Instructions for Thalassemia Post-Infusion (2158)

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

Thalassemia Post-Infusion

The Thalassemia Post-Infusion (2158) Form is one of the Comprehensive Report Forms. This form captures thalassemia-specific post-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 – 15: Post-Infusion Disease Testing
Q16 – 17: Transfusion Therapy
Q18 – 29: Treatment
Q30 – 31: Splenic Assessments
Q32 – 55: Hepatic Assessments
Q56 – 68: Cardiac Assessments
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Q78 – 92: Additional Iron Overload Assessments
Q93 – 101: Additional Hematologic Labs
Q102 – 113: Specify Existing Other Organ Impairments
Q114 – 121: Disease Modifying Therapies
Q122: 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 Post-Infusion (2158)	Modify	Version 3 of the 2158: Thalassemia Post-Infusion section of the Forms Instructions Manual released. Version 3 corresponds to revision 3 of the Form 2158.

Q1 – 15: Post-Infusion Disease Testing

Questions 1 – 2: Was hemoglobin electrophoresis performed? *(do not include results if an RBC transfusion occurred within 4 weeks of the electrophoresis study)*

Indicate if hemoglobin electrophoresis studies were performed in the current reporting period. If a hemoglobin electrophoresis studies were 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 a hemoglobin electrophoresis study was performed but RBC transfusion(s) were given within four weeks prior to the 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 most recent hemoglobin electrophoresis study performed in the reporting period. 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 3 – 15: Specify the hemoglobin allele types based on the sample tested above

Specify the hemoglobin types identified in the reported hemoglobin study (reported in question 2). 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 other hemoglobin type, and report the percentage.

Section Updates

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

Q16 – 17: Transfusion Therapy

Questions 16 – 17: 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 during the current reporting period. If **Yes**, report the date (YYYY-MM-DD) of the most recent RBC transfusion given in the reporting period. If the exact date is not known report an estimated date. Refer to General Instructions, General Guidelines for Completing Forms for information about reporting estimated dates.

If the recipient did not receive any RBC transfusions or no information is available to determine if the recipient received RBC transfusions in the current reporting period, select **No**.

Section Updates

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

Q18 – 29: Treatment

Question 18: Was the recipient on iron chelation?

Iron chelation therapy is used to prevent or reduce iron overload. Examples include Deferoxamine (Desferal) and Deferasirox (Jadenu, Exjade).

Indicate if the recipient was on iron chelation therapy in the current reporting period. If the recipient did not receive iron chelation therapy in the reporting period or it is not known, report **No** or **Unknown**, respectively, and continue with *Was phlebotomy performed?*

Question 19: Was iron chelation previously reported?

Specify if the iron chelation start date was previously reported. If iron chelation was started in prior reporting period and continued into the current, report **Yes** and continue with Is iron chelation ongoing?

The **Yes** option is not applicable for the Day 100 reporting period.

Questions 20 – 21: Date started

Indicate if the iron chelation start date is known. If **Known**, report the date (YYYY-MM-DD) when this therapy began.

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.

Questions 22 – 23: Is iron chelation ongoing?

Indicate if the recipient is still receiving iron chelation therapy on the contact date.
If **Yes**, continue with Was phlebotomy performed?

If **No**, report the date (YYYY-MM-DD) when the recipient received the last dose of iron chelation in the reporting period.

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.

Question 24: Was phlebotomy performed?

Phlebotomy is a procedure in which blood is removed from the body with the goal of reducing iron overload. Phlebotomy therapy is typically a series of these procedures.

Indicate if phlebotomy was performed in the current reporting period. If phlebotomy was not performed in the reporting period or it is not known if performed, select No and continue with Did the recipient have a splenectomy?

Question 25: Was phlebotomy previously reported?

Specify if the phlebotomy start date was previously reported (i.e., the first phlebotomy of the series was started in a prior reporting period). If **Yes**, continue with Is phlebotomy ongoing.

The **Yes** option is not applicable for the Day 100 reporting period.

Questions 26 – 27: Date started

Indicate if the phlebotomy start date is known. If **Known**, report the date (YYYY-MM-DD) when this therapy began.

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.

Questions 28 – 29: Is phlebotomy ongoing?

