2400: Pre-TED

The Pre-TED Form is now required for all transplants, including subsequent transplants on the comprehensive report form track.

All transplant centers participating in the CIBMTR must submit a Pre-TED Form for each allogeneic (related or unrelated) hematopoietic cell transplant (HCT). The Pre-TED is a requirement of the SCTOD for all United States transplant centers when either the stem cell donation or the transplant occurs within the United States. For more information regarding the SCTOD, see General Instructions, Stem Cell Therapeutics Outcomes Database.

Although data regarding recipients receiving autologous HCT are not required to be submitted as part of the C.W. Bill Young Transplant Program, the CIBMTR is highly committed to collecting data on these recipients for research studies. Centers choosing to report autologous data to the CIBMTR must report on all autologous transplants performed at their center. For more information regarding data reporting for autologous HCT, see HCT

The Pre-TED may be submitted to the CIBMTR up to two weeks prior to the start of the recipient's preparative regimen (see Helpful Hint below). The Pre-TED is due the day of the HCT (day 0), and is past due if not received by that date.

Helpful Hint:
In order to avoid having to make changes to the HCT date, complete the data for the Pre-TED (in FormsNet3 or on paper), but do not submit the form until the first dose of the preparative regimen is given.

For recipients receiving a subsequent HCT:
Transplant centers must submit a Pre-TED for all subsequent HCTs; this includes recipients assigned to the TED Forms **and** the Comprehensive Report Forms by the form selection algorithm.

For the majority of subsequent HCTs, the recipient will remain on the original follow-up form track assigned by the form selection algorithm. For more information regarding center type and the form selection algorithm, see Section 1 in the Center Reference Guide. A recipient may need to change tracks if enrolled on a study that requires comprehensive forms.

For recipients of multiple transplants, transplant centers are not granted access to the new Pre-TED Form in

FormsNet3 until the Post-TED (Form 2450) or Post-Infusion Data Form (Form 2100) from the previous transplant has been completed.

Transplant centers can use the FormsNet3 application to determine if a Pre-TED is due by either: 1) accessing the Forms Due Report, or 2) entering the recipient's unique ID (CRID) in the Patient Forms Due field.

Links to Sections of the Form:

Manual Updates:

Sections of the Forms Instruction Manual are frequently updated. The most recent updates to the manual can be found below. For additional information, select the manual section and review the updated text.

If you need to reference the historical Manual Change History for this form, please click here or reference the retired manual section on the Retired Forms Manuals webpage.

Date	Manual Section	Add/ Remove/ Modify	Description
5/7/ 2020	2400: Pre-TED	Add	For question 11, added the following guidance on zip codes: **The zip or postal code is required for USA residents. The postal code is optional for Canadian residents. The question can be answered or left blank without error for Canadian residents.**
4/7/ 2020	2400: Pre-TED	Add	For question 85-86, added the following guidance on Karnofsky/Lansky score documentation: **Documentation from an RN who has been trained and authorized to determine performance scores may also be used.**
4/6/ 2020	2400: Pre-TED	Remove	Removed the word "unrelated" from question 60, which now reads **NMDP donor ID**.
3/23/ 2020	2400: Pre-TED	Modify	In the Q88-113: Comorbid Conditions section, updated cardiac reporting guideline for congestive heart failure to include guidance on LVEF.
3/23/ 2020	2400: Pre-TED	Add	In the Q88-113: Comorbid Conditions section, added guidance to obesity reporting guideline for calculating BMI-for-age for pediatric patients.

3/20/2020	2400: Pre-TED	Modify	In the Q46-83: Donor Information section, updated instructions for question 51 to include more specific criteria for a genetically modified product.
3/6/2020	2400: Pre-TED	Modify	In Q114-128: Pre-HCT Preparative Regimen section, updated instructions for question 124 – 125 to report drug doses to the nearest tenth.
3/6/2020	2400: Pre-TED	Modify	In Q114-128: Pre-HCT Preparative Regimen section, updated instructions for question 115 to report weight to the nearest tenth of a kilogram.
3/6/2020	2400: Pre-TED	Modify	Moved “arrhythmia” designation after question 93 in sectionQ88 – 113: Comorbid Conditions in the Documented Medical History list. Removed “other” listing after “Current Diagnosis at the Time of Pre-HCT Evaluation” list.
1/24/2020	2400: Pre-TED	Modify	Version 5 of the 2400: Pre-TED section of the Forms Instruction Manual released. Version 5 corresponds to revision 6 of the Form 2400.

Last modified: 2020/05/07

Q1-25: Recipient Information

Question 1: Date of Birth

The date of birth is automatically populated based on the value reported on the CRID Assignment Form (2804). Verify that the date of birth is correct. If an error is noted, correct Form 2804 and verify that the date of birth has been updated on the Pre-TED Form.

Question 2: Sex

The recipient's sex is automatically populated based on the value reported on the CRID Assignment Form (2804). Verify that the recipient's sex is correct. If an error is noted, correct Form 2804 and verify that the recipient's sex has been updated on the Pre-TED Form.

Question 3: Ethnicity

The recipient's ethnicity is automatically populated based on the value reported on the CRID Assignment Form (2804). Verify that the recipient's ethnicity is correct. If an error is noted, correct Form 2804 and verify that the recipient's ethnicity has been updated on the Pre-TED Form.

Question 4: Race

The recipient's race is automatically populated based on the value reported on the CRID Assignment Form (2804). Verify that the recipient's race is correct. If an error is noted, correct Form 2804 and verify that the recipient's race has been updated on the Pre-TED Form.

Question 5: Race Detail

The recipient's race detail is automatically populated based on the value reported on the CRID Assignment Form (2804). Verify that the recipient's race detail is correct. If an error is noted, correct Form 2804 and verify that the recipient's race detail has been updated on the Pre-TED Form.

Question 6: Country of primary residence

Select the recipient's country of residence. If the recipient's country of primary residence is Brazil, continue with question 7. If the recipient's country of primary residence is Canada, continue with question 8. If the recipient's country of primary residence is the United States, continue with question 9. If the recipient's country of primary residence is not Brazil, Canada, or the United States, continue with question 10.

Question 7: State of residence of recipient (for residents of Brazil)

If Brazil was selected as the recipient's primary country of residence, enter the recipient's state of permanent residence at the time of transplant.

Question 8: Providence or territory of residence of recipients (for residents of Canada)

If Canada was selected as the recipient's primary country of residence, enter the recipient's providence or territory of permanent residence at the time of transplant.

Question 9: State of residence of recipients (for residents of USA)

If the United States was selected as the recipient's primary country of residence, enter the recipient's state of permanent residence at the time of transplant.

Question 10. NMDP Recipient ID (RID):

The NMDP RID is automatically populated based on the value reported on the CRID Assignment Form (2804). Verify that the NMDP RID is correct. If an error is noted, correct Form 2804 and verify that the NMDP RID has been updated on the Pre-TED Form.

Question 11: ZIP or postal code for place of recipient's residence (USA recipients only)

Enter the five digit ZIP code in which the recipient resides. Only five digits are required; however, if the ZIP+4 (nine digit) code is available, please report it in this field. The zip or postal code is required for USA residents.

The postal code is optional for Canadian residents. The question can be answered or left blank without error for Canadian residents.

Question 12: Specify blood type: (for allogeneic HCTs only)

Indicate the recipient's blood type as "A," "B," "AB," or "O." Blood type is an important characteristic in allogeneic transplant because products may require manipulation to minimize the risk of immune reaction due to incompatibility.

Question 13: Specify Rh factor: (for allogeneic HCTs only)

Indicate the recipient's Rh (rhesus) factor. The Rh factor is an important characteristic in allogeneic transplant because product may require manipulation to minimize the risk of immune reaction due to incompatibility.

Question 14: Has the recipient signed an IRB / ethics committee (or similar body) – approved consent

form for submitting research data to the NMDP / CIBMTR?

> ! To be compliant with Federal Regulation for human research protection, centers must obtain IRB-approved informed consent from recipients and donors (if applicable, for the related donor sample repository) to allow data submitted to the CIBMTR to be used for observational research. Informed consent must also be obtained from the recipients and donors prior to submitting blood samples to the Research Sample Repository. The NMDP / CIBMTR has written protocol and informed consent documents for the Observational Database and Research Sample Repository. All centers must have local IRB approval for the Observational Database protocol. All centers that are NMDP member centers must also have local IRB approval for the Research Sample Repository protocol. With the exception of some selected sites (participating in the related sample repository), centers performing only related donor transplants and / or autologous transplants will not be submitting research samples and do not need to obtain local IRB approval for the repository protocol. The NMDP IRB has approved these protocol and consent forms, and the documents are provided to participating sites to include with their local IRB submissions.
> International Centers must obtain consent of each patient participating in the Observational Database in a manner consistent with the laws and regulations of that country.
> Under federal legislation, U.S. centers are required to submit outcomes data on all allogeneic transplants, related and unrelated. Data submitted without informed consent from the recipient should be reported on the TED Forms and will only be used for federally required research such as the center-specific outcomes analysis.

When a recipient consents to participate in the Observational Database, their data are contained in the CIBMTR's Observational Database and used for research. The database includes recipient baseline and outcome data for related and unrelated allogeneic transplants from any cell source, and for autologous transplants. Data are also collected on unrelated donors and their donation experiences.

The primary purpose of the Observational Database is to have a comprehensive source of data that can be used to study hematopoietic cellular transplantation. Studies using these data include:

- How well recipients recover from their transplants.
- How recovery after transplantation can be improved.
- What the long-term outcomes are after transplantation.
- How access to transplantation for different groups of recipients can be improved.
- How well donors recover from collection procedures.
- The application and success of transplantation in the management of marrow-toxic injuries.

Indicate if the recipient has signed an IRB-approved consent form to participate in the Observational Database. If "yes (recipient consented)," continue with question 15. If "no (recipient declined)" or "not applicable (recipient not approached)," continue with question 17.

When to use the "Not Approached" option for the Research Database Consent
CIBMTR expects all transplant centers to approach all patients for the Research Database consent. The "not approached" option should only be used in the rare event when the physician feels it would be in the best interest of the patient not to be consented.

Recipients who transfer to another facility for a subsequent HCT
Any time a recipient transfers to another transplant center, an IRB approved research database consent would need to be obtained at the new center before data could be reported to the CIBMTR.

See the table below for additional information regarding how to report consent status for those with planned tandem or previous transplants.

