



**Welcome! We'll be starting
soon:
Optimizing Collections for the Win!**

Optimizing Collections for the Win!

Welcome to Optimizing Collections for the Win!

- You have been muted upon entry
- Please utilize the chat for comments, participation, and questions (select “Everyone” when sending chats)



Please Chat:

Who is your favorite team to root for?!

Speaker Introductions (or, meet the team coaches!)



Kimberly Johnson, RN
Senior Nurse Coordinator



Monica Greer, RN
Nurse Coordinator,
Donor Advocacy



Anthony Miller, RN
Apheresis Nurse

Learning Objectives (The Playbook)



Discover options to increase the quality of collected products while maintaining donor safety



Prepare donors for collection through education



Identify ways of maximizing product collection



Provide resources for recommended actions when things go wrong

Agenda



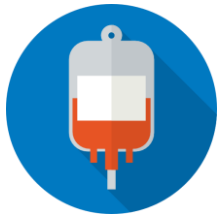
Donor Selection

(Drafting the Team)



Donor Prep

(Spring Training)



Day of Collection

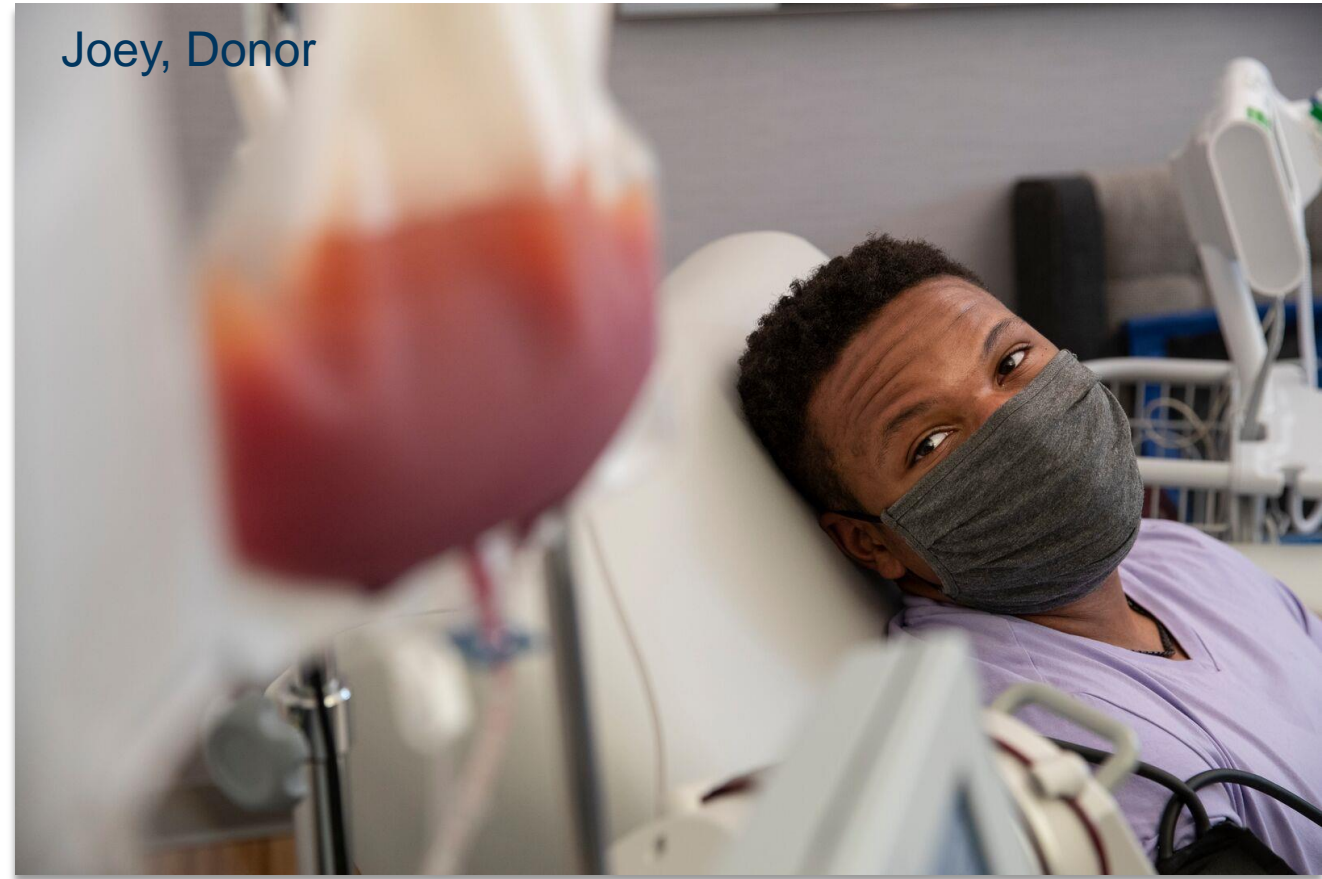
(Put me in coach, I'm ready to play!)



