Clinical Policy: Initial Bone Marrow Transplant

Reference Number: IL.CP.MP.513
Last Review Date: 06/22

Coding Implications
Revision Log

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

Description

Hematopoietic Stem cell transplantation (HSCT)	Process in which stem cells are harvested from either a patient's (autologous) or donor's allogeneic bone marrow or peripheral blood for intravenous infusion.
Autologous stem cell transplants (AuSCT)	Uses a patient's own stem cells. Stem cells are collected from the patient and frozen in liquid nitrogen before transplant conditioning. Following conditioning treatment, the patient's stem cells are returned to the body to help it produce healthy red and white blood cells and platelets. Must be used to effect hematopoietic reconstitution following severely myelotoxic doses of chemotherapy and/or radiotherapy used to treat various malignancies.
Allogeneic stem cell transplant (Allogeneic SCT)	Uses stem cells from a donor whose human leukocyte antigens (HLA) are acceptable matches to the patient's. The stem cell donor may be related to the patient or may be an unrelated volunteer found through a donor registry such as the National Marrow Donor Program. May also be used to restore function in recipients having an inherited or acquired deficiency or defect.
Bone marrow and peripheral blood stem cell transplantation	Process which includes mobilization, harvesting, and transplant of bone marrow or peripheral blood stem cells and the administration of high dose chemotherapy or radiotherapy prior to the actual transplant. A bone marrow or peripheral blood stem cell transplantation is covered, including the donor search when it is deemed that the member meets criteria for transplant.
Myeloablative procedure for allogeneic transplant Reduced intensity or non-myeloablative allogeneic transplant procedure for allogeneic transplant	Uses large doses of chemotherapy or a combination of chemotherapy and radiation to overcome resistance and eradicate a patient's malignancy. Uses a reduced amount of chemotherapy to suppress the patient's immune system enough so that the donor stem cells can take root. While the chemotherapy may kill some of the tumor cells, that is not the goal of the chemotherapy given prior to the transplant. With a reduction in the amount of cancerous tissue, the transplanted stem cells can produce high numbers of health white blood cells to attack the remaining cancer cells.
Tandem Transplantation	Tandem transplantation is a type of stem cell transplantation in which the individual receives two sequential courses of high-dose chemotherapy and stem cell therapy that are typically given within six months of each other.

Policy/Criteria

To ensure that the selection criteria are consistently followed and documented. Please see the appropriate policy listed below for specific indications:

Hematopoietic Cell Transplantation for Multiple Myeloma	CP.MP.162 Tandem Transplant (centene.com)
Hematopoietic Cell Transplantation in Sickle Cell Disease	CP.MP.108 AHCT for Sickle Cell Anemia (centene.com)
Hematopoietic Cell Transplantation in Beta Thalassemia Major	
Hematopoietic Cell Transplantation in Hodgkin's Lymphoma	InterQual
Hematopoietic Cell Transplant for Aplastic Anemia and Bone Marrow Failure Syndromes	CP.MP.141 Nonmyeloablative allogeneic SCT (centene.com)
Hematopoietic Cell Transplant for Primary Immunodeficiency Disorders	

Many factors affect the outcome of tissue transplantation; the selection process is designed to obtain the best result for each individual. Overall health, age, and disease stage are extremely important considerations in evaluating candidates.

I. It is the policy of MeridianHealth affiliated with Centene Corporation® that initial bone marrow transplant is **medically necessary** when the following guidelines are met:
   - **A.** The National Comprehensive Cancer Network guidelines must be met and will be reviewed by a Medical Director (http://www.nccn.org/index.asp/)
   - **B.** Staging of disease must be included in clinical documentation submitted with request if applicable
   - **C.** Cardiac function evaluation:
     - i. Left ventricular ejection fraction equal or greater than 40 %[26]
     - ii. If present, coronary artery disease and cardiac arrhythmias must be controlled/stable
   - **D.** Pulmonary function evaluation:
     - i. Forced vital capacity (FVC)/forced expiratory volume in 1 second (FEV1)/diffusion capacity of the lung for carbon monoxide (DLCO) equal to or greater than 50 % predicted.
   - **E.** Renal function with a serum creatinine < 2 mg/dl of Cl_{cr} > 50 ml/min
   - **F.** Liver function studies indicate no frank cirrhosis.[26]
   - **G.** No active infection must be present including any of the following:
     - i. Human immunodeficiency virus (HIV)
     - ii. Hepatitis B virus (HBV)
     - iii. Hepatitis C virus (HCV)
     - iv. Human T-cell lymphotropic virus (HTLV)-1
   - **H.** Dental exam and x-rays to identify and treat potential sources of infection from the oral cavity.
     - i. Examples include, but are not limited to gum disease, tooth decay, tooth abscesses, and poor oral hygiene.

