Instructions for Thalassemia Pre-Infusion (2058)

This section of the CIBMTR Forms Instruction Manual is intended to be a resource for completing the Thalassemia Pre-Infusion.

Thalassemia Pre-Infusion

The Thalassemia Pre-Infusion (2058) Form is one of the Comprehensive Report Forms. This form captures thalassemia-specific pre-infusion data such as the recipient's thalassemia diagnosis, donor related information, transfusion, hepatic, cardiac, renal, iron overload assessment prior to the start of the preparative regimen, hematologic labs, organ impairment, and pre-infusion therapy.

This form must be completed for all transplant and gene therapy recipients, randomized to the Comprehensive Report Form (CRF) track whose primary disease is reported as **Hemoglobinopathies – Transfusion dependent thalassemia: Transfusion beta dependent thalassemia** or **Other transfusion dependent thalassemia** on the Disease Classification (2402) Form.

Links to Sections of Form:
Q1: Subsequent Transplant or Cellular Therapy
Q2 – 26: Thalassemia Diagnosis
Q27 – 52: Donor Related Information
Q53 – 60: Transfusion Therapy
Q61 – 63: Hepatic Assessments
Q64 – 72: Cardiac Assessments
Q73 – 75: Renal Assessments
Q76 – 78: Avascular Assessments
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Q113: Marrow Evaluation

Manual Updates:

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

To review the historical Manual Change History for this manual, reference the retired manual section on the Retired Forms Manuals webpage.

Date	Manual Section	Add/Remove/Modify	Description
3/27/2026	Thalassemia Pre-Infusion (2058)	Modify	Version 3 of the 2058: Thalassemia Pre-Infusion section of the Forms Instructions Manual released. Version 3 corresponds to revision 3 of the Form 2058.

Q1: Subsequent Transplant or Cellular Therapy

Question 1: Is this a second or subsequent transplant or cellular therapy for the same disease?

Report **No** and go to *What is the recipient's beta-globin genotype* in any of the following scenarios:

- This is the first infusion reported to the CIBMTR; or
- This is a second or subsequent infusion for a different disease (i.e., the patient was previously transplanted for a disease other than a leukodystrophy); or
- This is a second or subsequent infusion for the same disease subtype and this baseline disease insert was not completed for the previous transplant (i.e., the recipient was on the TED track for the prior infusion, prior infusion was autologous with no consent, etc.).

Report **Yes** and go to What is the donor's beta-globin genotype if this is a subsequent infusion for the same disease *and* the Pre-Infusion Thalassemia (2058) Form was completed previously.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q2 – 26: Thalassemia Diagnosis

Questions 2 – 4: What is the recipient's beta-globin genotype?

Beta thalassemia occurs when there are mutations in the beta-globin gene leading to impaired production of the beta globin chains. This leads to an excess of alpha or alpha-type chains. Everyone has two beta globin genes (one from each parent). There are different types of beta thalassemia gene variants:

- Beta^{0}: No beta-globin is produced (B^{0})
- Beta^{+}: A reduced amount of beta-globin is produced (B^{+})
- Beta^{E} (hemoglobin E): A reduced amount of beta-globin is produced (B^{E})

A lack of the beta-globin protein causes a reduced amount of functional red blood cells and hemoglobin resulting in anemia.

Specify the recipient's beta-globin genotype. If the recipient has a normal genotype (i.e., the beta mutation is not detected), select **B / B**.

If the recipient's beta-globin genotype is not listed, select **Other genotype** and specify the other beta-globin genotype.

If the recipient's beta-globin genotype is not known, select **Unknown**.

Additionally, indicate whether documentation of the recipient's beta-globin disease genotype was submitted to CIBMTR (e.g., pathology report, laboratory report).

For further instructions on how to attach documents in FormsNet3^{SM}, refer to the Training Guide.

Questions 5 – 7: What is the recipient's alpha-globin genotype?

A healthy individual has four genes to produce the alpha-globin protein. Alpha thalassemia occurs when one or more of the four genes for alpha-globin are defective or absent. Suppressed alpha-globin protein causes reduced amounts of healthy red blood cells and hemoglobin.
Specify the recipient's alpha-globin genotype. The ' – ' represents the number of genes deleted (i.e., ' – – / aa' signifies two gene deletions, ' – – / a-' signifies three gene deletions). Hemoglobin Constant Spring (Hb CS) is a non-deletional α-thalassemia (a^{CS}).

