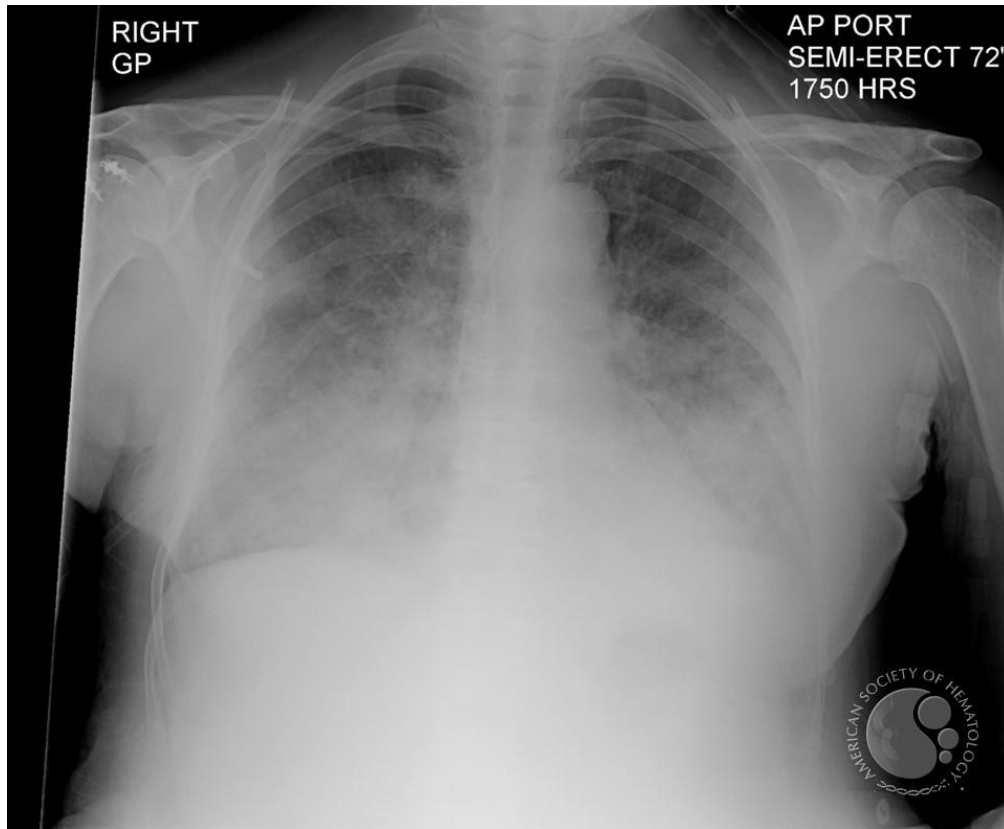
- CMV
 - Randomly select a specific number of blood types (10% – 14% of donations)
 - Computer aided selection
- HLA

HLA Antibody Testing

1. All female group AB donors.
2. Female platelet donors if they have been pregnant since they were last tested.
3. Computer aided selection process based on predefined criteria.



Wait, why do HLA antibody testing?



TRALI- reduction policy

West Nile Virus

We test for WNV all year long in pools. Since WNV is seasonal...

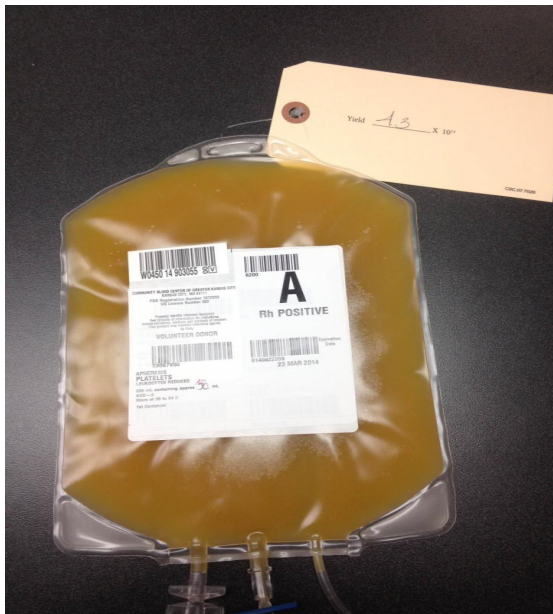
Extensive protocols for testing when a positive West Nile Virus donor is confirmed in a pool or activity in the donation area require ID NAT testing for those donors.



