Instructions for Myelodysplasia/Myeloproliferative Neoplasms (MDS/MPN) Post-HCT Data (Form 2114 – Revision 3)

This section of the CIBMTR Forms Instruction Manual is intended to be a resource for completing the Myelodysplasia/Myeloproliferative Neoplasms (MDS/MPN) Post-HCT Form.

E-mail comments regarding the content of the CIBMTR Forms Instruction Manual to: CIBMTRFormsManualComments@nmdp.org. Comments will be considered for future manual updates and revisions. For questions that require an immediate response, please contact your transplant center's CIBMTR CRC.

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Myelodysplasia/Myeloproliferative Neoplasms (MDS/MPN) Post-HCT Data

The myelodysplastic syndromes (MDS) are a group of clonal hematopoietic stem cell diseases characterized by cytopenia(s), dysplasia (abnormal growth or development leading to an alteration in size, shape and organization of the cell) in one or more of the major cell lines (WBC, RBC and/or platelets), ineffective hematopoiesis and an increased risk of development of acute myelogenous leukemia (AML). MDS occurs primarily in older adults with a median age of 70 years. The majority of patients present with symptoms related to cytopenias; most patients present with anemia requiring RBC transfusions.

Primary or *de novo* MDS occurs without a known history of chemotherapy or radiation exposure. Some inherited hematologic disorders, such as Fanconi anemia, dyskeratosis

congenita, Shwachmann-Diamond syndrome, and Diamond-Blackfan syndrome are associated with an increased risk of MDS.

Myeloproliferative neoplasms (MPN) are characterized by the overproduction of blood cells (red blood cells, white blood cells and/or platelets) or collagen in the bone marrow. Often MPN will be identified by a blood test for another condition, as some patients are asymptomatic. Common symptoms found in the array of myeloproliferative disorders include fatigue and the enlargement of the spleen (splenomegaly).

The Myelodysplasia/Myeloproliferative Neoplasms Post-HCT Data Form is one of the Comprehensive Report Forms. This form captures MDS/MPN-specific post-HCT data such as: disease assessment at time of best response, relapse or progression, most recent laboratory studies, and disease status at the time of evaluation for this reporting period.

This form must be completed for all recipients who are randomized to the Comprehensive Report Form (CRF) track and whose primary disease is reported on Form 2400, question 347, as “Myelodysplastic (MDS)/myeloproliferative (MPN) diseases (50) (Please classify all preleukemias)” The Myelodysplasia/Myeloproliferative Neoplasms (MDS/MPN) Post-HCT Data (Form 2114) must be completed in conjunction with each Post-HCT follow-up form completed (Forms 2100, 2200, and 2300). The form is designed to capture specific data occurring within the timeframe of each reporting period (i.e., between day 0 and day 100 for Form 2100, between day 100 and the six-month date of contact for Form 2200, between the date of contact for the six-month follow up and the date of contact for the one-year follow up for Form 2200, etc.).

For recipients who had a MDS/MPN that transformed to AML prior to transplant, only Form 2110 (Acute Myelogenous Leukemia Post-HCT Data) must be completed. Form 2014 (Myelodysplasia/Myeloproliferative Disorders Pre-HCT Data) is required to obtain MDS/MPN data pre-HCT, but Form 2114 (Myelodysplasia/Myeloproliferative Disorders Post-HCT Data) is not required for these recipients.

Key Fields

Accuracy of the Key Fields is essential for ensuring that:

- Data are being reported for the correct recipient.
- Outcomes data accurately reflects appropriate transplant type and product for each transplant center.
- Data are being shared with the correct donor center, cord blood bank, cooperative registry, or other agency.

The Key Fields precede the form body and are automatically populated in the FormsNet3^{SM} application based on information provided on the CRID Assignment Form 2804. If errors are noted in the key fields, correct Form 2804 and then review it for

accuracy. After Form 2804 has been corrected, verify data has been updated on all completed forms. If the data has not been updated automatically, centers will need to reprocess the completed forms to correct the key field data. If errors are noted in key fields for second or subsequent transplants, contact your CRC to make any necessary corrections to the transplant or product type. Transplant and product type will not be automatically populated on product- or donor-specific forms (Forms 2004, 2005, and 2006) and will need to be manually reported.