If the recipient has a normal genotype (i.e., the alpha-globin mutation is not detected), select **aa / aa**.

If the recipient's alpha-globin genotype is not listed, select **Other genotype** and specify the other alpha- globin genotype.

If the recipient's alpha-globin genotype is not known, select **Unknown**. Additionally, indicate whether documentation of the recipient's alpha-globin genotype was submitted to CIBMTR (e.g., pathology report, laboratory report).

For further instructions on how to attach documents in FormsNet3^{SM}, refer to the Training Guide.

Question 8: Is alpha-gene triplication present?

The alpha gene provides instructions for producing the alpha-globin protein. Alpha-gene triplication is referred to as the presence of more than four alpha genes.

Indicate if the alpha-gene triplication is present is at diagnosis. If alpha-gene triplication testing was not assessed or it is not known if it was assessed / present, select **Unknown.**

Hemoglobin Electrophoresis

Questions 9 – 23 are required to be answered when the recipient's beta-globin and alpha- globin genotype are reported as **Unknown.**

Questions 9 – 10: Was hemoglobin electrophoresis performed at diagnosis? *(do not include results if an RBC transfusion occurred within 4 weeks of the electrophoresis study)*

Indicate if hemoglobin electrophoresis studies were performed at diagnosis (prior to the initiation of RBC transfusions). If hemoglobin electrophoresis studies were not performed or it is not known if assessments were performed, select **No** or **Unknown**, respectively, and continue with *Were genetic mutations identified at diagnosis*.

If RBC transfusion(s) were given within four weeks prior of the hemoglobin electrophoresis study, select **Not applicable** and continue with *Were genetic mutations identified at diagnosis*.

If **Yes,** report the date (YYYY-MM-DD) of the most recent hemoglobin electrophoresis study prior to the administration of RBC transfusion(s). If the exact date is not known report an estimated date and check the **Date estimated** box. Refer to General Instructions, General Guidelines for Completing Forms for information about reporting estimated dates.

Hemoglobin Types: Hb A and Hb A1

Hb A and Hb A1 are the same hemoglobin types. If Hb A1 is assessed, report these results under **Hb A.**

Questions 11 – 23: Specify the hemoglobin allele types based on the sample tested in question 9

Specify the hemoglobin allele types identified in the hemoglobin study reported above. If the hemoglobin allele type was assessed, report **Yes** and specify the percentage.

If additional thalassemia related hemoglobin types are identified but not listed as options on the form, select **Yes** for *Other thalassemia related hemoglobin type*, specify the type and the report the hemoglobin percentage.

Alpha Gene Triplication
The HBA1 – HBA triplication (aaa$^{anti-3.7}$ / aa) gene is the same as alpha gene triplication.

Questions 24 – 26: Which genetic mutations were identified at diagnosis? *(check all that apply)*

Indicate if any of the listed genetic mutations were identified at diagnosis. Check all that apply. If a genetic mutation was detected at diagnosis but not listed, select Other and specify the mutation.

If testing for genetic mutations were not performed at diagnosis or it is not known, select **Not done** or **Unknown**, respectively and continue with *What is the donor's beta-globin genotype*.

Specify if documentation of the genetic mutations identified at diagnosis was submitted to CIBMTR (e.g., laboratory report).

For further instructions on how to attach documents in FormsNet3^{SM}, refer to the Training Guide.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q27 – 52: Donor Related Information

Donor Related Information

If this was an autologous infusion, skip the *Donor Related Information* section and continue with the *Transfusion Therapy* section. The *Donor Related Information* section should only be completed if an allogeneic donor was used.

Questions 27 – 29: What is the donor's beta-globin disease genotype?

Specify the donor's beta-globin genotype. If the donor has a normal genotype (i.e., the beta mutation is not detected), select **B / B**.

If the donor's beta-globin genotype is not listed, select **Other genotype** and specify the other beta-globin genotype.

If the donor's Beta thalassemia disease genotype is not known, select **Unknown**.

Additionally, indicate whether documentation of the donor's beta-globin genotype was submitted to CIBMTR (e.g., pathology report, laboratory report).

For further instructions on how to attach documents in FormsNet3^{SM}, refer to the Training Guide.

Questions 30 – 32: What is the donor's alpha-globin genotype?

Specify the donor's alpha-globin genotype. The ' – ' represents the number of genes deleted (i.e., ' – – / aa' signifies two gene deletions, '- – / a-' signifies three gene deletions).