Transplant Types	Instructions
Tandem Autologous Transplants	Most transplant centers would consider tandem autologous transplants as part of the same treatment plan and would consent the patient prior to the 1st HCT only. If that's the case, the center should report "yes" to the consent question for the 2nd HCT and provide the date when the consent was first obtained.
Tandem Autologous-Allogeneic Transplants	Most transplant centers would consider tandem autologous-allogeneic transplants as part of the same treatment plan and would consent the patient prior to the 1st HCT only. If the center has one IRB approved consent covering both the autologous and allogeneic transplants, then the center should report "yes" to the consent question for the 2nd HCT and provide the date when the consent was first obtained. In the case where a center has separate research database consents for autologous and allogeneic HCTs, the center should obtain both consents from the patient prior to the 1st HCT. The center should then report "yes" to the consent question for the 2nd HCT & provide the date when the consent was first obtained.
Autologous HCT followed by subsequent autologous HCTs (not a tandem autologous HCT)	In this scenario, CIBMTR does not require an additional consent form to be signed. The only consent required would be the one obtained at the time of the first autologous HCT. The center should report "yes" to the consent question for the subsequent HCT and provide the date when the consent was first obtained. However, a center's IRB may require a second database consent form to be signed in this situation, and centers should refer to the higher standard set by their IRB.
Allogeneic HCT followed by subsequent allogeneic HCTs (not a	In this scenario, CIBMTR does not require an additional consent form to be signed. The only consent needed would be the one obtained at the time of the first allogeneic HCT. The center should report "yes" to the consent question for the subsequent HCT and provide the date when the consent was first obtained. However, a center's IRB may require a second database consent form to be signed in this situation, and centers should refer to the higher standard set by their IRB.

tandem allogeneic HCT)	
Autologous HCT followed by subsequent allogeneic HCTs (not a tandem autologous HCT)	If the center has one IRB approved consent form covering both autologous and allogeneic transplants, then the center should report “yes” to the consent question for the 2nd HCT and provide the date when the consent was first obtained. In the case where a center has separate research database consent forms for autologous and allogeneic HCTs, the patient would need to be re-approached prior to the subsequent allogeneic transplant and asked to sign the appropriate consent form. If the patient was not asked to sign a 2nd consent form, then “not approached” must to be reported on the Pre-TED.

Question 15: Did the recipient give permission to be directly contacted by CIBMTR for future research? Indicate if the recipient has given permission to be directly contacted by the NMDP / CIBMTR for future research as documented on the research database consent form. If “yes (patient provided permission),” continue with question 16. If “no (patient declined)” or “not approached,” continue with question 17.

If “yes (patient provided permission),” is selected, the Recipient Contact Information (2820) form will also need to be completed.

Below is an example of this permission found in the NMDP/CIBMTR Research Database for Hematopoietic Cell Transplantation and Cellular Therapy Consent Form (Version 10.0).

> VIII. PERMISSION TO CONTACT FOR FUTURE CIBMTR RESEARCH STUDIES
> Do you agree to give the CIBMTR permission to contact you in the future to tell you about research studies for which you are eligible? These studies are different from the studies that use your medical data. These studies would involve you directly, for example, asking you to complete a survey. You may decide if you want to participate in a specific study when you are contacted. By checking the “AGREE” box below, you are only agreeing that the CIBMTR can contact you to tell you about the study.
> Due to the need to follow up with you after your transplant, please tell your transplant center if your contact information changes. If the contact information on file is no longer valid, it might be necessary to use an internet-based search service to find you. By agreeing to be contacted for future studies, you authorize the CIBMTR to use such a service to search public and non-public information only for the purpose of trying to locate you. ☐ I AGREE to allow CIBMTR to contact me about future studies. ☐ I DO NOT want CIBMTR to contact me about future studies.

Question 16: Date form was signed:

Report the date the research database consent form was signed by the recipient. Do not report the date that the witness or health care professional signed the consent form.

Question 17: Has the recipient signed an IRB / ethics committee (or similar body) – approved consent form to donate research blood samples to the NMDP / CIBMTR?

The Research Sample Repository contains blood samples from unrelated recipients and/or their adult volunteer donors or cord blood units. Related allogeneic recipients and/or donors will participate at selected transplant centers.
The primary objective of the Research Repository is to make blood samples available for research studies related to histocompatibility and hematopoietic cellular transplantation.

Studies in which these data may be used include:

- Improving the understanding of tissue matching for hematopoietic cellular donors and recipients.
- Determining and evaluating the factors that affect transplant outcomes.
- Studying the distribution of HLA tissue types in different populations (e.g., study tissue typing differences between different racial and ethnic populations to help develop methods to improve tissue matching between donors and recipients, including testing of rare HLA types).

Indicate if the recipient signed an IRB-approved consent form to donate research blood samples to the NMDP / CIBMTR. If “yes (recipient consented),” continue with question 18. If “no (recipient declined),” “not approached,” or “not applicable (center not participating),” continue with question 21.

Blood samples are not submitted for subsequent transplants; however, this question is asked for subsequent transplants. If the recipient previously consented to submit research blood samples to NMDP/CIBMTR, select “yes (patient consented).”

h4, Question 18: Date form was signed:
Report the date the research sample consent form was signed by the recipient. Do not report the date that the witness or health care professional signed the consent form.

Questions 19-20: Did the recipient submit a research sample to the NMDP / CIBMTR repository? (Related donors only)

There are a select number of transplant center participating in the Related Specimen Repository. If your center is one of the participating centers, and the recipient provided a research sample, select “yes” and provide the recipient ID in question 20. The ID number is located on the bar code that is attached to the sample tube.

If the recipient did not provide a research sample, select “no” and continue with question 21.

Question 21: Is the recipient participating in a clinical trial? (Clinical trials sponsors that uses CIBMTR forms to capture outcomes data)

Indicate if the recipient is a registered participant with BMT-CTN, RCI-BMT, USIDNET, COG, and/or another clinical trial sponsor that uses CIBMTR forms to capture outcomes data. If "yes," continue with question 7. If "no," continue with question 11.

- **BMT-CTN:** Blood and Marrow Transplant Clinical Trials Network
- **RCI-BMT:** Resource for Clinical Investigation in Blood and Marrow Transplant
- **PIDTC:** Primary Immune Deficiency Treatment Consortium
- **USIDNET:** United States Immunodeficiency Network
- **COG:** Children's Oncology Group

Reporting Participation in More Than One Study
FormsNet3^{SM} application: Complete questions 22-25 for each study the recipient is participating in by adding an additional instance in the FormsNet3^{SM} application.
Paper form submission: Copy questions 22-25 and complete for each study in which the recipient is participating.
If the participant is enrolled in multiple studies, even if from the same sponsor, report each study separately.

Questions 22-23: Study Sponsor

Select the study sponsor of the clinical trial the recipient is participating in. If the participant is enrolled in multiple studies, even if from the same sponsor, report each study separately.

If the study sponsor is reported as "BMT-CTN," "RCI-BMT," or "PIDTC," continue with question 24.

If the study sponsor is reported as "USIDNET" or "COG," continue with question 25.

If "other sponsor" is reported, specify the study sponsor in question 23 and continue with question 25.

Question 24: Study ID Number

Select the recipient's Study ID number.

Question 25: Subject ID

Enter the recipient's USIDNET, COG, or other sponsor Subject ID.

If the recipient is participating in a BMT-CTN study and the EMMES ID is known, enter it here.

If the recipient is participating in an RCI-BMT study, enter the Subject ID given at the time of successful enrollment.

Last modified: 2020/05/07

Q26-45: Hematopoietic Cellular Transplant (HCT) and Cellular Therapy

Question 26: Is a subsequent HCT planned as part of the overall treatment protocol (not as a reaction to post-HCT disease assessment)? (For autologous HCTs only)

If, at the time of the current HCT, a second (tandem transplant) or subsequent HCT is planned according to the protocol, check “yes” even if the recipient does not receive the planned subsequent HCT. The word “planned” should not be interpreted as: if the recipient relapses, then the “plan” is to perform a subsequent HCT. If “yes,” continue with question 27. If “no,” continue with question 28.

Question 27: Specify subsequent HCT planned

Indicate whether the planned subsequent HCT is autologous or allogeneic and continue with question 28.

Question 28: Has the recipient ever had a prior HCT?

Include all HCTs in the recipient’s history, even if the transplants were not performed at your center. The intent is to capture the full picture of the recipient’s treatment history.
If “yes,” continue question 29. If “no,” continue with question 40.

Question 29: Specify the number of prior HCTs

Enter the number of prior HCTs for the recipient. An HCT event is defined as an infusion of mobilized peripheral blood stem cells (PBSC), bone marrow, or cord blood. For more information on how to distinguish infusion types [example: HCT versus donor cellular infusion (DCI)], see Appendix D.

For recipients who have received a previous HCT (prior to the HCT for which this form is being completed), the following are examples of how to calculate the number of prior HCTs.

> **Example 1**: A recipient was previously transplanted under a protocol that included an infusion of cells over multiple days: day 0, day +1 and day +2. This series of infusions is considered one HCT event (as opposed to three HCT events) and should be counted as *HCT Event #1*.
>
> After receiving the infusion, the recipient had relapse of disease. The recipient is scheduled to receive a subsequent HCT including a preparative regimen. This HCT is *HCT Event #2*. One prior HCT should be reported.
>
> **Example 2**: A recipient previously received an **allogeneic** HCT (*HCT Event #1*). Then, due to delayed

neutrophil recovery, the recipient received additional cryopreserved **allogeneic** mobilized PBSC from the original donor, without a preparative regimen (i.e., "boost" – *HCT Event #2*).

After receiving the boost, the recipient had relapse of disease. The recipient is scheduled to receive a subsequent allogeneic HCT with preparative regimen (*HCT Event #3*). Two prior HCTs should be reported.

Example 3: A recipient previously received an **autologous** HCT (*HCT Event #1*). Then due to delayed neutrophil recovery, the recipient received additional cryopreserved **autologous** cells without a preparative regimen (i.e., "boost" which is not counted as an HCT event because the intent of the autologous infusion is to treat the graft failure).

The boost is successful, but a few years later the recipient develops a new malignancy. The recipient is scheduled to receive a subsequent autologous HCT with preparative regimen (*HCT Event #2*). One prior HCT should be reported.

> ! **If the allogeneic recipient receives an infusion due to poor graft response, count the infusion as a subsequent HCT.** The exception to this is "autologous rescue." Autologous rescue **should not be** counted as a separate HCT, and the data collection forms **will not** start over (i.e., the forms will continue from the previous HCT).

Question 30: Were all prior HCTs reported to the CIBMTR?

This should include any/all HCTs not performed at your center. If the recipient is a transfer patient, you will be able to see all past HCT dates in the Recipient Information Grid in FormsNet. Contact your CIBMTR CRC if there are questions.

If "yes" or "unknown," continue with question 40. If "no," continue with question 31.

> ✻ Questions 31-39 Reporting Prior HCTs
> **FormsNet3^{SM} application**: Complete questions 31-39 to report all prior HCTs that have not yet been reported to the CIBMTR by adding an additional instance in the FormsNet3^{SM} application.
> **Paper form submission**: Copy questions 31-39 and complete for prior HCT that has not yet been reported to the CIBMTR.

Question 31: Date of the prior HCT

Report the date (YYYY-MM-DD) of the prior HCT being reported in this instance. If the exact date is

unknown and must be estimated, check the “date estimated” box.

For more information regarding reporting partial or unknown dates, see General Instructions, General Guidelines for Completing Forms.

Question 32: Was the prior HCT performed at a different institution?

Indicate if the prior HCT being reported in this instance was performed at another institution. If “yes,” report the name and address of the institution in question 33. If “no,” continue with question 34.

Question 33: Specify the institution that performed the last HCT

Report the name, city, state, and country of the institution where the recipient’s prior HCT being reported in this instance was performed. These data are used to identify and link the recipient’s existence in the database and, if necessary, obtain data from the other institution where the previous infusion was administered.