I. Karnofsky rating 70% or greater and/or Eastern Cooperative Oncology Group (ECOG) performance status less than 2
J. Documentation of member's ability to understand the risks of the procedures.
K. Emotional and psychiatric stability, including a strong family or alternative support network (documented by formal social work evaluation)
L. Absence of psychiatric disease that would interfere with the member's ability to comply with the pre- or post-transplant therapeutic regimen

The rationale to proceed with transplantation, if a transplant candidate has sub-optimal organ function or a per-existing comorbid conditions (s) must be documented within the candidate's medical record by the BMT physician.

II. Disease Specific Covered Indications

A. Allogeneic Hematopoietic Stem Cell Transplantation (HSCT): All requests will be reviewed against current NCCN guidelines. Allogeneic HSCT may be authorized for coverage of allogeneic hematopoietic stem cell transplantation for the following indications, when the specific criteria outlined below for each indication are met:

i. Acute promyelocytic leukemia (APL)
ii. Acute lymphocytic/lymphoblastic leukemia, adult (ALL)
iii. Acute lymphocytic/lymphoblastic leukemia, pediatric (ALL)
iv. Acute myelogenous leukemia (AML)
v. Aplastic anemia
vi. Chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL)
vii. Chronic myelogenous leukemia (CML)
viii. Chronic myelomonocytic leukemia (CMML)/Juvenile myelomonocytic leukemia (JML)
ix. Fanconi anemia
x. Hodgkin's Disease
xi. Inherited immunodeficiency disorder
xii. Inherited metabolic disorders
xiii. Myelodysplastic syndrome
xiv. Myelofibrosis
xv. Neuroblastoma
xvi. Non-Hodgkin's lymphoma, adult
xvii. Non-Hodgkin's lymphoma, pediatric
xviii. Sickle cell disease
xix. Other – Treatment of autoimmune diseases and the treatment of children and adults with inborn errors in metabolism and congenital immune deficiencies may be considered

Meridian Health Plan may authorize coverage of a second allogeneic SCT from HLA-matched donor for the treatment of ALL in adults when relapsed disease occurs after first allogeneic HSCT.

Meridian Health Plan may authorize coverage of a second allogeneic SCT from a related HLA-matched donor for the treatment of ALL in children when relapsed disease occurs more than sixmonths after first allogeneic SCT.

B. Autologous Stem Cell Transplantation (AuSCT): All requests will be reviewed against current NCCN guidelines. Autologous HSCT may authorized for coverage of autologous hematopoietic stem cell transplantation for the following indications, when the specific criteria outlined below for each indication are met:

i. Acute promyelocytic leukemia (APL)
ii. Acute myeloid leukemia
iii. Amyloidosis
iv. Central nervous system tumors
v. Diffuse large B cell lymphoma
vi. Follicular lymphoma
vii. Hodgkin's Disease
viii. Mantle cell lymphoma
ix. Multiple Myeloma and POEMS Syndrome (Polyneuropathy, Organomegaly, Endocrinopathy/edema. Monoclonal-protein)
x. Neuroblastoma
xi. Non-Hodgkin's lymphoma, adult
xii. Non-Hodgkin's lymphoma, pediatric
xiii. Pediatric solid tumors
xiv. Peripheral T cell lymphoma
xv. Systemic Sclerosis
xvi. Testicular cancer and malignant germ cell tumors
xvii. Waldenström macroglobulinemia

