

Conversion of Whole Blood Donors to Plasma Pheresis Donors

IPFA 2nd Asia Workshop on Plasma
Quality and Supply

Jonathan A. Hughes, M.D.

Medical Director
BloodSource, USA

About BloodSource

- **California, USA based not-for-profit since 1948**

- 15 satellite donor centers
- 13 bloodmobiles
- 435 employees

- **Serve:**

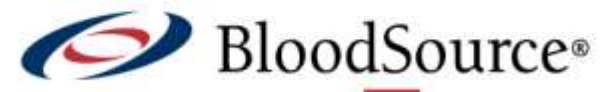
- 31 counties, 5+ million residents, > 40 hospitals
- 225,000+ units per year

- **Active apheresis program (long history)**

- Source plasma (2014)
- “Frequent” plasma
- Apheresis RBCs, PLTs, plasma

- **Additional details:**

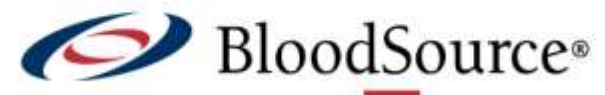
- IPFA member
- EU certified
- Volunteer donors



About BloodSource

Component Type	Whole Blood Units	Apheresis Units	Unique Donors	Repeat Rate*
<u>RBC</u>	100,700	3,500	75,079	1.66
<u>PLT</u>	None	78,000	8,024	4.87
<u>Plasma</u>	Minimal	9,000 (200 mL)	1,440	2.95 (infrequent)
		18,000 (400 mL)		10.83 (frequent)

* Repeat rate = average donor donations per year



2016 Production Statistics

Apheresis Collections

Our Apheresis Collection History



Gradually built a strong apheresis program

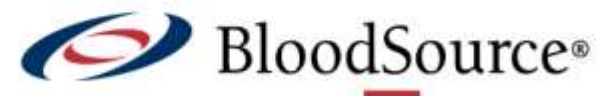
1. Initially focused on select:

- Collection centers, staff, and donors
(e.g., group AB plasma, single PLT collections)

2. Then expanded program across the system

- Infrequent plasma, frequent plasma, source plasma, apheresis platelets, apheresis RBCs

Building expertise !



Example Apheresis Donations

Donation Types	PLT	Plasma	RBC
Plasma only	-	600 mL, 800 mL	-
Platelet only	Single, double, triple	-	-
Red blood cell only	-	-	Double
Combined Collections	Single	200-600 mL	-
	Double, triple	200-400 mL	-
	-	200-800 mL	Single
	Single, double, triple	200-400 mL	Single
	Single, double, triple	-	Single

- *Collection limit < 15% total blood volume (TBV) and < 1000 mL*

Apheresis Collections

- **Donation Details**

- Average donor weight ~ 203 lbs (92 kg)
- Collections range from ~60-120 min.

- **Capacity** = 98 Trima machines

- 83 in centers, 13 in mobiles, 2 loaners
- We average ~1.8 donations per machine per day (could do up to 3)



Apheresis Conversion Strategy

- Donor education

- Written and online materials
- Introduce the technology
- Staff talking points + training

- “What’s needed today”

- Ability to provide highly regarded product(s) right now (donor and inventory optimization)

Donate Blood

Donating Blood Components (Apheresis/Plasma Donation)

Successful whole blood donors are sometimes asked to try an apheresis donation. Apheresis donation (also called apheresis) is a process where specialized equipment collects specific blood components – platelets, plasma or red blood cells – and returns the rest of your blood to you. The benefit of an apheresis donation is that a greater volume of components can be collected at a time, which means your blood can help more patients with acute leukemia.

- Reduced cancer treatments and the increasing number of transfuse and organ transplant have created a greater demand for blood components.
- Not all donors have the physical characteristics to donate new to give components. See if you are a candidate.
- Apheresis donation uses sterile, disposable needles and tubing. You'll never come into contact with the machine or the blood of another donor.
- An apheresis donation can take 2-3 hours, but we provide a great selection of snacks to keep you comfortable.
- You can donate more frequently than whole blood and can donate more frequently – to return for great care at the McLeodCancerWork. You can also schedule your next donation appointment and track your pre-donation health status – all on-line!