Question 34: What was the HPC source for the prior HCT? (check all that apply)

Report the cell source(s) for the prior HCT being reported in this instance.

An autologous product has cells collected from the recipient for his / her own use.

An unrelated donor (allogeneic, unrelated) is a donor who shares no known ancestry with the recipients. Include adoptive parents / children or step-parents / children.

A related donor (allogeneic, related) is a blood-related relative. This includes monozygotic (identical twins), non-monozygotic (dizygotic, fraternal, non-identical) twins, siblings, parents, aunts, uncles, children, cousins, half-sibling, etc.

Question 35-39: Reason for current HCT:

Indicate the reason for the current HCT (check only one). If this was a subsequent transplant, verify that this answer is consistent with the reason for the subsequent transplant reported on the previous series of report forms.

Graft failure/insufficient hematopoietic recovery: Additional stem cells are required because the hematopoietic recovery indefinitely declined after the initial hematopoietic recovery or hematopoietic recovery was deemed insufficient or too slow for survival following previous high-dose therapy and HCT. If the reason is graft failure after initial recovery or insufficient hematopoietic recovery, also complete question 36. The exception to this is “autologous rescue.” Autologous rescue **should not be** reported as a

subsequent HCT.

Persistent primary disease: Additional stem cells are required because of the persistent presence of disease pre and post-transplant (i.e., complete remission was never achieved following the previous transplant).

Recurrent primary disease: Additional stem cells are required because of relapse primary disease (i.e., complete remission was achieved pre or post-transplant, but the disease relapsed following the previous transplant). If the reason is recurrent primary disease, also complete question 37. Ensure that the date of recurrent primary disease matches the relapse/progression date reported on the previous transplant's appropriate follow-up form.

Planned subsequent HCT, per protocol: Additional stem cells are given as defined by the protocol for a subsequent transplant/infusion. This includes *all planned* subsequent transplants (including triple or quadruple transplants). This transplant is not based upon recovery, disease status, or any other assessment.

New malignancy (including PTLD and EBV lymphoma): Additional stem cells are required because the recipient has developed a new malignancy. This does not include a transformation or progression of the original malignancy for which the recipient was transplanted. If the reason is a new malignancy, also complete question 38, and attach a copy of the pathology report using the "Add Attachment" feature in FormsNet3. Ensure that the date of diagnosis for the new malignancy matches the date of diagnosis for the new malignancy reported on the previous transplant's appropriate follow-up form.

Insufficient chimerism: In the case of a stable, mixed donor chimerism, the infusion of additional cells (usually lymphocytes and not mobilized stem cells) is typically classified as a DCI. Verify with the transplant physician that the cells given should be reported as a subsequent transplant and that stable, mixed chimerism is the reason for the transplant. However, in the case of declining chimerism – when the percentage of donor cells is sequentially decreasing on several studies, indicating possible impending graft failure – additional stem cells are required. Usually the donor chimerism has fallen below 30-50%.

Other: If additional stem cells are given for a reason other than the options listed, select "other" and complete question 39.

Question 40: Has the recipient ever had a prior cellular therapy? (do not include DLIs)

Include all cellular therapy infusions, except DLIs, in the recipient's history, even if the infusions were not performed at your center. The intent is to capture the full picture of the recipient's treatment history.

If "yes," continue question 41. If "no," continue with question 46.

Question 41: Were all prior cellular therapies reported to the CIBMTR?

This should include all cellular therapy infusions (except for DLIs) not performed at your center. If the recipient is a transfer patient, you will be able to see all past infusion dates in the Recipient Information Grid in FormsNet3^{SM}. Contact the Customer Service Center if there are questions.

If “yes” or “unknown,” continue with question 46. If “no,” continue with question 42.

Questions 42-45 Reporting Prior Cellular Therapies
FormsNet3^{SM} application: Complete questions 42-45 to report all prior cellular therapies that have not yet been reported to the CIBMTR by adding an additional instance in the FormsNet3^{SM} application.
Paper form submission: Copy questions 31-39 and complete for prior cellular therapy that has not yet been reported to the CIBMTR.

Question 42: Date of the prior cellular therapy

Report the date (YYYY-MM-DD) of the prior cellular therapy being reported in this instance.

For information regarding reporting partial or unknown dates, see General Instructions, General Guidelines for Completing Forms.

Question 43: Was the cellular therapy performed at a different institution?

Indicate if the prior cellular therapy being reported in this instance was performed at another institution. If “yes,” report the name and address of the institution in question 44. If “no,” continue with question 45.

Question 44: Specify the institution that performed the last cellular therapy

Report the name, city, state, and country of the institution where the recipient’s prior cellular therapy being reported in this instance was performed. These data are used to identify and link the recipient’s existence in the database and, if necessary, obtain data from the other institution where the previous treatment was administered.

Question 45: Specify the source(s) for the prior cellular therapy (check all that apply)

Indicate the cell source(s) for the prior cellular therapy being reported in this instance. If the product is “off the self” or a “third party donor” product obtained from pharmaceutical companies or other corporate entities, donor type should still be identified.

An autologous product has cells collected from the recipient for his / her own use.

An unrelated donor (allogeneic, unrelated) is a donor who shares no known ancestry with the recipient. Include adoptive parents / children or step-parents / children.

A related donor (allogeneic or syngeneic, related) is a blood-related relative. This includes monozygotic (identical twins), non-monozygotic (dizygotic, fraternal, non-identical) twins, siblings, parents, aunts, uncles, children, cousins, half-siblings, etc.

Last modified: 2020/02/10

Q46-83: Donor Information

Question 46: Multiple donors?

Indicate if cells from multiple different donors (multiple CBUs, combinations of other products from different donors) are to be used for this HCT. If “yes,” continue with question 47. If “no,” continue with question 48.

For example, supplemental infusions should be included when determining if multiple donors were used for this HCT event. An infusion of supplemental cells is often given in conjunction with a preparative regimen for HCT. A supplemental infusion is defined as an infusion of cells given prior to clinical day 0 (of an HCT) for any reason other than to produce engraftment.

For more information on supplemental infusions, see Appendix D.

Question 47: Specify number of donors

Report the number of donors used for this HCT. Note that this value should never be “1,” since multiple donors were reported in question 46.

Questions 48-83, Reporting More Than One Donor
FormsNet3^{SM} application: Complete questions 48-83 for each donor by adding an additional instance in the FormsNet3^{SM} application.
Paper form submission: Copy questions 48-83 and complete for each donor.

Question 48: Specify donor

Indicate the donor type for this product and continue with question 49.

An autologous product has cells collected from the recipient for his / her own use.

An unrelated donor (allogeneic, unrelated) is a donor who shares no known ancestry with the recipient. Include adoptive parents / children or step-parents / children.

A related donor (allogeneic or syngeneic, related) is a blood-related relative. This includes monozygotic (identical twins), non-monozygotic (dizygotic, fraternal, non-identical) twins, siblings, parents, aunts, uncles, children, cousins, half-siblings, etc.

Question 49-50: Specify product type (check all that apply)

Select from the list of product type(s) for the donor being reported in this instance.

> **Questions 49-50, Specify product type:**
> Previous CIBMTR forms required you to enter two instances of the donor section when a single donor donated multiple products. **This is no longer required.** Report all products collected from a single donor in the same instance of the donor section

If “Other product” is indicated, specify the product type in question 50 and continue with question 51. If your center has a protocol where using “other products” is common, you should consistently be reporting the same text in the specify field so that the like products can be grouped together.

Question 51: Is the product genetically modified?

Genetically modified products include any product where the cells are manipulated via either:

- Gene transfer: a process by which copies of a gene are inserted into living cells in order to induce synthesis of the gene’s product; or
- Transduction: a process by which foreign DNA is introduced into a cell by a virus or viral vector

These techniques alter its gene expression through the insertion of different genes or editing of genes. If more than one product is being infused, indicate if any of the products are genetically modified.

Continue with question 52 if the donor type is a related donor (allogeneic, related).

Continue with question 56 if the donor type is an unrelated donor (allogeneic, unrelated).

Continue with question 80 if the donor type is autologous.

Question 52: Specify the related donor type

Indicate the relationship and match between the recipient and the related donor being reported in this instance. When determining the donor’s match/mismatched relationship to the recipient, only consider HLA-A, B, C, and DRB1.

Syngeneic:
Includes: Monozygotic (identical) twins. Occurs when a single egg is fertilized to form one zygote, which then divides into two separate embryos.
Does not include: Other types of twins or HLA-identical siblings (see below).

Continue with question 57 if relationship and match is “syngeneic.”

HLA-identical sibling:
Includes: Non-monozygotic (dizygotic, fraternal, non-identical) twins. Occurs when two eggs are fertilized by two different sperm cells at the same time. This category also includes siblings who aren’t twins, but have identical HLA types. The recipient and donor with be allele level matched at HLA-A, B, C, and DRB1.
Does not include: Half-siblings (report as “HLA matched other relatives” if their HLA typing is a match, or “mismatched relative” if it does not match).

Continue with question 57 if the relationship is “HLA-identical sibling.”

HLA-matched other relative:
Includes: All blood-related relatives, other than siblings, who are HLA matched (e.g., parents, aunts, uncles, children, cousins, half-siblings). The recipient and donor will be allele level matched HLA-A, B, C, and DRB1.
Does not include: Adoptive parents / children or step-parents / children who are HLA matched.

Continue with question 53 if the relationship is “HLA-matched other relative.”

HLA-mismatched relative:
Includes: Siblings who are not HLA-identical and all other blood-related relatives who have at least one HLA mismatch (mismatch can be at the antigen or allele level) (e.g., parents, aunts, uncles, children, cousins, half-siblings). The recipient and donor will be antigen or allele level mismatched at 1 or more loci (HLA-A, B, C, or DRB1).
Does not include: Adoptive parents / children or stepparents / children.

This is the option that should be used for halploidentical transplants.

Continue with question 53 if the relationship is “HLA-mismatched relative.”

Question 53-54: Specify related relationship

Indicate the relationship between the recipient and the related donor being reported in this instance. If the donor is “Other biological relative,” specify in question 54 and continue with question 55.

Question 55: Degree of mismatch

If the donor being reported in this instance is an HLA-mismatched relative, indicate the degree of mismatch as either “1 HLA allele mismatch” or “≥ 2 HLA allele mismatch (includes haploidentical)” and continue with

question 57. Haploidentical means that one half of the HLA type matches the recipient. This type of HLA mismatch is common between blood-related parents and children. When determining the donor's matched/mismatched relationship to the recipient, only consider HLA-A, B, C and DRB1.

Question 56: Specify unrelated donor type

Indicate the unrelated donor type and continue with question 57. When determining the donor's match/mismatched relationship to the recipient, only consider HLA-A, B, C, and DRB1.

Question 57: Did NMDP / Be The Match facilitate the procurement, collections, or transportation of the product?

Distinguish if the product from the donor being reported in this instance is an NMDP product or a non-NMDP product. Examples of non-NMDP donor registries include, but are not limited to: St. Louis Cord Blood Bank, Anthony Nolan, and StemCyte International Cord Blood Center. This information is included on the product label, the paperwork accompanying the product, and within the NMDP search/product documentation.

