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To all beneficiaries enrolled in a Prepaid Health Plan (PHP): for questions about benefits and services available on or after November 1, 2019, please contact your PHP.

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**NC Medicaid
Hematopoietic Stem-Cell and Bone
Marrow Transplant Transplantation for
Acute Myeloid Leukemia (AML)**

**Medicaid and Health Choice
Clinical Coverage Policy No: 11A-2
Amended Date:**

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Related Clinical Coverage Policies

Refer to <https://medicaid.ncdhhs.gov/> for the related coverage policies listed below:

11A-14, Placental and Umbilical Cord Blood as a Source of Stem Cells

1A-39 Routine Costs in Clinical Trial Services for Life Threatening Conditions

1.0 Description of the Procedure, Product, or Service

Hematopoietic Stem-Cell Transplantation

Hematopoietic stem-cell transplantation (HSCT) refers to a procedure in which hematopoietic stem cells are infused to restore bone marrow function in cancer patients who receive bone-marrow-toxic doses of cytotoxic drugs with or without whole-body radiation therapy.

Hematopoietic stem cells may be obtained from the transplant recipient (autologous HSCT) or from a donor (allogeneic HSCT). They can be harvested from bone marrow, peripheral blood, or umbilical cord blood shortly after delivery of neonates. Although cord blood is an allogeneic source, the stem cells in it are antigenically “naïve” and thus are associated with a lower incidence of rejection or graft-versus-host disease (GVHD). Cord blood is discussed in greater detail in the Cord Blood as a Source of Stem Cells medical policy.

Immunologic compatibility between infused hematopoietic stem cells and the recipient is not an issue in autologous HSCT. However, immunologic compatibility between donor and patient is a critical factor for achieving a good outcome of allogeneic HSCT. Compatibility is established by typing human leukocyte antigens (HLA) using cellular, serologic, or molecular techniques. HLA refers to the tissue type expressed at the HLA A, B, and DR loci on each arm of chromosome 6. Depending on the disease being treated, an acceptable donor will match the patient at all or most of the HLA loci.

Conventional Preparative Conditioning for HSCT

The conventional (“classical”) practice of allogeneic HSCT involves administration of cytotoxic agents (e.g., cyclophosphamide, busulfan) with or without total body irradiation at doses sufficient to destroy endogenous hematopoietic capability in the recipient. The beneficial treatment effect in this procedure is due to a combination of initial eradication of malignant cells and subsequent graft-versus-malignancy (GVM) effect that develops after engraftment of allogeneic stem cells within the patient’s bone marrow space. While the slower GVM effect is considered to be the potentially curative component, it may be overwhelmed by extant disease without the use of pretransplant conditioning. However, intense conditioning regimens are limited to patients who are sufficiently fit medically to tolerate substantial adverse effects that include pre-engraftment opportunistic infections secondary to loss of endogenous bone marrow function and organ damage and failure caused by the cytotoxic drugs. Furthermore, in any allogeneic HSCT, immune suppressant drugs are required to minimize graft rejection and GVHD, which also increases susceptibility of the patient to opportunistic infections.

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The success of autologous HSCT is predicated on the ability of cytotoxic chemotherapy with or without radiation to eradicate cancerous cells from the blood and bone marrow. This permits subsequent engraftment and repopulation of bone marrow space with presumably normal hematopoietic stem cells obtained from the patient prior to undergoing bone marrow ablation. As a consequence, autologous HSCT is typically performed as consolidation therapy when the patient's disease is in complete remission. Patients who undergo autologous HSCT are susceptible to chemotherapy-related toxicities and opportunistic infections prior to engraftment, but not GVHD.

Reduced-Intensity Conditioning for Allogeneic HSCT

Reduced-intensity conditioning (RIC) refers to the pretransplant use of lower doses or less intense regimens of cytotoxic drugs or radiation than are used in conventional full-dose myeloablative conditioning treatments. The goal of RIC is to reduce disease burden, and also to minimize as much as possible associated treatment-related morbidity and non-relapse mortality (NRM) in the period during which the beneficial GVM effect of allogeneic transplantation develops. Although the definition of RIC remains arbitrary, with numerous versions employed, all seek to balance the competing effects of NRM and relapse due to residual disease. RIC regimens can be viewed as a continuum in effects, from nearly total myeloablative to minimally myeloablative with lymphoablation, with intensity tailored to specific diseases and patient condition. Patients who undergo RIC with allogeneic HSCT initially demonstrate donor cell engraftment and bone marrow mixed chimerism. Most will subsequently convert to full-donor chimerism, which may be supplemented with donor lymphocyte infusions to eradicate residual malignant cells. For the purposes of this policy, the term "reduced-intensity conditioning" will refer to all conditioning regimens intended to be nonmyeloablative, as opposed to fully myeloablative (conventional) regimens.