Donating blood components is a great way to help with the mission of a safe and plentiful blood supply. Learn more about donating blood components.

All Donations from:

Platelets

- Platelet donors help patients in cancer treatment, organ recipients, and more with 100-200 units of platelets.
- Platelets are only made for 5-6 days after donation so a constant supply is really important.
- Platelet donors should avoid aspirin and/or aspirin products 48 hours prior to donation, avoid alcohol 24-48 hours prior to donation.
- Platelet donations take 1.5 – 2.5 hours.
- Platelet donors can give more than 100 units a maximum of 24 times per year.

CLICK HERE Schedule an Appointment

Schedule an appointment to give blood at one of our convenient McLeodCancerWork Centers located throughout Northern and Central California.

And an apheresis of donation must be made at the time of 95-112-3000.

There are many opportunities to donate blood and help patients in need. Learn about the different donation opportunities including whole blood, plasma and platelets. Visit more videos on YouTube.

Apheresis Conversion Strategy

- A focus on the patient
 - Ability to help multiple patients with a single donation
 - Utilization of patient stories

Avoid initially focusing on the extra time required

Lives Touched

Giving blood is one of the most generous acts of kindness that one human being can do for another. Given this, the national gratitude expressed by blood recipients goes hand-in-hand with this fact. Stories like these remind us that from the very joining of two life lines, we touch lives every part of blood transfusion. When you give blood, you do more than...



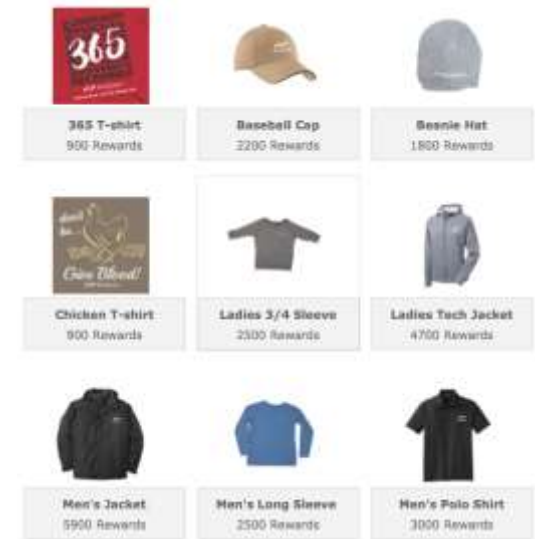
Apheresis Conversion Strategy

- Loyalty program

- Participation in donor rewards
- Way to donate more often

- Optimal customer service

- Make donor comfortable (movies, internet, warmers, tums, etc.)
- Friendly staff engagement

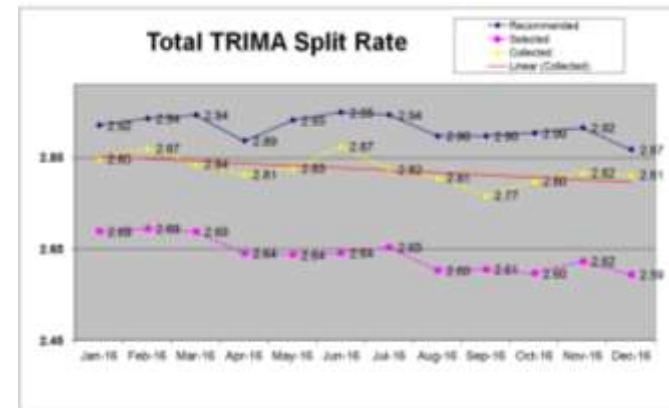


Apheresis Conversion Strategy

- **Identify and focus on “optimal” donors**
 - Active donors (non-lapsed) and 1st time donors are most responsive
 - Engage donors interested in technology and a new donation experience
 - Other specific donor attributes as necessary
- **Donor outreach and follow-up**
 - Utilize multiple donor touch points (in-center, phone, email, social media, etc.)