If the donor has a normal alpha-globin genotype (i.e., the alpha-globin mutation is not detected), select **aa / aa**.

If the donor's alpha-globin genotype is not listed, select **Other genotype** and specify the other alpha-globin genotype.
If the donor's alpha-globin genotype is not known, select **Unknown**.

Additionally, indicate whether documentation of the donor's alpha-globin genotype was submitted to CIBMTR (e.g., pathology report, laboratory report).

For further instructions on how to attach documents in FormsNet3^{SM}, refer to the Training Guide.

Questions 33 – 35: Hemoglobin *(for donor) (most recent prior to collection of infusion product)*

Hemoglobin is a molecule in red blood cells that delivers oxygen to tissues throughout the body. A low hemoglobin count is considered "anemia" and blood transfusions, or growth factors may be required to increase the hemoglobin level.

Specify if the donor's hemoglobin is known prior to harvesting stem cells for infusion. If the donor's hemoglobin is **Known**, report the most recent value and units of measurement prior to collection of stem cells. In addition, indicate if the donor received red blood cell transfusion(s) within 30 days prior to testing.

Questions 36 – 37: Mean corpuscular volume (MCV) *(for donor) (most recent prior to collection of infusion product)*

Mean corpuscular volume (MCV) measures the average size of red blood cells.

Specify if the donor's MCV is known prior to harvesting stem cells for infusion.
If **Known**, report the most recent value and units of measurement prior to collection of stem cells.

Hemoglobin Electrophoresis

Questions 38 – 52 are required to be answered when the donor's Beta thalassemia and alpha genotype are reported as **Unknown**.

Questions 38 – 39: Was hemoglobin electrophoresis performed for the donor? *(do not include results if an RBC transfusion occurred within 4 weeks of the electrophoresis study)*

Specify if hemoglobin electrophoresis was performed for the donor at any time prior to the start of the preparative regimen / infusion. If a hemoglobin electrophoresis assessment was not performed or it is not known if performed, select **No** or **Unknown**, respectively and continue with Were any red blood cell (RBC) transfusion administered?

If hemoglobin electrophoresis was performed but the donor received RBC transfusions within four weeks of the electrophoresis study, select **Not applicable** and continue with Were any red blood cell (RBC) transfusion administered?

If **Yes**, report the date (YYYY-MM-DD) of the hemoglobin electrophoresis test. If the exact date is not known report an estimated date and check the **Date estimated** box. Refer to General Instructions, General Guidelines for Completing Forms for information about reporting estimated dates.

If multiple hemoglobin electrophoresis assessments were performed prior to the start of the preparative regimen / infusion, report the date of the most recent assessment.

Hemoglobin Types Hb A and Hb A1

Hb A and Hb A1 are the same hemoglobin types. If Hb A1 is assessed, report these results under **Hb A**.

Questions 40 – 52: Specify the hemoglobin allele types based on the sample tested in question 39

For each hemoglobin type listed, indicate if the specific hemoglobin was assessed on the sample date reported above. If **Yes**, report the hemoglobin percentage. If a hemoglobin type was assessed but is not listed, select **Yes** for *Other thalassemia related hemoglobin allele type*, specify the type and the hemoglobin percentage.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q53 – 59: Transfusion Therapy

Question 53: Were any red blood cell (RBC) transfusions administered?

Red blood cell (RBC) transfusions are often given as supportive care for recipients with thalassemia.

Indicate if any red blood cell transfusions were administered between diagnosis and the start of the preparative regimen / infusion. If the recipient did not receive any RBC transfusions or no information is available to determine if the recipient received transfusion, report **No** and continue with *Direct bilirubin*.

Questions 54 – 55: Number of RBC transfusion events with the last 12 months

Transfusions may be referred to as “simple” or “exchange” transfusions. A simple transfusion refers to a direct infusion of a blood product. An exchange transfusion refers to the slow removal and replacement of the recipient’s blood with that of a healthy donor’s blood. **A transfusion event consists of one or more RBC unit(s) given in a day.**

Indicate the total number of RBC transfusion events the recipient received within 12 months prior to the start of the preparative regimen / infusion and specify the date (YYYY-MM-DD) of the last transfusion administered. If the exact date is not known report an estimated date and check the **Date estimated** box. Refer to General Instructions, General Guidelines for Completing Forms for information about reporting estimated dates.

