

# 2110: AML Post-HCT

---

The Acute Myelogenous Leukemia Post-HCT Data Form is one of the Comprehensive Report Forms. This form captures AML-specific post-HCT data such as: planned treatments post-HCT; the recipient's best response to HCT; disease relapse data including treatment administered for relapse or persistent disease; and disease status for the reporting period.

This form must be completed for all recipients randomized to the Comprehensive Report Form (CRF) track whose primary disease is reported on the Pre-TED Disease Classification Form (Form 2402) as Acute Myelogenous Leukemia (AML or ANLL) or Other Acute Leukemia (OAL). The Acute Myelogenous Leukemia Post-HCT Data (Form 2110) must be completed in conjunction with each Post-HCT follow-up form (Forms 2100, 2200, and 2300) completed. This 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.).

When a recipient receives a transplant for AML that had transformed from MDS/MPS, aplastic anemia, or JMML, the disease-specific insert form for the original disease is required pre HCT (Form 2014, Form 2028, and Form 2015, respectively), but not post HCT. Only the AML Post-HCT Data Form 2110 is required after transplant.

[Q1-20: Disease Assessment at the Time of Best Response to HCT](#)

[Q21-43: Post-HCT Therapy](#)

[Q44-85: Disease Relapse Post-HCT](#)

[Q86-107: Disease Status at the Time of Evaluation for This Reporting Period](#)

## Manual Updates:

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

Date	Manual Section	Add/Remove/Modify	Description
2/24/17	Comprehensive Disease-Specific Manuals	Modify	Updated explanations of triggers for disease inserts to refer to the primary disease reported on the Pre-TED Disease Classification Form (Form 2402) instead of the Pre-TED Form (Form 2400)

6/ 12/ 15	<a href="#">2110: AML Post-HCT</a>	Add	Added instruction for <b>METHOD</b> and <b>DATE</b> reporting in the <a href="#">Q186-107: Disease Status at Last Evaluation Prior to the Start of the Preparative Regimen</a> section. <i>See text for full detail.</i>
-----------------	------------------------------------	-----	--

# Q1-20: Disease Assessment at the Time of Best Response to HCT

---

**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 response to therapy given for relapsed, persistent, or progressive disease)**

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 best response to transplant throughout the entire duration of the reporting period.

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. In this case, assess the patient's best response prior to the start of therapy.

Complete Remission (CR) criteria:

A treatment response where all of the following criteria are met for at least four weeks:

- < 5% blasts in the bone marrow
- Normal maturation of all cellular components in the bone marrow
- No blasts with Auer rods
- No extramedullary disease (e.g., central nervous system or soft tissue involvement)
- ANC of > 1,000/ $\mu$ L
- Platelets  $\geq$  100,000/ $\mu$ L
- Transfusion independent

Include recipients with persistent chromosomal or molecular abnormalities who otherwise meet all criteria of CR. If **new** chromosomal or molecular abnormalities (i.e., other than those present prior to the HCT) are evident post HCT, a physician must determine if they constitute cytogenetic or molecular relapse; the patient may still be in hematologic CR. Do not include recipients with extramedullary disease; they should be considered to have persistent disease or to be in relapse.

If a CR was achieved after transplant, check "complete remission" and continue with question 2.

If the recipient was in remission at the start of the preparative regimen, indicate "continued complete remission" and continue with question 21.

If the recipient did not achieve CR prior to the start of the preparative regimen or following transplant, indicate “not in complete remission” and continue with question 21.

### **Question 2: Was the date of best response previously reported?**

If the patient achieved complete remission in the current reporting period, indicate “no” and continue with question 3.

If the recipient achieved a complete remission during a previous reporting period, indicate “yes” and continue with question 21.

### **Question 3: Date assessed**

Indicate the date hematologic CR 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 evaluation.

If the exact date is not known, use the process for reporting partial or unknown dates as described in the [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 utilizing RNA to generate complementary DNA through reverse transcription (RT-PCR).

Indicate if molecular studies were obtained at the time the recipient achieved post-transplant CR.

If molecular studies were obtained, check “yes” and continue with question 5.

If molecular studies were not obtained, sample for molecular studies was inadequate, or it is unknown if molecular studies were performed, indicate “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 the [General Instructions, Guidelines for Completing Forms](#).