Apheresis Conversion Strategy

- Utilize and monitor data
 - Establish goals & actively track production statistics
 - We use a multidisciplinary production committee
 - Learn from successes (celebrate) and failures



Apheresis Metrics

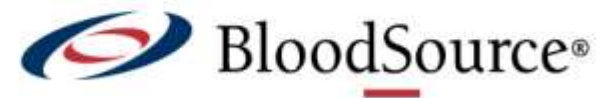
Unique WB Donors	PLT Conversion (Unique New PLT Donors)	Plasma Conversion (Unique New Plasma Donors)
75,079	2.74% (2,060)	0.46% (348)

- **Split rates:**
 - Plasma = 2.75 products per donation
 - Platelet = 2.35 products per donation

Apheresis Plasma Metrics

Plasma Donor Base	% Donations	Donor Eligibility
Frequent Donors	62%	2 times per week
Infrequent Donors	38%	Every 14 days

- **Plasma production:**
 - 71% from plasma only collections
 - (average volume 770 mL)
 - 29% from concurrent collections



Apheresis Production Planning

- We work backwards in our planning
 1. Determine # of products need to meet demand
 2. Use historic split rates (products per donation) to meet production goals
 3. Continue to work backwards using other variables (e.g., deferral rates, unsatisfactory collection rates, conversion rates, repeat rates, etc.)
 4. End up with estimate of unique donors needed

Example Production Planning

PLT Donor Planning	Rates	Calculations
Product goal		79,248
Collection split rate	2.18	(÷)
Usable procedures		36,352
Unsuitable donation rate	3.26%	(x 1.0326)
Donor drawn		37,537
Deferral rate	7.96%	(x 1.0796)
Donors registered		40,525
Donor repeat rate	4.87	(÷)
<u>TOTAL Donors Needed</u>		<u>8,321</u>

Example Production Planning (cont.)

PLT Donor Planning	Rates	Calculations
<u>TOTAL Donors Needed</u>		<u>8,321</u>
Attrition rate (% PLT donors who won't return)	45%	(x 0.45)
# of donors to maintain production		3,745
Whole blood conversion rate	2.74%	(÷)
<u>WB donors needed for PLT conversion to maintain production</u>		<u>136,666</u>

Apheresis Source Plasma



Source Plasma Collections (Frequent)

- Key features

- 100% volunteer, male and female
- Must meet frequent plus additional source specific criteria
- ~35 to 40 minute procedure