Example A: The progress notes state a recipient was transfused with one RBC unit each month, for six months. The number of transfusions increased, and the recipient

receives two RBC units on the same day, each month, for the following six months prior to the start of the preparative regimen. The total number of RBC transfusion events within the last 12 months would be reported as "12."

Question 56: Were the RBC units used for transfusion of an extended phenotype match (D, C, c, E, e, K)? *(includes partial extended phenotype matches)*

Extended phenotype testing may be performed on RBC units prior to transfusion to ensure donor and recipient matches are confirmed beyond the standard ABO compatibility matching to decrease the risk of alloimmunization. This information is typically found within the blood bank section of the medical record.

Report **Yes** if the RBC unit(s) used for transfusion are of an extended phenotype match (particularly D, C, c, E, e, or K). If the RBC unit(s) used for transfusion were not matched for extended phenotype D, C, c, E, e, or K or it is unknown if matched, report **No** or **Unknown**, respectively.

Questions 57 – 58: Were RBC alloantibodies present?

The presence of RBC alloantibodies may cause serologic incompatibility and make the selection of RBC units for future transfusions difficult. RBC alloantibodies are typically present once alloimmunization has occurred.

If RBC alloantibodies are present prior to the start of the preparative regimen / infusion, report **Yes** and specify the number of alloantibodies identified. If testing for RBC alloantibodies were performed multiple times prior to the start of the preparative regimen / infusion, report the most recent assessment.

If RBC alloantibodies were not present prior to the start of the preparative regimen / infusion, report **No** and continue with *Direct bilirubin*.

Report **Unknown** if testing was not performed, or it is not known if alloantibodies were present and continue with *Direct bilirubin*.

Questions 59 – 60: Does the recipient have donor-specific antibodies present to the donor chosen for transplant? *(Mean fluorescence intensity (MFI) > 1000 for HLA-A, HLA-B, and DRB1; and MFI > 2000 for HLA-C, DQB1, and DPB1 or positive virtual cross match)*

Mean fluorescence intensity (MFI) is often used to determine the mean intensity and level of antibody expression within a sample. Donor-specific antibodies may be quantified through fluorescing techniques such as flow cytometry. This information may be found on an HLA report or within the blood bank section of the medical record.

Report **Yes** if the MFI > 1000 for HLA-A, HLA-B, and DRB1 or MFI > 2000 for HLA-C, DQB1, and DPB1 at any time prior to the start of the preparative regimen / infusion.

If **Yes**, indicate if measures were taken to lower the MFI for the presence of donor antibodies prior to the start of the preparative regimen / infusion.

If testing was performed multiple times prior the start of the preparative regimen / infusion, report the most recent assessment.

Report **No** if the MFI ≤ 1000 for HLA-A, HLA-B, and DRB1 or MFI ≤ 2000 for HLA-C, DQB1, and DPB1 at any time prior to the start of the preparative regimen / infusion.

If testing was not performed to determine presence or absence of donor-specific antibodies, indicate **Not tested**. The **Unknown** option should be used sparingly and only when no information is available to determine if donor-specific antibody testing was conducted at any time between diagnosis and the start of the preparative regimen / infusion.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q60 – 62: Hepatic Assessments

Hepatic Assessments
Report the hepatic laboratory values prior to the start of the preparative regimen / infusion using results measured within 60 days prior to the start of the preparative regimen. If the assessment was performed multiple times, report the closest value to the start of the preparative regimen.

Questions 61 – 62: Direct bilirubin

Bilirubin is a pigment that is formed from the breakdown of hemoglobin in red blood cells. Serum bilirubin is a test of liver function that reflects the ability of the liver to take up, process, and secrete bilirubin. Direct bilirubin is also known as conjugated bilirubin. Indicate if the direct bilirubin is known within 60 days prior to the start of the preparative regimen / infusion. If **Known**, specify the value, units of measurement, and the upper limit of normal. If the direct bilirubin was assessed multiple times, report the most recent assessment prior to the start of the preparative regimen.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q63 – 72: Cardiac Assessments

Cardiac Assessments
Report cardiac assessments prior to the start of the preparative regimen / infusion using results measured within 60 days prior to the start of the preparative regimen. If the assessment was performed multiple times, report the closest value to the start of the preparative regimen.

Question 64: Was an echocardiogram performed?

Indicate if an echocardiogram was performed within 60 days prior to the start of the preparative regimen / infusion.

If an echocardiogram was not performed or it is not known if performed, report **No** or **Unknown**, respectively, and continue with *Cardiac iron T2 imaging*.