Disease Assessment at the Time of Best Response to HCT

Best response is based on response to the HCT, but does not include response to any therapy given for disease relapse or progression post-HCT. When determining the best response to HCT, compare the post-HCT disease status to the status immediately prior to the preparative regimen, regardless of time since HCT. This comparison is meant to capture the best disease status in response to HCT that occurred during the same reporting interval. If a recipient achieved their best response in a previous reporting interval, confirm the best response and check the box to indicate "date previously reported."

Question 1: Compared to the disease status prior to the preparative regimen, what was the best response to HCT since the date of the last report? (Include response to any therapy given for post-HCT maintenance or consolidation, but exclude any therapy given for relapsed, persistent, or progressive disease)
The intent of this question is to determine the best response to HCT overall. This is assessed in each reporting period. When evaluating the best response, determine the disease status within the reporting period and compare it to all previous post-HCT reporting periods. If the response in the current reporting period is the best response to date, report the disease status established within this reporting period. If a better response was established in a previous reporting period, report the previously established disease status.

Any specified therapy administered post-HCT to prolong remission or for minimal residual disease, is considered part of the HCT and should be included when assessing the recipient's response to transplant. Treatment given post-HCT for relapsed or persistent disease is not considered part of the HCT and should be excluded when assessing the response to HCT. If treatment was given post-HCT for relapsed or persistent disease, assess the patient's best response ***prior*** to the start of therapy. If therapy was given for reasons other than relapsed or persistent disease, assess the patient's best response throughout the entire duration of the reporting period.

If the recipient was in remission at the start of the preparative regimen, indicate "continued complete remission" and continue with question 21. For all other responses, continue with question 2. Refer to the table below for response guidelines.

Table 1. Disease Status

Response	Description
Continued Complete Remission	Patients transplanted in CR, even if the first assessment post transplant shows relapse or progression to AML.
Complete Remission (CR)	*Requires all of the following maintained for a minimum of four weeks:* Bone marrow evaluation: • < 5% myeloblasts with normal maturation of all cell lines Peripheral blood evaluation: • Hemoglobin ≥ 11 g/dL untransfused without erythropoietic support • ANC ≥ 1000/mm^3 without myeloid growth factor support • Platelets ≥ 100,000/mm^3 without thrombopoietic support • 0% blasts in blood Alternative CR criteria are accepted in the setting of **pediatric** MDS and are as follows: • Complete donor chimerism (≥ 95% donor chimerism without recipient cells detected) • Hemoglobin ≥ 11 g/dL untransfused without erythropoietic support • ANC ≥ 1000/mm^3 without myeloid growth factor support • Platelets ≥ 100,000/mm^3 without thrombopoietic support
Hematologic Improvement (HI)	*Requires one measurement of the following maintained for at least eight weeks without ongoing cytotoxic therapy:* Hematologic improvement - erythropoietic (HI-E): • Hemoglobin increase of ≥ 1.5 g/dL untransfused or • For RBC transfusions performed for hemoglobin ≤ 9.0: reduction in RBC units transfused in 8 weeks by ≥ 4 units compared to the number of units transfused in the 8 weeks prior to treatment Hematologic improvement - platelets (HI-P): • For pre-transplant platelet count of > 20 x10^9, platelet absolute increase of ≥ 30 x10^9 • For pre-transplant platelet count of < 20 x10^9, platelet absolute increase of ≥ 20 x10^9 and ≥ 100% increase from pre-treatment level Hematologic improvement - neutrophils (HI-N): • Neutrophil count increase of ≥ 100% from pre-treatment level and an absolute increase of ≥ 500/mm^3