Question 58: Was this donor used for any prior HCTs? (for this recipient)

Indicate if the donor reported in question 48 was used for prior HCTs for this recipient. If this is the recipient's first HCT, select "no."

If this is an autologous infusion, select "no," and continue with question 80.

If this is an unrelated donor (cord blood unit, PBSC, or marrow product), continue with question 59.

If this is a non-NMDP unrelated donor (cord blood unit, PBSC, or marrow product), continue with question 61.

If this is a related donor (PBSC or marrow product), continue with question 63.

Question 59: NMDP unrelated cord blood unit ID

Report the NMDP unrelated cord blood unit ID. This information is included on the product label, the paperwork accompanying the product, and within the NMDP search/product documentation. The ID is always numeric and begins with "9" (e.g., 9000-0000-0). If the product ID does not begin with a "9," the product may not be an NMDP cord blood unit and the source of the product should be double-checked. Enter the NMDP unrelated cord blood unit ID and continue with question 63.

Question 60: NMDP donor ID

Report the NMDP Donor ID (e.g., 0000-0000-0). This ID is unique for each donor and is assigned by NMDP.

This information is included on the product label, the paperwork accompanying the product, and within the NMDP search/product documentation. Enter the NMDP Donor ID (e.g., 0000-0000-0) and continue with question 63.

Question 61: Non-NMDP unrelated donor ID (not applicable for related donors)

Report the non-NMDP unrelated donor ID. Examples of non-NMDP donor registries include, but are not limited to: Anthony Nolan, Australia Bone Marrow Donor Registry, and REDOME. This ID is often located on the product label, the paperwork accompanying the product, and registry-specific search/product documentation. Enter the non-NMDP unrelated donor ID and continue with question 63.

Question 62: Non-NMDP cord blood unit ID (include related and autologous CBUs)

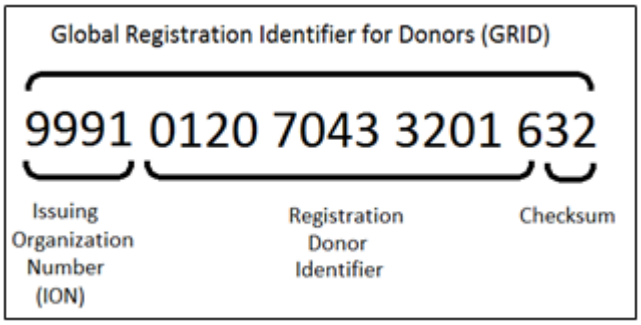
Report the non-NMDP cord blood unit ID. Examples of non-NMDP donor registries include, but are not limited to: St. Louis Cord Blood Bank and StemCyte International Cord Blood Center. This ID is often located on the product label, the paperwork accompanying the product, and registry-specific search/product documentation. Enter the non-NMDP cord blood ID and continue with question 63.

Note that some cord blood banks can ship their units either through the NMDP or directly to the transplant center. Carefully review the accompanying documentation to determine which is appropriate for your unit. You may wish to consult with your center's Transplant Coordinator, as he or she will have insight as to how the product was acquired.

Question 63: Global Registration Identifier for Donors (GRID)

The Global Registration Identifier for Donors (GRID) was developed by the WMDA to ensure secure, reliable and unambiguous assignment of donors. The GRID standard is a 19-character donor identifier composed of three elements: Issuing Organization Number (ION), Registration Donor Identifier, and Checksum (shown below). This standard will ensure each donor ID is globally unique and will reduce the risk of misidentification of donors or their donations.

With the release of the Pre-TED (2400) Form (Revision 6), the GRID has its own section on the form (question 63). Therefore only the 19-character donor identifier needs to be reported. This is essential for proper donor linking and, if done incorrectly, will result in queries being placed on the form.



[1] https://www.wmda.info/professionals/optimising-search-match-connect/why-global-identifier/

GRIDs from DKMS
If you are receiving a GRID from the DKMS registry, the eighth character is being reported as the letter "O" however, this character should be the number "0". When entering a GRID from the DKMS ensure that the eighth character reported is the number "0".

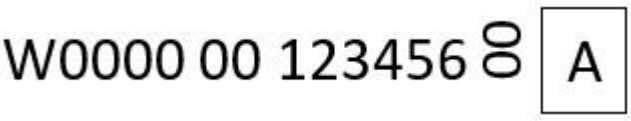
If the donor is a NMDP unrelated cord blood unit or a NMDP unrelated donor, indicate the GRID number and continue with question 75.

If the donor is a non-NMDP unrelated donor (PBSC or marrow product), indicate the GRID number and continue with question 66.

If the donor is a non-NMDP unrelated cord blood unit, indicate the GRID number and continue with question 64.

Question 64: Is the CBU ID also the ISBT DIN number?

Report "yes" if the non-NMDP CBU ID is the same as the International Society of Blood Transfusion (ISBT) Donation Identification Number (DIN) and continue with question 66. If the product has an ISBT label on it, the ISBT DIN number is in the upper-left-hand corner and consists of a letter followed by 12 numbers, two sideways numbers, and a letter in a box. Example below:



Please find additional information regarding the ISBT DIN numbers and traceability at http://www.iccbba.org/uploads/22/82/2282aa443bf8a2187880304636814244/IN-003-ISBT-128-for-Blood-Components-An-Introduction-v4.pdf. For example, you may see a barcode with an alphanumeric string below it.

If the CBU ID is not the same as the ISBT DIN number, select “no” and continue with question 65.

Question 65: Specify the ISBT DIN number:

Report the ISBT DIN number using the letter, 12 digits, 2 sideways numbers, and the letter in the box.

Question 66: Registry Code(s)

FormsNet3^{SM} application: Select the appropriate registry code from the drop down directory.
Paper form submission: Use the CIBMTR Hematopoietic Stem Cell Transplant (HCT) Infusion (2006) form to determine the registry’s appropriate match code. Enter the match code listed in brackets.

Questions 66: Registry or UCB Bank ID:

Specify the registry used to obtain the adult donor or umbilical cord blood unit and continue with question 68. The Bone Marrow Donors Worldwide (BMDW) codes have been adopted to avoid submitting the entire name and address of the donor registry. Some common banks that do not list with BMDW have been added to the FormsNet list, including St Louis Cord Blood Bank (SLCBB) and Viacord (VIAC).

The registry code for NMDP donors is USA1 and for NMDP cord units is U1CB.

If the donor was found through DKMS, report the registry that facilitated the HCT. Some registries may be listed more than once with BMDW (one way for marrow/PBSC products and differently for cord blood products). Ensure that the appropriate code for the product was selected because distribution of data depends on the code.

If the registry code cannot be determined using the BMDW website, select “other registry” and continue to question 67.

Question 67: Specify other Registry or UCB Bank

If the BMDW website does not list a match code for the adult donor registry or cord blood bank, provide the registry’s official name in the “Specify other Registry or UCB Bank” field.

Please ensure that the registry you are entering under “other” is not already listed in the pull-down list for question 66. For example, NMDP adult donors, NMDP cords, and New York Cord Bank each have their own entries above in the registry or UCB Bank ID drop down menu.

Questions 68-69: Date of birth: (donor / infant)

Report if the donor’s / infant’s date of birth is “known” or “unknown.” If the donor’s/infant’s date of birth is

"known," report the date of birth (YYYY-MM-DD) in question 69 and continue with question 72. If the donor's/infant's date of birth is "unknown," continue with question 70.

Questions 70-71: Age: (donor / infant)

Report if the donor's / infant's age is "known" or "unknown." If the donor's/infant's age is "known," report the donor's/infant's age at the time of product collection in question 71. Report the age in months if the donor is less than 1 year old, otherwise report the age in years. If the donor's/infant's age at collection is "unknown," continue with question 72.

Question 72: Sex: (donor / infant)

Indicate the donor's biological sex as "male" or "female." For cord blood units, report the infant's sex.

Question 73: Specify blood type: (non-NMDP allogeneic donors only)

Indicate the donors' blood type as "A," "B," "AB," or "O." Blood type is an important characteristic in allogeneic transplant because products may require manipulation to minimize the risk of immune reaction due to incompatibility.

Question 74: Specify Rh factor: (non-NMDP allogeneic donors only)

Indicate the donor's Rh (rhesus) factor. The Rh factor is an important characteristic in allogeneic transplant because product may require manipulation to minimize the risk of immune reaction due to incompatibility.

Question 75: Donor CMV-antibodies (IgG or Total) (Allogeneic HCTs only)

CMV is a common virus that infects 50-80% of adults worldwide and is transmitted from person to person through bodily fluids. The virus that causes CMV is part of the herpes virus family and, like other herpes viruses, CMV may be dormant for a period of time before the virus is activated in the host. CMV infections are usually harmless in a healthy immune system and typically cause only mild symptoms, if any. However, if a person's immune system is seriously weakened (as in an immunosuppressed stem cell recipient) the virus can have serious consequences such as pneumonia, liver failure, and even death.

Most laboratory reports indicate a positive result as *reactive*, and a negative result as *non-reactive*. Occasionally, laboratory reports show a specific antibody titer. In this case, compare the laboratory result to the reported standards to determine if the result was reactive or non-reactive.

If the laboratory reports the results as "inconclusive" or "equivocal," select "indeterminant."

If the laboratory reports a CMV IgM antibody only, not total IgG/IgM or CMV IgG antibody; report the result as "not done."

If the laboratory reports CMV testing by PCR (DNA detection), report the result as “not done.” CMV testing by PCR is used to detect the presence of the CMV virus and does not test for prior exposure.

Indicate the test result documented on the laboratory report as either “reactive,” “non-reactive,” “indeterminant,” “not done,” or “not applicable (cord blood unit).”

Question 76: Has the donor signed and IRB / ethics committee (or similar body) approved consent form to donate research blood samples to the NMDP / CIBMTR? (Related donors only)

Indicate if the related donor signed an IRB-approved consent form to donate research blood samples to the CIBMTR. If “yes (donor consented),” continue with question 77. If “no (donor declined), “not approached,” or “no applicable (center not participating),” continue with question 80.

Question 77: Date form was signed

Report the date the research sample consent form was signed by the related donor and continue with question 78. Do not report the date that the witness or healthcare professional signed the consent form.

Question 78-79: Did the donor submit a research sample to the NMDP / CIBMTR repository? (Related donors only)

There are a select number of transplant centers participating in the Related Specimen Repository. If your center is one of the participating centers, and the recipient provided a research sample, select “yes” and provide the recipient ID in question 79. The ID number is located on the bar code that is attached to the sample tube.

If the recipient did not provide a research sample, select “no” and continue with question 80.

Question 80: Specify the number of products infused from this donor

Report the number of products infused from the donor being reported in this instance and selected in question 48.

Single Product: CIBMTR defines a single product (i.e., cellular product) as **cells collected from a single donor using the same mobilization cycle and collection method regardless of the number of collection days**.

> **Example 1 (multiple bags)**: A G-CSF stimulated donor had two PBSC collections on subsequent days. The products collected over the two days were divided into four bags. Although the product is contained in multiple bags, this collection is considered a single product, as there was no change in mobilization technique or collection method.

