Infusion Form (F2006)
Challenges
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CME Disclosure

• I have no financial relationships to disclose
Objectives

• Review Forms Due Rules
• Review Form by Section
  – Review changes for revision 4
  – Review areas of confusion
  – Review common data errors
Forms Due Rules – Infusion Form 2006

• Form 2006 should be submitted for each product where *any* of these are true:
  – NMDP Product
  – Cord Blood Product
  – Patient consented to Related Specimen Repository
  – CRF track
Forms Due Rules – Continued

• Put another way:
  The only time you should NOT have to complete a 2006 is when *all* of the following are true:
  • Non-NMDP
  • Marrow or PBSC
  • TED track
  • *not* participating in repository

• See Tip Sheet: How Forms Come Due for reference
Determining # of F2006s expected

- A form is due for each product infused
  - See [Appendix P](#) for info on defining products

<table>
<thead>
<tr>
<th></th>
<th>Definition</th>
<th># of F2006s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Product</td>
<td>All of these are true:</td>
<td>One</td>
</tr>
<tr>
<td></td>
<td>• Single Donor/cell source</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Single mobilization method</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Single collection method</td>
<td></td>
</tr>
<tr>
<td>Multiple Products</td>
<td>Any of these are true:</td>
<td>Multiple – one for each cell source, mobilization method, and/or collection method</td>
</tr>
<tr>
<td></td>
<td>• Multiple donors/cell sources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Multiple mobilization methods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Multiple collection methods</td>
<td></td>
</tr>
</tbody>
</table>
Example: Multiple Mobilizations

- Patient undergoes 3 different mobilizations
- 8 total collections
- Bags are infused over 3 separate infusions
- How many products get reported?
Mobilization #1
Filgrastim

Collection #1
Collection #2

Mobilization #2
+ Plerixifor

Collection #1
Collection #2

Mobilization #3
Filgrastim + Plerixifor

Collection #1
Collection #2
Collection #3
Collection #4

Infusion #1:
3 bags
2 Products

Infusion #2:
2 bags
2 Products

Infusion #3:
3 bags
3 Products
Reporting multiple collections

- All cells collected for a single mobilization event should be combined into a single 2006
  - Increasing the dose of a drug does not count as a "new" mobilization
  - Adding a new drug that wasn’t planned would count as a new mobilization
Co-Infusions

• Additional cells infused with the products intended for engraftment before or on Day 0
  – E.g., NK cells
  – Report on F2400, which makes the F2006 due
  – F2006, Q198 asks about these products
    • “intended for engraftment”
• Cells infused after Day 0 should be reported as a DCI on the F2100 or F2450
F2006: Key Fields

- Syngeneic was removed – report as related
- Single CBU is the only cord option
- Other, specify should be used VERY sparingly
  - Appropriate for co-infusions
  - “Double cord” is NOT correct. Select single cord and make sure there is a F2006 for EACH cord
  - Best to check with your CIBMTR CRC before using other
Locating Source of Cord Blood Unit

• Review the documents that came with the unit. It should indicate the source.
  – NMDP shipments will include NMDP paperwork

• Work with the Transplant Coordinator that ordered the unit

• If you know the country, check BMDW
  – Remember to use adult vs. CB code
Reporting ‘NMDP’ Products

• NMDP Donor and CBU ID always numbers
  – Format is 1234-5678-9
• If NMDP donor or CBU selected, Recipient ID (RID) must be displayed in Recipient Forms grid.
  – Including subsequent unrelated transplant
  – Add or Edit via Search/Edit CRID
  – Monthly clean-up
• Should be consistent with Registry Code
Donor/Cord Blood Unit IDs (Q1-15)

- Cords and NMDP products ALWAYS need ID
- Related and Autologous cord added to get ID
  - If a product was frozen and stored, ID exists
  - Used to match outcomes data to bank records
  - Used to match data across forms
    - 2004, 2005, 2006, Chimerism
- Only related PBSC, marrow and autos may not have an id
  - Then use DOB and Sex
Tips on Reporting IDs

• Validation improved
  – Check with your CRC if you get an error
• IDs need to match across all forms
• New Field – Donor Age units
  – Months vs. years
• Q15: Was the product derived from an NMDP donor or CBU or a non-NMDP CBU?
  – Should be consistent with Q1: Specify Donor
ISBT DIN (Q6-7)

- Previously ‘ICCBBA ISBT 128 Number’
- Should be found on shipment paperwork or product labeling
THE NEW ISBT 128 LABEL

- ISBT 128 Donation Identification Number
- ISBT 128 blood type code
- Facility Information
- ABO/Rh blood group
- ISBT 128 Product Code
- Expiration date
- Special Testing barcode
- ISBT Product Information
Registry or UCB Bank ID (Q8-9)

- CRIR being retired – Use USA1 or U1CB
- New Cord Blood Banks added:
  - St Louis Cord Blood Bank (SLCBB)
  - Viacord
  - Cord Blood Registry
- TIP: Search BMDW or 2006 (PDF-RF)
  - Note many large registries still have 2 codes
Q9: Specify Other Registry or UCB Bank

