Clinical Policy: Nonmyeloablative Allogeneic Stem Cell Transplants

Reference Number: CP.MP.141
Date of Last Revision: 01/25
Effective Date: 04/01/2025

Coding Implications
Revision Log

See Important Reminder at the end of this policy for important regulatory and legal information.

Description

Allogeneic hematopoietic stem cell transplants that do not destroy all of the hematopoietic cells in the bone marrow are termed reduced-intensity or nonmyeloablative conditioning regimens. Although there are no clear definitions, reduced-intensity conditioning (RIC) generally destroys more hematopoietic cells and is more toxic than nonmyeloablative conditioning, but less so than myeloablative conditioning. Both nonmyeloablative and RIC regimens are categorized as non-fully ablative regimens and are used interchangeably in this policy, unless otherwise noted. RIC/nonmyeloablative approaches can circumvent the need for high-dose conditioning regimens that are associated with organ toxicity and mortality depending on graft vs. tumor and immunosuppressive mechanisms.[1]

Note:

- *Please refer to CP.MP.108 for requests for Allogeneic Hematopoietic Cell Transplants for Sickle Cell Anemia and β-Thalassemia.*
- *Please refer to CP.MP.162 Tandem Transplant if request is for an allogeneic reduced conditioning transplant for multiple myeloma in a tandem transplant.*

Policy/Criteria

I. It is the policy of health plans affiliated with Centene Corporation® that nonmyeloablative/reduced-intensity conditioning (RIC) allogeneic transplants are **medically necessary** for members/enrollees who meet all of the following criteria:

A. Candidate for allogeneic stem cell transplantation for any of the following diagnoses:
   1. Acute lymphoblastic leukemia;
   2. Acute myelogenous leukemia;
   3. Acquired bone marrow failure such as severe aplastic anemia;
   4. Familial bone marrow failure syndromes such as, but not limited to, one of the following:
      a. Dyskeratosis congenita;
      b. Shwachman-Diamond syndrome;
      c. Diamond-Blackfan anemia;
      d. Kostmann syndrome;
      e. Fanconi anemia;
   5. Paroxysmal nocturnal hemoglobinuria;
   6. Chronic lymphocytic leukemias;
   7. Chronic myelogenous leukemia;
   8. Congenital immunodeficiency syndromes:
   9. Non-Hodgkin's lymphoma, any of the following:
      a. Primary refractory or relapsed, including those who have relapsed after having an autologous bone marrow transplant (excluding diffuse large B-cell lymphoma);
      b. Follicular lymphomas;

c. Mantle cell lymphoma;
d. Diffuse large B-cell lymphoma that is in remission following second-line therapy for relapsed or refractory disease;

10. Myelodysplastic syndromes;
11. Lysosomal storage disorders types IH/IS (Hurler/Hurler-Scheie), VI (maroteaux), VII (Sly);
12. Macrophage disorders such as hemophagocytic lymphohistiocytosis (HLH);
13. Myeloproliferative neoplasms such as, but not limited to:
    a. Chronic myeloid leukemia;
    b. Juvenile myelomonocytic leukemia;
    c. Primary myelofibrosis;
    d. Essential thrombocytosis;
    e. Polycythemia vera;

B. Unsuitable for conventional high-dose myeloablative allografting because of untreatable significant dysfunction of another major organ system and/or severe comorbidities, including, but not limited to, any of the following:
1. Bilirubin > 2 mg/dL;
2. Hemostasis: international normalized ratio (INR) > 1.6 (unless on oral anticoagulants);
3. Cardiac function: multigated acquisition (MUGA) scan or echocardiogram with ejection fraction (EF) < 45%;
4. Pulmonary function, one of the following:
    a. Forced expiratory volume in 1 second (FEV1) ≤ 50% of predicted value;
    b. Diffusing capacity of the lung for carbon monoxide (DLCO) ≤ 60% of predicted value;
5. Performance scale index, one of the following:
    a. Karnofsky or Lansky score < 70%;
    b. Eastern Cooperative Oncology Group (ECOG) performance score > 2.