Multiple Products: For the purposes of this manual, the CIBMTR defines multiple products as cells collected using more than one mobilization technique and / or collection method.

> **Example 2 (multiple collection methods)**: A G-CSF-stimulated donor had a PBSC collection and the product was cryopreserved. One month later the donor had a marrow collection; both products were infused at the time of transplant. Each collection is considered a separate product because different collection methods were used. The number of products infused from this donor is two.
>
> **Example 3 (re-mobilization)**: A G-CSF-stimulated donor had a PBSC collection, but the cell count was poor. No further collections were attempted and a week later the donor was re-mobilized with G-CSF and a second PBSC collection was performed. Each collection is considered a separate product due to the re-mobilization of the donor.
>
> **Example 4 (two different product types)**: A cord blood unit is infused at the same time as marrow. Each product type is considered a separate product. The number of products infused is two.

Question 81: Specify the number of these products intended to achieve hematopoietic engraftment

If infusions of additional cells (not intended to product engraftment) were given as a supplemental infusion either prior to the HCT being reported (i.e., prior to clinical Day 0) or shortly after the HCT being reported, the cells must be reported as a product on the Pre-TED Form (Form 2400, question 80) and on a separate Cellular Therapy Product Form (Form 4003).

If additional cells were infused post-HCT, for any reason other than a subsequent HCT or a supplemental infusion as part of the HCT, they should be reported as cellular therapy on the appropriate follow-up form. Reporting the additional cells (given pre-HCT and not intended to produce engraftment) on the Form 4003 is the only mechanism the CIBMTR has in place to collect this data and ensure that the quality assurance data is reported to the cord blood banks, if applicable.

Report the number of products administered to achieve hematopoietic engraftment.

> **Questions 82-83**
> The following mobilization questions are for autologous HCT recipients only. If other than autologous, continue with question 84.

Question 82-83: What agents were used to mobilize the autologous recipient from this HCT? (check all that apply)

Report if any of the following agents listed were used in the mobilization event(s). If “Other agent” was used, specify the agent in question 83.

G-CSF: granulocyte colony-stimulating factor, filgrastim, Neupogen®
Pegylated G-CSF: pegfilgrastim, Neulasta®
Perlixafor: Mozobil®
Combined with chemotherapy: Systemic therapies used to enhance the stem cell product may include cyclophosphamide or ICE chemotherapy (Ifosfamide, carboplatin, and etoposide) with or without rituximab.
Anti-CD20: rituximab, Rituxan®

Last modified: 2020/04/06

Q84-87: Clinical Status of Recipient Prior to the Preparative Regimen (Conditioning)

Question 84: What scale was used to determine the recipient's functional status?

The CIBMTR uses the Karnofsky/Lansky scale to determine the functional status of the recipient immediately prior to the start of the preparative regimen. The Karnofsky Scale is designed for recipients aged 16 years and older, and is not appropriate for children under the age of 16. The Lansky Scale is designed for recipients one year old to less than 16 years old. If the recipient is less than one year old, leave questions 84-86 blank.

Questions 85-86: Performance score prior to the preparative regimen:

Recipient performance status is a critical data field that has been determined to be essential for all outcome-based studies. The CIBMTR uses the Karnofsky/Lansky scale to determine the functional status of the recipient immediately prior to the start of the preparative regimen. For the purposes of this manual, the term "immediately prior" represents the **pre-HCT work-up phase**, or **approximately one month** prior to the start of the preparative regimen. In cases where the pre-transplant work-up occurs in months prior to transplant (i.e., the pre-transplant workup occurs more than one month prior to transplant), a documented performance score may be submitted ***if*** the recipient does not have a score closer to the start of the preparative regimen, the recipient receives no additional treatment after the date of assessment, and the recipient's status does not clearly decline.

Select the appropriate performance scale, Karnofsky or Lansky, based on the recipient's age. Using this scale, select the score (10-100) that best represents the recipient's activity status immediately prior to the start of the preparative regimen. For an example of the Karnofsky/Lansky scale, see Appendix L.

If a Karnofsky/Lansky score is not documented in the source documentation (e.g., inpatient progress note, physician's clinic note), data management professionals **should not** assign a performance score based on analysis of available documents. Rather, a physician or mid-level health care provider (NPs and PAs) should provide documentation of the performance score. Documentation from an RN who has been trained and authorized to determine performance scores may also be used.

The CIBMTR recognizes that some transplant centers prefer to collect and use the ECOG performance score as opposed to the Karnofsky/Lansky score. Although the ECOG and Karnofsky/Lansky performance score systems are based on similar principles, the scales are not the same. For example, the Karnofsky/Lansky scale is described in 11 categories, whereas the ECOG performance status is reported in six categories. Due to the overlap between the two systems, an ECOG score of "one" can represent either "80"

or “90” on the Karnofsky/Lansky scale. For centers that collect only an ECOG performance score, CIBMTR will make the following accommodations when auditing the source data:

- Centers collecting ECOG scores should do so using standard practices to ensure accuracy.
- For the purposes of CIBMTR reporting, conversion of ECOG to Karnofsky/Lansky should follow a standard and consistent practice. This practice should be clear and reproducible.

For more information regarding converting an EGOG score to a Karnofsky/Lansky score, see Appendix L.

Question 87: Recipient CMV-antibodies (IgG or Total):

Report the cytomegalovirus (CMV) status of the recipient immediately prior to the start of the preparative regimen. For the purposes of this manual, the term “immediately prior” represents the **pre-HCT work-up phase**, or **approximately one month** prior to the start of the preparative regimen. An exception to this definition would apply to a recipient with a documented history of a “reactive” CMV test result. In this case, the CMV test may not be repeated during the pre-HCT work-up phase. Therefore a timeframe of greater than one month prior to the start of the preparative regimen is acceptable. In cases where the pre-transplant work-up occurs in months prior to transplant (i.e., the pre-transplant workup occurs more than one month prior to transplant), a CMV assessment may be submitted if the recipient does not have an assessment closer to the start of the preparative regimen.

CMV is a common virus that infects 50-80% of adults worldwide, and is transmitted from person to person through bodily fluids. The virus that causes CMV is part of the herpes virus family and, like other herpes viruses, CMV may be dormant for a period of time before the virus is activated in the host. CMV infections are usually harmless in a healthy immune system and typically cause only mild symptoms, if any. However, if a person’s immune system is seriously weakened (as in an immunosuppressed stem cell recipient) the virus can have serious consequences such as pneumonia, liver failure, and even death.

Most laboratory reports indicate a positive result as *reactive*, and a negative result as *non-reactive*. Occasionally, laboratory reports show a specific antibody titer. In this case, compare the laboratory result to the reported standards to determine if the result was reactive or non-reactive.

If the laboratory reports a CMV IgM antibody only, not total IgG/IgM or CMV IgG antibody, report the result as “not done”.

If the laboratory reports the results as “inconclusive” or “equivocal,” select “not done.”

Indicate the test result documented on the laboratory report as either “reactive,” “non-reactive,” or “not done.”

Additional Considerations:

- **Recipients < 6 months**: If the recipient is less than 6 months old, report any positive CMV antibody results as “not done” due to the presence of maternal antibodies. However, in infants greater than 6 months old, positive CMV PCR results indicate a CMV infection and the results may be reported as “reactive.”
- **Exposure to IVIG**: Exposure to IVIG may result in a false positive CMV antibody result. If the recipient has been exposed to IVIG leading up to HCT (within 3-6 months), indicate the CMV antibody results using the following guidelines:
    - If the recipient had a non-reactive CMV antibody result prior to IVIG therapy and then routine CMV PCR results showed no copies of CMV, the CMV antibody may be reported as “non-reactive,” even if the CMV antibody became reactive during IVIG treatment.
    - If CMV PCR results quantified copies of CMV DNA (i.e., was positive) during IVIG treatment, the results may be reported as “reactive.”
    - If the recipient did not have a CMV antibody test prior to the initiation of IVIG, but had a positive antibody test during the IVIG therapy, report “not done.”
    - “Not done” should be reported if no CMV antibody tests were done prior to the initiation of IVIG therapy, even if CMV PCR testing was negative during IVIG treatment (because CMV PCR only detects active infection, not prior exposure).
- **Documented history of “reactive” CMV**: In cases where a recipient has a documented history of a “reactive” CMV test and does not have a history of IVIG or blood transfusions from a CMV positive donor, “reactive” should be reported for the CMV status even if the CMV test is repeated during the pre-HCT work-up phase and is “non-reactive”.
- **CMV testing by PCR**: If the laboratory reports CMV testing by PCR (DNA detection) but no CMV antibody testing is done during the pre-transplant work-up or within one month prior to transplant, report the result as “not done.” CMV testing by PCR is used to detect the presence of the CMV virus and does not test for prior exposure.

Last modified: 2020/04/07

Q88-113: Comorbid Conditions

Question 88: Is there a history of mechanical ventilation?

A history of mechanical ventilation may impact the recipient's pulmonary function post-HCT. Mechanical ventilation is any assisted ventilation on behalf of the recipient. Mechanical ventilation can occur as both an endotracheal tube and ventilator, or as a BIPAP machine with a tight fitting mask in continuous use. The one exception to BIPAP is CPAP used for sleep apnea, which generally involves overnight use only for patients with documented sleep apnea. Therefore, **do not** report a CPAP used for sleep apnea, as it does not have the same implications as other forms of mechanical ventilation.

Indications for mechanical ventilation include, but are not limited to:

- Apnea with respiratory arrest (excludes sleep apnea)
- Acute lung injury
- Vital capacity < 15 mL/kg
- Chronic obstructive pulmonary disease (COPD)
- Clinical deterioration
- Respiratory muscle fatigue
- Obtundation or coma
- Hypotension
- Tachypnea or bradypnea

If the recipient was placed on mechanical ventilation at any time prior to this HCT event (excluding mechanical ventilation during surgery) check "yes." If the recipient does not have a history of mechanical ventilation, check "no."

Question 89: Is there a history of proven invasive fungal infection?

Fungal infections play a major role in the clinical outcome of transplant recipients. For the purposes of this manual, the term "proven" is defined as a pathologic specimen or culture that yields a positive result. For example, a chest x-ray that reveals a nodule **is not** considered a "proven" diagnosis of aspergillus. A biopsy of a specimen with a positive culture for aspergillus **is** a proven diagnosis.

If the recipient has a history of **proven** invasive fungal infection at any time prior to this HCT, check "yes." If the recipient has not had a history of a proven invasive fungal infection, check "no." For a subsequent HCT, report any documented significant fungal infections in the recipient's medical history, starting with the preparative regimen of the previous HCT to the time prior to the preparative regimen for the current HCT.

Examples of proven invasive fungal infections include, but are not limited to: invasive aspergillosis, zygomycosis and other molds, invasive candidiasis, cryptococcosis, endemic mycosis, other yeasts, and pneumocystosis.

Non-invasive fungal infections such as thrush and nail fungus should not be reported.

For assistance with reporting fungal infections, consult a transplant physician.