Table 1. Disease Status *(cont.)*

Response	Description
No Response (NR)/Stable Disease (SD)	Does not meet the criteria for at least HI, but no evidence of disease progression
Progression from Hematologic Improvement (Prog from HI)	*Requires at least one of the following in the absence of another explanation (e.g., infection, bleeding, ongoing chemotherapy, etc.):* • ≥ 50% reduction from maximum response levels in granulocytes or platelets • Reduction in hemoglobin by ≥ 1.5 g/dL • Transfusion dependence *Note: declining donor chimerism does not meet the criteria for progression.*
Relapse from Complete Remission (Rel from CR)	*Requires at least one of the following:* • Return to pre-treatment bone marrow blast percentage • Decrease of ≥ 50% from maximum response levels in granulocytes or platelets • Transfusion dependence, or hemoglobin level ≥ 1.5 g/dL lower *Note: declining donor chimerism does not meet the criteria for relapse.*
Progression to AML	≥ 20% blasts in the bone marrow

Question 2: Was the date of best response previously reported?
If the recipient achieved their best response in the current reporting period, indicate "no" and continue with question 3.

If the recipient achieved their best response in a previous reporting period (applicable on the 6-month follow-up forms and beyond), indicate "yes" and continue with question 21.

Question 3: Date assessed:
Indicate the date the best response was achieved. Report the date of the pathological evaluation (e.g., bone marrow biopsy) or blood/serum assessment (e.g., CBC, peripheral blood smear). Enter the date the sample was collected for pathological and laboratory evaluations.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Question 4: Was the disease status assessed by molecular testing (e.g., PCR)?
Molecular assessment involves testing blood or bone marrow for the presence of known molecular markers associated with the recipient's disease. Molecular assessments are

the most sensitive test for genetic abnormalities and involve amplifying regions of cellular DNA by polymerase chain reaction (PCR), typically using RNA to generate complementary DNA through reverse transcription (RT-PCR). The amplified DNA fragments are compared to a control, providing a method of quantifying log increase of genetic mutation transcripts. Each log increase is a 10-fold increase of gene transcript compared to control.

Indicate if molecular studies were obtained at the time the recipient achieved their best response.

If molecular studies were obtained, select "yes" and continue with question 5.

If molecular studies were not obtained, the sample for molecular studies was inadequate, or it is unknown if molecular studies were performed, select "no" and continue with question 8.

Question 5: Date assessed:
Report the date the sample was collected for molecular testing.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Question 6: Was there evidence of disease?
Indicate if molecular studies showed abnormalities consistent with the recipient's disease. If there are molecular abnormalities consistent with evidence of disease, check "yes" and continue with question 7.

If molecular study results were not consistent with evidence of disease, check "no" and continue with question 8.

Question 7: Was the status considered a disease relapse or progressive disease?
Indicate if the molecular abnormalities were considered to be relapsed or progressive disease. Criteria for molecular relapse or progression are established by clinical judgment, and should reflect the clinical decision of the transplant physician. A recipient may be reported to have molecular relapse or progression even in the setting of hematologic CR; criteria for complete remission are based on hematologic and pathologic characteristics and are independent of molecular markers of disease.

If the recipient has molecular abnormalities that the physician considers to be consistent with molecular relapse or progression, select "yes." Also report relapse or progression under the "Disease Relapse or Progression Post-HCT" section of this form.

If the recipient has molecular abnormalities that the physician does not consider to be consistent with molecular relapse or progression, select "no."

Question 8: Was the disease status assessed via flow cytometry?
Flow cytometry assessment is a method of analyzing peripheral blood, bone marrow, or tissue preparations for multiple unique cell characteristics; its primary clinical purpose in the setting of MDS, MPN, and leukemias is to quantify blasts in the peripheral blood or bone marrow, or to identify unique cell populations through immunophenotyping. Flow cytometry assessment may also be referred to as "MRD" or minimal residual disease testing.

Indicate if flow cytometry was performed on peripheral blood and/or bone marrow sample at the time the recipient achieved their best response post-HCT.

If flow cytometry was performed, select "yes" and continue with question 9.

If flow cytometry was not performed, flow cytometry sample was inadequate, or it is unknown if flow cytometry was performed, select "no" and continue with question 12.

Question 9: Date assessed:
Report the date peripheral blood or bone marrow sample was collected for flow cytometry analysis.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Question 10: Was there evidence of disease?
Indicate if evidence of disease was detected in the sample sent for flow cytometry analysis. Evidence of disease may include the presence of blasts or an immunophenotype known to characterize the patient's disease. If flow cytometry results are consistent with evidence of disease, select "yes" and continue with question 11.