The **Unknown** option be selected sparingly and only when no information is available to determine if an echocardiogram was performed at any time prior to the start of the preparative regimen / infusion.

Questions 65 – 68: Was left ventricular ejection fraction (LVEF) or left ventricular shortening fraction reported?

The left ventricular ejection fraction (LVEF) is a percentage that represents the volume of blood pumped from the left ventricle into the aorta (also known as stroke volume) compared to the volume of blood in the ventricle just prior to the heart contraction (also known as end diastolic volume). The left ventricular shortening fraction is the percentage change in cavity dimensions of the left ventricle with systolic contraction.

Report **Yes** if either the LVEF or left ventricular shortening fraction were reported and provide the percentage(s). If the LVEF and left ventricular shortening fraction were assessed, report the results of both. If the LVEF or left ventricular shortening fraction were assessed multiple times, report the most recent value(s).

Report **No** if both the LVEF and left ventricular shortening fraction were not reported.

Additionally, indicate whether the echocardiogram report is attached to this form. For instructions on how to attach documents in FormsNet3^{SM}, refer to the Training Guide.

Questions 69 – 70: Cardiac iron T2 imaging *(found on MRI results)*

Indicate if cardiac iron T2 imaging is known within 60 days prior to the start of the preparative regimen / infusion. If **Known**, specify the value and units of measurement. If the cardiac iron T2 imaging was done multiple times, report the most recent assessment prior to the start of the preparative regimen.

Questions 71 – 72: Was brain natriuretic peptide (BNP) assessed?

Brain natriuretic peptide (BNP) is a hormone secreted by cardiac ventricle cells in response to increased ventricular blood volume. BNP is typically measured using various immunoassay techniques. Confirm with the attending physician on where to locate immunoassay results measuring BNP, if available.

Indicate if the BNP was assessed at any time between diagnosis and the start of the preparative regimen. If **Yes**, report the value as documented on the laboratory report (in pg / mL). If BNP was assessed multiple times, report the results of the most recent test. If BNP was not assessed or if no information is available to determine if BNP was tested, report **No** or **Unknown**.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q73 – 75: Renal Assessments

Renal Assessments
Report the renal assessments prior to the start of the preparative regimen / infusion using results measured within 60 days prior to the start of the preparative regimen. If the assessment was performed multiple times, report the closest value to the start of the preparative regimen.

Question 73: Was proteinuria detected? *(excluding microalbuminuria)*

Proteinuria, also known as albuminuria, is excess protein in the urine and may be a sign of kidney disease. Proteinuria may be assessed by 24-hour urine collection or by a urine dipstick analysis. A value of > 150 mg by 24-hour urine collection or 'positive' by a dipstick analysis is indicative of proteinuria.

If proteinuria was assessed within 60 days prior to the start of the preparative regimen / infusion, indicate if proteinuria (excluding microalbuminuria) was detected.

Report **Yes** if the proteinuria was:
- > 150 mg by 24-hour urine collection or
- 'Positive' result by urine dipstick analysis. This also can be reported in EHR as trace, 1+, 2+, 3+, or 4+

Report **No** if the proteinuria was:
- ≦ 150 mg (by 24-hour urine collection) or
- 'Negative' result (by urine dipstick analysis)

If proteinuria was assessed multiple times within 60 days prior to the start of the preparative regimen, report based on the results of the most recent assessment.

If proteinuria was not assessed within 60 days prior to the start of the preparative regimen / infusion, select **Not done.**

Questions 74 – 75: Glomerular Filtration Rate (GFR) *(only required if the recipient is 19 years of age or older)*

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. Indicate whether the GFR was measured prior to the start of the preparative regimen / infusion. If measured, select **Known** and report the laboratory value and unit of measure documented on the laboratory report. If testing was performed multiple times, report the most recent laboratory value obtained. If the GFR was not measured or if no information is available to determine if the GFR was assessed, report **Unknown**.

GFR may be reported to the CIBMTR as "actual" or "calculated." If your center's laboratory does not calculate the actual GFR value, use the Cockcroft-Gault equation (see equation below) to determine the calculated value.

Cockcroft-Gault Equation

GFR = ((140-age)x Wt)/(72 x Cr)
- GFR_cg = Glomerular Filtration Rate (Cockcroft) (mL / min)
- Age = Patient Age (years)
- Sex = Gender (Male)
  - If female, multiply result by 0.85
- Wt = Body Weight (kg)
- Cr = Creatinine (S, mg / dL)

If the laboratory report indicates the GFR as a range, report the average. Example, if the laboratory report indicates GFR is 80 – 120, report "100."