August through October active monitoring

Product Testing Laboratory

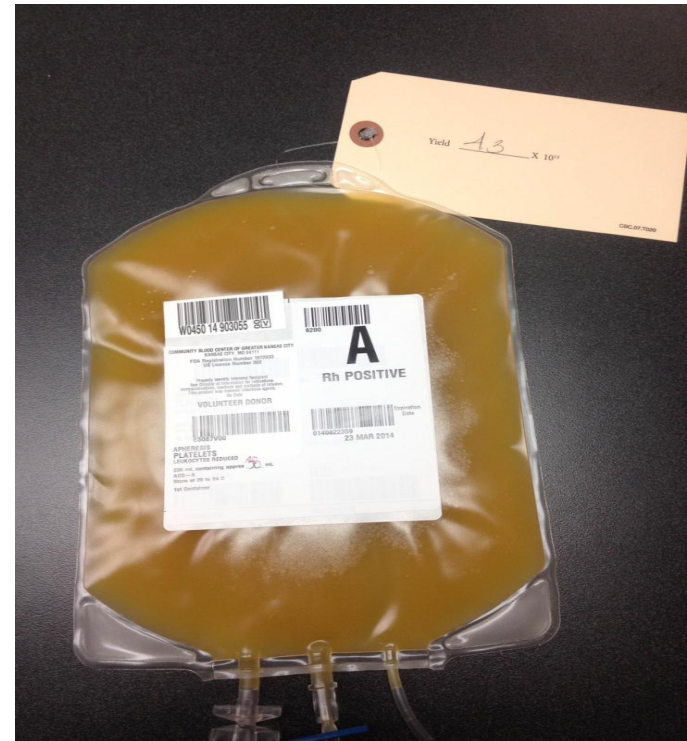
What kind of testing is done on blood products?



Product Testing Laboratory

Platelet testing:

- Platelet count (yield)
- Sterility – sample taken 24h post collection
- Residual WBC and pH are performed on randomly selected products



Product Testing Laboratory

- Hematology Analyzers are used for:
 - Platelet Counts
 - RBC Counts
 - Hemoglobin, and
 - Hematocrit



Product Testing Laboratory

- Residual White Blood Cell Counts
 - Platelet products
 - Red Blood Cell products
 - Plasma products



Product Testing Laboratory

Sterility Testing



Approximately 4 mL
of platelet sample

- 24 hrs. post collection
- Incubate at 35°C,
18 hrs.



Measure the oxygen content
after 18 hrs. of incubation.

Product Testing Laboratory

Red Blood Cell Testing:

- Red cell recovery after filtration
- Residual WBC



Product Testing Laboratory

Cryoprecipitate Testing:

- Factor VIII level
- Fibrinogen level

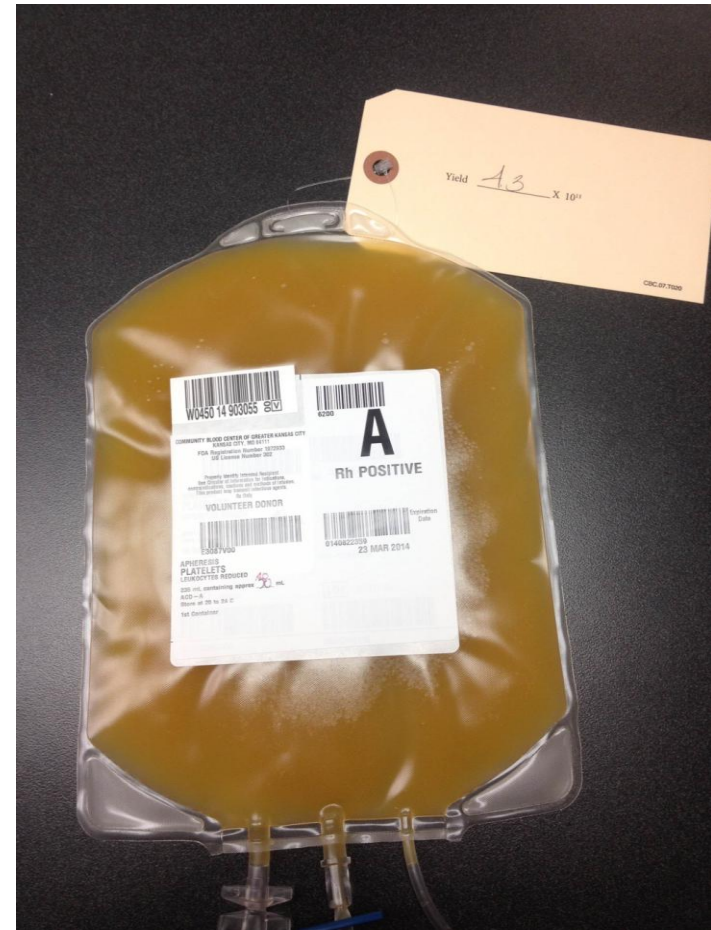


Quarantined Products

- Electronic hold
- Physically tagged
- Segregated from regular blood inventory



Product Release/Labeling



Distribution Department



Distribution Department



Distribution Department

- Have adequate blood to fulfill all needs
- Minimize outdated/waste



Distribution Department

- Hospital submits an order through Blood Hub.
- Distribution staff select products based on the order, pack the products, and
- Schedule delivery.