Acute Myeloid Leukemia (AML)

Acute myeloid leukemia (sometimes called "acute nonlymphocytic leukemia" [ANLL]) refers to a set of leukemias that arise from a myeloid precursor in the bone marrow. AML is characterized by proliferation of myeloblasts, coupled with low production of mature red blood cells, platelets, and often non-lymphocytic white blood cells (granulocytes, monocytes). Clinical signs and symptoms are associated with neutropenia, thrombocytopenia, and anemia. The incidence of AML increases with age, with a median of 67 years. About 13,000 new cases are diagnosed annually.

The pathogenesis of AML is unclear. It can be subdivided according to resemblance to different subtypes of normal myeloid precursors using the French-American-British (FAB) classification. This system classifies leukemias from M0–M7, based on morphology and cytochemical staining, with immunophenotypic data in some instances. The World Health Organization (WHO) subsequently incorporated clinical, immunophenotypic and a wide variety of cytogenetic abnormalities that occur in 50% to 60% of AML cases into a classification system that can be used to guide treatment according to prognostic risk categories.

The WHO system recognizes six major subcategories of AML:

- a. AML with recurrent genetic abnormalities;
- b. AML with myelodysplasia-related features; multilineage dysplasia;
- c. therapy-related AML and myelodysplasia (MDS);

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- ~~d. AML, not otherwise specified; categorized; and~~
- ~~e. Myeloid sarcoma; and~~
- ~~f. Myeloid proliferations related to Down syndrome.~~
- ~~g. acute leukemia of ambiguous lineage.~~

The WHO category "AML with recurrent genetic abnormalities" accounts for approximately 20 to 30 percent of AML cases. It contains the most common AML variants that contain distinct genetic abnormalities of prognostic significance. Other chromosomal or molecular abnormalities can be present in addition to the primary defining genetic abnormality in some patients. There are nine defined structural or molecular abnormalities that define specific AML subtypes. In addition, there are two provisional entities identified at the molecular level (AML with mutated RUNX1 and AML with BCR-ABL1).

AML with myelodysplasia-related features (previously called AML with multilineage dysplasia) is defined by cases that fit the criteria for a diagnosis of AML (≥ 20 percent blasts), without a history of prior cytotoxic therapy for an unrelated disease, with one or more of the following three characteristics associated with myelodysplasia:

- a. AML that evolves from previously documented myelodysplastic syndrome (MDS).
- b. AML that demonstrates MDS-related cytogenetic abnormalities, such as monosomy 5 or del(5q), monosomy 7 or del(7q), isochromosome 17q. While considered an MDS-related cytogenetic abnormality in prior versions of the World Health Organization (WHO) classification, del(9q) is no longer considered an MDS-related cytogenetic abnormality given its association with NPM1 and biallelic CEBPA mutations.
- c. AML with morphologically identified multilineage dysplasia, defined as dysplasia present in ≥ 50 percent of cells in two or more hematopoietic lineages. As an exception, patients with NPM1 mutations or biallelic CEBPA mutations and evidence of multilineage dysplasia (MLD) appear to have a similar outcome to those with these mutations and no MLD. As such, these cases are classified as AML with mutated NPM1 or AML with biallelic mutations of CEBPA and not as AML with MDS-related features.

AML with recurrent genetic abnormalities includes AML with t(8;21)(q22;q22), inv(16)(p13;q22) or t(16;16)(p13;q22), t(15;17)(q22;q12), or translocations or structural abnormalities involving 11q23. Younger patients may exhibit t(8;21) and inv(16) or t(16;16). AML patients with 11q23 translocations include two subgroups: AML in infants and therapy-related leukemia. Multilineage dysplasia AML must exhibit dysplasia in 50% or more of the cells of two lineages or more. It is associated with cytogenetic findings that include 7/del(7q), 5/del(5q), +8, +9, +11, del(11q), del(12p), -18, +19, del(20q)+21, and other translocations.

The diagnosis of therapy-related myeloid neoplasm (t-MN) is made when evaluation of the peripheral blood and bone marrow demonstrates morphologic, immunophenotypic, and cytogenetic changes consistent with the diagnosis of AML, MDS, or MDS/MPN in a patient with prior exposure to cytotoxic agents and/or ionizing radiation.

Cases of AML that do not meet the criteria for the categories described above are classified as AML, not otherwise specified (NOS). These cases are further subclassified by morphology that is similar to that used in the previous French, American, and British (FAB) classification system.

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The term "myeloid sarcoma" refers to an extramedullary mass consisting of myeloid blasts with or without maturation which efface the normal tissue architecture. Although listed in the WHO classification, myeloid sarcoma is not a subtype of AML, but rather a unique clinical presentation of any subtype of AML. Myeloid sarcoma may present simultaneously with or precede bone marrow disease and may be seen in relapse or as progression of a prior myelodysplastic syndrome or myeloproliferative neoplasm. Importantly, the management of patients with myeloid sarcoma without evidence of AML on bone marrow biopsy is similar to that for patients with overt AML. The pretreatment evaluation should include pathologic and genetic analyses to allow for classification into one of the other WHO subtypes.