If flow cytometry results were not consistent with evidence of disease, check "no" and continue with question 12.

Question 11: Was the status considered a disease relapse or progressive disease?
Indicate if the flow cytometry results were considered consistent with relapsed or progressive disease. Criteria for flow cytometric relapse or progression are established by clinical judgment. If the recipient has abnormalities by flow cytometry that the physician considers to be consistent with flow cytometric relapse or progression, select "yes." Also report relapse or progression under the "Disease Relapse or Progression Post-HCT" section of this form.

If the recipient has residual disease by flow cytometry that the physician does not consider to be consistent with relapse or progression, select "no."

Question 12: Was the disease status assessed by cytogenetic testing (conventional or FISH)?
Cytogenetics is the study of chromosomes. Cytogenetic assessment involves testing blood or bone marrow for the presence of known chromosomal abnormalities that reflect the recipient's disease. Testing methods include conventional chromosome analysis (karyotyping) or fluorescence *in situ* hybridization (FISH). For more information about cytogenetic testing and terminology, see Appendix R, Cytogenetic Abbreviations and Terminology.

Indicate if cytogenetic studies were obtained at the time the recipient achieved their best response post-transplant.

If cytogenetic studies were obtained, select "yes" and continue with question 13.

If cytogenetic studies were not obtained, cytogenetic samples were inadequate, or it is unknown if chromosome studies were performed, select "no" and continue with question 21.

Question 13: Was the disease status assessed via FISH?
FISH, fluorescence *in situ* hybridization, is a sensitive technique that assesses a large number of cells. This technique utilizes special probes that recognize and bind to fragments of DNA commonly found in MDS/MPN. These probes are mixed with cells from the recipient's blood. A fluorescent "tag" is then used to visualize the binding of the probe to the diseased cells.

FISH testing for sex chromosomes after sex-mismatched allogeneic HCT should not be considered disease assessment, as the purpose is to determine donor chimerism. Additionally, the FISH probe panel should reflect the patient's current disease; FISH may be used as surveillance for changes associated with post-therapy malignancy.

If FISH studies were obtained, select "yes" and continue with question 14.

If FISH studies were not obtained, FISH sample was inadequate, or it is unknown if FISH studies were performed, indicate "no" and continue with question 17.

Question 14: Date assessed:
Report the date the sample was collected for FISH assessment.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Question 15: Was there evidence of disease?
Indicate if evidence of disease was detected in the sample sent for FISH assessment. If FISH results were consistent with evidence of disease, check "yes" and continue with question 16.

If FISH results were not consistent with evidence of disease, check “no” and continue with question 17.

Question 16: Was the status considered a disease relapse or progressive disease?
Indicate if the FISH abnormalities were considered to be relapsed or progressive disease. Criteria for cytogenetic relapse or progression are established by clinical judgment, and should reflect the clinical decision of the transplant physician. A recipient may be reported to have cytogenetic relapse or progression even in the setting of hematologic CR; criteria for complete remission are based on hematologic and pathologic characteristics and are independent of cytogenetic markers of disease.

If the recipient has FISH abnormalities that the physician considers to be consistent with cytogenetic relapse or progression, check “yes.” Also report relapse or progression under the “Disease Relapse or Progression Post-HCT” section of this form.

If the recipient has FISH abnormalities that the physician does not consider to be consistent with relapse or progression, check “no.”

Question 17: Was the disease status assessed via conventional cytogenetics?
Conventional cytogenetics are performed by culturing cells (growing cells under controlled conditions) until they reach the dividing phase. Techniques are then performed to visualize the chromosomes during cell division so that various bands and reconfigurations can be seen. This is called karyotyping. Banding pattern differentiation and chromosomal reconfiguration demonstrate evidence of disease.

If conventional cytogenetic studies were obtained, check “yes” and continue with question 18.

If conventional cytogenetic studies were not obtained, if the culture failed, or if it is unknown if conventional cytogenetic studies were performed, indicate “no” and continue with question 21.