Question 90-91: Glomerular filtration rate (GFR) before start of preparative regimen (pediatric only)

The glomerular filtration rate (GFR) estimates how much blood passes through the glomeruli each minute and is used to check how well the kidneys are working. Please indicate if the GFR is “known” or “unknown” in question 90. If the GFR is known, indicate the value for this test in question 91.

Testing may be performed multiple times within the pre-transplant work-up period; report the most recent laboratory value obtained. Laboratory values obtained on the first day of the preparative regimen may be reported as long as the blood was drawn **before** any radiation or systemic therapy was administered.

Question 92: Does the recipient have known complex congenital heart disease (corrected or uncorrected) (excluding simple ASD, VSD, or PDA repair) (pediatric only)

The intent of this question is to determine the pediatric recipient’s history of any known complex congenital heart disease (corrected or uncorrected). Exceptions for reporting would be any simple ASD, VSD, or PDA repair. Indicate “Yes” if the recipient has known complex congenital heart disease, or “No” if they do not.

Questions 93-98
Prior to answering question 93, review the list of co-existing disease(s) and/or organ impairments listed under questions 94-98.

Question 93: Were there co-existing diseases or organ impairment present according to the HCT comorbidity index (HCT-CI)? Source: Sorror, M.L. (2013). How I assess comorbidities before hematopoietic cell transplantation. Blood, 121(15), 2854-2863

Hepatic and Renal Comorbidities[1]
In addition to the guidelines listed on the Pre-TED form, include the following time-specific guidelines when reporting hepatic and renal comorbidities
Hepatic Comorbidity: The assessment of liver function tests (ALT, AST and/or Total Bilirubin) has to include at least 2 values per test on two different days within a period extending between day -24 and the start of the preparative regimen. If only a single value was reported in this time period, use the most recent test performed between days -40 &

-25 as the second value. When determining the severity of the hepatic comorbidity, the value closest to the start of the preparative regimen should be used. If the liver function test values closest to the start of the preparative regimen do not meet the criteria specified above, a hepatic comorbidity should not be reported.
Renal (Moderate/Severe) Comorbidity: Serum creatinine > 2 mg/dL or > 177 µmol/L, as detected in at least two lab values on two different days within a period extending between day -24 and the start of the preparative regimen. If only a single value was reported in this time period, use the most recent test performed between days -40 & -25 as the second value. If the serum creatinine value closest to the start of the preparative regimen did not meet the criteria specified above, a renal (moderate/severe) comorbidity should not be reported.

[1] Sorror, M. L. (2013). How I assess comorbidities before hematopoietic cell transplantation. *Blood*, 121(15), 2854-2863.

Report “yes” to question 93 if the recipient has a documented history and/or current diagnosis of any of the following:

Documented Medical History

- Arrhythmia
- Cardiac[2]
- Cerebrovascular disease
- Heart valve disease[3]
- Inflammatory bowel disease
- Peptic ulcer

Current Diagnosis at the Time of Pre-HCT Evaluation

- Rheumatologic
- Solid tumor, prior[4]
- Diabetes
- Hepatic, mild[5]
- Hepatic, moderate/severe
- Infection
- Obesity
- Psychiatric disturbance
- Pulmonary, moderate
- Pulmonary, severe

- Renal, moderate/severe[6]

[2] Ejection fraction (EF) ≤ 50% should be reported only if present on most recent test

[3] Excluding asymptomatic mitral valve prolapse

[4] Excluding non-melanoma skin cancer, leukemia, lymphoma, or multiple myeloma

[5] Including any history of hepatitis B or hepatitis C infection

[6] Including renal transplantation at any time in the patient's history

Report all comorbidities including those that are considered complications of the primary disease for transplant. See examples below.

Examples of complications of the primary disease for transplant that should be reported as comorbidities.

- A patient with sickle cell had a stroke prior to HCT, the comorbidity to report would be "cerebrovascular disease".
- A toddler with Hurler Syndrome has cardiomyopathy, cardiac valvular disease and an ejection fraction of 45%, the comorbidities to report would be "cardiac" & "heart valve disease".

The intent of this question is to identify serious pre-existing conditions that may have an effect on the outcome of the HCT. For the purposes of this manual, the term "clinically significant" refers to conditions that are being treated at the time of pre-HCT evaluation, or are in the recipient's medical history and could cause complications post-HCT. Conditions listed in the recipient's medical history that have been resolved (e.g., appendectomy), and/or that would not pose a concern during or after the HCT should not be reported.

Additionally, for the purposes of this manual, the term "at the time of patient assessment" is defined as the pre-HCT evaluation period prior to the start of the preparative regimen. If the recipient does not have a documented history of clinically significant disease(s) or organ impairment(s), check "no" and continue with question 135.

For information regarding reporting clinically significant co-existing disease or organ impairment, see Appendix J.

Question 94: Co-existing diseases or organ impairments

From the list in question 94, select each clinically significant co-existing disease or organ impairment for this recipient. The definitions for each of the categories below are taken from Sorror, M. L. (2013). How I assess comorbidities before hematopoietic cell transplantation. Blood, 121(15), 2854-2863.

Arrhythmia: Any history of any type of arrhythmia that has necessitated the delivery of a specific antiarrhythmic agent. Examples include, but are not limited to, atrial fibrillation or flutter, sick sinus syndrome, and ventricular arrhythmias.

Cardiac: Any history of coronary artery disease (one or more vessel coronary artery stenosis requiring medical treatment, stent, or bypass graft), congestive heart failure (regardless of an LVEF >50% at the start of the preparative regimen), myocardial infarction, and / or ejection fraction ≤ 50% (shortening fraction < 26% for pediatric recipients) on the most recent test.

Cerebrovascular disease: Any history of transient ischemic attack, subarachnoid hemorrhage, and / or cerebral thrombosis embolism, or hemorrhage.

Diabetes: Diabetes or steroid-induced hyperglycemia requiring continuous treatment with insulin or oral hypoglycemics in the last 4 weeks.

Heart valve disease: Moderate or severe valve stenosis or insufficiency (mitral, aortic, tricuspid, or pulmonary) as determined by echocardiogram, prosthetic mitral or aortic valve, and / or symptomatic mitral valve prolapse.

Hepatic (mild): Chronic hepatitis, bilirubin > upper limit of normal to 1.5x upper limit of normal, or AST/ALT > upper limit of normal to 2.5x upper limit of normal, or any history of hepatitis B or hepatitis C infection. *See note in question 97.*

Hepatic (moderate/severe): Liver cirrhosis, bilirubin > 1.5x upper limit of normal, or AST/ALT > 2.5x upper limit of normal. *See note in question 97.*

Infection: Documented infection, fever of unknown origin, or pulmonary nodules requiring continuation of antimicrobial treatment after day 0.

Inflammatory bowel disease: Any history of Crohn's disease or ulcerative colitis requiring treatment.

Obesity: Patients with a body mass index > 35.00 kg/m^2 or BMI-for-age ≥ 95% (pediatric recipients only) during pre-transplant work-up period. For pediatric recipients, if only the BMI is known, refer to the following link to determine the BMI-for-age: https://www.cdc.gov/growthcharts/.

Peptic ulcer: Any history of peptic ulcer confirmed by endoscopy and requiring treatment.

Psychiatric disturbance: The presence of any mood, anxiety, or other psychiatric disorder requiring continuous treatment during the last four weeks. Examples include, but are not limited to, depression, anxiety, bipolar disorder, and schizophrenia requiring psychiatric consult or treatment in the last 4 weeks.

Pulmonary (moderate): Corrected diffusion capacity of carbon monoxide (e.g., DLCOc, DLCOcorr, DLCO) and/or FEV1 66-80% or dyspnea on slight activity at transplant. Use the Dinakara equation below to determine the DLCOc if only an uncorrected value is provided. For recipients assessed by a postbronchodilator test, only the prebronchodilator FEV1 values are considered for evaluation of pulmonary comorbidity.

Dinakara Equation: DLCOc = {uncorrected DLCO} / [0.06965 x {hemoglobin g/dL}]

Pulmonary (severe): Corrected diffusion capacity of carbon monoxide (e.g., DLCOc, DLCOcorr, DLCO) and/or FEV1 ≤ 65% or dyspnea at rest or requiring oxygen at transplant. Use the Dinakara equation above to determine the DLCOc if only an uncorrected value is provided. or recipients assessed by a postbronchodilator test, only the prebronchodilator FEV1 values are considered for evaluation of pulmonary comorbidity.

Renal (moderate/severe): Serum creatinine > 2 mg/dL or > 176.8 µmol/L, or on dialysis at transplant, or prior renal transplantation. *See note in question 93.*

If renal (moderate / severe) comorbidity is selected, complete question 95.

Rheumatologic: Any history of systemic lupus erythematosus, rheumatoid arthritis, polymyositis, mixed connective tissue disease, or polymyalgia rheumatica requiring treatment (do NOT include degenerative joint disease, osteoarthritis)

Prior Malignancy, specify: Any solid tumor(s) and / or hematologic malignancy(ies) that have been treated at any time point in the patient's past history. A history of any benign tumor(s) should not be reported.

If the recipient is transplanted for a disease that has transformed from one disease to another, the original malignancy should **not** be reported in this section. Details regarding disease transformation will be captured on the Pre-TED Disease Classifiation form (Form 2402). For more information regarding disease combinations and transformations, refer to the Common Disease Combinations and Common Disease Transformations tables in the Primary Disease for HCT section of the Pre-TED Disease Classification Form (Form 2402).

If prior malignancy, specify is selected, complete question 96.

The physician performing the recipient's pre-HCT evaluation may use the HCT Co-Morbidity Index (HCT-CI) to document co-morbid conditions (see Appendix J).

Question 95: Was the recipient on dialysis immediately prior to start of preparative regimen?

Indicate if the recipient was dialysis, hemodialysis, or peritoneal dialysis dependent within approximately one month prior to the start of the preparative regimen.

Question 96-99: Specify prior malignancy (check all that apply)

Specify the recipient's prior solid tumor(s) and / or hematologic malignancy(ies).

If "Other skin malignancy" is selected, specify the skin malignancy in question 97.

If "Other prior hematologic malignancy" is selected, specify the hematologic malignancy in question 98.

If "Other prior solid tumor" is selected, specify the solid tumor in question 99.

Questions 100-109
Complete question 100-109 using the results within four weeks prior to the start of the preparative regimen. Report results from the most recent assessment performed prior the start of the preparative regimen. The following are considered biomarkers according to the augmented HCT comorbidity index.

Questions 100-109: Provide last laboratory values recorded just prior to the start of the preparative regimen

These questions are intended to determine the clinical status of the recipient prior to the start of the preparative regimen for stem cell transplantation. Testing may be performed multiple times within four weeks prior to the start of the preparative regimen; report the most recent laboratory value obtained for each specific test. Laboratory values obtained on the first day of the preparative regimen may be reported as long as the blood was drawn **before** any radiation or systemic therapy was administered

For each assessment below, indicate if the result was "known" or "unknown" prior to the start of the preparative regimen. Indicate the value for each test. If necessary, convert values so they can be reported in the units of measurement available on the form.