For values expressed as g "> X," report the value as "X+1." Example, if the laboratory report indicates the GFR is greater than 120, report "121."

If the laboratory report indicates the GFR "< X," report the value as "X-1." Example, if f the GFR is reported as < 80, report "79."

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q76 – 78: Avascular Necrosis

Question 76: Has avascular necrosis occurred?

Avascular necrosis is the death of bone tissue due to a lack of adequate blood supply. It is sometimes called osteonecrosis. Avascular necrosis can lead to minute fractures in the bone followed by eventual collapse.

Report **Yes** if the recipient developed avascular necrosis at any time between diagnosis and the start of the preparative regimen / infusion. If avascular necrosis did not occur or no information is available to determine if avascular necrosis occurred at any time between diagnosis and the start of the preparative regimen / infusion, report No or **Unknown**.

Questions 77 – 78: Specify joint(s) affected *(check all that apply)*

Specify the joint affected by avascular necrosis. If more than one joint was affected, select all that apply. If avascular necrosis affected a joint that is not listed, report **Other** and specify the affected joint.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q79: Other Symptoms

Question 79: Have chronic leg ulcers developed?

Chronic leg ulcers are defined as a defect of the skin below the level of the knee persisting for more than six weeks with no tendency to heal after three or more months.

Indicate whether the recipient developed chronic leg ulcers at any time between diagnosis and the start of the preparative regimen / infusion. If chronic leg ulcers developed, report Yes. If chronic leg ulcers did not develop or if no information is available to determine if chronic leg ulcers developed, report No or Unknown, respectively.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q80 – 89: Additional Iron Overload Assessments

Additional Iron Overload Assessments
Report the additional iron overload assessments prior to the start of the preparative regimen / infusion using results measured within 60 days prior to the start of the preparative regimen. If the assessment was performed multiple times, report the closest value to the start of the preparative regimen.

Questions 80 – 83: 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.

Indicate if the serum ferritin is known within 60 days prior to the start of the preparative regimen / infusion. If **Known**, specify the value in ng / mL (µg/L), sample collection date (YYYY-MM-DD), and the upper limit of normal. If the exact date is not known report an estimated date and check the **Date estimated** box. Refer to General Instructions, General Guidelines for Completing Forms for information about reporting estimated dates.

If the serum ferritin was assessed multiple times, report the most recent assessment prior to the start of the preparative regimen.

Questions 84 – 85: Soluble transferrin receptors (sTfR)

Soluble transferrin receptors (sTfR) are proteins found in the blood and are used as a measure of functional iron status. These levels are typically elevated in individuals with an iron deficiency (i.e., iron deficiency anemia).

Indicate if sTfR is known within 60 days prior to the start of the preparative regimen / infusion. If **Known**, report the sTfR value in mg / L. If the sTfR was assessed multiple times, report the most recent results prior to the start of the preparative regimen / infusion.

Questions 86 – 87: Erythropoietin (EPO) level

Erythropoietin (EPO) is a hormone predominantly produced in the kidneys which plays a critical role in the production of red blood cells.

Indicate if EPO is known within 60 days prior to the start of the preparative regimen / infusion. If **Known**, specify the EPO level in IU / L. If EPO was measured multiple times, report the most recent results prior to the start of the preparative regimen / infusion.

Questions 88 – 89: Serum hepcidin level

Hepcidin is a peptide hormone produced in the liver which regulates iron delivered to blood plasma.

Indicate if serum hepcidin is known within 60 days prior to the start of the preparative regimen / infusion. If **Known**, specify the serum hepcidin level in ng / mL (µg / L). If serum hepcidin was measured multiple times, report the most recent results prior to the start of the preparative regimen / infusion.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q90 – 94: Additional Hematologic Labs

Additional Hematologic Labs
Report the additional hematologic labs prior to the start of the preparative regimen / infusion using results measured within 60 days prior to the start of the preparative

regimen. If the assessment was performed multiple times, report the closest value to the start of the preparative regimen.

Questions 90 – 91: Reticulocyte count

Indicate if reticulocyte count is known within 60 days prior to the start of the preparative regimen / infusion. If **Known**, specify the reticulocyte cell count in cells / µL. If reticulocyte counts were measured multiple times prior to the start of the preparative regimen / infusion, report the most recent results.