Question 18: Date assessed:
Report the date the sample was collected for conventional cytogenetic assessment.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Question 19: Was there evidence of disease?
Indicate if evidence of disease was detected in the sample sent for conventional cytogenetic assessment. If conventional cytogenetic results were consistent with evidence of disease, check “yes” and continue with question 20.

If conventional cytogenetic results were not consistent with evidence of disease, check “no” and continue with question 21.

Question 20: Was the status considered a disease relapse or progressive disease?
Indicate if the conventional cytogenetic abnormalities were considered to be relapsed or progressive disease. Criteria for cytogenetic relapse or progression are established by clinical judgment, and should reflect the clinical decision of the transplant physician. A recipient may be reported to have cytogenetic relapse or progression even in the setting of hematologic CR; criteria for complete remission are based on hematologic and pathologic characteristics and are independent of cytogenetic markers of disease.

If the recipient has conventional cytogenetic abnormalities that the physician considers to be consistent with cytogenetic relapse or progression, select “yes.” Also report relapse under the “Disease Relapse or Progression Post-HCT” section of this form.

If the recipient has conventional cytogenetic abnormalities that the physician does not consider to be consistent with cytogenetic relapse or progression, check “no.”

Relapse or Progression Post-HCT

Question 21: Was a disease relapse or progression detected by molecular testing (e.g., PCR)?
Molecular assessment involves testing blood or bone marrow for the presence of known molecular markers associated with the recipient’s disease. Molecular assessments are the most sensitive test for genetic abnormalities and involve amplifying regions of cellular DNA by polymerase chain reaction (PCR), typically using RNA to generate complementary DNA through reverse transcription (RT-PCR). The amplified DNA fragments are compared to a control, providing a method of quantifying log increase of genetic mutation transcripts. Each log increase is a 10-fold increase of gene transcript compared to control.

If molecular studies were obtained and consistent with relapse or progression at any point in the reporting period, check “yes” and continue with question 22.

If molecular studies were not consistent with relapse or progression during the reporting period, indicate “no” and continue with question 23. Examples include no molecular studies obtained, sample for molecular studies was inadequate, it is unknown if molecular studies were performed, or molecular studies were obtained and were not consistent with relapse or progression.

Question 22: Date assessed:
Report the date the sample was collected for molecular testing.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Question 23: Was a disease relapse or progression detected via flow cytometry?
Flow cytometry assessment is a method of analyzing peripheral blood, bone marrow, or tissue preparations for multiple unique cell characteristics. Its primary clinical purpose in the setting of MDS, MPN, or leukemias is to quantify blasts in the peripheral blood or bone marrow, or to identify unique cell populations through immunophenotyping. Flow cytometry assessment may also be referred to as "MRD" or minimal residual disease testing.

If flow cytometry was performed and results were consistent with relapse or progression at any point in the reporting period, check "yes" and continue with question 24.

If flow cytometry results were not consistent with relapse or progression during the reporting period, indicate "no" and continue with question 25. Examples include no flow cytometry assessment performed, flow cytometry sample was inadequate, it is unknown if flow cytometry was performed, or flow cytometry studies were obtained and were not consistent with relapse or progression.

Question 24: Date assessed:
Report the date the peripheral blood or bone marrow sample was collected for flow cytometry analysis.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Question 25: Was a disease relapse or progression detected by cytogenetic testing (conventional or FISH)?
Cytogenetics is the study of chromosomes. Cytogenetic assessment involves testing blood or bone marrow for the presence of known chromosomal abnormalities that reflect the recipient's disease. Testing methods include conventional chromosome analysis (karyotyping) or fluorescence *in situ* hybridization (FISH). For more information about cytogenetic testing and terminology, see Appendix R, Cytogenetic Abbreviations and Terminology.

If cytogenetic studies were performed and the results were consistent with relapse or progression at any point in the reporting period, check "yes" and continue with question 26.

If cytogenetic studies were not consistent with relapse or progression during the reporting period, indicate "no" and continue with question 30. Examples include no karyotype or FISH study performed, karyotype or FISH sample was inadequate, it is unknown if karyotype or FISH study was performed, or karyotype or FISH studies were performed and results were not consistent with relapse or progression.