Indicate if phlebotomy is ongoing at the time of the contact date for the current reporting period. If **Yes**, continue with Splenic Assessments.

If **No**, report the date when phlebotomy ended in the reporting period (i.e., the last phlebotomy of the series).

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.

Section Updates

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

Q30 – 31: Splenic Assessments

Question 30: Did the recipient have a splenectomy?

Specify if the recipient had a splenectomy in the current reporting period. Report **Not applicable** in the following scenarios:

- **Yes**, was reported in a prior reporting period (i.e., splenectomy occurred in a previous reporting period)
- The recipient had a splenectomy prior to infusion

The **Unknown** option should be used sparingly and only if there is no information to determine if the recipient had a splenectomy.

Question 31: Did the recipient have splenomegaly?

Indicate if the recipient had splenomegaly (i.e., abnormal enlargement of the spleen) in this reporting period. Splenomegaly is often documented during the physician's physical assessment of the recipient and represents an abnormal finding. Splenomegaly can also be detected by imaging techniques such as ultrasonography, CT or MRI.

Section Updates

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

Q32 – 55: Hepatic Assessments

Question 32: Does the recipient have hepatomegaly? *(≥ 2 cm below costal margin)*

Indicate if the recipient had hepatomegaly in the current reporting period. Hepatomegaly may be documented during the physician's physical assessment of the recipient or by a radiologic assessment and represents an abnormal finding.

If the recipient does not have hepatomegaly or it not known / not documented, report **No** or **Unknown**, respectively and continue with *Was liver iron content (LIC) tested?*

Questions 33 – 34: Is liver size known?

Specify if the liver size is known. If **Yes**, report the size of the liver in centimeters, measured below the right costal margin as assessed by the physical exam or radiologic

assessment. If there are multiple liver measurements documented, report the most recent measurement.

If the liver size is not documented, report **No**.

Questions 35 – 37: Was liver iron content (LIC) tested?

Transfusions for hemolytic diseases may lead to iron build up or accumulation in the liver and other target organs. Liver iron content (LIC) is commonly used to measure total iron storage. Methods of assessment include, but are not limited to, liver biopsy, T2 MRI, FerriScan, and SQUID biomagnetometer.

Indicate if the LIC was assessed during the current reporting period. If **Yes**, report the value, units of measurement, and specify the method of assessment. If the LIC was assessed multiple times, report the most recent results.

Questions 38 – 40: Was a liver biopsy performed?

Evaluation of liver tissue may be necessary to determine the extent of the recipient's disease. Indicate if a liver biopsy was performed during the current reporting period. If a liver biopsy was performed, report **Yes** and specify the date (YYYY-MM-DD) of the most recent liver biopsy if **Known**. This date should reflect the date the sample was collected for analysis.

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 a liver biopsy was not performed or if no information is available to determine if a liver biopsy was performed, report **No** and go to *Total serum bilirubin*.

Hepatic Assessments
Questions 41 – 45 should be answered based on the same liver biopsy reported in question 40.

Question 41: Was there evidence of liver cirrhosis?

Indicate if there was evidence of cirrhosis from the liver biopsy reported above. If cirrhosis was identified, report **Yes**. If cirrhosis was not identified or no information is available to determine if cirrhosis was present, report **No** or **Unknown**, respectively.

Liver Fibrosis
Seek physician clarification if the documentation is unclear if fibrosis was present or the type of fibrosis identified.

Questions 42 – 43: Was there evidence of liver fibrosis?

Indicate if there was evidence of fibrosis from the liver biopsy reported above. If **Yes**, specify the type of fibrosis.

- **Bridging fibrosis:** Bands of fibrous tissue and collagen with span portal spaces / and or centrilobular spaces creating a 'bridge-like' appearance
- **Periportal fibrosis:** Fibrous expansion of portal fields with fibrosis extending along the terminal portal veins.
- **Other:** Select this option if fibrosis was present but the type is something other than 'bridging fibrosis' or 'periportal fibrosis.'
- **Unknown**: Select this option the biopsy report indicates fibrosis was present but does not specify the type.

If fibrosis was not identified or no information is available to determine if fibrosis was present, report **No** or **Unknown**, respectively and continue with *Was there evidence of chronic hepatitis?*

Question 44: Was there evidence of chronic hepatitis?