The WHO classification "myeloid proliferations related to Down syndrome" includes two entities that develop in the setting of trisomy 21 (constitutional trisomy, trisomy mosaicism, or somatic trisomy in the blast population):

- a. Transient myeloproliferative disorder (TMD, also called transient abnormal myelopoiesis) – TMD is a myeloid proliferation present in 10 to 30 percent of newborns with Down syndrome. The disorder is characterized by circulating blasts, which are usually megakaryoblastic and arise during fetal development in the setting of trisomy 21 and the acquisition of a somatic mutation in the gene coding for the hematopoietic transcription factor GATA-1. TMD is usually diagnosed at or around the time of birth and most cases resolve within one to two months, although there is a risk of early mortality and subsequent AML.
- b. AML of Down syndrome (DS-AML) – Approximately 20 percent of children with TMD develop AML within the first four years of life. In approximately one-third of cases, DS-AML follows a prodrome of myelodysplastic syndrome (MDS) characterized by chronic cytopenias. Most cases are classified as acute megakaryoblastic leukemia.

AML not otherwise categorized includes disease that does not fulfill criteria for the other groups, and essentially reflects the morphologic and cytochemical features and maturation level criteria used in the FAB classification, except for the definition of AML as having a minimum 20% (as opposed to 30%) blasts in the marrow. AML of ambiguous lineage is diagnosed when blasts lack sufficient lineage-specific antigen expression to classify as myeloid or lymphoid.

Molecular studies have identified a number of genetic abnormalities that also can be used to guide prognosis and management of AML. Cytogenetically normal AML (CN-AML) is the largest defined subgroup of AML, comprising about 45% of all AML cases. Despite the absence of cytogenetic abnormalities, these cases often have genetic mutations that affect outcomes, of which six have been identified. The FLT3 gene that encodes FMS-like receptor tyrosine kinase (TK) 3, a growth factor active in hematopoiesis, is mutated in 33%–49% of CN-AML cases; among those, 28%–33% consist of internal tandem duplications (ITD), 5%–14% are missense mutations in exon 20 of the TK activation loop, and the rest are point mutations in the juxtamembrane domain. All FLT3 mutations result in a constitutively activated protein, and confer a poor prognosis. Several pharmaceutical agents that inhibit the FLT3 TK are under investigation.

Complete remission can be achieved initially using induction therapy, consisting of conventional doses of combination chemotherapy. A complete response is achieved in 60% to 80% of adults younger than 60 years of age and in 40% to 60% in patients older than 60 years of age. However, the high incidence of disease relapse has prompted research into a variety of post remission (consolidation) strategies, typically using high-dose chemotherapy with autologous HSCT or

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high-dose or reduced-intensity chemotherapy with allo-HSCT. The two treatments, autologous HSCT and allo-HSCT, represent two different strategies. The first, autologous HSCT, is a “rescue,” but not a therapeutic procedure; the second, allo-HSCT, is a “rescue” plus a therapeutic procedure.

Complete remissions can be achieved initially using combination chemotherapy in up to 80% of AML patients. However, the high incidence of relapse has prompted research into a variety of post-remission strategies using either allogeneic or autologous HSCT.

1.1 Definitions

1.1.1 Donor Lymphocyte Infusion (DLI)

A type of therapy in which lymphocytes from the blood of a donor are given to a beneficiary who has already received a stem cell transplant from the same donor. The donor lymphocytes may kill remaining cancer cells.

None Apply.

2.0 Eligibility Requirements

2.1 Provisions

2.1.1 General

(The term “General” found throughout this policy applies to all Medicaid and NCHC policies)

- a. An eligible beneficiary shall be enrolled in either:
 1. the NC Medicaid Program (*Medicaid is NC Medicaid program, unless context clearly indicates otherwise*); or
 2. the NC Health Choice (*NCHC is NC Health Choice program, unless context clearly indicates otherwise*) Program on the date of service and shall meet the criteria in **Section 3.0 of this policy**.
- b. Provider(s) shall verify each Medicaid or NCHC beneficiary’s eligibility each time a service is rendered.
- c. The Medicaid beneficiary may have service restrictions due to their eligibility category that would make them ineligible for this service.
- d. Following is only one of the eligibility and other requirements for participation in the NCHC Program under GS 108A-70.21(a): Children must be between the ages of 6 through 18.

2.1.2 Specific

(The term “Specific” found throughout this policy only applies to this policy)

- a. **Medicaid**
None Apply.
- b. **NCHC**
None Apply.

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2.2 Special Provisions

2.2.1 EPSDT Special Provision: Exception to Policy Limitations for a Medicaid Beneficiary under 21 Years of Age

a. 42 U.S.C. § 1396d(r) [1905(r) of the Social Security Act]

Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) is a federal Medicaid requirement that requires the state Medicaid agency to cover services, products, or procedures for Medicaid beneficiary under 21 years of age **if** the service is **medically necessary health care** to correct or ameliorate a defect, physical or mental illness, or a condition [health problem] identified through a screening examination (includes any evaluation by a physician or other licensed practitioner).