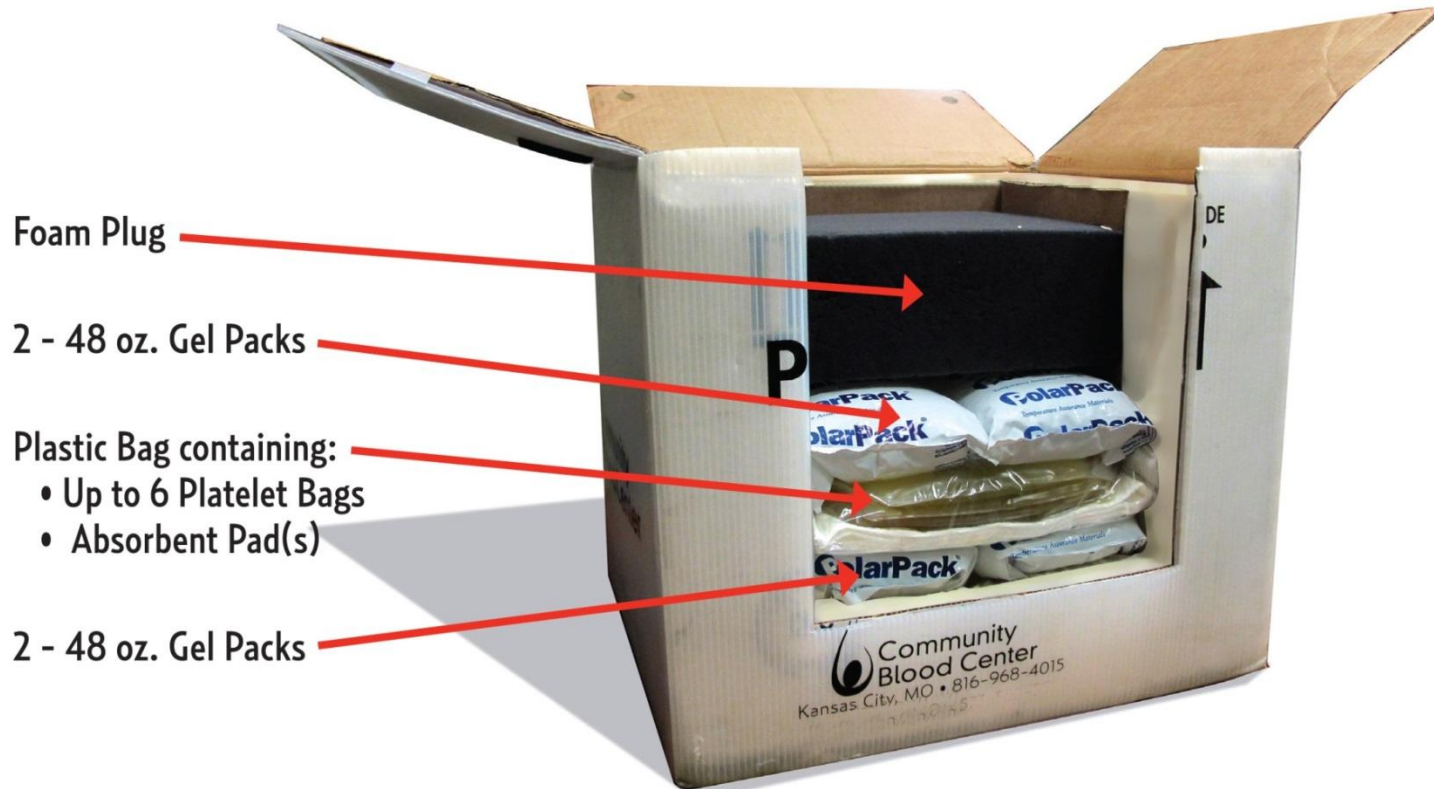
Distribution Department

Correct packing of RBCs



Distribution Department

E-38 Platelet Shipper - *Please load as shown*



Thermal validation data is supported only when packed as shown.

What happens to products that have been shipped incorrectly?