Questions 92 – 94: Haptoglobin

Haptoglobin is a protein produced by the liver that the body uses to clear free hemoglobin from circulation. Free hemoglobin is the hemoglobin outside of the red blood cells.

Indicate if haptoglobin is known within 60 days prior to the start of the preparative regimen / infusion. If **Known**, specify the value, units of measurement, and the lower limit of normal. If haptoglobin was measured multiple times, report the most recent results prior to the start of the preparative regimen / infusion.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q95 – 105: Specify Existing Organ Impairments

Reporting Multiple Organ Impairments
Complete questions *Specify co-existing diseases or organ impairments any time prior to the start of the preparative regimen* through *Z or T-score* for each co-exiting disease or organ impairment by adding an additional instance in the FormsNet3^{SM} application.

Question 95: Specify co-existing diseases or organ impairments any time prior to the start of the preparative regimen

Indicate if the recipient had any co-existing disease or organ impairments any time prior to the start of the preparative regimen / infusion. Report all co-existing diseases or organ impairments.

- **Amenorrhea**: Absence of menstruation
- **Cardiomyopathy**: A disease of the heart muscle that makes it more difficult for the heart to pump blood to the rest of the body
- **Cholelithiasis**: Presence of one or more gallstones in the gallbladder
- **Growth hormone deficiency / short stature**: A condition in which the body does not produce enough growth hormone / a reduced overall rate of growth.
- **Hypersplenism**: Overactive spleen. Diagnosis is typically based on a physician's exam (checking for splenomegaly), a CBC to assess the concentration of red and white blood cells, and / or an ultrasound, measuring the size of the spleen.
- **Hypogonadism / gonadal dysfunction**: A condition in which the gonads produce reduced levels of sex hormones, causing low testosterone or estrogen.
- **Hypothyroidism requiring replacement therapy**: Decreased activity of the thyroid gland. Diagnosis of hypothyroidism includes high levels of thyroid-stimulating hormone (TSH). Symptoms of hypothyroidism include fatigue, depression, weakness, weight gain, musculoskeletal pain, decreased taste, hoarseness, and / or puffy face.
- **Osteonecrosis**: Death of bone tissue.
- **Osteopathies (porosis, penia)**: Includes osteoporosis or osteopenia. Osteopathies should be reported if osteopenia or osteoporosis is documented within the medical record by the physician or based on the Z or T-score. Osteopenia is defined as a Z or T-score between -1.0 and -2.0 by a DEXA or quantitative CT scan. Osteoporosis is defined as a Z or T-score less than -2.0 by a DEXA or quantitative CT scan.
- **Pulmonary hypertension**: Refers to elevated pulmonary arterial pressure and is diagnosed either by an echocardiogram or right heart catheterization.
- **Retinal changes**: Changes include but are not limited to macular degeneration, floaters, diabetic eye disease, retinal detachment, and retinitis pigmentosa.
- **Thrombosis**: Blood clot within a vein or artery.

If there were no co-existing diseases or organ impairments prior to the start of the preparative regimen / infusion, select **None** and continue with *Were disease modifying therapies given*?

Question 96: Date of diagnosis

Report the diagnosis date (YYYY-MM-DD) of the co-existing disease or organ impairment. If the organ impairment occurred multiple times prior to the start of the preparative regimen, report the co-existing disease or organ impairment once and the diagnosis date of the most recent occurrence. See the example below for additional information.

If the exact date is not known report an estimated date and check the Date estimated box. Refer to General Instructions, General Guidelines for Completing Forms for information about reporting estimated dates.

Example A: A recipient developed a blood clot (thrombosis) on 1/15/2015 which resolved; however, the recipient developed another blood clot 8/20/2019. The recipient's transplant was on 12/1/2019. The diagnosis date of the thrombosis should be reported as 8/20/2019 as this is the date of the most recent episode.

Question 97: Method used to assess osteopathies *(report the most recent Z-score or T-score available; Z- scores are used in patients younger than or equal to 20 and T-scores in patients older than 20) (check all that apply)*

Specify the method used to assess osteopathies at any time prior to the start of the preparative regimen / infusion. Select all that apply.

If osteopathy was not assessed at any time prior to the start of the preparative regimen / infusion or it is not known if assessed, select **Unknown** and continue with *Were disease modifying therapies given*?

Questions 98 – 99: DEXA scan vertebral

Indicate if the vertebral Z-score by DEXA is known. If **Known**, report the Z or T-score. Select Negative value if the Z or T-score is a negative (i.e., Z-score is -1.0).