This means EPSDT covers most of the medical or remedial care a child needs to improve or maintain his or her health in the best condition possible, compensate for a health problem, prevent it from worsening, or prevent the development of additional health problems.

Medically necessary services will be provided in the most economic mode, as long as the treatment made available is similarly efficacious to the service requested by the beneficiary's physician, therapist, or other licensed practitioner; the determination process does not delay the delivery of the needed service; and the determination does not limit the beneficiary's right to a free choice of providers.

EPSDT does not require the state Medicaid agency to provide any service, product or procedure:

1. that is unsafe, ineffective, or experimental or investigational.
2. that is not medical in nature or not generally recognized as an accepted method of medical practice or treatment.

Service limitations on scope, amount, duration, frequency, location of service, and other specific criteria described in clinical coverage policies may be exceeded or may not apply as long as the provider's documentation shows that the requested service is medically necessary "to correct or ameliorate a defect, physical or mental illness, or a condition" [health problem]; that is, provider documentation shows how the service, product, or procedure meets all EPSDT criteria, including to correct or improve or maintain the beneficiary's health in the best condition possible, compensate for a health problem, prevent it from worsening, or prevent the development of additional health problems.

b. EPSDT and Prior Approval Requirements

1. If the service, product, or procedure requires prior approval, the fact that the beneficiary is under 21 years of age does **NOT** eliminate the requirement for prior approval.
2. **IMPORTANT ADDITIONAL INFORMATION** about EPSDT and prior approval is found in the *NCTracks Provider Claims and Billing Assistance Guide*, and on the EPSDT provider page. The Web addresses are specified below.

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NCTracks Provider Claims and Billing Assistance Guide:

<https://www.nctracks.nc.gov/content/public/providers/provider-manuals.html>

EPSDT provider page: <https://medicaid.ncdhhs.gov/>

2.2.2 EPSDT does not apply to NCHC beneficiaries

2.2.3 Health Choice Special Provision for a Health Choice Beneficiary age 6 through 18 years of age

NC Medicaid shall deny the claim for coverage for an NCHC beneficiary who does not meet the criteria within **Section 3.0** of this policy. Only services included under the NCHC State Plan and the NC Medicaid clinical coverage policies, service definitions, or billing codes are covered for an NCHC beneficiary.

3.0 When the Procedure, Product, or Service Is Covered

Note: Refer to Subsection 2.2.1 regarding EPSDT Exception to Policy Limitations for Medicaid Beneficiaries under 21 Years of Age.

3.1 General Criteria Covered

Medicaid and NCHC shall cover the procedure, product, or service related to this policy when medically necessary, and:

- a. the procedure, product, or service is individualized, specific, and consistent with symptoms or confirmed diagnosis of the illness or injury under treatment, and not in excess of the beneficiary's needs;
- b. the procedure, product, or service can be safely furnished, and no equally effective and more conservative or less costly treatment is available statewide; and
- c. the procedure, product, or service is furnished in a manner not primarily intended for the convenience of the beneficiary, the beneficiary's caretaker, or the provider.

3.2 Specific Criteria Covered

3.2.1 Specific criteria covered by both Medicaid and NCHC

Medicaid and NCHC shall cover hematopoietic stem-cell or bone marrow transplantation for AML in the following situations:

- a. Allogeneic hematopoietic stem cell transplantation (HSCT) using a myeloablative conditioning regimen **may be considered medically necessary** to treat:
 1. Poor- to intermediate-risk AML in **first complete** remission; or
 2. AML that is refractory to **standard induction chemotherapy but can be brought into clinical remission with intensified induction chemotherapy; or relapses following standard induction chemotherapy;** or
 3. **AML that relapses following chemotherapy induced first complete remission but can be brought into second complete remission or beyond with intensified induction chemotherapy; or**

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4. AML in patients who have relapsed following a prior autologous HSCT but can be brought into clinical remission with intensified induction chemotherapy and are medically able to tolerate the procedure.
- b. Allogeneic HSCT using a reduced-intensity conditioning regimen may be considered medically necessary as a treatment of AML in patients who are in complete marrow and extramedullary remission, and who for medical reasons would be unable to tolerate a myeloablative conditioning regimen. Ft
- c. Autologous HSCT may be considered medically necessary to treat AML in first or second remission or relapsed AML if responsive to intensified induction chemotherapy.
- d. Donor lymphocyte infusion (DLI) (refer to Section 1.1) is considered medically necessary and, therefore, covered following allogeneic hematopoietic stem cell transplantation (HSCT) that is medically necessary for the treatment of AML that has relapsed or is refractory, to prevent relapse in the setting of a high risk of relapse, or to convert an individual from mixed to full donor chimerism.

3.2.2 Policy Guidelines

Primary refractory acute myeloid leukemia (AML) is defined as leukemia that does not achieve a complete remission after conventionally dosed (non-marrow ablative) chemotherapy.