### **Question 6: Was disease detected?**

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?**

Indicate if the molecular abnormalities were considered to be relapsed disease. Criteria for molecular relapse are established by clinical judgment and should reflect the clinical decision of the transplant physician. A recipient may be reported to have molecular relapse 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, check "yes." Also report relapse under the "Disease Relapse Post-HCT" section of this form.

If the recipient has molecular abnormalities that the physician does not consider to be consistent with molecular relapse, check "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 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 a peripheral blood and/or bone marrow sample at the time the recipient achieved post-transplant CR.

If flow cytometry was performed, check "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, indicate "no" and continue with question 12.

### **Question 9: 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 the [General Instructions, Guidelines for Completing Forms](#).

#### **Question 10: Was disease detected?**

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 were consistent with evidence of disease, check "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?**

Indicate if the flow cytometry results were considered consistent with relapsed disease. Criteria for flow cytometric relapse are established by clinical judgment. Flow cytometry results showing  $\geq 5\%$  blasts are consistent with relapsed disease by hematologic remission criteria; an aberrant blast population of  $< 5\%$  of the total cell population may be considered flow cytometric relapse in the absence of hematologic relapse. If the recipient has abnormalities by flow cytometry that the physician considers to be consistent with flow cytometric relapse, check "yes." Also report relapse under the "Disease Relapse 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, check "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 a known chromosomal abnormality that reflects the recipient's disease. Testing methods you may see include conventional chromosome analysis (karyotyping), fluorescence in situ hybridization (FISH), or microarray comparative genomic hybridization (aCGH) testing. For more information about cytogenetic testing and terminology, see [Appendix C](#).

Indicate if cytogenetic studies were obtained at the time the recipient achieved post-transplant CR.

If cytogenetic studies were obtained, check "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, indicate “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 uses special probes that recognize and bind to fragments of DNA commonly found in AML. 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, check “yes” and continue with question 14.

If FISH studies were not obtained, FISH sample was inadequate, or it is unknown whether 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 the [General Instructions, Guidelines for Completing Forms](#).

### **Question 15: Was disease detected?**

Indicate if evidence of disease was detected in the sample sent for FISH assessment. If FISH results are 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?**

Indicate if the FISH abnormalities were considered to be relapsed disease. Criteria for cytogenetic relapse are established by clinical judgment, and should reflect the clinical decision of the transplant physician. A recipient may be reported to have cytogenetic relapse 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, check “yes.” Also report relapse under the “Disease Relapse Post-HCT” section of this form.

If the recipient has FISH abnormalities that the physician does not consider to be consistent with cytogenetic relapse, 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, culture failed, or it is unknown if conventional cytogenetic studies were performed, indicate “no” and continue with question 17.

#### **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 the [General Instructions, Guidelines for Completing Forms](#).

#### **Question 19: Was disease detected?**

Indicate if evidence of disease was detected in the sample sent for conventional cytogenetic assessment. If conventional cytogenetic results are 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?**

Indicate if the conventional cytogenetic abnormalities were considered to be relapsed disease. Criteria for cytogenetic relapse are established by clinical judgment, and should reflect the clinical decision of the transplant physician. A recipient may be reported to have cytogenetic relapse 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, check “yes.” Also report relapse under the “Disease Relapse 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, check “no.”

## Q21-43: Post-HCT Therapy

---

### **Question 21: Was therapy given since the date of the last report for reasons other than relapse or persistent disease? (Include any maintenance or consolidation therapy)**

Indicate if the recipient received treatment for AML during the current reporting period for any reason other than relapsed or persistent disease; an example would be maintenance or consolidation therapy. If the patient received therapy for reasons other than relapsed or persistent disease, check “yes” and continue with question 22. If the patient did not receive therapy, or only received therapy for relapsed or persistent disease, check “no” and continue with question 44.

### **Question 22: Central nervous system irradiation**

Radiation therapy uses high-energy, ionizing radiation to “kill” malignant cells; however, much like non-targeted systemic therapy, radiation therapy does not specifically target malignant cells and does have significant side effects. For that reason, high-dose radiation often targets a limited field. Indicate if the recipient received radiation therapy to their central nervous system (brain and/or spinal cord).

### **Question 23: Systemic therapy**

Systemic therapy refers to a delivery mechanism where a therapeutic agent is delivered orally or intravenously, enters the bloodstream, and is distributed throughout the body. Intrathecal therapy is administered via injection into the subarachnoid space; these drugs reach the cerebral spinal fluid and act on the central nervous system.