Post-Donation Care

(Keeping your donors off the DL)

Joey, Donor



Donor Selection

(Drafting the Team)



Document Review

- CD34 cells requested/WBP target
 - Also review PE, original workup request
- 1 or 2 days?
 - Could you accommodate an *unexpected* second day?
 - How likely is that?
- Fresh or Cryo?
- Age and size of donor
 - *Quality* of veins
 - Tolerance of fluid balance
 - Citrate toxicity

RESET

NMDP VERIFICATION OF HPC, APHERESIS REQUEST

PRINT

See A00237, Instructions for Completing the F00071, NMDP Verification of HPC, Apheresis Request

Recipient ID:

GRID:

TC Code:

DC Code:

AC Code:

Registry Donor ID: (Non-NMDP assigned ID)

Complete SECTIONS ONE and TWO and send to the NMDP Case Management Department.

SECTION ONE – COMPLETED BY THE DONOR CENTER

Total CD34+ Cells Requested: $\times 10^6$

Recipient weight:

Collections are dictated either by the feasibility of obtaining the total CD34+ count requested using pre-apheresis CD34+ testing or by recipient body weight, as outlined per the NMDP protocol.

Samples to be collected for each apheresis:

Peripheral Blood	Day 1	ml ACD	ml EDTA	ml Heparin	ml no anticoagulant
Product	Day 1	ml ACD	ml EDTA	ml Heparin	ml no anticoagulant
Other, please specify:	Day 2	ml ACD	ml EDTA	ml Heparin	ml no anticoagulant

Storage/transport conditions are 1-10° Celsius (per protocol) unless otherwise noted here:

Unique TC Requirements (including media/additives and plasma) ☐ None or

Donor Center Signature:

Date (mm/dd/yy):

SECTION TWO – COMPLETED BY THE APHERESIS CENTER

FIN #:

1. Per apheresis center experience, confirm all TC requested requirements can be met. Indicate the anticipated number of apheresis collections. A signature confirms acceptance of the TC request

☐ Feasible* ☐ Not Feasible; specify:

*No guarantee the total CD34+ cells requested will be supplied.

2. Indicate the anticipated number of apheresis collections:

☐ Single day apheresis ☐ Two day apheresis

Processing >30 L must be approved by the NMDP. (For domestic centers only)

Note: Cells collected in each procedure should be in a final minimum volume of 200 ml.

3. AC Additives Used: ☐ None ☐ PlasmaLyte ☐ Other:

4. I agree unique TC requirements listed in section one can be met: ☐ Yes ☐ No ☐ N/A

Comments:

Apheresis Center Signature:

Date (mm/dd/yy):

SECTION THREE – COMPLETED BY THE TRANSPLANT CENTER

When all three sections are completed and signed, the plans for HPC, Apheresis collection (including TC cells, other unique requirements and day of collection samples) are considered acceptable to all parties

Transplant Center Signature:

Date (mm/dd/yy):

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Document # F00243 rev. 20

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Send Completed Form to NMDP Case

RESET

NMDP VERIFICATION OF MNC, APHERESIS REQUEST

PRINT

See A00239, Instructions for NMDP Verification of MNC, Apheresis Request

Recipient ID:

GRID:

TC Code:

DC Code:

AC Code:

Registry Donor ID: (Non-NMDP assigned ID)

Complete SECTIONS ONE and TWO and send to the NMDP Case Management Department.

SECTION ONE – COMPLETED BY THE DONOR CENTER

Transcribe information from the prescription submitted by the transplant center:

Storage/Transport conditions: ☐ Room Temperature ☐ Cooled (1 - 10° C)

The donor is suitable and available to donate MNC, Apheresis.