II. It is the policy of health plans affiliated with Centene Corporation that current evidence does not support the use of nonmyeloablative/RIC allogeneic transplants for any of the following indications:

A. Solid tumors including, but not limited to:
1. Brain tumors;
2. Ovarian epithelia and mixed epithelial/germ cell cancers;
3. Primitive neuroectodermal tumors (PNET), including medulloblastoma and ependymoma;
4. Renal cell carcinoma;
5. Testicular cancer;
6. Wilms tumor;
7. Ewing sarcoma;
8. Melanoma;
9. Osteosarcoma;
10. Rhabdomyosarcoma;
11. Retinoblastoma;
12. Germ cell tumors;

13. Neuroblastoma;
14. Multiple myeloma (except in tandem transplant- refer to CP.MP.162);

B. Autoimmune disorders including, but not limited to:
   1. Multiple sclerosis;
   2. Rheumatoid arthritis;
   3. Juvenile idiopathic arthritis;
   4. Systemic lupus erythematosus;
   5. Systemic sclerosis;
   6. Dermatomyositis;
   7. Polymyositis;
   8. Scleroderma;

C. Hemoglobinopathies including, but not limited to:
   1. Thalassemias;
   2. Sickle cell anemia.

Background

Allogeneic hematopoietic cell transplantation (HCT) has been used as a treatment for cancer and diseases of the blood system for decades. For this treatment, stem cells are collected from either related or unrelated donors.[1] During the conditioning phase, high doses of chemotherapy (HDC), with or without radiation therapy, are used to eradicate the disease, and this is followed by infusion of stem cells to rescue bone marrow and restore normal immune function. Major limitations of this technique include the increased risk of high morbidity and mortality related to increased age, relapsed or refractory disease or disease with an elevated risk of relapse following HCT, a history of aggressive chemotherapy, and comorbidities.[2] All stem cell transplants (SCTs) preparative regimens have the potential for extensive toxicity. Loss of appetite and energy, alopecia, and nausea/vomiting occur frequently and contribute to poor physical and emotional tolerance of the transplant procedure. In addition, mucositis, diarrhea, and transient pancytopenia are inevitable side effects of most preparative regimens, and these complications are synergistic in dramatically increasing the risk of infections during and post-transplant.[3] Any decrease in toxicity, without concomitant loss of efficacy, would be desirable.

Myeloablative means that the treatment kills (ablates) the stem cells in the bone marrow; the cells that produce new blood cells. Several less intense conditioning regimens have been developed and rely more on immuno-suppression than cytotoxic effects to permit engraftment of donor cells. These regimens are collectively termed nonmyeloablative. Studies have shown that donor allogeneic stem cells can engraft in recipients using less-intensive conditioning regimens that are sufficiently immunosuppressive to permit graft-host tolerance. This manifests as a stable mixed donor-host hematopoietic chimerism, a term which means coexistence of donor and recipient cells. Nonmyeloablative allogeneic transplants, also referred to as “mini-transplant” or “transplant lite”, are thought to be potentially as effective as conventional HDC followed by an allogeneic stem cell transplantation, but with decreased morbidity and mortality related to the less intense, nonmyeloablative chemotherapy conditioning regimen.[1,4]

Coding Implications

This clinical policy references Current Procedural Terminology (CPT®). CPT® is a registered trademark of the American Medical Association. All CPT codes and descriptions are copyrighted

CPT® Codes	Description
38204	Management of recipient hematopoietic progenitor cell donor search and cell acquisition
38205	Blood-derived hematopoietic progenitor cell harvesting for transplantation, per collection; allogeneic
38207	Transplant preparation of hematopoietic progenitor cells; cryopreservation and storage
38208	Transplant preparation of hematopoietic progenitor cells; thawing of previously frozen harvest, without washing, per donor
38209	Transplant preparation of hematopoietic progenitor cells; thawing of previously frozen harvest, with washing, per donor
38210	Transplant preparation of hematopoietic progenitor cells; specific cell depletion within harvest, T-cell depletion
38211	Transplant preparation of hematopoietic progenitor cells; tumor cell depletion
38212	Transplant preparation of hematopoietic progenitor cells; red blood cell removal
38213	Transplant preparation of hematopoietic progenitor cells; platelet depletion
38214	Transplant preparation of hematopoietic progenitor cells; plasma (volume) depletion
38215	Transplant preparation of hematopoietic progenitor cells; cell concentration in plasma, mononuclear, or buffy coat layer
38230	Bone marrow harvesting for transplantation; allogeneic
38240	Hematopoietic progenitor cell (HPC), allogeneic transplantation per donor

HCPCS Codes	Description
S2142	Cord blood-derived stem-cell transplantation, allogeneic
S2150	Bone marrow or blood-derived stem cells (peripheral or umbilical), allogeneic or autologous, harvesting, transplantation, and related complications; including: pheresis and cell preparation/storage; marrow ablative therapy; drugs, supplies, hospitalization with outpatient follow-up; medical/surgical, diagnostic, emergency, and rehabilitative services; and the number of days of pre- and posttransplant care in the global definition

Reviews, Revisions, and Approvals	Review Date	Approval Date
Policy adopted from HN version	03/17	4/17