C. Absolute Contraindications:

i. **Non-covered indications (Autologous SCT) -** All requests will be reviewed against current NCCN guidelines and/or current medical literature when appropriate.
    1. Acute leukemia not in remission
    2. Chronic granulocytic leukemia
    3. Solid tumors other than Neuroblastoma
    4. Breast cancer

ii. **Non-covered indications (Allogeneic SCT):** All requests will be reviewed against current NCCN guidelines and/or current medical literature when appropriate.
    1. Recurrent or refractory medulloblastoma and other primitive neuroectodermal tumors

D. Member Assessment of Compliance with Plan of Care (applicable for ages 10 and above). Transplant will not be approved if **any one** of the following indicators of non-compliance are observed or documented:

i. Alcohol screen- abstinence for the past 6 months prior to actual transplant approval, if member history includes use of alcohol. If no history exists then 1 negative alcohol screen must be submitted for members with no history of past alcohol use
ii. Drug screen-abstinence for the past 6 months prior to actual transplant approval if history exists of drug use. If no history exists then 1 negative drug screen must be submitted for members with no history of positive drug screen.
iii. Nicotine screening- abstinence for the past 6 months prior to actual transplant approval if history of smoking. If no history exists then 1 negative cotinine level must be submitted

Refusal or failure to undergo monthly testing for those members with a history of alcohol, tobacco, and/or drug use will be interpreted as a positive test result.

Six month abstinence period may be shortened in cases where patient's condition is sufficiently advanced that mortality is reasonably expected before the full abstinence period can be completed. Patients granted a waiver of the six month abstinence period require documentation of participation in a formal outpatient treatment program, when practical, as well as serial blood or urine testing no less frequently than monthly. A positive test result at any time prior to the procurement phase will result in denial.

Appendix – KPS and ECOG: One tool that assesses a patient's performance status is the Karnofsky Performance Scale. The scale ranges from 0 to 100%, with 100% representing patients without evidence of disease and 0% being dead. A status score of 70% denotes those patients that are able to care for themselves but may not be able to effectively work, shop, drive, or care for family members; patients with an irreversible score or less the 70% generally have a poor prognosis.

100%	Normal, no complaints, no signs of disease
90%	Capable of normal activity, few symptoms or signs of disease
80%	Normal activity with some difficulty, some symptoms or signs
70%	Caring for self, not capable of normal activity or work
60%	Requiring some help, can take care of most personal requirements
50%	Requires help often, requires frequent medical care
40%	Disabled, requires special care and help
30%	Severely disabled, hospital admission indicated but no risk of death
20%	Very ill, urgently requiring admission, requires supportive measures or treatment
10%	Moribund, rapidly progressive fatal disease processes
0%	Death

The Eastern Cooperative Oncology Group (ECOG) developed a performance status tool. This tool assesses the patient's disease progression, the impact of the disease on daily living, and provides

information used to determine proper treatment and prognosis. Patients are classified based on the following information:

0	Asymptomatic (Fully active, able to carry on all predisease activities without restriction)
1	Symptomatic but completely ambulatory (Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature. For example, light housework, office work)
2	Symptomatic, <50% in bed during the day (Ambulatory and capable of all self-care but unable to carry out any work activities. Up and about more than 50% of waking hours)
3	Symptomatic, >50% in bed, but not bedbound (Capable of only limited self-care, confined to bed or chair 50% or more of waking hours)
4	Bedbound (Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair)
5	Death

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 2019, American Medical Association. All rights reserved. CPT codes and CPT descriptions are from the current manuals and those included herein are not intended to be all-inclusive and are included for informational purposes only. Codes referenced in this clinical policy are for informational purposes only. Inclusion or exclusion of any codes does not guarantee coverage. Providers should reference the most up-to-date sources of professional coding guidance prior to the submission of claims for reimbursement of covered services.