Indicate “yes” if the patient received systemic or intrathecal therapy and continue with question 24. If the patient did not receive systemic or intrathecal therapy, indicate “no” and continue with question 41.

### **Questions 24-40: Specify systemic or intrathecal therapy agents**

Systemic therapy agents and treatment regimens vary based on disease, prognosis, and protocol. Drugs may be administered in an inpatient or outpatient setting, and treatment may consist of one or multiple drugs. Additionally, drugs may be administered on a single day, over consecutive days, or continuously.

Indicate “yes” or “no” for each drug administered for therapy during the current reporting period for reasons other than relapsed or persistent disease. Do not leave any responses blank. If the recipient received a chemotherapy agent that is not listed, check “yes” for “other systemic therapy” and specify the treatment in question 40.

### **Question 41: Donor cellular infusions**

A donor cellular infusion, or DCI, is a form of immunotherapy that is commonly used for a variety of purposes, including the treatment of refractory or recurrent disease. In the setting of recurrent disease, the DCI is used to create a graft-versus-leukemia/tumor (GVL/GVT) effect. The recipient does not receive a preparative regimen prior to receiving the additional donor cells since replacement of the marrow is not the goal.

Indicate “yes” if the patient received one or more donor cellular infusion(s). If the patient did not receive a donor cellular infusion, check “no.”

### **Questions 42-43: Other therapy**

If the recipient received a therapy that is not listed, indicate “yes” and specify the therapy in question 43. If the patient did not receive another therapy not listed, check “no.”

## Q44-85: Disease Relapse Post-HCT

---

Report if the recipient relapsed at any time during the reporting period by any method of assessment; molecular and cytogenetic/FISH relapse may occur in the setting of hematologic remission.

### Question 44: Was a disease relapse 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 utilizing RNA to generate complementary DNA through reverse transcription (RT-PCR).

If molecular studies were obtained and consistent with relapse at any point in the reporting period, check "yes" and continue with question 45.

If molecular studies were not consistent with relapse during the reporting period, indicate "no" and continue with question 46. Examples of this 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.

### Question 45: 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 the [General Instructions, Guidelines for Completing Forms](#).

### Question 46: Was a disease relapse 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 leukemias is to quantify blasts in the peripheral blood or bone marrow, or identify unique cell populations through immunophenotyping. Flow cytometry assessment may also be referred to as "MRD" (minimal residual disease) testing.

If flow cytometry was performed and consistent with relapse at any point in the reporting period, check "yes" and continue with question 47.

If flow cytometry results were not consistent with relapse during the reporting period, indicate “no” and continue with question 48. Examples of this 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.

#### **Question 47: 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 the [General Instructions, Guidelines for Completing Forms](#).

#### **Question 48: Was a disease relapse 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 a known chromosomal abnormality that reflects the recipient’s disease. Testing methods you may see include conventional chromosome analysis (karyotyping), fluorescence *in situ* hybridization (FISH), or microarray comparative genomic hybridization (aCGH) testing. For more information about cytogenetic testing and terminology, see [Appendix C](#).

If any cytogenetic studies were performed and consistent with relapse at any point in the reporting period, check “yes” and continue with question 49.

If cytogenetic studies were not consistent with relapse during the reporting period, indicate “no” and continue with question 53. Examples of this 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 obtained and were not consistent with relapse.

#### **Question 49: Was a disease relapse detected 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 AML. 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 at any point in the reporting period, check “yes” and continue with question 50.

If FISH studies were not consistent with relapse during the reporting period, indicate “no” and continue with question 51. Examples of this include: no FISH study performed, FISH sample was inadequate, it is unknown if FISH study was performed, or FISH studies were obtained and were not consistent with relapse.

#### **Question 50: 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 the [General Instructions, Guidelines for Completing Forms](#).

#### **Question 51: Was a disease relapse 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 consistent with relapse at any point in the reporting period, check “yes” and continue with question 52.

If conventional cytogenetic studies were not consistent with relapse during the reporting period, indicate “no” and continue with question 53. Examples of this 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.

#### **Question 52: 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 the [General Instructions, Guidelines for Completing Forms](#).