Serum ferritin: Ferritin is a protein that stores, transports, and release iron. Iron is toxic to cells, so it is stored within the ferritin protein for use. Ferritin that is too low might be indicative of iron deficiency related anemia. Ferritin that is too high might be indicative of iron overload. It is tracked for some

diseases, such as hemaophagocytic lymphohistiocytosis.

Date Sample Collected: Report the date the sample was collected. This date should be before the date of the start of the preparative regimen; however, laboratory values obtained on the first day of the preparative regimen may be reported as long as the blood was drawn before any radiation or systemic therapy was administered.

Upper Limit of Normal for your Institution: Report the upper limit of normal. Normal values may vary by laboratory, so it is important to report the upper limit of normal for each assessment.

Serum albumin: Serum albumin is a protein found in the blood. Levels are most often reported on a chemistry panel, but may occasionally be found in a separate liver function test report.

Date Sample Collected: Report the date the sample was collected. This date should be before the date of the start of the preparative regimen; however, laboratory values obtained on the first day of the preparative regimen may be reported as long as the blood was drawn before any radiation or systemic therapy was administered.

Platelets: Platelet are formed elements within the blood that help with coagulation. A low platelet count, call thrombocytopenia, may lead to easy bleed or bruising. Thrombocytopenia may require platelet transfusions. Indicate if the recipient received a platelet transfusion within 7 days prior to testing.

Questions 111-113, Reporting More Than One Prior Solid Organ Transplant
FormsNet3^{SM} application: Complete questions 111-113 for each solid organ transplant by adding an additional instance in the FormsNet3^{SM} application.
Paper form submission: Copy questions 111-113 and complete for each solid organ transplant.

Question 110-112: Did the recipient have a prior solid organ transplant?

Indicate if it is “known” or “unknown” if the recipient had a prior solid organ transplant. If “known,” specify the organ transplant in question 111. If “Other organ” is reported, specify the organ in question 112. If the recipient did not receive a prior solid organ transplant or it is not known, report “no” for question 110 and continue with question 114.

Question 113: Year of prior solid organ transplant

If a recipient received a solid organ transplant during the reporting period, report the date of the solid organ transplant.

For more information regarding partial or unknown dates, see General Instructions, General Guidelines for Completing Forms.

Last modified: 2020/03/23

Q114-128: Pre-HCT Preparative Regimen (Conditioning)

Question 114: Height at initiation of pre-HCT preparative regimen:

Report the recipient's height just prior to the start of the preparative regimen. The intent of this question is to determine the height used when calculating preparative regimen drug doses. This height is usually documented on the transplant orders (for radiation and/or systemic therapy) or admitting orders. Report height to the nearest whole centimeter or inch (round up if 0.5 or greater).

Even if the recipient does not receive a preparative regimen, the height is still required.

Question 115: Actual weight at initiation of pre-HCT preparative regimen:

Report the recipient's actual body weight just prior to the start of the preparative regimen. The intent of this question is to report the actual weight at the time the preparative regimen starts (which may be different than the weight used to determine preparative regimen doses). This weight is usually documented on the transplant orders (for radiation and/or systemic therapy) or admitting orders. Report weight to the nearest tenth of a kilogram or pound. Do not report adjusted body weight, lean body weight, or ideal body weight.

Even if the recipient does not receive a preparative regimen, the weight is still required.

Question 116: Was a pre-HCT preparative regimen prescribed?

Recipients are generally transplanted under a specific protocol that defines the radiation and/or systemic therapy the recipient is intended to receive as a preparative regimen. This protocol, which may be either a research protocol or standard of care protocol, should be referred to when completing this section.

However, there are instances when a preparative regimen is not given. Examples may include, but are not limited to:

- Primary diagnosis of an immune deficiency.
- Subsequent allogeneic HCT due to loss of, or poor, neutrophil engraftment.

If a preparative regimen is prescribed per protocol, check "yes" and continue with question 117. If a preparative regimen is not prescribed, check "no" and continue with question 129.

For more information regarding the recipient's preparative regimen, consult a transplant physician or contact the CIBMTR through the Customer Service Center.

Question 117: Classify the recipient's prescribed preparative regimen:

Myeloablative pre-transplant conditioning destroys bone marrow cells using high-dose radiation and/or systemic therapy. It is used to eliminate the recipient's immune system and to leave space in the bone marrow niche for the donated cells. A myeloablative regimen is sometimes used for recipients with non-malignant diseases who require HCT for marrow reconstitution (i.e., immunodeficiencies) or to produce a complete donor chimerism.

Non-myeloablative stem cell transplant (**NMA** or **NST**) and reduced-intensity conditioning (**RIC**) preparative regimens generally use lower doses of radiation and/or systemic therapy to prevent graft rejection and to suppress the recipient's hematopoietic immune system, but not eliminate it completely. Non-myeloablative protocols rely on the immune cells of the donor to destroy the disease (called graft versus tumor or GVT effect), and typically produces mixed chimerism. NST is a common treatment option for recipients who are older or who have other health problems, as the lower radiation and/or systemic therapy doses are easier for the recipient to tolerate.

In general, RIC includes any regimen that does not meet the criteria for either myeloablative or non-myeloablative regimens.

Based on the CIBMTR operational guidelines below, report if the regimen was myeloablative, reduced intensity, or non-myeloablative. The determination of whether the intent of the regimen was reduced intensity or non-myeloablative should be based either on the protocol at your center or the opinion of the physician overseeing the care of the recipient at your center. However, if there's a protocol utilized at your center that doesn't fall within CIBMTR operational guidelines for regimen intensity, you may report the regimen intensity based on the protocol intent.

Table 1. Examples of Myeloablative, Reduced Intensity, and Non-Myeloablative Regimens

Myeloablative Regimens	Reduced Intensity and Non-Myeloablative Regimens
• TBI > 500 cGy (single) or > 800 cGy (fractionated) • Cyclophosphamide + TBI (> 500 cGy (single) or > 800 cGy (fractionated)) • Cyclophosphamide + Etoposide + TBI (> 500 cGy (single) or > 800 cGy (fractionated)) • Busulfan > 7.2 mg/kg IV or >9.0mg/kg orally • Busulfan >300 mg/m2 IV or >375 mg/m^2 orally • Busulfan (> 7.2 mg/kg IV or >9.0mg/kg orally) + Cyclophosphamide • Busulfan (>7.2 mg/kg IV or >9.0 mg/kg orally) + Melphalan >150 mg/m^2 • Melphalan >150 mg/m^2	• TBI ≤ 500 cGy (single) or ≤ 800 cGy (fractionated) • ATG + Cyclophosphamide • BEAM (Carmustine [BCNU], Etoposide, Cytarabine [Ara-C], Melphalan) • Busulfan ≤ 7.2 mg/kg IV or ≤ 9.0mg/kg orally • Busulfan ≤ 300 mg/m^2 IV or ≤ 375 mg/m^2 orally • Melphalan ≤ 150 mg/m^2 • Fludarabine + Cytarabine • Fludarabine + Cyclophosphamide • Fludarabine + TBI ≤ 500 cGy (single) or ≤ 800 cGy (fractionated)

• Thiotepa ≥ 10 mg/kg • Treosulfan > 30,000 mg/m^2 or > 30 g/m^2	• Thiotepa < 10 mg/kg • Treosulfan ≤ 30,000 mg/m^2 or ≤ 30 g/m^2 • Etoposide + Cyclophosphamide

Preparative Regimen – Intensity
These values represent the total prescribed doses. For example, if a recipient is scheduled to receive Melphalan 100 mg/m^2 for two days (200 mg/m^2), the regimen would be myeloablative because the total prescribed dose is > 150 mg/m^2.

Indicate whether the intent of the preparative regimen was “myeloablative” (to produce marrow ablation or pancytopenia), “non-myeloablative,” or “reduced intensity.”

Question 118: Was irradiation planned as part of the pre-HCT preparative regimen?

If irradiation is planned as part of the preparative regimen, check “yes” and continue with question 119. If irradiation is not planned, check “no” and continue with question 124. Irradiation performed as previous treatment should not be reported in this section. Report irradiation performed as previous treatment on the appropriate Disease Specific Form.

Question 119: What was the prescribed radiation field?

Indicate if the planned irradiation was to “total body,” “total body by intensity-modulated radiation therapy (IMRT),” “total lymphoid or nodal regions,” or “thoracoabdominal region.”

Question 120: Total prescribed dose:

Enter the total dose of radiation prescribed. If radiation was prescribed as a single dose, the amount of radiation delivered in the single dose constitutes the total dose. If the radiation was prescribed in fractionated doses, multiply the dose per fraction by the total number of fractions to determine the total dose. Enter the total dose of radiation in either grays (Gy) or centigrays (cGy).

Example:
Radiation Order: TBI, 200 cGy/day for three days (3 doses)
Total dose: 200 cGy x 3 doses = 600 cGy
Report “Total Dose” as: 600 cGy

Question 121: Date started:

Enter the date the single dose or first fraction of radiation was administered.

Question 122: Was the radiation fractionated?

Radiation is either delivered as a single dose or in several treatments (fractions). Radiation is fractionated to increase the loss of diseased cells, as they do not recover as quickly as disease-free cells.

If the radiation was fractionated, check “yes” and continue with question 123. If the radiation was not fractionated, check “no” and continue with question 124.

Question 123: Total number of fractions:

Enter the total number of fractions (treatments) of radiation that were administered. The recipient may receive more than one fraction per day (hyperfractionation).

The total number of fractions multiplied by the dose per fraction must be equal to the total dose reported in question 120.

✻ **Questions 124-128, Reporting Multiple Drugs for Preparative Regimen**
FormsNet3^{SM} application: Complete questions 124-128 for each drug given as part of the preparative regimen by adding an additional instance in the FormsNet3^{SM} application.
Paper form submission: Copy questions 124-128 and complete for each drug given as part of the preparative regimen.

Questions 124-125: Drugs

! **Preparative Regimen – Drugs**
The following questions report the **prescribed** drug therapy that was part of the preparative regimen. Do not report the dose that was actually given. If the recipient has comprehensive report forms due, the actual dose given will be reported on the Recipient Baseline Form (Form 2000). **Do not include drugs that are intended to offset the side effects of the chemotherapy** (e.g., corticosteroids for nausea, MESNA for hemorrhagic cystitis, etc.).

✻ **Drugs After Transplant**
Occasionally, protocols list drugs that may be given before and after transplant. If the drugs are planned to be given before and after transplant, only the doses given before transplant should be quantified in the preparative regimen section. The doses given after transplant should be reported in the **Post-HCT Disease Therapy Planned as of Day 0** or **GVHD Prophylaxis** section. For example, if bortezomib or rituximab is planned to be given on Days -2, +1, +4, and +7, report the Day -2 dose in the preparative regimen section, and the post-transplant doses as planned post-HCT therapy.

Drugs during the Peri-Transplant Period
ATG, alemtuzumab (Campath), defibrotide, KGF, and ursodiol may be given during the peri-transplant period. Previously, if these drugs were administered prior to Day 0, they were reported in the preparative regimen section of the Pre-TED (2400) Form. However, the Pre-TED (2400) Form has been updated – if these drugs were administered prior to Day 0, report them in questions 129-137, not in questions 124-128.