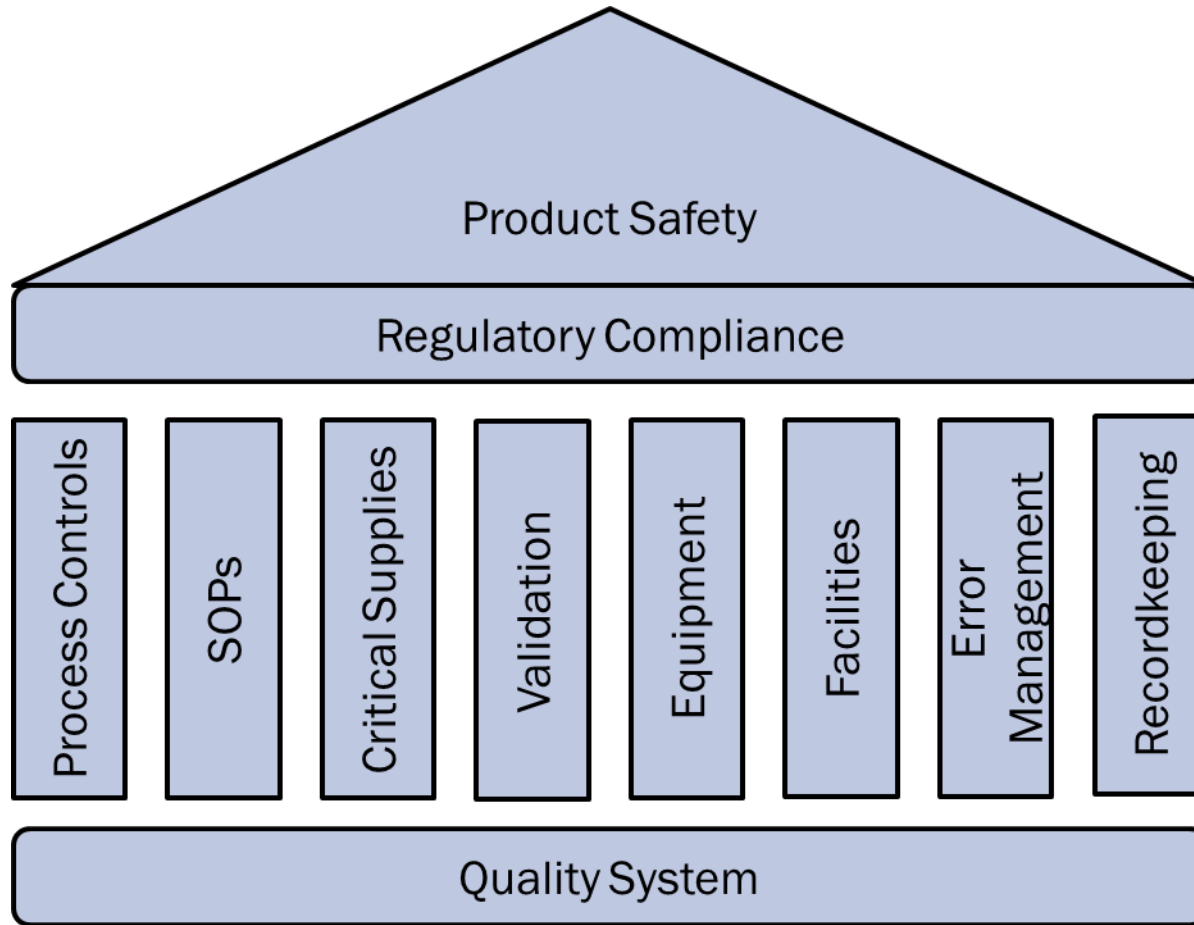
How often does CBC receive a returned blood product packed incorrectly?

- A. Nearly every day
- B. About every other day
- C. Once a week
- D. Once a month

Quality Department



Quality Department



Therapeutic Apheresis

- Leukopheresis
- Lymphopheresis
- Platelet depletion
- Plasmapheresis
- Erythropheresis
- Granulocytes



Immunohematology Reference Laboratory

The IRL Laboratory at the Community Blood Center of Greater Kansas City offers:

- **24/7 services**
 - Serologic Investigations and consultations
 - Procurement of Antigen Negative units
 - Platelet antibody investigations
 - Cross matched platelets
 - Molecular and Genomic investigations via partnership with New York Blood Center

Wrap Up

- Viewed a blood center.
- Described the process of recruiting donors.
- Described the process of producing blood components from whole blood donations.
- Discussed the role of laboratory tests to ensure the safety, purity and potency of blood products.
- Described the distribution of products to hospitals.
- Described other services offered by a blood center.