Samples to be collected for each apheresis:

Peripheral Blood	ml ACD	ml EDTA	ml Heparin	ml no anticoagulant
Product	ml ACD	ml EDTA	ml Heparin	ml no anticoagulant
Other, please specify:				

Donor Center Signature:

Date (mm/dd/yy):

SECTION TWO – COMPLETED BY THE APHERESIS CENTER

FIN #:

Review the MNC, Apheresis prescription and enter the total mononuclear cells (MNC) requested by the transplant center on the first line below. Then complete the calculation to estimate the blood volume necessary to process to obtain the requested MNC.

$\times 10^7$ total mononuclear cells + 100 x 10⁷ cells / liter = liters to process

A minimum of ten liters but no more than 24 liters of donor blood should be processed in a single apheresis procedure using ACD anticoagulant in volumes sufficient to prevent clotting.

After reviewing the request and evaluating the donor, indicate below approximately how many liters of blood the donor is able to have processed.

A single apheresis collection of approximately liters will be performed.

Apheresis Center Signature:

Date (mm/dd/yy):

SECTION THREE – COMPLETED BY THE TRANSPLANT CENTER

The signature below indicates acceptance of the planned apheresis collection of MNC, Apheresis as it pertains to the estimated blood volume to be processed and anticoagulant to be used.

Transplant Center Signature:

Date (mm/dd/yy):

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Document # F00243 rev. 12

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Send Completed Form to NMDP Case Management

Vein Assessment

- “Has the donor donated blood or plasma in the past?”
- Can the vein assessment be done at an AC or blood center?
- Can the donor come for day ____ filgrastim, so we can peek at their veins ahead of DOC?



Vein Assessment

When YOU are the vein assessor:

- Second opinion
- Tourniquet/BP cuff - basics
- Vein finder
- Buy-in
- Assess the whole arm
- Backup plans



Please Chat!

What other things are recommended, based on your center's experience?



Donor Prep

(Spring Training)



Recommendations

- Hydration
 - Water-drink 10 glasses a day, keep caffeine to a minimum, avoid alcohol at start of Filgrastim
- Calcium
 - Increase calcium rich foods
- No aspirin
- Tylenol (or other pain relief meds)
- Comfortable clothes
- Eat breakfast!
- Be on Time (Day of Collection)



Please Chat!



What other things are recommended, based on your center's experience?

Day of Collection

(Put me in Coach, I'm ready to play!)



Pre-Collection/Donor Comfort

- Make sure donor has had breakfast prior or has something easy to eat once on the machine
- Offer last chance to use bathroom before starting procedure
- Go over timing of pain medicine
- Have donor get seated and make comfortable
- Warm up the donor
- Go over “Housekeeping Notes”
 - Review signs/symptoms of citrate toxicity
 - Why we are keeping warm
 - When and how to use the bathroom

Return Line

- Use peripheral IV over metal needle
- Placement – start distal and work up arm if needed
- 1st choice – hand, 2nd choice - wrist
- With tourniquet on, tap and rub area where veins are located to increase dilation.
- 18g works best

Access

- Use metal needle supplied with kit over angiocath
- Use tourniquet and/or blood pressure cuff to add pressure
- Use pillows under arm to give support
- Try to use median cubital and cephalic vein
- Loosen tourniquet and leave on for first 30 mins
- Cover arm with blanket
- Review day's events

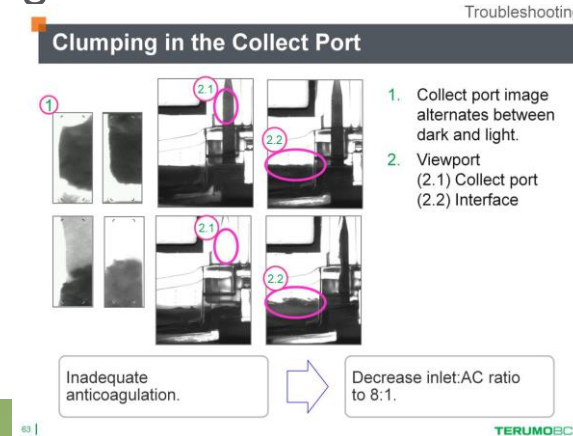
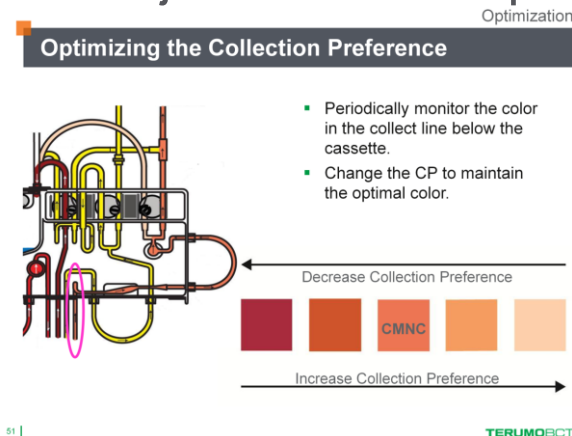