A remission (complete remission) is usually defined as having no evidence of disease (NED) after treatment. This means the bone marrow contains fewer than 5% blast cells, the blood cell counts are within normal limits, and there are no signs or symptoms from the leukemia. A **complete molecular remission** means there is no evidence of leukemia cells in the bone marrow, even when using very sensitive tests, such as PCR (polymerase chain reaction).

Minimal residual disease (MRD) is a term used after treatment when leukemia cells can't be found in the bone marrow using standard tests (such as looking at cells under a microscope), but more sensitive tests (such as flow cytometry or PCR) find evidence that there are still leukemia cells in the bone marrow.

Active disease means that either there is evidence that the leukemia is still present during treatment, or that the disease has come back after treatment (relapsed). For a patient to have relapsed, they must have more than 5% blast cells in their bone marrow.

In the 1970s, a group of French, American, and British (FAB) leukemia experts divided AML into subtypes, M0 through M7, based on the type of cell the leukemia develops from and how mature the cells are. This was based largely on how the leukemia cells looked under the microscope after routine staining.

FAB subtype	Name
M0	Undifferentiated acute myeloblastic leukemia
M1	Acute myeloblastic leukemia with minimal maturation
M2	Acute myeloblastic leukemia with maturation

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M3	Acute promyelocytic leukemia (APL)
M4	Acute myelomonocytic leukemia
M4 eos	Acute myelomonocytic leukemia with eosinophilia
M5	Acute monocytic leukemia
M6	Acute erythroid leukemia
M7	Acute megakaryoblastic leukemia

Subtypes M0 through M5 all start in immature forms of white blood cells. M6 AML starts in very immature forms of red blood cells, while M7 AML starts in immature forms of cells that make platelets.

In the French American British (FAB) criteria, the classification of AML is solely based on morphology as determined by the degree of differentiation along different cell lines and the extent of cell maturation.

Clinical features that predict poor outcomes of AML therapy include, but are not limited to, the following:

- Treatment related AML (secondary to prior chemotherapy and/or radiotherapy for another malignancy).
- AML with antecedent hematologic disease (e.g., myelodysplasia).
- Presence of circulating blasts at the time of diagnosis.
- Difficulty in obtaining first complete remission with standard chemotherapy.
- Leukemias with monocytoid differentiation (FAB classification M4 or M5).

The FAB classification system can be useful, but it doesn't take into account many of the factors that are now known to affect prognosis (outlook). The World Health Organization (WHO) system, most recently updated in 2016, includes some of these factors to try to better classify AML (refer to **Section 1.0**).

The subtype of AML can be important in helping to determine a person's prognosis (outlook). But other factors can also affect why some patients with AML have a better outlook than others. These are called prognostic factors. Prognostic factors help doctors determine a person's risk of the leukemia coming back after treatment, and therefore if they should get more or less intensive treatment. Some of these include:

Factor	Favorable	Unfavorable
Chromosome (cytogenetic) abnormalities	<ul style="list-style-type: none"> Translocation between chromosomes 8 and 21 (seen most often in patients with M2) Translocation or inversion of chromosome 16 Translocation between chromosomes 15 and 17 (seen most often in patients with M3) 	<ul style="list-style-type: none"> Deletion (loss) of part of chromosome 5 or 7 Translocation or inversion of chromosome 3 Translocation between chromosomes 6 and 9 Translocation between chromosomes 9 and 22 Abnormalities of chromosome 11 (at the spot q23) Loss of a chromosome, so the cell has only 1 copy instead of the normal 2 (known as monosomy) Complex changes (those involving 3 or more chromosomes)
Gene mutations	<ul style="list-style-type: none"> Leukemia cells have changes in the NPM1 gene 	<ul style="list-style-type: none"> AML that has a mutation in the FLT3 gene, although new drugs that target cells with this

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	(and no other abnormalities) • Changes in both copies of the CEBPA gene	abnormal gene might lead to better outcomes • Mutations in the TP53, RUNX1, and ASXL1 genes
Markers on the leukemia cells		• Leukemia cells have the CD34 protein and/or the P-glycoprotein (MDR1 gene product) on their surface
Age		• >60
White blood cell count		• High white blood cell count (>100,000/mm ³) at the time of diagnosis
Prior blood disorder leading to AML		• Having a prior blood disorder such as a myelodysplastic syndrome
Treatment-related AML		• AML that develops after a person is treated for another cancer
Infection		• Having a systemic (blood) infection when diagnosed
Leukemia cells in the central nervous system		• Leukemia that has spread to the area around the brain and spinal cord can be hard to treat, since most chemotherapy drugs can't reach that area
Status of AML after treatment	• How well (and how quickly) the leukemia responds to treatment also affects long-term prognosis. Better initial responses have been linked with better long-term outcomes.	

The newer, currently preferred, WHO classification of AML incorporates and interrelates morphology, cytogenetics, molecular genetics, and immunologic markers in an attempt to construct a classification that is universally applicable and prognostically valid. The WHO system was adapted by the National Comprehensive Cancer Network (NCCN) to estimate individual patient prognosis to guide management.