- Growing the program

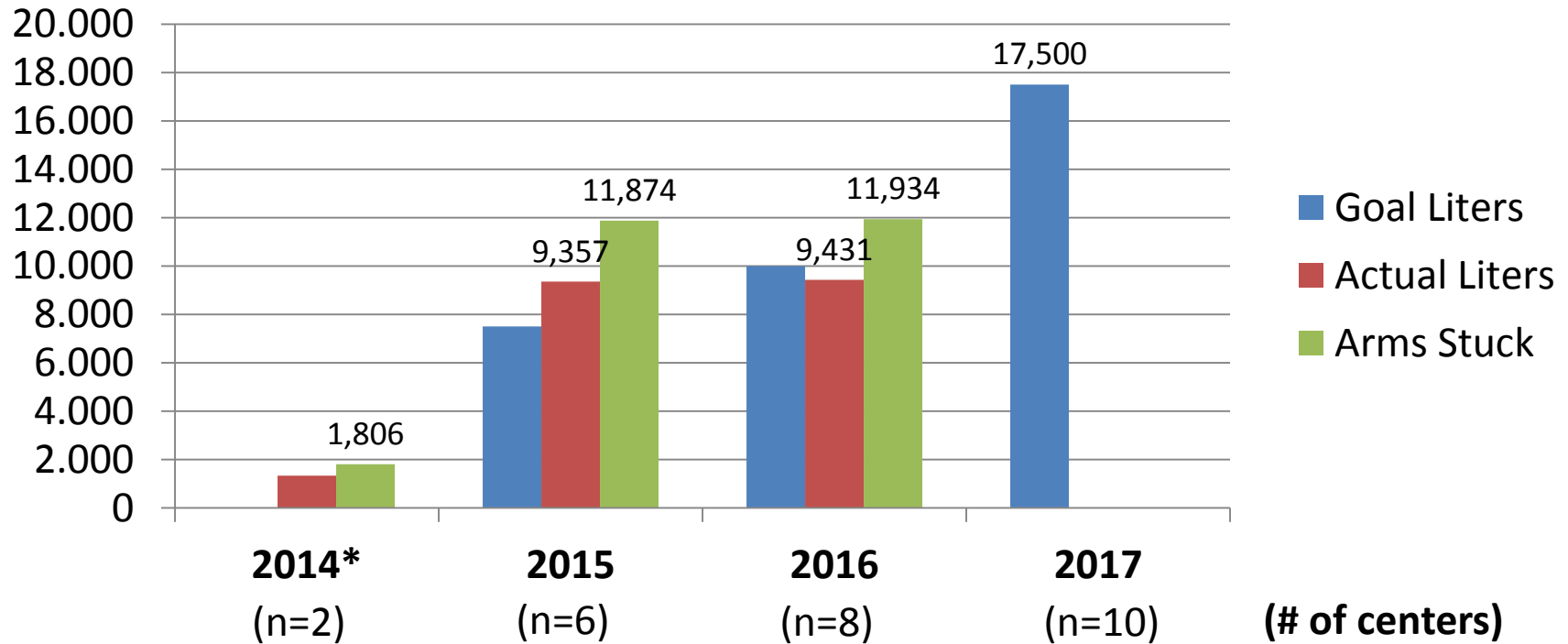
- 8 centers currently collecting
- Total of 33 PCS2 machines (could turn over 5 times in a day)



Started September 2014



Source Plasma Metrics



- 2017:** Anticipated 3,760 donors at a 6.0 repeat rate or 22,580 donations to support a goal of 17,500 L

* 2014: 9/2/14 –12/31/14

Source Donor Details (2016)

- Donor demographics

- Nearly **2,000 unique donors** (females 61%)
- Average donor age was **49 years**
- Average weight = **180 lbs** (81.6 kg)

- Collection details

- Repeat rate = **6.4 times per year** (5.0 in 2015)
- Average collection volume = **795 mL**
- **78%** donors had average interval of **≥ 28 days**
- Collected at **~68% of capacity**
(1-2 turns per machine average)

Source Plasma Conversion

- Introduce source
 - “A new way to save lives”
 - Donor and staff education (webpage and written materials)
 - Same core strategies as other apheresis conversions
 - Engage with patient advocacy groups and donor groups

The screenshot shows the BloodSource website's 'Source Plasma' page. The page features the BloodSource logo at the top left and a navigation menu. The main content area is titled 'Source Plasma' and includes a sub-header 'A new way to save lives'. Below this, there are several paragraphs of text explaining the source plasma donation process, its benefits for patients with neurological disorders, and the company's commitment to addressing plasma shortages. A list of regional offices is provided on the right side of the page, including locations in Chino, Elk Grove, Fullerton, Phoenix, San Diego Bay, and Stockton.

The flyer is titled 'PASSPORT PROGRAM' and 'SOURCE PLASMA'. It features a graphic of a passport and a globe. The text reads: 'Now booking! Lifesaving Trips for 2017. Thank you for your lifesaving travels as a Passport Program "Source Plasma" donor! As a dedicated source plasma donor, please continue the journey with us in 2017 as there's no better destination than the one you have traveled to help patients. The lifesaving work of a child returned to good health is the best "souvenir" from your trip!' Below the text is a photo of a young girl and a 'THANK YOU' message.