Calcium Management Recommendations

- Review beginning signs/symptoms of hypocalcemia with donor
- Start prophylactic IV Calcium when return line is established
- Treat early! When donor first states they have numbness or tingling in mouth/nose, treat by decreasing inlet by 10 mls/min. You can also give Tums and increase the I:AC to lower the amount of AC being returned to the donor.
- If not resolved in 10 mins or progressing, pause procedure and titrate IV calcium (use institutional guidelines)
- Terumo (Optia) recommends a ratio of 12:1 to start the procedure and up to 15:1 during run.

Procedure Recommendations

- Start the collection by collecting plasma
- Monitor the Collection Preference-adjust as needed to get the correct cell layer. This is the main value used to optimize the collection (little darker for low plt count, little lighter for ABO incompatibility)
- Increase the I:AC as much as your institution allows to decrease chance of citrate toxicity and decrease run time
- Clumping/clotting
 - “Interface took too long to establish” – Decrease HCT by 3 percentage points. This is not indicative of clumping/clotting
 - AC needs to be adjusted for clumping/clotting in the connector or the collect port



Procedure Discomfort

- Keep them warm
- Keep their pain medication on schedule
- Rolled up blanket or pillow under their hands/head for support
- Arm discomfort
 - Turn wrist/palm down
 - Remove tourniquet (if left on)
 - Reposition arm
 - Lower/raise head
 - Apply heat



When Things Go Wrong...



- Contact Transplant Medical Services at TMS@nmdp.org
- **Please** use the Form 01095, Day of Collection Notification, to address any poor mobilization issues where the TC goal may not be met.
- <https://network.bethematchclinical.org/workarea/downloadasset.aspx?id=17660>
- Contact your TerumoBCT rep for more information on personal instruction for optimizing collections.

Please Chat!

What other things are recommended, based on your center's experience?



Post-Donation Care

(Keeping your donor off the DL)



Recommendations

- Food and hydration
- Easy on the arms!
- No strenuous workouts for 5 days
- Light duty at work
- If donors do too much too soon too fast – complications arise!
- Discharge instructions
- Slow transition to standing/walking
- Encouragement

Please Chat!

What other things are recommended, based on your center's experience?



Coming Soon! (Feb 11, 2022)

PBSC Protocol Updates, version 31

- Allows the use of filgrastim similars for stem cell mobilization
 - Zarxio
 - Granix
 - Nivestym
- Total daily dose of filgrastim and similars is capped at 1080 µg
- Central line placement to follow individual institutional guidelines
- CIBMTR data collection forms will be updated regarding mobilizing agents and reduced daily dose limits
- Donor consents and associated consent processes will be updated

More information/education will be provided in the coming weeks. Reach out to PartnerLiaisons@nmdp.org with questions.

References / Resources

- Clarke D., and Aragon M. Optimizing the quality of cell therapy starting materials. *RegMedNet*. Oct 2018.
- Dehn J, Spellman S, Hurley CK, et al. Selection of unrelated donors and cord blood units for hematopoietic cell transplantation: guidelines from the NMDP/CIBMTR. *Blood* 2019; 134:924.
- <https://pubmed.ncbi.nlm.nih.gov/14507272/>
Prophylactic administration of oral calcium carbonate at a low dose is an easy and cost-effective way to prevent citrate-related toxicity.
- <https://onlinelibrary.wiley.com/doi/abs/10.1046/j.1537-2995.2002.00151.x>
Prophylactic Ca infusions safely attenuate the marked metabolic effects of citrate administration and promote faster, more comfortable, leukapheresis procedures.
- <https://pubmed.ncbi.nlm.nih.gov/26915952/>
Prophylactic low dose continuous calcium infusion during peripheral blood stem cell (PBSC) collections to reduce citrate related toxicity

Questions