Question 26: Was a disease relapse or progression detected via FISH?
FISH, fluorescence *in situ* hybridization, is a sensitive technique that assesses a large number of cells. This technique uses special probes that recognize and bind to

fragments of DNA commonly found in MDS/MPN. These probes are mixed with cells from the recipient's blood. A fluorescent "tag" is then used to visualize the binding of the probe to the diseased cells.

FISH testing for sex chromosomes after sex-mismatched allogeneic HCT should not be considered disease assessment, as the purpose is to determine donor chimerism. Additionally, the FISH probe panel should reflect the patient's current disease; FISH may be used as surveillance for changes associated with post-therapy malignancy.

If FISH studies were performed and consistent with relapse or progression at any point in the reporting period, check "yes" and continue with question 27.

If FISH studies were not consistent with relapse or progression during the reporting period, indicate "no" and continue with question 28. Examples include no FISH study was performed, FISH sample was inadequate, it is unknown if FISH study was performed, or FISH studies were obtained and were not consistent with relapse or progression.

Question 27: Date assessed:
Report the date the sample was collected for FISH assessment.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Question 28: Was a disease relapse or progression detected via conventional cytogenetics?
Conventional cytogenetics are performed by culturing cells (growing cells under controlled conditions) until they reach the dividing phase. Techniques are then performed to visualize the chromosomes during cell division so that various bands and reconfigurations can be seen. This is called karyotyping. Banding pattern differentiation and chromosomal reconfiguration demonstrate evidence of disease.

If conventional cytogenetic studies were performed and results were consistent with relapse or progression at any point in the reporting period, check "yes" and continue with question 29.

If conventional cytogenetic studies were not consistent with relapse or progression during the reporting period, indicate "no" and continue with question 30. Examples include no conventional cytogenetics performed, conventional cytogenetic culture failed, it is unknown if conventional cytogenetic studies were performed, or conventional cytogenetics were obtained and were not consistent with relapse or progression.

Question 29: Date assessed:
Report the date the sample was collected for conventional cytogenetic assessment.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Question 30: Was a disease relapse or progression detected via clinical/hematologic assessment?
Clinical and hematologic assessments are the least sensitive methods of establishing a patient's disease status. Examples include pathological evaluation (e.g., bone marrow biopsy), radiographic examination (e.g., X-ray, CT scan, MRI scan, PET scan), laboratory assessment (e.g., CBC, peripheral blood smear), and clinician evaluation and physical examination.

The following criteria are used to determine if a clinical/hematologic relapse or progression was detected:

Table 2. Relapse or Progression Criteria

Response	Description
Progression from Hematologic Improvement (Prog from HI)	*Requires at least one of the following in the absence of another explanation (e.g., infection, bleeding, ongoing chemotherapy, etc.):* • ≥ 50% reduction from maximum response levels in granulocytes or platelets • Reduction in hemoglobin by ≥ 1.5 g/dL • Transfusion dependence *Note: declining donor chimerism does not meet the criteria for progression.*
Relapse from Complete Remission (Rel from CR)	*Requires at least one of the following:* • Return to pre-treatment bone marrow blast percentage • Decrease of ≥ 50% from maximum response levels in granulocytes or platelets • Transfusion dependence, or hemoglobin level ≥ 1.5 g/dL lower than prior to therapy *Note: declining donor chimerism does not meet the criteria for relapse.*
Progression to AML	≥ 20% blasts in the bone marrow

If clinical and/or hematologic assessments were performed and consistent with relapse or progression at any point in the reporting period, check "yes" and continue with question 31.

If clinical and/or hematologic assessments were not consistent with relapse or progression during the reporting period, indicate "no" and continue with question 32.

Examples include if it is unknown if clinical and/or hematologic assessments were performed, or clinical and/or hematologic assessments were not consistent with relapse or progression.