Reviews, Revisions, and Approvals	Review Date	Approval Date
Annual review completed. References reviewed. Codes checked. Changed "members/enrollee" to members/enrollee." Specialty review completed with no updates.	02/21	02/21
Annual review. Rephrased criteria I.A.3. from "aplastic anemia" to "acquired bone marrow failure such as severe aplastic anemia." Added new indication I.A.4., "Familial bone marrow syndromes such as…." Removed "molecular remissions induced by Gleevec" from I.A.8." Added criteria points 13. and 14. to criteria I.A. "Experimental/investigational" verbiage in criteria II. replaced with descriptive language. Sorted list of non-supported indications in criteria II. into 3 subcategories, solid tumors, autoimmune disorders and hemoglobinopathies. In criteria I.C., combined and rephrased contraindications 2. and 3. and updated verbiage regarding substance abuse and dependence in 4. Minor rewording in description and background with no impact on criteria. Removed ICD-10 codes D57.00-D57.819 for sickle-cell disorders from ICD-10 table of codes to support coverage. References reviewed and updated. Changed "review date" in the header to "date of last revision" and "date" in the revision log header to "revision date." Reviewed by specialist.	02/22	02/22
Annual review completed. Criteria I.C.4. updated to exclude marijuana use when prescribed by a licensed practitioner and include required commitment to reducing substance use behaviors if urgent transplant timelines are present. Background updated; minor rewording with no clinical significance. ICD-10 diagnosis code table removed. References reviewed and updated.	02/23	02/23
Annual review. Removed Hodgkin's lymphoma from Criteria I.A.9. per updated National Comprehensive Cancer Network (NCCN) recommendations. Added Criteria I.A.13.e. to include polycythemia vera. Updated Criteria I.B.4.b. from diffusing capacity of the lung for carbon monoxide (DLCO) ≤ 50% of predicted value to DLCO ≤ 60% of predicted value. Removed absolute contraindications in Criteria I.C. References reviewed and updated. Reviewed by internal specialist and reviewed by external specialist.	02/24	02/24
Annual review. Updated verbiage for macrophage disorders in Criteria I.A.12. for clarity. References reviewed and updated. Reviewed by internal specialist.	01/25	01/25

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Important Reminder

This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. The Health Plan makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved. "Health Plan" means a health plan that has adopted this clinical policy and that is operated or administered, in whole or in part, by Centene Management Company, LLC, or any of such health plan's affiliates, as applicable.

The purpose of this clinical policy is to provide a guide to medical necessity, which is a component of the guidelines used to assist in making coverage decisions and administering benefits. It does not constitute a contract or guarantee regarding payment or results. Coverage decisions and the administration of benefits are subject to all terms, conditions, exclusions and limitations of the coverage documents (e.g., evidence of coverage, certificate of coverage, policy, contract of insurance, etc.), as well as to state and federal requirements and applicable Health Plan-level administrative policies and procedures.

This clinical policy is effective as of the date determined by the Health Plan. The date of posting may not be the effective date of this clinical policy. This clinical policy may be subject to applicable legal and regulatory requirements relating to provider notification. If there is a discrepancy between the effective date of this clinical policy and any applicable legal or regulatory requirement, the requirements of law and regulation shall govern. The Health Plan retains the right to change, amend or withdraw this clinical policy, and additional clinical policies may be developed and adopted as needed, at any time.

This clinical policy does not constitute medical advice, medical treatment or medical care. It is not intended to dictate to providers how to practice medicine. Providers are expected to exercise professional medical judgment in providing the most appropriate care, and are solely responsible for the medical advice and treatment of members/enrollees. This clinical policy is not intended to recommend treatment for members/enrollees. Members/enrollees should consult with their treating physician in connection with diagnosis and treatment decisions.

Providers referred to in this clinical policy are independent contractors who exercise independent judgment and over whom the Health Plan has no control or right of control. Providers are not agents or employees of the Health Plan.

Providers, members/enrollees and their representatives are bound to the terms and conditions expressed herein through the terms of their contracts. Where no such contract exists, providers, members/enrollees and their representatives agree to be bound by such terms and conditions by providing services to members/enrollees and/or submitting claims for payment for such services.

Note: For Medicaid members/enrollees, when state Medicaid coverage provisions conflict with the coverage provisions in this clinical policy, state Medicaid coverage provisions take precedence. Please refer to the state Medicaid manual for any coverage provisions pertaining to this clinical policy.

Note: For Medicare members/enrollees, to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs, LCDs, and Medicare Coverage Articles should be reviewed prior to applying the criteria set forth in this clinical policy. Refer to the CMS website at http://www.cms.gov for additional information.