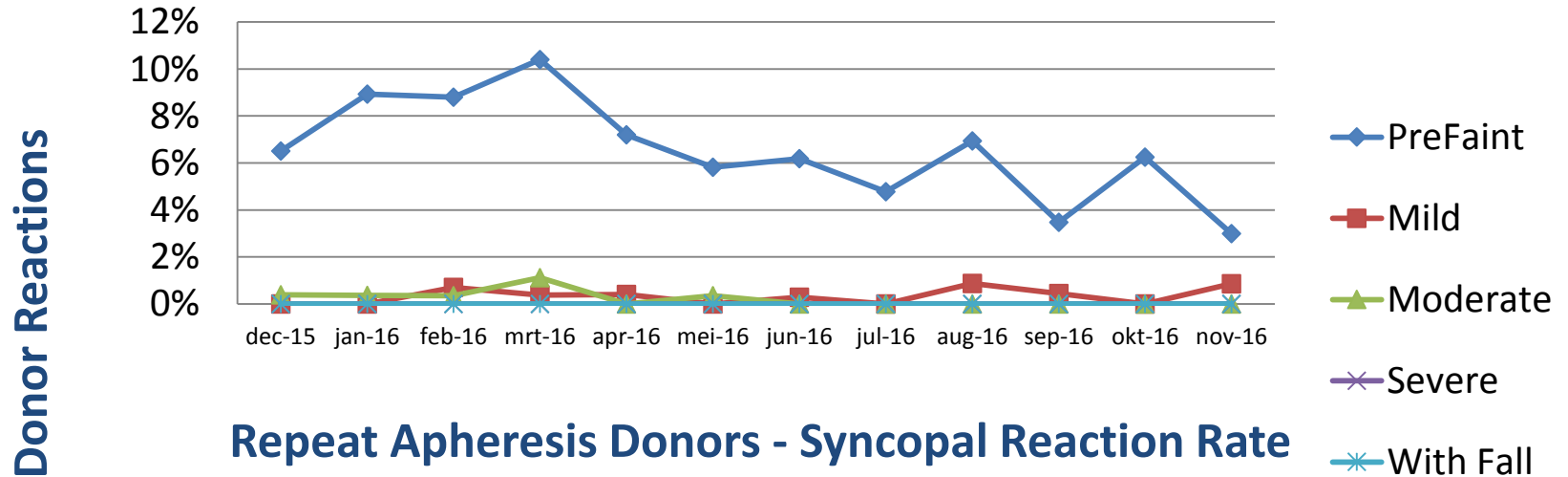
Donor Health and Safety

Donor Health and Safety

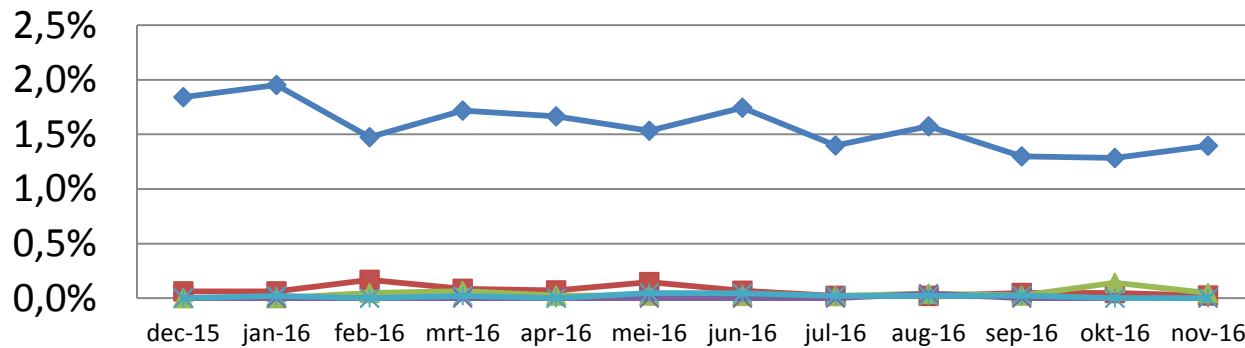
- **Supported by:**
 - Careful screening and evaluation of donors
 - Ensuring donors are prepared for collection and are comfortable during the procedure
 - Staff training and proficient apheresis collections
 - Monitoring apheresis donor data
(e.g., donor chart review, adverse event trending)