Question 31: Date assessed:
Report the date of clinical or hematologic assessment. Indicate the date the sample was collected for pathological and laboratory evaluations, the date the imaging took place for radiographic assessments, or the date of physical examination.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Most Recent Laboratory Studies

Questions 32-33: Was the bone marrow examined (post-HCT) since the date of last report?
Indicate if a bone marrow examination was performed during the current reporting period. If "yes," indicate the date sample was collected in question 33. If "no" or "unknown," continue with question 38.
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Questions 34-35: Blasts in bone marrow:
Indicate whether the percentage of blasts in the bone marrow was "known" or "unknown." If "known," report the percentage documented on the laboratory report during the current reporting period in question 35. If "unknown," continue with question 36.

If multiple marrow examinations were performed, report the most recent evaluation.

Question 36: Did the recipient have myelofibrosis since the date of last report?
Myelofibrosis describes the replacement of bone marrow by fibrous (scar) tissue. Indicate if the recipient's bone marrow showed myelofibrosis since the date of the last report. If there was evidence of myelofibrosis since the date of the last report, indicate "yes" and continue with question 37. If there was no evidence of myelofibrosis or the presence of myelofibrosis is unknown, select "no" or "unknown" and continue with question 38.

If multiple marrow examinations were performed, report the most recent evaluation.

Question 37: Specify the status of marrow fibrosis since the date of last report.
Compared to the status of the marrow fibrosis since the last report, indicate if the fibrosis is "unchanged," "worse," "improved," "resolved," or "unknown."

If multiple marrow examinations were performed, report the most recent evaluation.

If this comprehensive report form is for the 100-day post-HCT reporting period, compare the fibrosis in the most recent bone marrow examination during the 100-day reporting period to the fibrosis in the bone marrow examination just prior to the start of the preparative regimen for the HCT.

Disease Status at the Time of Evaluation for this Reporting Period

Question 38: What is the current disease status?
Report the disease status at the time of evaluation for this reporting period. Some judgment is required when evaluating if the recipient meets all specified CR criteria, specifically ANC and platelet criteria. If the recipient does not meet these parameters, the underlying cause should be assessed. If the cause for a low ANC or a low platelet count is related to MDS/MPN, the disease status should not be reported as "complete remission." If the cause for not meeting one of these parameters is due to something other than underlying hematologic disease, such as renal insufficiency, hemolysis, or drug-related causes, the disease status may still be reported as "complete remission." Refer to the table below for descriptions of each response.

Table 3. Disease Status

Response	Description
Complete Remission (CR)	*Requires all of the following maintained for a minimum of four weeks:* Bone marrow evaluation: • < 5% myeloblasts with normal maturation of all cell lines Peripheral blood evaluation: • Hemoglobin ≥ 11 g/dL untransfused without erythropoietic support • ANC ≥ 1000/mm^3 without myeloid growth factor support • Platelets ≥ 100,000/mm^3 without thrombopoietic support • 0% blasts in blood Alternative CR criteria are accepted in the setting of **pediatric** MDS and are as follows: • Complete donor chimerism (≥ 95% donor chimerism without recipient cells detected) • Hemoglobin ≥ 11 g/dL untransfused without erythropoietic support • ANC ≥ 1000/mm^3 without myeloid growth factor support • Platelets ≥ 100,000/mm^3 without thrombopoietic support