Indicate if there was evidence of chronic hepatitis from the liver biopsy reported above. If chronic hepatitis was identified, report **Yes**. If chronic hepatitis was not identified or no information is available to determine if chronic hepatitis was present, report **No** or **Unknown**, respectively.

Question 45: Is documentation being attached? (CIBMTR recommends attaching the liver biopsy report)

Indicate if documentation (i.e., liver biopsy) is attached to this form. For instructions on how to attach documents in FormsNet3^{SM}, refer to the Training Guide.

Questions 46 – 48: Total serum 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. Total bilirubin includes the direct (conjugated) and indirect (unconjugated) bilirubin values. If your laboratory reports direct and indirect separately, add the two together to report the total serum bilirubin.

Indicate if the total serum bilirubin is **Known** for the current reporting period. If **Known**, report the value, units of measurement, and specify the upper limit of normal. If the total serum bilirubin was assessed multiple times during the current reporting period, report the most recent results.

Questions 49 – 51: Direct bilirubin

Indicate if the direct (conjugated) bilirubin is **Known** for the current reporting period.
If **Known**, report the value, units of measurement, and specify the upper limit of normal.
If the direct bilirubin was assessed multiple times during the current reporting period, report the most recent results.

Question 52 – 53: AST (SGOT)

Aspartate aminotransferase, or serum glutamic oxalic transaminase, is an enzyme measured in serum or plasma that reflects liver function and liver cell integrity. Elevated levels of AST may indicate liver damage.

If **Known**, report the value and units of measurement. If the AST was assessed multiple times during the current reporting period, report the most recent results.

Question 54 – 55: ALT (SGPT)

Alanine aminotransferase, or serum glutamic pyruvic transaminase, is an enzyme measured in the blood that reflects liver function. Elevated levels of ALT indicate liver injury, minor or severe.

If **Known**, report the value and units of measurement. If the ALT was assessed multiple times during the current reporting period, report the most recent results.

Section Updates

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

Q56 – 68: Cardiac Assessments

Question 56: Was an echocardiogram performed?

Indicate if an echocardiogram was performed during the current reporting period.
If an echocardiogram was not performed or it is not known if performed, report **No** or **Unknown**, respectively and continue with *Was cardiac MRI performed?*
The **Unknown** option be selected sparingly and only when no information is available to determine if an echocardiogram was performed during the current reporting period.

Questions 57 – 58: Was tricuspid regurgitant jet velocity (TRJV) measured?

Tricuspid regurgitant jet velocity (TRJV) measurements are used in determining the pulmonary artery pressure. An elevated TRJV is an indication of pulmonary hypertension, a condition common in adults with hemolytic diseases. TRJV is typically documented in the echocardiogram report.

Report **Yes** if TRJV was measured in the current reporting period and provide the TRJV value as documented on the echo report. If the TRJV was measured multiple times in the reporting period, report the most recent value. Report **No** if TRJV was not assessed or is not documented on the echo report and continue with *Was left ventricular ejection fraction (LVEF) or left ventricular shortening fraction reported?*

Questions 59 – 61: Was left ventricular ejection fractions (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 assessed in the current reporting period and provide the percentage(s). If the LVEF or left ventricular shortening fraction were assessed multiple times in the reporting period, report the most recent value(s).

Report **No** if both the LVEF and left ventricular shortening fraction were not assessed in the current reporting period.

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

Question 63: Was cardiac MRI performed??

A cardiac MRI is an imaging test that uses magnets, a computer, and radio waves to generate a comprehensive picture of the heart, used to assess the function and structure.

Indicate if a cardiac MRI was performed in the current reporting period. If a cardiac MRI was not performed, report **No** and continue with *Was brain natriuretic peptide (BNP) assessed?*

Question 64: Is there evidence of abnormal cardiac iron deposition based on MRI of the heart??

Cardiac iron deposition is an increased deposition of iron in the heart. Cardiac iron deposition can cause iron overload cardiomyopathy which is an important factor of

congestive heart failure which is seen in recipients with thalassemia. A cardiac MRI may be performed to assess cardiac deposition; this information is typically listed within the MRI interpretation of the report.