CPT®* Codes	Description

HCPCS ®* Codes	Description

ICD-10-CM Diagnosis Codes that Support Coverage Criteria

+ Indicates a code(s) requiring an additional character

ICD-10-CM Code	Description

Reviews, Revisions, and Approvals	Date	Approval Date
Original approval date		9/29/10
Annual Review		06/22

References

1. Bernaudin F, Socie G, Kuentz M, Chevret S, Duvall M, Bertrand Y, et al. Long-term results of related myeloablative stem-cell transplantation to cure sickle cell disease. *Blood* 2007; 110(7):2749-56. Epub 2007 Jul 2.
2. Bhatia M, Walters MC. Hematopoietic stem cell transplantation for thalassemia and sickle cell disease: past, present and future. *Bone Marrow Transplant* 2008;42(2):109-117.
3. Borgna-Pignatti C, Galanello R. Thalassemias and related disorders: quantitative disorders of hemoglobin synthesis. In: Greer JP, Foester J, Rodgers GM, Paraskevas F, Glader B, Arber DA, Means RT, editors. Wintrobe's Clinical Hematology, 12th ed. Philadelphia (PA): Lippincott Williams & Wilkins, 2009.
4. Copelan, EA. Hematopoietic Stem-Cell Transplantation. *N Engl J Med* 2006;354:1813-1826
5. DeBaun MR, Vichinsky E. Hemoglobinopathies. In: Kleigman RM, Behrman RE, Jenson HB, Stanton BF, editors. Nelson textbook of pediatrics, 18th ed. Philadelphia (PA): Saunders Elsevier; 2007.
6. Pavletic, Steven, and James O. Armitage. "Bone Marrow Transplantation for Cancer--An Update." *The Oncologist* 1996; 159-68. Print.
7. Radich, J., T. Gooley, J. Sanders, C. Anasetti, T. Chauncey, and F. Appelbaum. "Second Allogeneic Transplantation after Failure of First Autologous Transplantation." *Biology of Blood and Marrow Transplantation* 6.3 (2000): 272-79. Print.
8. Hongeng S, Pakakasama S, Chuansumrit A, Sirachainan N, Kitpoka P, Udomsubpayakul U, et al. Outcomes of transplantation with related- and unrelated-donor stem cells in children with severe thalassemia. *Biology of Blood Marrow Transplant* 2006 Jun;12(6):683-7.
9. Hoppe CC, Walters MC. Bone marrow transplantation in sickle cell anemia. *Curr Opin Oncol.* 2004 Mar; 13(2):85-90.
10. Iannone R, Casella JF, Fuch EJ, Chen AR, Jones RJ, Woolfrey A. Results of minimally toxic nonmyeloablative transplantation in patients with sickle cell anemia and beta-thalassemia. *Biology Blood Marrow Transplant* 2003 Aug;9(8):519-28.
11. La Nasa G, Caocci G, Argiolu F, Giardini C, Locatelli F, Vacca A, et al. Unrelated donor stem cell transplantation in adult patients with thalassemia. *Bone Marrow Transplant* 2005 Dec;36(11):971-5.
12. Lennard, A.L. & Jackson, G.H. (2001). Stem Cell Transplantation. *The Western Journal of Medicine* 2001;175:42-46
13. National Heart, Lung and Blood Institute. The management of sickle cell disease, 4th ed. NIH Publication 02-2117. Jun 2002
14. National Institutes of Health, Center for Biotechnology Information: Genes and Diseases. NIH Publications: sickle cell anemia.
15. National Institutes of Health, Genetics Home Reference: beta thalassemia. Updated: March 2017..
16. National Institutes of Health, Medical Encyclopedia. Thalassemia. Updated : Feb 2017.
17. Rund D, Rachmilewitz E. Beta-thalassemia. *N Engl J Med.* 2005 Sep 15; 353(11):1135-46.