#### **Question 53: Was a disease relapse detected by clinical/hematologic assessment?**

Clinical and hematologic assessments are the least sensitive methods of establishing a patient’s disease status. In addition to clinician evaluation and physical examination, examples of these assessments include:

pathological evaluation (e.g., bone marrow biopsy), radiographic examination (e.g., X-ray, CT scan, MRI scan, PET scan), and laboratory analysis (e.g., CBC, peripheral blood smear),

If clinical and/or hematologic assessment was performed and consistent with relapse at any point in the reporting period, check “yes” and continue with question 54.

If clinical and/or hematologic assessment was not consistent with relapse during the reporting period, indicate “no” and continue with question 86. Examples of this include: it is unknown if clinical and/or hematologic assessment was performed, or clinical and/or hematologic assessment was not consistent with relapse.

#### **Question 54: Date assessed**

Report the date of clinical or hematologic assessment. Enter the date the sample was collected for pathological and laboratory evaluation; the date the imaging took place for radiographic assessments, or the date of the physical examination.

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

#### **Questions 55-61: Specify site(s) of disease relapse**

Indicate “yes” or “no” for each site specified in questions 55-60. Do not leave any responses blank. Specify only sites of clinical or hematologic disease; cytogenetic and/or molecular evidence of disease does not need to be specified. If “yes” is indicated for “other site,” specify the site in question 61. At least one of questions 55-60 must be answered “yes.”

#### **Question 62: Was any therapy given for relapsed disease since the date of the last report?**

Indicate if the recipient received treatment for relapsed AML during the current reporting period. Do not report therapy given for maintenance (to prolong remission or for minimal residual disease). If the patient received therapy for relapsed disease or persistent disease, check “yes” and continue with question 63. If the patient did not receive therapy, or only received therapy for maintenance or for minimal residual disease, check “no” and continue with question 86.

#### **Question 63: Central nervous system irradiation**

Radiation therapy uses high-energy, ionizing radiation to “kill” malignant cells. However, much like non-targeted systemic therapy, radiation therapy does not specifically target malignant cells and does have significant side effects. For that reason, high-dose radiation often targets a limited field. Indicate if the recipient received radiation therapy to their central nervous system (brain and/or spinal cord).

### **Question 64: Systemic therapy**

Systemic therapy refers to a delivery mechanism where a therapeutic agent is delivered orally or intravenously, enters the bloodstream, and is distributed throughout the body. Intrathecal therapy is administered via injection into the subarachnoid space; these drugs reach the cerebral spinal fluid and act on the central nervous system.

Indicate “yes” if the patient received systemic or intrathecal therapy and continue with question 65. If the patient did not receive systemic or intrathecal therapy, indicate “no” and continue with question 82.

### **Questions 65-81: Specify systemic or intrathecal therapy agents**

Systemic therapy agents and treatment regimens vary based on disease, prognosis, and protocol. Drugs may be administered in an inpatient or outpatient setting, and treatment may consist of one or multiple drugs. Additionally, drugs may be administered on a single day, over consecutive days, or continuously.

Indicate “yes” or “no” for each drug administered for therapy during the current reporting period for relapsed disease. Do not leave any responses blank. If the recipient received a chemotherapy agent that is not listed, check “yes” for “other systemic therapy” and specify the treatment in question 81.

### **Question 82: Donor cellular infusions**

A donor cellular infusion, or DCI, is a form of immunotherapy that is commonly used for a variety of purposes, including the treatment of refractory or recurrent disease. In the setting of recurrent disease, the DCI is used to create a graft-versus-leukemia/tumor (GVL/GVT) effect. The recipient does not receive a preparative regimen prior to receiving the additional donor cells since replacement of the marrow is not the goal.

Indicate “yes” if the patient received one or more donor cellular infusion(s). If the patient did not receive a donor cellular infusion, check “no.”

### **Question 83: Subsequent HCT**

An HCT is an infusion of a product (e.g., bone marrow, peripheral blood stem cells, cord blood, etc.) that contains CD34+ cells. Refer to [Appendix D](#) for further clarification on defining a subsequent HCT.

The intention of an HCT is to restore hematopoiesis and immunity, and it is usually preceded by a preparative regimen used to reduce disease burden and prevent rejection of the new stem cells by killing both normal and malignant cells, if present. In some cases, a preparative regimen may not be used prior to the infusion of CD34+ cells, but this would still be considered an HCT.