Indicate if there is evidence of abnormal cardiac iron deposition based on the most recent cardiac MRI performed in the current reporting period. If abnormal cardiac iron deposition is not detected or it is not known if detected, report **No**.

Question 65 – 66: Cardiac iron T2 imaging

Indicate if cardiac iron T2 imaging is known within this reporting period. If **Known**, specify the value and units of measurement. If the cardiac iron T2 imaging was done multiple times, report the most recent assessment.

Questions 67 – 68: 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)

Q69 – 73: Renal Assessments

Question 69: 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 dipstick analysis. A value of > 150 mg by 24-hour urine collection or 'positive' by a dipstick analysis is indicative of proteinuria.

Indicate if proteinuria was detected (excluding microalbuminuria) in the current reporting period. Report **Yes** if the proteinuria was:

Report **Yes** if the proteinuria was:
- > 150 mg by 24-hour urine collection or
- 'Positive' or trace, 1+, 2+, 3+, or 4+ result by urine dipstick analysis.

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 during the reporting period, report based on the results of the most recent assessment.
If proteinuria was not assessed during the current reporting period, select **Not done**.

Questions 70 – 71: Serum creatinine

Creatinine is a normal metabolic waste that is primarily filtered from the blood by the kidneys and then excreted in the urine. Since it is generally produced at a constant rate, the clearance rate and the serum level are widely used as indicators of kidney function.

Indicate if the serum creatinine is known. If **Known**, report the most recent serum creatinine value available in the current reporting period and specify the units of measurement.

Questions 72 – 73: Glomerular Filtration Rate (GFR) *(if multiple, report the most recent tested)*

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)

Q74 – 76: Avascular Necrosis

Question 74: 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 57 – 76: 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)

Q77: Other Symptoms

Question 77: 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)

Q78 – 92: Additional Iron Overload Assessments

Questions 78 – 79: Serum iron

A serum iron test is used to determine how much iron is in the serum. If the serum iron level is lower than normal, it indicates the body's iron stores are low (iron deficiency). If the serum iron level is higher than normal, it could indicate hemochromatosis, a condition that causes the body to store too much iron.

Indicate if the serum iron is known. If **Known**, report the value and specify the units of measurement. If the serum iron was assessed multiple times, report the most recent results.

Questions 80 – 81: Total iron binding capacity (TIBC)

Total iron binding capacity (TIBC) is a test used to gauge the total amount of iron in the blood.

Indicate if the TIBC is known. If **Known**, report the value and specify the units of measurement. If the TIBC was assessed multiple times, report the most recent results.

Questions 82 – 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. If **Known**, report the value in ng / mL (µg / L). If the serum ferritin was assessed multiple times, report the most recent results.

Questions 84 – 86: Soluble transferrin receptor (sTfR)

Soluble transferring 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. If **Known**, report the value in mg / L and specify the date (YYYY-MM-DD) of sample collection. If the sTfR was assessed multiple times, report the most recent results.

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.

Questions 87 – 89: 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. If **Known**, report the EPO value in IU / L and specify the date (YYYY-MM-DD) of sample collection. If EPO was measured multiple times, report the most recent results.

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.

Questions 90 – 92: 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. If **Known**, specify the serum hepcidin level in ng / mL (µg / L) and report the date of sample collection. If serum hepcidin was measured multiple times, report the most recent results.

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 Form for information about reporting estimated dates.

Section Updates

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

Q93 – 101: Additional Hematologic Labs

Questions 93 – 95: Reticulocyte count

Indicate if the reticulocyte count is known. If **Known**, specify the reticulocyte cell count in cells / µL, and report the sample collection date (YYYY-MM-DD). If reticulocyte counts were measured multiple times in the reporting period, report the most recent results.

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.

Questions96 – 98: Lactate dehydrogenase (LDH)

Lactate dehydrogenase is an enzyme found in the cytoplasm of almost all tissues, which converts L-lactate into pyruvate, or pyruvate into L-lactate depending on the oxygen level.

Indicate if LDH is known. If **Known**, report the value, specify the units of measurement, and the upper limit of normal. If the LDH was assessed multiple times in the current reporting period, report the most recent value.