- Other, specify option added to improve validation
  - USE SPARINGLY
  - Check BMDW or PDF-RF for country first
    - Spain, France, Italy, Australia all have codes
    - Related and Autologous cords may have been stored at Private CBB
- OK to use specify for Directed Infusions
  - i.e., collected for a specific recipient and stored locally
- Report collection/storage facility
  - Not lab where manipulation is performed
Pre-Collection Therapy (Q16-27)

- Plerixafor (Mozobil) added
  - Be careful of specify fields
  - CNTRL + F works on FN data entry screen, especially for long lists if section is fully expanded

- Review intent of drugs before reporting
  - Conditioning vs. disease therapy vs. mobilization
Mind the Specify Fields

- Review the form carefully
  - Expected agents listed
  - Specify field provided for new indications, new drugs
  - Don’t feel obligated to report everything a patient receives

- Q36: Specify other anticoagulant
  - Normosol and Plasmalyte are saline solutions
  - DMSO is a cryoprotectant
Product Transport & Receipt (Q43-56)

- Q48: Was there any indication that the environment within the shipper was outside the expected temperature range for this product at any time during shipment?
- If the shipping temperature is out of range, a Form 3010 Product Complaint should have been reported.

![Product Complaint Form](image)
Pre-Freeze TNC and CD34 (Q54-55)

• Product data is critical to cord data analysis
  – Product quality review
  – Outcomes analyses
• Lots of variation with TC lab test procedures
• Need a more consistent value to work with for certain projects
• Get pre-freeze data from shipment paperwork
  – should be physically included with unit
Product Thawing (Q59-70)

- Critical data for cord blood transplants
  - Cord blood units reported as not thawed
  - Confirm with lab if documentation exists for start and stop time
- Q67 and Q70: If container not intact or other problem during thaw need to do a F3010 ASAP
- Thaw method should correspond with manipulation options
  - If washed, diluted, those are manipulations now
Time From Thaw to Infusion

• NMDP recommendation: thaw start time to completion of infusion should be <120 minutes
  – Survey conducted with TCs around the world via participating organizations (FACT, NMDP/BTM, AABB, ASBMT, etc.)
  – 51% of infusions were started at least 120 mins. from start of thaw
  – 19% always administered in <120 mins
  – 20% of all centers always started >120 mins. later
Processing & Manipulation Revisions (Q71-108)

• Manipulation options were updated to meet FACT definitions
  – New validation added for cords
• Wash and dilution are new options
  – No need to specify details (e.g., dilution factor)
  – Send a F2800 Log of Appended Documents
• Manipulation information is used in part to validate cell counts
  – Can’t have more CD34+ cells than were frozen unless the product was expanded
Processing & Manipulation – Other, Specify (Q94-95)

• If you need to use the specify field, use it wisely
  – E.g., Cell separator, split, and centrifuge
  – Provide enough detail to determine what was done and why

• Don’t need to report saving product for later
  – Q204 asks about infusing “entire volume”

• Do not report manipulations that are part of other procedures
  – E.g. Volume reduction done as part of cryopreservation should not be reported as a manipulation
  – Cryopreservation should not be reported as a manipulation
Processing & Manipulation Tips (Q71-108)

• If a contract lab performs the manipulation on your behalf, report all of their activities as your own

• Once a portion of the frozen product is thawed for an infusion, that portion becomes the “entire” product for the remainder of that form
Buffy Coat vs. RBC reduced

- **Buffy coat enriched** - reduces/removes RBCs & plasma from the product
- **RBC reduced** - reduces/removes RBCs from the product
- Because Buffy Coat enriched products reduce/remove RBCs as part of the manipulation, you do not need to report “RBC reduced” in addition
Regarding Cord INDs

• For a product manipulation IND,
  – Report the manipulation details specified in the protocol (e.g., cultured/ex vivo expansion)
  – Use other, specify to indicate the specific trial

• Not required for cord access INDs like NMDP’s 10-CBA
  – Less than minimally manipulated
Product Analysis Revisions (Q158-195)

- Post-manipulation time point removed
- Section reformatted to have yes/no instead of not tested
- CD3+CD8+ and CD3+CD4+ added for when lab doesn’t distinguish
- CFU BE added. Total cells removed
  - Send Log of Appended Documents
## Routine Testing Prior to Infusion

1. Please indicate below all standard testing performed AT YOUR CENTER after receipt of the ENTIRE cord blood unit (CBU) and prior to administration. (Check all that apply.)