If a recipient receives a subsequent HCT between the HCT follow-up time points (100 day, six months, annually), the comprehensive report form sequence will start over with another Pre-TED Form (2400), Recipient Baseline Data Form (2000), and Acute Myelogenous Leukemia Pre-HCT Data Form (2010). However, if the recipient receives an autologous HCT as a result of a poor graft or graft failure, the comprehensive report form sequence **will not** start over if the preceding HCT was also autologous. Generally this type of infusion (autologous rescue) is used to treat the recipient's poor graft response, rather than to treat the recipient's disease.

A subsequent HCT may be administered to replace or repopulate the recipient's marrow and reconstitute the immune system. If the recipient receives a subsequent HCT as treatment for relapsed disease, check "yes" and continue with question 83; only report a subsequent HCT given for relapsed disease.

### **Questions 84-85: Other therapy**

If the patient received a therapy that is not listed, indicate "yes" and specify the therapy in question 85. If the patient did not receive another therapy not listed, check "no."

# Q86-107: Disease Status at the Time of Evaluation for This Reporting Period

---



## Disease Status at Time of Evaluation for this Reporting Period

Review the instruction below regarding method and date reporting for this section.

### METHOD

This section should reflect the recipient's most recent disease assessment. Not all recipients have molecular, cytogenetic, FISH, and/or flow cytometric abnormalities identified to monitor disease status. If no disease assessments exist for the applicable method, check "no."

Molecular and cytogenetic assessments may be performed for many reasons post-transplant, including monitoring for secondary malignancy. If the recipient did not have any identified molecular, cytogenetic, FISH, or flow cytometric abnormalities at diagnosis or during their pre-transplant course, and post-HCT follow-up assessments continue to show that no abnormalities are detected, report "no" for these assessment data fields. However, if routine post-HCT molecular, cytogenetic, FISH, and/or flow cytometry assessments identify a new abnormality associated with the recipient's disease process, begin reporting those assessments; report the assessment identifying the new abnormality, as well as all subsequent assessments for the abnormality by that method.

If the recipient had molecular, cytogenetic, FISH, and/or flow cytometric abnormalities prior to transplant, ensure that post-HCT assessments of the applicable method are reported.

**Example:** The recipient has FLT3 abnormalities identified by PCR (molecular method) and FISH testing prior to transplant; however, they had a normal karyotype on all pre-transplant assessments. Post-transplant, FLT3 molecular studies and FISH studies incorporating a FLT3 probe should be reported; conventional cytogenetic studies would not be reported (answer question 101 as "no") unless the recipient develops abnormalities associated with their disease detectable by conventional cytogenetics; the study identifying the new abnormalities and all subsequent conventional cytogenetic studies would be reported.

### DATE

If more than one test in the same assessment category is done on different days, report the date of the most definitive diagnostic assessment within a reasonable time frame of the date of contact (approximately 30 days). If there was only a single assessment performed within the reporting period, it should be reported, even if it was more than 30 days prior to the date of contact.

**Example:** Blasts appear in the peripheral blood on a CBC, the next day a bone marrow biopsy is done, also showing evidence of disease. Report the date of the bone marrow; it is the most recent and most definitive assessment.

**Question 86: Was the disease status assessed since the date of the last report?**

Molecular studies, flow cytometry, cytogenetic studies and fluorescent *in situ* hybridization, and clinical/hematologic assessment are used to evaluate disease status. Indicate if the disease status was assessed using at least one of these methods at any time within the reporting period. In most cases, the patient will have had at least a clinical and/or hematologic assessment if they were evaluated by a physician during the reporting period. If no assessment was performed during the reporting period for which the form is being completed, continue with the signature section at the end of the form.

**Question 87: Does the disease assessment reflect the relapsed disease in this reporting period (as captured in questions 43-61), without subsequent therapy?**

This section of the form is intended to capture the most recent disease status assessment. If the recipient had a relapse reported on this form with no subsequent therapy *and no subsequent disease assessment* in this reporting period, check “yes” and continue with question 108.

If the patient did not have a relapse, had relapse with subsequent therapy, or had a disease status evaluation nearer to the date of contact, indicate “no” and continue with question 88.

**Example 1 (no relapse):** If a disease assessment was performed within the reporting period of the form being completed and no relapse was reported for questions 44-61, “no” should be selected. The most recent disease assessments should be reported for questions 88-107.