Questions 99 – 101: 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. If **Known**, report the value, specify the units of measurement, and the lower limit of normal. If the haptoglobin was assessed multiple times in the current reporting period, report the most recent value.

Section Updates

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

Q102 – 113: Specify Existing Organ Impairments

Reporting Multiple Organ Impairments
Complete questions *Specify organ impairments or disorders developed* through *Z or T-score* for each co-exiting disease or organ impairment by adding an additional instance in the FormsNet3^{SM} application.

Question 102: Specify organ impairments or disorders developed

Indicate if the recipient developed any of the co-existing diseases or organ impairments listed below during the current reporting period. Select all that apply.

- **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 the vein or artery.

The co-existing disease or organ impairment should be reported in any of the following scenarios:

- The co-existing disease or organ impairment was first diagnosed in the current reporting period.
- The co-existing disease or organ impairment was diagnosed prior to infusion or in a prior reporting period and persisted into the current reporting period.
- The co-existing disease or organ impairment was diagnosed prior to infusion or in a prior reporting period, resolved, and then recurred in the current reporting period.

Report **None** and continue with Were disease modifying therapies given in any of the following scenarios:

- No co-existing disease or organ impairments developed during the current reporting period.
- A co-existing disease or organ impairment developed prior to start of the preparative regimen / infusion or in a prior reporting period but resolved before the current reporting period.

Question 103: Was this organ impairment previously reported?

Specify if the co-existing disease or organ impairment diagnosis date was previously reported. If **Yes**, continue with the next question.

If the co-existing disease or organ impairment was diagnosed prior to infusion or in a prior reporting period, resolved, and then recurred in the current reporting period, report **No**.

Question 104: Date of diagnosis

Report the diagnosis date (YYYY-MM-DD) of the co-existing disease or organ impairment.

If the co-existing disease or organ impairment was diagnosed prior to infusion or in a prior reporting period, resolved, and then recurred in the current reporting period, report the diagnosis date as the date of the most recent episode.

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.

Question 105: Method used to assess osteopathies (report the most recent Z-score available; Z-score 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 during the current reporting period. Select all that apply.

If osteopathy was not assessed during the current reporting period or is not known if assessed, select **Unknown** and continue with Disease Modifying Therapies.

Questions 106 – 107: 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 during the current reporting period, report the most recent vertebral Z or T-score.

Questions 108 – 109: 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 during the current reporting period, report the most recent hip Z or T-score.

Questions 110 – 111: 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 during the current reporting period, report the most recent vertebral Z or T-score.

Questions 112 – 113: 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 during the current reporting period, report the most recent hip Z or T-score.

Section Updates

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

Q114 – 121: Disease Modifying Therapy

Question 114: Were disease modifying therapies given? *(excludes blood transfusions)*

Indicate if the recipient received disease modifying therapies (see question 104 for a list of common disease modifying therapies) during the current reporting period, 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 disease modifying therapy administered by adding an additional instance in FormsNet3^{SM} application.

Same Therapy Restarted
If the same therapy was started and stopped multiple times during the current reporting period, only one instance needs to be reported. In this case, report the therapy start date as the date therapy first began in the reporting period.

Questions 115 – 116: Specify the disease modifying therapy *(check all that apply)*

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

- **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. Report the generic name of the agent, not the brand name.

Question 117: Was the date therapy started previously reported?

Specify if the therapy start date was previously reported. If the therapy was started in a prior reporting period and continued into the current reporting period, select **Yes**, and continue with *Date therapy stopped*.

The **Yes** option is not applicable for the Day 100 reporting period.

Questions 118 – 119: Date therapy started

Indicate if the therapy start date is known. If 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.

Questions 120 – 121: Date therapy stopped

Indicate if the stop date is known. If the therapy stop date is Known, report the date (YYYY-MM-DD) when the therapy end. If the therapy is being 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 for the therapy being reported.

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 on the contact date.

Section Updates

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

Q122: Marrow Evaluation

Marrow evaluation
This section is only completed for Zynteglo® infusions.

Question 122: Was a marrow aspirate and / or biopsy performed?

Indicate **Yes** or **No** if a marrow aspirate and or biopsy was performed in this reporting period. Additionally, 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)