Risk Status of AML Based on Cytogenetic and Molecular Factors

Risk Status	Cytogenetic Factors	Molecular Abnormalities
Better	Inv(16), t(8;21), 5(16;16)	Normal cytogenetics with isolated NPM1 mutation
Intermediate	Normal +8 only, 5(9;11) only Other abnormalities not listed with better risk and poor risk cytogenetics	e-KIT mutation in patients with t(8;21) or inv(16)
Poor	Complex (3 or more abnormalities) -5, -7, 5q-, 7q-, +8, Inv3, t(3;3), 5(6;9), t(9;22)	Normal cytogenetics with isolated FLT3-ITD mutations

3.2.3 Medicaid Additional Criteria Covered

None Apply.

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3.2.4 NCHC Additional Criteria Covered

None Apply.

4.0 When the Procedure, Product, or Service Is Not Covered

Note: Refer to Subsection 2.2.1 regarding EPSDT Exception to Policy Limitations for Medicaid Beneficiaries under 21 Years of Age.

4.1 General Criteria Not Covered

Medicaid and NCHC shall not cover the procedure, product, or service related to this policy when:

- a. the beneficiary does not meet the eligibility requirements listed in **Section 2.0**;
- b. the beneficiary does not meet the criteria listed in **Section 3.0**;
- c. the procedure, product, or service duplicates another provider's procedure, product, or service; or
- d. the procedure, product, or service is experimental, investigational, or part of a clinical trial.

4.2 Specific Criteria Not Covered

4.2.1 Specific Criteria Not Covered by both Medicaid and NCHC

Medicaid and NCHC shall not cover hematopoietic stem-cell ~~or bone marrow~~ transplantation for AML when:

- a. the medical criteria listed **in Subsection 3.2 above** are not met; or
- b. the beneficiary's psychosocial history limits the beneficiary's ability to comply with pre- and post-transplant medical care; or
- c. current beneficiary or caretaker non-compliance would make compliance with a disciplined medical regime improbable.

4.2.2 Medicaid Additional Criteria Not Covered

None Apply.

4.2.3 NCHC Additional Criteria Not Covered

- a. NCGS § 108A-70.21(b) "Except as otherwise provided for eligibility, fees, deductibles, copayments, and other cost sharing charges, health benefits coverage provided to children eligible under the Program shall be equivalent to coverage provided for dependents under North Carolina Medicaid Program except for the following:
 1. No services for long-term care.
 2. No nonemergency medical transportation.
 3. No EPSDT.
 4. Dental services shall be provided on a restricted basis in accordance with criteria adopted by the Department to implement this subsection."

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5.0 Requirements for and Limitations on Coverage

Note: Refer to Subsection 2.2.1 regarding EPSDT Exception to Policy Limitations for Medicaid Beneficiaries under 21 Years of Age.

5.1 Prior Approval

Medicaid and NCHC shall require prior approval for Hematopoietic Stem Cell ~~and Bone Marrow~~ Transplantation for Acute Myeloid Leukemia (AML). The provider shall obtain prior approval before rendering Hematopoietic Stem Cell ~~and Bone Marrow~~ Transplantation for Acute Myeloid Leukemia (AML).

If prior approval has been given for Hematopoietic Stem Cell Transplantation for Acute Myeloid Leukemia (AML), actual donor transplant-related medical expenses (**procuring, harvesting, short-term storing and all associated laboratory costs**) are covered. ~~stem cell transplant, DMA shall reimburse for the following transplant related donor medical expenses: **procuring, harvesting, short term storage and all associated laboratory costs.**~~

If prior approval has been given for allogeneic HSCT for Acute Myeloid Leukemia (AML) and a donor lymphocyte infusion (DLI) is later indicated (refer to **Section 3.2**), separate prior approval shall not be required for the DLI procedure.

~~All applicable Medicaid and NCHC policies and procedures must be followed in addition to the ones listed in this procedure.~~

5.2 Prior Approval Requirements

5.2.1 General

The provider(s) shall submit to the Department of Health and Human Services (DHHS) Utilization Review Contractor the following:

- a. the prior approval request; and
- b. all health records and any other records that support the beneficiary has met the specific criteria in **Subsection 3.2** of this policy.

5.2.2 Specific

None Apply.

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5.3 Specific Transplant Prior Approval Requirements

The provider(s) shall submit the following to the NC Medicaid transplant nurse consultant:

