Subject: Hematopoietic Stem Cell Transplantation for Neuroblastoma	Original Effective Date: 7/17/2014
Policy Number: MCP-193	**Revision Date(s):** 6/2/2015, 6/12/2017
Review Date: 6/15/2016, 7/10/2018, 6/2019	
MCPC Approval Date: 6/22/2017, 7/10/2018	

DISCLAIMER

This Molina Clinical Policy (MCP) is intended to facilitate the Utilization Management process. It expresses Molina's determination as to whether certain services or supplies are medically necessary, experimental, investigational, or cosmetic for purposes of determining appropriateness of payment. The conclusion that a particular service or supply is medically necessary does not constitute a representation or warranty that this service or supply is covered (i.e., will be paid for by Molina) for a particular member. The member's benefit plan determines coverage. Each benefit plan defines which services are covered, which are excluded, and which are subject to dollar caps or other limits. Members and their providers will need to consult the member's benefit plan to determine if there are any exclusion(s) or other benefit limitations applicable to this service or supply. If there is a discrepancy between this policy and a member's plan of benefits, the benefits plan will govern. In addition, coverage may be mandated by applicable legal requirements of a State, the Federal government or CMS for Medicare and Medicaid members. CMS's Coverage Database can be found on the CMS website. The coverage directive(s) and criteria from an existing National Coverage Determination (NCD) or Local Coverage Determination (LCD) will supersede the contents of this Molina Clinical Policy (MCP) document and provide the directive for all Medicare members.[1]

DESCRIPTION OF PROCEDURE/SERVICE/PHARMACEUTICAL

Neuroblastoma

Neuroblastoma is a type of cancer that arises in sympathetic nervous system tissue, mainly in the adrenal medulla. It largely affects infants and children with 90% of the cases diagnosed before the age of 5 years and it accounts for approximately 18% of pediatric cancers and 15% of pediatric cancer deaths. It is the most common extracranial solid tumor in children, with metastatic disease at diagnosis in half of the cases. The cause is unknown, but because of the young age at onset, factors before conception and during gestation may be considered. Children with a localized, resectable neuroblastoma have the best prognosis and chance for long-term, disease-free survival. Infants 12 months or younger with advanced disease also have a good prognosis. Neuroblastoma most commonly presents as an abdominal mass and additional symptoms can be caused by the tumor pressing against other tissues or from metastasis to bone. Signs of neuroblastoma include a mass in the abdomen, neck, or chest; bone pain; abdominal pain; emesis; weight loss; anorexia; fatigue; bulging eyes; dark circles around the eyes; and weakness or paralysis. Infants can present with distended abdomen, difficulty breathing, and blue-colored masses under the skin. [7]

Prognostic markers are used to stratify risk and assign treatment. In addition to age at diagnosis, these include the clinical stage of disease, regional lymph node involvement, site of primary tumor, tumor histology and the presence of the MTCN oncogene. The risk-based neuroblastoma treatment plan was developed by the Children's Oncology Group [6] and is used together with the International Neuroblastoma Staging System (INSS) to define **high risk** patients with neuroblastoma in the following table:

***INSS Stage	Age	MYCN Status	*INPC Classification	**DNA Ploidy[a]
2A/2B[b]	≥365 d–21 y	Amplified	Unfavorable	-
3[c]	<365 d	Amplified	Any	Any

***INSS Stage	Age	MYCN Status	*INPC Classification	**DNA Ploidy[a]
	≥365 d–21 y	Nonamplified	Unfavorable	-
	≥365 d–21 y	Amplified	Any	-
4[c]	<365 d	Amplified	Any	Any
	≥548 d–21 y	Any	Any	-
4S	<365 d	Amplified	Any	Any

Key:
**INPC = International Neuroblastoma Pathologic Classification; INSS = International Neuroblastoma Staging System.*
***aDNA Ploidy: DNA Index (DI) > 1 is favorable, DI = 1 is unfavorable; hypodiploid tumors (with DI < 1) will be treated as a tumor with a DI > 1 (DI < 1 [hypodiploid] to be considered favorable ploidy).*
****bINSS stage 2A/2B symptomatic patients with spinal cord compression, neurologic deficits, or other symptoms are treated with immediate chemotherapy for four cycles. cINSS stage 3 or stage 4 patients with clinical symptoms as listed above receive immediate chemotherapy.*