**Example 2 (relapsed and treated, but not reassessed):** If a relapse was reported for questions 44-61, treatment was administered post relapse (reported in questions 62-85), but no new assessment was performed post treatment, “no” should be selected. There would be no disease assessments to report for questions 88-107.

**Example 3 (relapsed, treated, and reassessed):** If a relapse was reported for questions 44-61, treatment was administered post relapse (reported in questions 62-85), and a new assessment was performed post treatment, “no” should be selected and the most recent post-treatment assessments should be reported for questions 88-107.

**Example 4 (untreated relapse):** If the most recent disease status assessment is the same as that reflected in questions 44-61 and no additional treatment was administered since that assessment (question 62 answered “no”), check “yes” and continue with question 108.

### **Question 88: 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 utilizing RNA to generate complementary DNA through reverse transcription (RT-PCR).

Molecular testing for chimerism after allogeneic HCT should not be considered disease assessment.

If molecular studies were obtained at any point in the reporting period, check "yes" and continue with question 89.

If molecular studies were not performed during the reporting period, indicate "no" and continue with question 92. Examples of this include: no molecular studies obtained, sample for molecular studies was inadequate, or it is unknown if molecular studies were performed.

### **Question 89: 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 the [General Instructions, Guidelines for Completing Forms](#).

### **Question 90: Was disease detected?**

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 91.

If molecular study results were not consistent with evidence of disease, check "no" and continue with question 92.

### **Question 91: Was the status considered a disease relapse?**

Indicate if the molecular abnormalities were considered to be relapsed disease. Criteria for molecular relapse are established by clinical judgment, and should reflect the clinical decision of the transplant physician. If the recipient has molecular abnormalities that the physician considers to be consistent with molecular relapse, check "yes." Also report relapse under the "Disease Relapse Post-HCT" section of this form.

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

### **Question 92: 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 leukemias is to quantify blasts in the peripheral blood or bone marrow, or identify unique cell populations through immunophenotyping. Flow cytometry assessment may also be referred to as minimal residual disease (MRD), testing.

If flow cytometry was performed at any point in the reporting period, check “yes” and continue with question 93.

If flow cytometry was not performed during the reporting period, indicate “no” and continue with question 96. Examples of this include: no flow cytometry performed, sample for flow cytometry was inadequate, or it is unknown if flow cytometry was performed.

### **Question 93: Date assessed**

Report the date blood, bone marrow, or extramedullary specimen 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 the [General Instructions, Guidelines for Completing Forms](#).

### **Question 94: Was disease detected?**

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, check “yes” and continue with question 95.

If flow cytometry results were not consistent with evidence of disease, check “no” and continue with question 96.

### **Question 95: Was the status considered a disease relapse?**

Indicate if the flow cytometry results were considered to be relapsed disease. If the recipient’s flow cytometry results are considered to be consistent with relapse, check “yes.” Also report relapse under the “Disease Relapse Post-HCT” section of this form.

If the recipient has residual disease on the flow cytometry report that the physician does not consider to be consistent with relapse, check “no.”

### **Question 96: 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 a known chromosomal abnormality that reflects the recipient's disease. Testing methods you may see include conventional chromosome analysis (karyotyping), fluorescence *in situ* hybridization (FISH), or microarray comparative genomic hybridization (aCGH) testing. For more information about cytogenetic testing and terminology, see [Appendix C](#).

If any cytogenetic studies were performed at any point in the reporting period, check "yes" and continue with question 97.

If cytogenetic studies were not performed during the reporting period, indicate "no" and continue with question 105. Examples of this include: no karyotype or FISH study performed, karyotype or FISH sample was inadequate, or it is unknown if karyotype or FISH study was performed.

### **Question 97: 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 uses special probes that recognize and bind to fragments of DNA commonly found in AML. 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 at any point in the reporting period, check "yes" and continue with question 98.

If FISH studies were not performed during the reporting period, indicate "no" and continue with question 101. Examples of this include: no FISH study performed, FISH sample was inadequate, or it is unknown if FISH study was performed.

### **Question 98: 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 the [General Instructions, Guidelines for Completing Forms](#).

### **Question 99: Was disease detected?**

Indicate if evidence of disease was detected in the sample sent for FISH assessment. If FISH results are consistent with evidence of disease, check “yes” and continue with question 100.