- a. Letter of medical necessity **signed by the attending transplant physician**, which documents **indications for transplant**, regimens and dates, the social history and the transplant evaluation;
- b. All health care records and any other records that support the beneficiary has met the specific criteria in **Subsection 3.2** of this policy including:
 1. Lab results (less than three months old) to include Complete Blood Count (CBC), complete electrolytes, liver enzymes, Prothrombin Time (PT), International Normalized Ratio (INR), glucose and A1C (Glycated Hemoglobin if Type I or Type II diabetic), and blood type;
 2. Serologies: to include Human Immunodeficiency Virus (HIV), Hepatitis **panel**, Rapid Plasma Reagin (RPR), Epstein-Barr Virus (EBV), Cytomegalovirus (CMV), Varicella, Rubella, Herpes Simplex Virus (HSV) I/II, and toxoplasmosis. (*Positive* serology results may be reported that are greater than three months old);
 3. Diagnostic studies (less than six months old) required in a complete packet include:
 - A. Cardiac: Echocardiogram, Electrocardiogram (ECG), and/or cardiac catheterization as appropriate for beneficiary's clinical status;
 - B. Pulmonary: Pulmonary Function Test if beneficiary has cardiac or pulmonary issues, or a history of smoking; and
 - C. Chest x-ray for all transplant candidates;
 4. Other diagnostic tests may be requested as appropriate;
 5. Beneficiary's height and weight
 6. All diagnostic and procedure results, including bone marrow aspiration (not more than six month's old)
- c. Complete psychological and social evaluation to include:
 1. beneficiary's medical compliance;
 2. beneficiary's support network;
 3. post-transplant care plan, with identification of primary and secondary care providers; and
 4. history of mental health issues/substance use/legal issues
- d. Beneficiaries with a psychiatric history are required to have an evaluation by a psychiatrist with expertise in evaluating the specific psychiatric issues that relate to transplant candidates.

6.0 Providers Eligible to Bill for the Procedure, Product, or Service

To be eligible to bill for the procedure, product, or service related to this policy, the provider(s) shall:

- a. meet Medicaid or NCHC qualifications for participation;
- b. have a current and signed Department of Health and Human Services (DHHS) Provider Administrative Participation Agreement; and
- c. bill only for procedures, products, and services that are within the scope of their clinical practice, as defined by the appropriate licensing entity.

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6.1 Provider Qualifications and Occupational Licensing Entity Regulations

None Apply.

6.2 Provider Certifications

None Apply.

7.0 Additional Requirements

Note: Refer to Subsection 2.2.1 regarding EPSDT Exception to Policy Limitations for Medicaid Beneficiaries under 21 Years of Age.

7.1 Compliance

Provider(s) shall comply with the following in effect at the time the service is rendered:

- a. All applicable agreements, federal, state and local laws and regulations including the Health Insurance Portability and Accountability Act (HIPAA) and record retention requirements; and
- b. All NC Medicaid's clinical (medical) coverage policies, guidelines, policies, provider manuals, implementation updates, and bulletins published by the Centers for Medicare and Medicaid Services (CMS), DHHS, DHHS division(s) or fiscal contractor(s).
- ~~c. FDA approved procedures, products, and devices for implantation must be utilized.~~
- ~~d. A statement signed by the surgeon certifying all FDA requirements for the implants, products, and devices must be retained in the beneficiary's medical record and made available for review upon request.~~

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8.0 Policy Implementation/Revision Information

Original Effective Date: July 1, 1987

Revision Information:

Date	Section Revised	Change
07/01/2005	Entire Policy	Policy was updated to include coverage criteria effective with approved date of State Plan amendment 4/1/05.
09/01/2005	Section 2.2	The special provision related to EPSDT was revised.
12/01/2005	Section 2.2	The web address for DMA’s EDPST policy instructions was added to this section.
12/01/2006	Sections 2.2	The special provision related to EPSDT was revised.
12/01/2006	Sections 3.0 and 4.0	A note regarding EPSDT was added to these sections.
05/01/2007	Sections 2 through 4	EPSDT information was revised to clarify exceptions to policy limitations for recipients under 21 years of age.
05/01/2007	Attachment A	Added UB-04 as an accepted claims form.
07/01/2010	All sections and attachments	Session Law 2009-451, Section 10.31(a) Transition of NC Health Choice Program administrative oversight from the State Health Plan to the Division of Medical Assistance (DMA) in the NC Department of Health and Human Services.
01/01/2012	All sections and attachments	Policy updated to reflect current community standards and changing transplant protocols.
01/01/2012	All sections and attachments	To be equivalent where applicable to NC DMA’s Clinical Coverage Policy # 11A-2 under Session Law 2011-145, § 10.41.(b)
03/12/2012	All sections and attachments	Technical changes to merge Medicaid and NCHC current coverage into one policy.
12/15/2012	Subsection 5.1	“NDHC” corrected to “NCHC”
10/01/2015	All Sections and Attachments	Updated policy template language and added ICD-10 codes to comply with federally mandated 10/1/2015 implementation where applicable.
03/01/2017	Attachment A, Section B	Updated and replaced ICD-10 codes.
03/15/2019	Table of Contents	Added, “To all beneficiaries enrolled in a Prepaid Health Plan (PHP): for questions about benefits and services available on or after November 1, 2019, please contact your PHP.”
03/15/2019	All Sections and Attachments	Updated policy template language.
	<u>Throughout</u>	<u>Removed “and Bone Marrow” from title of policy.</u>
	<u>Section 1.0</u>	<u>Updated AML description and WHO classifications and descriptions.</u>
	<u>Section 1.1</u>	<u>Added definition for donor lymphocyte infusion (DLI).</u>