The form lists each drug by the generic name. The following website provides the trade names under which generic drugs are manufactured: http://www.rxlist.com/script/main/hp.asp.

The “other drug” category should be used only if the drug is not one of the listed options. If an “other” drug is prescribed, list the name of the drug in question 124. Include any intrathecal drugs the recipient received for prophylaxis or treatment of CNS disease within 14 days prior to the start of the preparative regimen. Do not report additional sites of radiation (e.g., cranial boost) in the “other” drug category. If the recipient is assigned to the Comprehensive Report Forms by the form selection algorithm, the additional sites of radiation will be reported on the Recipient Baseline Form (Form 2000). If the recipient is assigned to TED Forms by the form track selection algorithm, the additional sites of radiation will not be reported.

If the Pre-TED is being completed for a subsequent HCT, do not report therapy that was given to treat the recipient’s disease (between the previous and current planned HCTs) in the preparative regimen section.

If there is a change to the chemotherapy preparative regimen (e.g., from busulfan + fludarabine to melphalan + fludarabine) after the Form 2400 has been submitted, return to the Pre-TED (2400) form and make this correction directly in FormsNet3^{SM} to ensure that the chemotherapy reported reflects the actual chemotherapy regimen given.

Total prescribed dose

Report the ***total*** **dose** of each drug as **prescribed** in the preparative regimen section of the HCT protocol. **Do not report the prescribed *daily* dose**. Report the drug doses to the nearest tenth. For paper submission, do not modify the number of boxes or include decimal values. The pharmacy record or Medication Administration Record (MAR) should be used for determining the date the drug was started.

Report the dose units as either “mg/m^2,” “mg/kg,” “AUC (mg x h/L),” “AUC (µmol x min/L),” or “CSS (ng/mL).” If the total prescribed dose is reported in a unit other than those listed, convert the dose to the appropriate unit. See the example below or consult with a transplant pharmacist for the appropriate conversion. If drug doses cannot be converted to the unit listed (e.g., Campath), leave the unit field blank, override the error (using “unable to answer”), and attach a copy of the source document to the Pre-TED using the attachment feature in FormsNet3.

Example: Calculating Total Drug Doses
Drug doses are calculated either by recipient weight in kilograms (kg) or recipient body surface area (BSA) in m^2. The HCT protocol will specify "x mg/kg" or "x mg/m^2" and the total number of doses to be administered.
For example, if the protocol requires cyclophosphamide at 60 mg/kg x 2 days (i.e., 2 doses), the "total prescribed dose" should be reported as "120 mg/kg."

Pharmacokinetic testing can be used to determine whether the drug concentration in the bloodstream is appropriate to the dose given. This reflects the speed of absorption and elimination of the drug. These tests are usually performed using the first dose of systemic therapy, or a test dose, where multiple samples are drawn at specific time points following the first dose. The samples are sent to a laboratory that performs the testing to determine the drug concentration. If carboplatin was prescribed, indicate if pharmacokinetic testing was performed to determine the preparative regimen dosing. If it is not known whether or not this testing was performed, consult a transplant physician.

A common example of this situation occurs in the use of busulfan. In some cases, a "test dose" of the drug is given before the actual preparative regimen is started, and this dose is used for acquiring drug levels that are used to adjust the dose that will be used in the preparative regimen. In other situations, the first dose of the drug is given in the usual fashion as part of the preparative regimen. After this first dose, serum drug levels are drawn and sent to a reference lab. The drug is continued at the starting dose until the lab results are reported and adjustment is made to later doses.

When a drug is used for the preparative regimen where pharmacokinetics will be tested, it is important to distinguish whether the testing will be done with a "test dose" before beginning the preparative regimen or using the first dose of the preparative regimen. The reporting of the dosing for the CIBMTR forms depends upon this distinction. This helps distinguish whether the dose is part of the therapeutic regimen, or not.

1. A test dose was given **> 24 hours** prior to the intended therapeutic dosing.
    - **Example:** A patient with AML underwent allogeneic HCT from a sibling; busulfan and cyclophosphamide were used as the preparative regimen. The patient presented to clinic 9 days before the HCT, where a dose of busulfan at 0.5 mg/kg was given intravenously. Blood samples were drawn for the next 6 hours, after which the patient left the clinic. His samples were sent to a lab, results were returned the next day, and an adjusted dose of busulfan was calculated. He returned to the hospital 6 days before HCT, and began to receive busulfan at the adjusted dose intravenously for 4 days, followed by cyclophosphamide, and proceeded to receive his cells. Since he received 0.5 mg/kg as a "test dose," this would not be reported in his total preparative regimen dose.
      If a test dose was given, where the dose was distinct from the therapeutic dosing preparative regimen (often 1-2 or more days prior to the initiation of regular dosing), the following should be

reported:

- On the Pre-TED (2400) form, the total prescribed dose per protocol would NOT include the test dose.
- On the Baseline (2000) form, the start date of the chemotherapy agent should be reported as the date the first therapeutic dose was administered. The actual dose received would NOT include the test dose.

2. The first dose of therapeutic dosing is used for monitoring.
   - **Example:** A patient with MDS received an allogeneic HCT from an unrelated donor; busulfan and fludarabine were used as the preparative regimen. She was admitted to the hospital 7 days before her HCT, and received a dose of busulfan at 0.8 mg/kg IV at 6:00 AM. Serum samples were drawn every 30 minutes until the next dose of Busulfan at 0.8 mg/kg IV was given at 12:00 noon. Her blood was sent to a reference lab, and she continued to receive busulfan every 6 hours. On day -6, the lab called with her drug levels, and it was determined that the current dose was correct. No adjustment was made, and she completed all 16 doses of busulfan. Since the dose of busulfan (0.8 mg/kg) that was used for drug testing was ALSO her first dose of the preparative regimen, it should be included in the amount of drug that was given for preparative regimen. The total prescribed dose per protocol should be reported as “13 mg/kg.” (0.8 mg/kg x 16 doses = 12.8 mg/kg rounded to 13 mg/kg).
     If the first dose of the preparative regimen was used to determine pharmacokinetics, the following should be reported:
     - On the Pre-TED (2400) form, the total prescribed dose per protocol would include the dose used for monitoring.
     - On the Baseline (2000) form, the start date of the chemotherapy agent should be reported as the date the first dose was administered. The actual dose received would include the dose used for monitoring.

Test doses must be reported consistently at your center. Since most centers follow a consistent approach to pharmacokinetic testing, it should be straightforward for the center to adopt a consistent approach to the reporting of test doses.

Question 127: Date started

Enter the date when the first dose of the preparative regimen drug was administered. The pharmacy record or Medication Administration Record (MAR) should be used for determining the date the drug was started.

Question 128: Specify administration (busulfan only)

Report the busulfan administration route as either “oral,” “IV,” or “both.”

Last modified: 2020/03/06

Q129-137: Additional Drugs Given in the Peri-Transplant Period

Drugs may be given during the peri-transplant period to prevent transplant-related complications, such as liver injuries or to facilitate engraftment.

Questions 129-137: Drugs

For each agent listed, indicate whether the drug was administered during the peri-transplant period to prevent transplant-related complications or facilitate engraftment, and any additional question(s) for each drug administered.

ALG (Anti-Lymphocyte Globulin), ALS (Anti-Lymphocyte Serum), ATG (Anti-Thymocyte Globulin, ATS (Anti-Thymocyte Serum): Serum or gamma globulin preparations containing polyclonal immunoglobulins directed against lymphocytes. These drugs are usually prepared from animals immunized against human lymphocytes. Report the total dose **prescribed** in question 130 and the animal source in question 131. If “other” is selected, specify the source in question 132.

Alemtuzumab (Campath): Antibody preparations that are infused in the recipient. Report the total dose **prescribed** to the nearest tenth and specify the units of measurement in question 134.

Defibrotide: Antithrombotic agent used to prevent veno-occlusive disease.

KGF (keratinocyte growth factor): Alternate names: palifermin, Kepivance. KGF acts to stimulate the growth of cells that line the surface of the mouth and intestinal tract. KGF may also be given to treat oral mucositis or as GVHD prophylaxis.

Ursodiol: A naturally occurring bile acid used to dissolve small gall stones and to increase bile flow in patients with primary biliary cirrhosis.

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Q138-140: GVHD Prophylaxis

The following GVHD prophylaxis questions are to be completed for allogeneic HCTs only. Autologous and syngeneic HCTs continue with question 141.

If ATG or Campath were ordered for GVHD prophylaxis prior to or after Day 0, report these drugs in the Additional Drugs Given in the Peri-Transplant Period section of the Pre-TED (questions 129-137). Do not report these drugs in the GVHD prophylaxis section (question 138-140).

Question 138: Was GVHD prophylaxis planned?

After allogeneic HCT, specific immunosuppressive therapy may be administered to prevent GVHD or to immunosuppress the host marrow, thereby promoting engraftment of the donor stem cells. Most transplant centers have specific GVHD prophylaxis protocols and graft rejection protocols. **Planned** agents a recipient receives as a result of these protocols should be included in this section. This answer does not have to match what is reported on the Post-HCT Follow-Up (2100) Form.

If GVHD prophylaxis was planned at the time of transplant, check “yes” and continue with question 139. If GVHD prophylaxis was not planned at the time of transplant, check “no” and continue with question 141.

Questions 139-140: Specify drugs / intervention (check all that apply)

The prophylactic drug options listed on the form are intended to be administered in a **systemic or oral form**. If the recipient received one of the listed drugs in a topical form, select the “other agent” option and specify the drug in question 140.

Product Manipulation for GVHD Prophylaxis
In question 139, be sure to report any product manipulation done for GVHD Prophylaxis. Product manipulation is not captured anywhere else on this revision of the Pre-TED (2400) Form and any manipulation done for GVHD Prophylaxis should be reported here. An example of product manipulation for GVHD prophylaxis is T-cell depletion.

The Pre-TED Form lists the generic chemotherapy drug names. The following website provides the trade names under which generic drugs are manufactured: http://www.rxlist.com/script/main/hp.asp

If GVHD prophylaxis is used for a syngeneic (monozygotic or identical twin) or autologous HCT, attach a copy of the source document using the attachment feature in FormsNet3^{SM}.

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Q141-143: Post-HCT Disease Therapy Planned as of Day 0

Question 141: Is additional post-HCT therapy planned?

If additional post-HCT therapy is planned according to the protocol or standard of care, check “yes” even if the recipient does not receive the planned therapy. The word “planned” **should not** be interpreted as: *if the recipient relapses, then the “plan” is to treat with additional therapy*. If additional post-HCT therapy is not planned per protocol, check “no” and submit the form.

Questions 142-143
The following post-HCT planned therapy questions are optional for non-U.S. centers.

Questions 142-143: Specify post-HCT therapy planned: (check all that apply)

Indicate if the options listed on the form are intended to be part of the post-HCT planned therapy according to the protocol or standard of care. Select “Other therapy” for other planned therapies and specify the other therapy in question 143.

Examples of when the “Unknown” option would be used include inclusion in a treatment protocol where a trial drug is used and randomized, or if post-HCT therapy is planned, but the specific therapy intended for use is not known pre-HCT. Continue with the signature section.

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