If multiple DEXA scans were performed prior to the start of the preparative regimen / infusion, report the most recent vertebral Z or T-score.

Questions 100 – 101: DEXA scan hip

Indicate if the hip Z-score by DEXA is known. If **Known**, report the Z or T-score. Select **Negative value** if the Z or T-score is a negative (i.e., Z-score is -1.0).

If multiple DEXA scans were performed prior to the start of the preparative regimen / infusion, report the most recent hip Z or T-score.

Questions 102 – 103: Quantitative CT vertebral

Indicate if the vertebral Z-score by quantitative CT is known. If **Known**, report the Z or T-score. Select **Negative value** if the Z or T-score is a negative (i.e., Z-score is -1.0).

If multiple quantitative CT scans were performed prior to the start of the preparative regimen / infusion, report the most recent vertebral Z or T-score.

Questions 104 – 105: Quantitative CT hip

Indicate if the hip Z-score by quantitative CT is known. If **Known**, report the Z or T-score. Select **Negative value** if the Z or T-score is a negative (i.e., Z-score is -1.0).

If multiple quantitative CT scans were performed prior to the start of the preparative regimen / infusion, report the most recent hip Z or T-score.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q106 – 112: Disease Modifying Therapy

Question 106: Were disease modifying therapies given? *(excludes blood transfusions)*

Indicate if the recipient received disease modifying therapies (review the question below for a list of common disease modifying therapies) at any time between diagnosis and the start of the preparative regimen / infusion, excluding blood transfusion(s).

If the recipient did not receive disease modifying therapies or if no information is available to determine if the recipient received disease modifying therapies, select **No** or **Unknown**, respectively and submit the form.

Reporting Multiple Disease Modifying Therapies
Complete questions *Specify the disease modifying therapy* through *Date therapy stopped* for each line of therapy by adding an additional instance in FormsNet3^{SM} application.

Same Therapy Restarted
If the same therapy was started and stopped multiple times prior to the start of the preparative regimen, only one instance needs to be reported. In this case, report the therapy start date as the date when therapy first began.

Questions 107 – 108: Specify the disease modifying therapy *(check all that apply)*

Select the disease modifying therapy administered as part of the line of therapy being reported. Select all that apply.

- **Hydroxyurea:** A type of chemotherapy. Common brand names include Droxia and Hydrea.
- **Luspatercept:** Treatment for anemia with recipient's beta thalassemia. Also known as Reblozyl.

If the recipient received a therapy which is not listed, select **Other** and specify the treatment. Examples of the other disease modifying therapies includes drugs given as part of a clinical trial for thalassemia or future therapies not yet developed. Report the generic name of the agent, not the brand name.

Questions 109 – 110: Date therapy started

Indicate if the therapy start date is known. If the therapy start date is **Known**, report the first date (YYYY-MM-DD) the recipient began this line of therapy.

If the exact date is not known report an estimated date and check the **Date estimated** box. Refer to General Instructions, General Guidelines for Completing Forms for information about reporting estimated dates.

If the therapy start date is not known, select **Unknown**.

Questions 111 – 112: Date therapy stopped

Indicate if the stop date is known. If **Known**, specify the end date (YYYY-MM-DD). If the therapy is given in cycles, report the end date as the date when the recipient started the last cycle for this line of therapy. Otherwise, report the final administration date.

If the exact date is not known report an estimated date and check the **Date estimated** box. Refer to General Instructions, General Guidelines for Completing Forms for information about reporting estimated dates.

Report **Not applicable** if the recipient is still receiving therapy at the start of the preparative regimen / infusion.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)

Q113: Marrow Evaluation

Marrow evaluation
This section is only completed for Zynteglo® infusions. Report the marrow results at last evaluation prior to the start of the preparative regimen.

Question 113: Was a marrow aspirate and / or biopsy performed?

Indicate **Yes** or **No** if a marrow aspirate and or biopsy was performed prior to the preparative regimen (or prior to infusion if no preparative regimen was given). Report the most recent marrow evaluation and complete the Laboratory Studies (3502) Form and Marrow Surveillance (3506) Form. The intent is to screen for and/or identify changes in the marrow such as dysplasia, MDS, or new hematologic malignancy

Report **Unknown** if not documented.

Section Updates

Question Number	Date of Change	Add/Remove/Modify	Description	Reasoning (if applicable)