Donor Reaction Metrics

First Time Apheresis Donors - Syncopal Reaction Rate

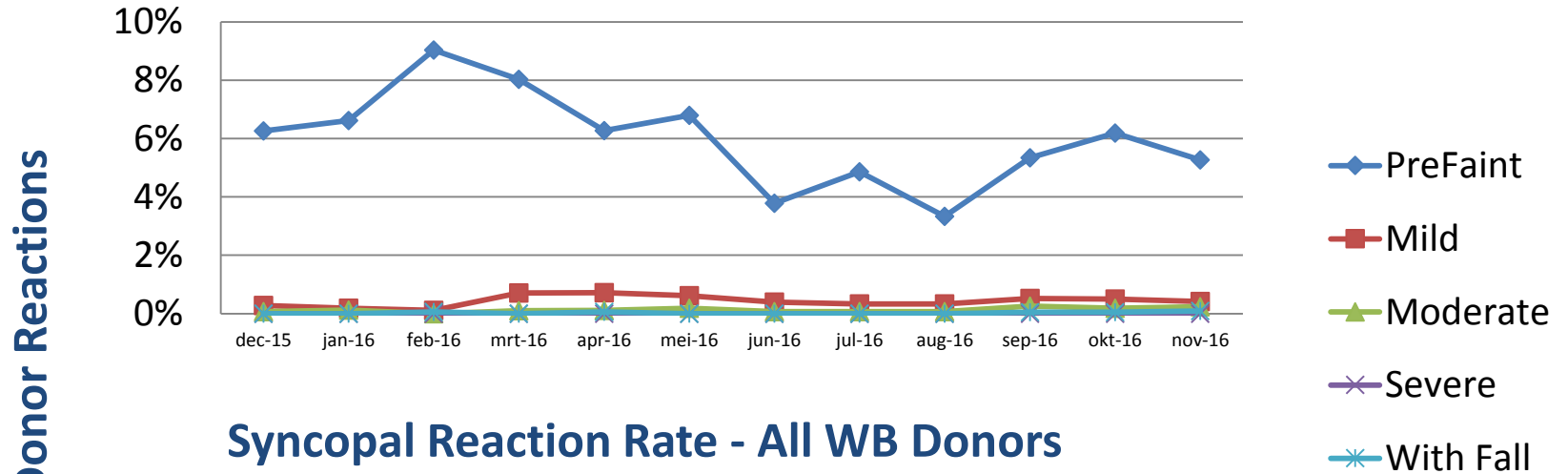


Repeat Apheresis Donors - Syncopal Reaction Rate

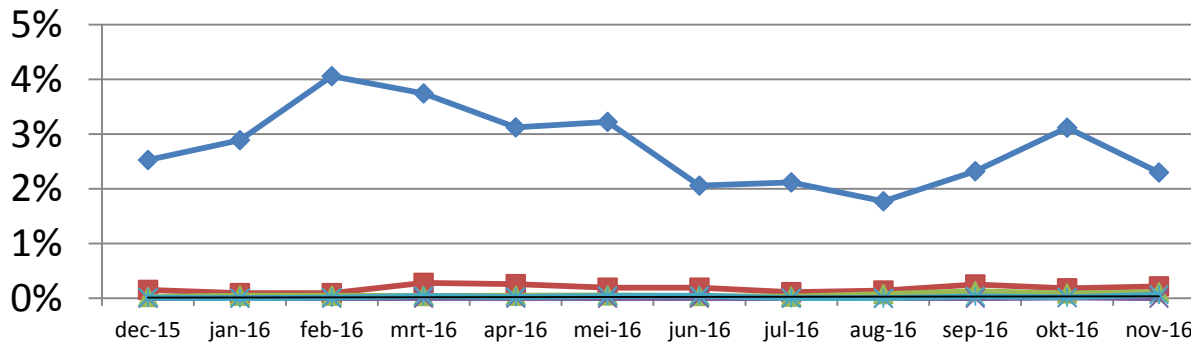


Donor Reaction Metrics

All First Time WB Donor - Syncopal Reaction Rate



Syncopal Reaction Rate - All WB Donors



Donor Weight and Adverse Reactions

Donor lbs	Donations (%)	Pre-Faint %	Syncope %	Hematoma %
110-119	69 (1.1%)	8.7%	0%	1.4%
120-129	173 (2.7%)	4.0%	0.6%	3.5%
130-139	347 (5.5%)	3.1%	0.3%	3.5%
140-149	460 (7.2%)	2.8%	0%	2.6%
150-159	672 (10.6%)	2.4%	0.6%	2.5%
160-169	561 (8.8%)	3.9%	0.2%	4.1%
170-179	552 (8.7%)	3.8%	0.4%	3.3%
180-189	621 (9.8%)	2.4%	0.2%	4.0%
190-199	695 (11.0%)	1.9%	0%	2.6%
200-209	529 (8.3%)	1.9%	0%	4.7%
210-219	361 (5.7%)	1.8%	0%	3.9%
220-229	337 (5.3%)	0.8%	0%	2.7%
230-239	246 (3.9%)	2.2%	0%	4.1%
240-249	186 (2.9%)	1.4%	0%	7.0%
250-259	147 (2.3%)	1.7%	0%	4.1%
260-269	118 (1.9%)	0%	0%	8.5%
270-279	78 (1.2%)	1.8%	0%	3.8%
280-289	55 (0.9%)	3.3%	0%	11.0%
290-299	30 (0.5%)	6.3%	0%	6.7%
300+	118 (1.9%)	0%	0%	4.2%
OVERALL	6356	2.6%	0.16%	3.7%

Source Plasma (Nov '15 – April '16)

Donor Response & Feedback

- Has been VERY POSITIVE !!!

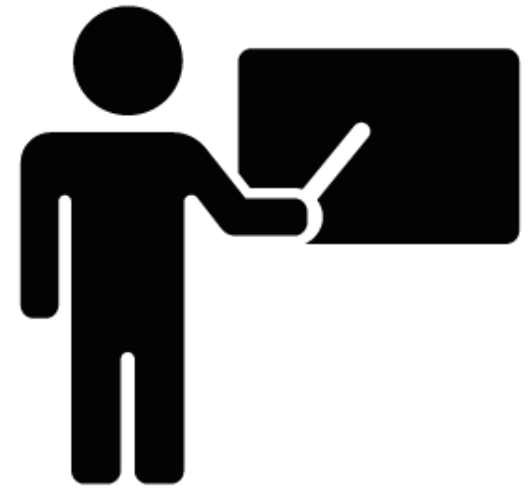


Conclusion

- **By concentrating on our apheresis collection operations we have been able to support:**