Table 3. Disease Status *(cont.)*

Response	Description
Hematologic Improvement (HI)	*Requires one measurement of the following maintained for at least eight weeks without ongoing cytotoxic therapy:* Hematologic improvement - erythropoietic (HI-E): • Hemoglobin increase of ≥ 1.5 g/dL untransfused or • For RBC transfusions performed for hemoglobin ≤ 9.0: reduction in RBC units transfused in 8 weeks by ≥ 4 units compared to the number of units transfused in the 8 weeks prior to treatment Hematologic improvement - platelets (HI-P): • For pre-transplant platelet count of > 20 $x10^9$, platelet absolute increase of ≥ 30 $x10^9$ • For pre-transplant platelet count of < 20 $x10^9$, platelet absolute increase of ≥ 20 $x10^9$ and ≥ 100% increase from pre-treatment level Hematologic improvement - neutrophils (HI-N): • Neutrophil count increase of ≥ 100% from pre-treatment level and an absolute increase of ≥ 500/mm^3
No Response (NR)/Stable Disease (SD)	Does not meet the criteria for at least HI, but no evidence of disease progression
Progression from Hematologic Improvement (Prog from HI)	*Requires at least one of the following in the absence of another explanation (e.g., infection, bleeding, ongoing chemotherapy, etc.):* • ≥ 50% reduction from maximum response levels in granulocytes or platelets • Reduction in hemoglobin by ≥ 1.5 g/dL • Transfusion dependence *Note: declining donor chimerism does not meet the criteria for progression.*
Relapse from Complete Remission (Rel from CR)	*Requires at least one of the following:* • Return to pre-treatment bone marrow blast percentage • Decrease of ≥ 50% from maximum response levels in granulocytes or platelets • Transfusion dependence or hemoglobin level ≥ 1.5 g/dL lower than prior to therapy *Note: declining donor chimerism does not meet the criteria for relapse.*
Progression to AML	≥ 20% blasts in the bone marrow

Question 39: Was the recipient in molecular remission?
Molecular assessment involves determining whether a molecular marker for the disease exists in the blood or bone marrow. Molecular assessment is the most sensitive method of detection and can indicate known genetic abnormalities. RFLP testing (with PCR amplification) is an example of a molecular testing method.

Molecular remission is a treatment response in which no molecular abnormalities are detected in the blood and/or marrow following a previously identified molecular abnormality associated with the recipient's disease. If molecular abnormalities associated with the recipient's disease were identified previously and were absent at the time of evaluation for the reporting period, indicate "yes."

If molecular abnormalities associated with the recipient's disease were identified at the time of evaluation for the reporting period, indicate "no."

Indicate "unknown" if no molecular assessments were performed during the reporting period and the recipient has a history of molecular abnormalities associated with their disease.

Indicate "Not applicable" if the recipient has never had evidence of molecular abnormalities associated with their disease.

Question 40: Was the recipient in cytogenetic remission?
Cytogenetic assessment involves testing blood or bone marrow for the presence of known cytogenetic abnormalities that reflect the recipient's disease. FISH is categorized with cytogenetics. Although often used for finding specific features in DNA, FISH is not as sensitive as molecular methods, even though the markers identified may be the same.

Cytogenetic remission is a treatment response where **both** of the following criteria are met:

- The karyotype reverts to normal, and
- There are no clonal chromosomal abnormalities detected in the blood and/or marrow.

If cytogenetic abnormalities associated with the recipient's disease were identified previously and the criteria above were met at the time of evaluation for the reporting period, indicate "yes."

If cytogenetic abnormalities associated with the recipient's disease were identified at the time of evaluation for the reporting period, indicate "no."

Indicate "unknown" if no cytogenetic assessments were performed during the reporting period and the recipient has a history of cytogenetic abnormalities associated with their disease.

Indicate “Not applicable” if the recipient has never had evidence of cytogenetic abnormalities associated with their disease.

Question 41: Date assessed:
Enter the date of the most recent assessment establishing disease status within the reporting period. The date reported should be that of the most disease-specific assessment within a reasonable timeframe of the date of contact (approximately 30 days). Clinical and hematologic assessments include pathological evaluation (e.g., bone marrow biopsy), radiographic examination (e.g., X-ray, CT scan, MRI scan, PET scan), laboratory assessment (e.g., CBC, peripheral blood smear), and clinician evaluation and physical examination. Enter the date the sample was collected for pathological and laboratory evaluations, the date the imaging took place for radiographic assessments, or the date of physical examination.

If the exact date is not known, use the process for reporting partial or unknown dates as described in General Instructions, Guidelines for Completing Forms.

Signature lines:
The FormsNet3^{SM} application will automatically populate the signature data fields, including name and email address of person completing the form and date upon submission of the form.

Manual Change History

Version Number	Date of Change	Type of Change (Add / Remove / Modify)	Description of Change
1.1	06/01/2014	Modify	Updated formatting to match CIBMTR brand standards
1.1	06/01/2014	Add	Added “Revision 3” to the title of the document