If FISH results were not consistent with evidence of disease, check “no” and continue with question 101.

### **Question 100: Was the status considered a relapse?**

Indicate if the FISH assessment was considered to be relapsed disease. If the recipient’s FISH results are considered to be consistent with relapse, check “yes.” Also report relapse under the “Disease Relapse Post-HCT” section of this form.

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

### **Question 101: 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 performed at any point in the reporting period, check “yes” and continue with question 102.

If conventional cytogenetic studies were not performed during the reporting period, indicate “no” and continue with question 105. Examples of this include: no conventional cytogenetics performed, conventional cytogenetic culture failed, or it is unknown if conventional cytogenetic studies were performed.

### **Question 102: 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 the [General Instructions, Guidelines for Completing Forms](#).

### **Question 103: Was disease detected?**

Indicate if evidence of disease was detected in the sample sent for conventional cytogenetic assessment. If conventional cytogenetic results are consistent with evidence of disease, check “yes” and continue with question 104.

If conventional cytogenetic results were not consistent with evidence of disease, check “no” and continue with question 105.

#### **Question 104: Was the status considered a relapse?**

Indicate if the conventional cytogenetic assessment was considered to be relapsed disease. If the recipient’s karyotype results are considered to be consistent with relapse, check “yes.” Also report relapse under the “Disease Relapse Post-HCT” section of this form.

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

#### **Question 105: Was the disease status assessed by clinical/hematologic assessment?**

Clinical and hematologic assessments are the least sensitive methods of establishing a patient’s disease status. Examples of these include: pathological evaluation (e.g., bone marrow biopsy), radiographic examination (e.g., X-ray, CT scan, MRI scan, PET scan), and laboratory assessment (e.g., CBC, peripheral blood smear), in addition to clinician evaluation and physical examination.

If clinical and/or hematologic assessment was performed at any point in the reporting period, check “yes” and continue with question 106.

If no clinical and/or hematologic assessment was done during the reporting period, indicate “no” and continue with question 108. Include if it is unknown if clinical and/or hematologic assessment was performed.

#### **Question 106: Date assessed**

Report the date of clinical or hematologic assessment. The date reported should be that of the most disease-specific assessment within a reasonable timeframe of the date of contact (approximately 30 days). Indicate the date the sample was collected for examination for pathological and laboratory evaluations; enter 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 the [General Instructions, Guidelines for Completing Forms](#).

#### **Question 107: Was disease detected?**

Indicate if evidence of disease was detected by clinical and/or hematologic assessment. If clinical and/or hematologic assessment is consistent with evidence of disease, check “yes” and continue with question 108.



If clinical and/or hematologic assessment is not consistent with evidence of disease, check “no” and continue with question 108.

### **Question 108: What is the current disease status?**

Indicate the disease status of AML as of the last evaluation during the reporting period.

Hematologic complete remission (CR) must meet all of the following criteria for at least four weeks:

- < 5% blasts in the bone marrow
- Normal maturation of all cellular components in the bone marrow
- No blasts with Auer rods
- No extramedullary disease (e.g., central nervous system or soft tissue involvement)
- ANC of > 1,000/ $\mu$ L
- Platelets  $\geq$  100,000/ $\mu$ L
- Transfusion independent

Include recipients with chromosomal or molecular abnormalities who otherwise meet all criteria of CR. Additionally, some clinical judgment is required for evaluating whether a recipient meets the CR criteria, specifically neutrophil, platelet, and transfusion parameters. If a recipient does not meet these specifications, the underlying cause should be assessed; if the cause for not meeting one of these parameters is felt to be due to a reason other than underlying leukemia, such as renal insufficiency, hemolysis, or drug-related causes, the disease status may be reported as “complete remission.” If the cause for not meeting the parameters is judged to be leukemia-related, the disease status should be reported as “not in complete remission.”

If the recipient is in hematologic complete remission, check “complete remission.” If the recipient did not achieve CR, indicate “not in complete remission.”

### **Question 107: 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). In addition to clinician evaluation and physical examination, clinical and hematologic assessments include pathological evaluation (e.g., bone marrow biopsy), radiographic examination (e.g., X-ray, CT scan, MRI scan, PET scan), and laboratory analysis (e.g., CBC, peripheral blood smear). Enter the date the sample was collected for pathological and laboratory evaluation; 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 the [General Instructions, Guidelines for Completing Forms](#).