 - Optimized donor collections and inventory management practices
 - 100% apheresis platelet and ~100% apheresis transfusable plasma collections
 - Expanded plasma medicine partnerships
 - ~100% of whole blood plasma as recovered
 - Growth of source plasma program

Whole Blood (WB) Conversions: Take Home Points

- **Start SMALL**, learn, and grow
- **Donor TRUST** in the blood center and staff is key
- Use consistent, accurate, and simple **MESSAGING**
- Conversion **is a PROCESS**
- To optimize requires **ACTIVE donor management**



Supplemental

Plasmapheresis (Infrequent)

If donor weighs...	Maximum allowable plasma loss per rolling calendar year
< 175 lbs	12.0 liters
≥ 175 lbs	14.4 liters

If donor weighs...	Maximum volume of plasma (excluding anticoagulant) retained per procedure
< 175 lbs	600 mL
≥ 175 lbs	800 mL

Frequent Plasma (FFP) Collections

Donor Weight	Plasma Volume	Collection Volume	RBC Loss / 12 months	Plasma Loss / 12 months
110 - 149 lbs	625 mL	690 mL	1540 mL	52 L
150 - 175 lbs	750 mL	825 mL	1540 mL	52 L
≥ 175 lbs	800 mL	880 mL	1540 mL	62.4 L

*** FDA Collection Limits*

- **Additional frequent plasma criteria:**
 - Physician (or physician substitute) on-site
 - Total protein (6.0 – 9.0 g/dL) every visit
 - Serum protein electrophoresis every 4 months
 - Annual physical exam