<table>
<thead>
<tr>
<th>Sample taken prior to infusion</th>
<th>Results required prior to infusion</th>
<th>Rating Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNC</td>
<td>91.0% (71)</td>
<td>56.4% (44)</td>
</tr>
<tr>
<td>WBC Differential</td>
<td>83.8% (31)</td>
<td>43.2% (16)</td>
</tr>
<tr>
<td>CD34 enumeration</td>
<td>91.3% (63)</td>
<td>30.4% (21)</td>
</tr>
<tr>
<td>Viability (any method)</td>
<td>92.0% (69)</td>
<td>44.0% (33)</td>
</tr>
<tr>
<td>ABO typing (with or without Rh)</td>
<td>78.9% (30)</td>
<td>63.2% (24)</td>
</tr>
<tr>
<td>Platelet count</td>
<td>91.3% (21)</td>
<td>30.4% (7)</td>
</tr>
<tr>
<td>Hematocrit/Hemoglobin</td>
<td>91.4% (32)</td>
<td>28.6% (10)</td>
</tr>
<tr>
<td>HLA</td>
<td>81.1% (30)</td>
<td>75.7% (28)</td>
</tr>
<tr>
<td>HLA antibody</td>
<td>85.7% (6)</td>
<td>71.4% (5)</td>
</tr>
<tr>
<td>CFU</td>
<td>89.7% (35)</td>
<td>28.2% (11)</td>
</tr>
<tr>
<td>None</td>
<td>50.0% (3)</td>
<td>100.0% (6)</td>
</tr>
</tbody>
</table>

Other (please specify)        | 13                                 |              |

answered question             | 87                                 |              |
skipped question               | 48                                 |              |
Scientific Notation

- **Scientific notation** is a way of writing numbers that are too big or too small to be conveniently written in decimal form.

<table>
<thead>
<tr>
<th>Number</th>
<th>Scientific Notation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trillions</td>
<td>$10^{12}$ or $10^{12}$</td>
<td>$1,000,000,000,000,000$</td>
</tr>
<tr>
<td>Billions</td>
<td>$10^9$ or $10^9$</td>
<td>$1,000,000,000$</td>
</tr>
<tr>
<td>Millions</td>
<td>$10^6$ or $10^6$</td>
<td>$1,000,000$</td>
</tr>
</tbody>
</table>
Cell Dose vs. Total Cell Counts

• Pay attention to units, especially exponents
  – Total or absolute cells – $10^6$, $10^9$
  – Cell Dose $10^5$/kg, $10^7$/kg
  – Cell Concentration $10^8$/mL, $10^9$/mL

• CIBMTR Forms capture TOTAL CELLS
  – Patient weight used to calculate cell dose
  – Volume used to calculate cell concentration

• Validation added for cords
**TNC vs. Nucleated White Blood Cells**

- New field added to capture the counts that your lab provides more accurately
  - **Total nucleated cells (TNC):** the total nucleated cell count includes nucleated red and nucleated white blood cells.
  - **Nucleated white blood cells:** (also known as leukocytes) the nucleated cell count includes the neutrophils, eosinophils, basophils, lymphocytes, and monocytes.

- Talk to your lab to find out which one is provided to you
Product Analysis Tips (Q158-195)

• Post-thaw time point should be used for only when sample is taken prewash
• Use an additional instance with the same time point to report multiple viability methods
• Many centers have had success giving Stem Cell Lab staff access to FormsNet to complete this section
  – Requires some work flow planning
• Alternatively, use PDF-RF to create a form for lab to complete
Analysis Time Point Review

- “At arrival” analysis is used to determine the integrity of a fresh product after shipment, esp. for NMDP.
- Cord blood banks use the “post-thaw” (pre-wash) analysis for product quality
  - Directly impacts quality assurance processes, FDA reporting.
- CIBMTR uses the “at infusion” analysis to determine what cells were actually given to the patient.
- An analysis at each time point helps to track how the cell populations change as the product is manipulated and can be informative if the product becomes contaminated.
What time point to report?

- Products have a limited number of cells, especially cords
- Clinical needs should take precedence over data expectations
- Report all analyses performed, using the most appropriate time point
- If your center does not perform *any* analysis after receipt, report not tested for the time point as well as the values
Product Infusion (Q196-249)

• Standard vs. Daylight savings time should be standard at your center. Only changes twice a year or less.
  – See worldtimezone.org for reference
• For the infusion time point, Q160 Total Volume will match Q203 Total volume of product plus additive
Reporting Adverse Events (Q209-249)

- AE Section simplified
  - Resolution and medical intervention questions removed
  - Attribution question added to each symptom
- Not the same as Clinical Trial reportable SAEs
  - See CIBMTR’s Adverse Event page for guidance
- Review options carefully before using specify field
Donor/Infant Demographics (Q250-285)

- Ethnicity and race now have an unknown box
- Relationship question expanded
- Research sample ID validation fixed
  - We will be working on a clean-up project
  - Labels provided with sample collection kit can be used in patient chart
See Also

- Workshops
  - Today @ 1:00pm, 2:00pm and 3:15pm
- CIBMTR Website, Training and Reference
  - Cord Blood Resources
  - Form 2006 Instruction Manual
QUESTIONS