18. Smiers FJ, Krishnamurti L, Lucarelli G. Hematopoietic stem cell transplantation for hemoglobinapathies: current practice and emerging trends. *Pediatr Clin North Am*. 2010 Feb; 57(1):181-205.
19. Stagno, SJ, Busby K., Shapiro, A. and Kotz MM. Bone Marrow Transplantation, Patients at risk: addressing addiction in patients undergoing hematopoietic SCT, 2008
20. Attal M, Harousseau JL, Facon T, Guilhot F, Doyen C, Fuzibet JG, Monconduit M, Hulin C, Caillot D, Bouabdallah R, Voillat L, Sotto JJ, Grosbois B, Bataille R, InterGroupe Francophone du Myélome Single versus double autologous stem-cell transplantation for multiple myelomaN Engl J Med. 2003;349(26): 2495
21. Long-term follow-up of autotransplantation trials for multiple myeloma: update of protocols conducted by the intergroupe francophone du myelome, southwest oncology group, and University of Arkansas for medical sciencesBarlogie B, Attal M, Crowley J, van Rhee F, Szymonifka J, Moreau P, Durie BG, Harousseau JL. J Clin Oncol. 2010 Mar 1;28(7): 1209-14. doi: 10.1200/JCO.2009.25.6081. Epub 2010 Jan 19. Erratum in: J Clin Oncol. 2010 Jul 20;28(21): 3543.
22. Cavo M; Tosi P; Zamagni E; Cellini C; Tacchetti P; Patriarca F; Di Raimondo F; Volpe E; Ronconi S; Cangini D; Narni F; Carubelli A; Masini L; Catalano L; Fiacchini M; de Vivo A; Gozzetti A; Lazzaro A; Tura S; Baccarani M Prospective, randomized study of single compared with double autologous stem-cell transplantation for multiple myeloma: Bologna 96 clinical study. J Clin Oncol. 2007 Jun 10;25(17): 2434-41.
23. Krishnan A, Pasquini MC, Logan B, Stadtmauer EA, Vesole DH, Alyea E 3rd, Antin JH, Comenzo R, Goodman S, Hari P, Laport G, Qazilbash MH, Rowley S, Sahebi F, Somlo G, Vogl DT, Weisdorf D, Ewell M, Wu J, Geller NL, Horowitz MM, Giralt S, Maloney DG; Autologous haemopoietic stem-cell transplantation followed by allogeneic or autologous haemopoietic stem-cell transplantation in patients with multiple myeloma (BMT CTN 0102): a phase 3 biological assignment trial Blood Marrow Transplant Clinical Trials Network (BMT CTN). Lancet Oncol. 2011 Dec;12(13):1195-203. doi:10.1016/S1470-2045(11)70243-1. Epub 2011 Sep 29.
24. A prospective PETHEMA study of tandem autologous transplantation versus autograft followed by reduced-intensity conditioning allogeneic transplantation in newly diagnosed multiple myeloma. Rosiñol L, Pérez-Simón JA, Sureda A, de la Rubia J, de Arriba F, Lahuerta JJ, González JD, Díaz-Mediavilla J, Hernández B, García-Frade J, Carrera D, León A, Hernández M, Abellán PF, Bergua JM, San Miguel J, Bladé J; Programa para el Estudio y la Terapéutica de las Hemopatías Malignas y Grupo Español de Mieloma (PETHEMA/GEM). Blood. 2008 Nov 1;112(9): 3591-3. doi: 10.1182/blood-2008-02-141598. Epub 2008 Jul 8.
25. Homberg, Leona, Deeg, Joachim. Determining eligibility for autologous hematopoietic cell transplantation. UpToDate.com. Accessed 3/2/18.
26. National Comprehensive Cancer Network (NCCN) Guidelines, 2020
27. Preparative regimens for hematopoietic cell transplantation Author: Robert S Negrin, MD, Literature review current through: Mar 2020. uptodate.com
28. Donor selection for hematopoietic cell transplantation Author: Robert S Negrin, MD. Literature review current through: Mar ch 2020. uptodate.com
29. Determining eligibility for autologous hematopoietic cell transplantation https://www.uptodate.com/contents/determining-eligibility-for-autologous-hematopoietic-cell-transplantation/contributors Literature review current through: Mar 2021.
30. Determining eligibility for allogeneic hematopoietic cell transplantation Authors:H Joachim Deeg, MDBrenda M Sandmaier, MD literature review current through: Mar 2021

31. Illinois Department of Healthcare and Family Services Issued September 2017 Chapter 100 General Policy and Procedures Table of Contents section 105.3 Covered Services by Managed Care Plans
32. Illinois Department of Healthcare and Family Services Managed Care Manual for Medicaid Providers - Illinois.gov https://www.illinois.gov › hfs › MCOManualPD January 2016
33. Illinois Department of Healthcare and Family Services . Handbook for Providers of Hospital Services H-254 Specialized Requirements for Certain Services, issued September 2014 .1 Transplant Program

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.

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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.