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	<u>Section 3.2.1</u>	Clarified coverage criteria to specify situations in which AML relapses or is refractory to induction chemotherapy but can be brought into remission with intensified induction chemotherapy. Criteria added for DLI coverage.
	<u>Section 3.2.2</u>	Updated information to reflect current WHO classifications and prognostic factors.
	<u>Section 5.1</u>	Added text that if PA has been given for allogeneic HSCT and DLI is later indicated, separate PA is not required for the DLI procedure.
	<u>Section 5.3</u>	“Indications for transplant” added to letter of medical necessity requirements. Added “panel” to Hepatitis panel to reflect verbiage in the State Plan.
	<u>Section 7.0</u>	Removed the following statements: FDA approved procedures, products, and devices for implantation must be utilized. A statement signed by the surgeon certifying all FDA requirements for the implants, products, and devices must be retained in the beneficiary’s medical record and made available for review upon request. This text is not applicable to this policy.
	<u>Attachment A</u>	Added the UB-04 as an accepted claims form. Removed all CPT, HCPCS, and ICD-10 codes.

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Attachment A: Claims-Related Information

Provider(s) shall comply with the, *NCTracks Provider Claims and Billing Assistance Guide*, Medicaid bulletins, fee schedules, NC Medicaid’s clinical coverage policies and any other relevant documents for specific coverage and reimbursement for Medicaid and NCHC:

A. Claim Type

Professional (CMS-1500/837P transaction)

Institutional (UB-04/83711)

B. International Classification of Diseases and Related Health Problems, Tenth Revisions, Clinical Modification (ICD-10-CM) and Procedural Coding System (PCS)

Provider(s) shall report the ICD-10-CM and Procedural Coding System (PCS) to the highest level of specificity that supports medical necessity. Provider(s) shall use the current ICD-10 edition and any subsequent editions in effect at the time of service. Provider(s) shall refer to the applicable edition for code description, as it is no longer documented in the policy.

ICD-10 Code(s)			
30230AZ	30233Y4	30243Y0	30253Y1
30230G0	30240AZ	30243Y4	30260G0
30230G4	30240G0	30250G0	30260G1
30230Y0	30240G4	30250G1	30260Y0
30230Y4	30240Y0	30250Y0	30260Y1
30233AZ	30240Y4	30250Y1	30263G0
30233G0	30243AZ	30253G0	30263G1
30233G4	30243G0	30253G1	30263Y0
30233Y0	30243G4	30253Y0	30263Y1

C. Code(s)

Provider(s) shall report the most specific billing code that accurately and completely describes the procedure, product or service provided. Provider(s) shall use the Current Procedural Terminology (CPT), Health Care Procedure Coding System (HCPCS), and UB-04 Data Specifications Manual (for a complete listing of valid revenue codes) and any subsequent editions in effect at the time of service. Provider(s) shall refer to the applicable edition for the code description, as it is no longer documented in the policy.

If no such specific CPT or HCPCS code exists, then the provider(s) shall report the procedure, product or service using the appropriate unlisted procedure or service cod.

CPT Code(s)
38205
38206
38230
38232
38240
38241

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38242

HCPCS Code(s)
S2150

Unlisted Procedure or Service

CPT: The provider(s) shall refer to and comply with the Instructions for Use of the CPT Codebook, Unlisted Procedure or Service, and Special Report as documented in the current CPT in effect at the time of service.

HCPCS: The provider(s) shall refer to and comply with the Instructions For Use of HCPCS National Level II codes, Unlisted Procedure or Service and Special Report as documented in the current HCPCS edition in effect at the time of service

D. Modifiers

Provider(s) shall follow applicable modifier guidelines.

E. Billing Units

Provider(s) shall report the appropriate code(s) used which determines the billing unit(s).

F. Place of Service

Inpatient Hospital, Outpatient Hospital.

G. Co-payments

For Medicaid refer to Medicaid State Plan:

<https://medicaid.ncdhhs.gov/get-involved/nc-health-choice-state-plan>

For NCHC refer to NCHC State Plan:

<https://medicaid.ncdhhs.gov/get-involved/nc-health-choice-state-plan>

H. Reimbursement

Provider(s) shall bill their usual and customary charges.

For a schedule of rates, refer to: <https://medicaid.ncdhhs.gov/>

I. Billing for Donor Expenses

1. Billing for Donor Expenses for Medicaid Beneficiaries

Donor transplant-related medical expenses are billed on the Medicaid beneficiary's transplant claim using the beneficiary's Medicaid identification number.

Medicaid reimburses only for the actual donor's transplant-related medical expenses. Medicaid does not reimburse for unsuccessful donor searches.

2. Billing for Donor Expenses for NCHC Beneficiaries

Donor transplant-related medical expenses donors are billed on the NCHC beneficiary's transplant claim.

NCHC reimburses only for the actual donor's transplant-related medical expenses. NCHC does not reimburse for unsuccessful donor searches.