The INSS [3] stages based on clinical, radiologic and surgical evaluation are:

- Stage 1: localized tumor with complete gross excision and/or microscopic residual disease, ipsilateral lymph nodes negative for tumor (lymph nodes attached to and removed with tumor may be positive)
- Stage 2A: localized tumor with incomplete gross excision; representative ipsilateral nonadherent lymph nodes negative for tumor microscopically
- Stage 2B: localized tumor with or without complete gross excision, with ipsilateral nonadherent lymph nodes positive for tumor. Enlarged contralateral lymph nodes must be negative microscopically
- Stage 3: unresectable unilateral tumor infiltrating across the midline, with or without regional lymph node involvement; or localized unilateral tumor with contralateral regional lymph node involvement; or midline tumor with bilateral extension by infiltration (unresectable) or by lymph node involvement
- Stage 4: any primary tumor with dissemination to distant lymph nodes, bone, bone marrow, liver, skin, and/or other organ (except as defined by 4S)
- Stage 4S: localized primary tumor (as defined for stage 1, 2A, or 2B) in infants aged less than one year with dissemination limited to skin, liver, or bone marrow (marrow involvement should be minimal)

Stem Cell Transplantation
Stem-cell transplantation refers to transplantation of hematopoietic stem cells (HSCs) from a donor into a patient. HSCs are immature cells that can develop into any of the three types of blood cells (red cells, white cells or platelets). HSCs are created in the bone marrow and are found in the bone marrow and peripheral blood. There is also a high concentration of HSCs in umbilical-cord blood. Hematopoietic stem-cell transplantation (HSCT) can be either autologous (using the person's own stem cells) or allogeneic (using stem cells from a donor). In allogeneic HSCT, it is preferable for donors to have a human leukocyte antigen (HLA) type that is identical to the recipient. Matching is performed on the basis of variability at three of more loci of the HLA gene (e.g., HLA-A, HLA-B, HLA-DRB1). As HLA variability increases, transplant-related morbidity and mortality, including graft rejection and graft-versus-host disease, also increase.

Pretransplant Evaluation
The goal of the pretransplant evaluation is to assess the ability of a patient to tolerate the surgery, post-operative immunosuppression, and transplant care. An extensive cardiopulmonary evaluation, screening for occult infection or

cancer, and psychosocial evaluation is standard. Specific testing varies depending upon the patient's age, medical history, and transplant center practice. In addition, while a certain battery of tests may initiate the work up, more testing may be indicated depending upon the condition of the patient or the initial test results. In addition to a standard medical evaluation the initial assessment should include a psychological and social support evaluation to identify issues that may impair a successful outcome after transplantation. These include a lack of information about the nature of the transplant procedure and post-transplant care, drug or alcohol dependence, compliance with complex medical and behavior regimens. The assessment includes education of the family and the support network of the patient because compliance with complex medical and behavior treatment is critical after any organ transplant procedure. Recipients must be able to incorporate complicated medications, follow-up appointments, and frequent laboratory visits into their schedules. Having an adequate support network aware of these requirements will encourage patient compliance and long-term success.

RECOMMENDATION

All transplants require prior authorization from the Corporate Transplant Department. Solid organ transplant requests will be reviewed by the Corporate Senior Medical Director or qualified clinical designee. All other transplants will be by the Corporate Senior Medical Director or covering Medical Director. If the criteria are met using appropriate NCD and/or LCD guidelines, state regulations and/or MCP policies the Corporate Senior Medical Director's designee can approve the requested transplant.

Members must meet UNOS guidelines for transplantation and the diagnosis must be made by a *Specialist in the Disease* and or Transplant Surgeon.

Pre-Transplant Evaluation:

1. Criteria for transplant evaluation include all of the following: [2 4 9 12]

- ❑ History and physical examination
- ❑ Psychosocial evaluation and clearance: [ALL]
  - No behavioral health disorder by history or psychosocial issues:
    - if history of behavioral health disorder, no severe psychosis or personality disorder
    - mood/anxiety disorder must be excluded or treated
    - member has understanding of surgical risk and post procedure compliance and follow-up required
  - Adequate family and social support
- ❑ EKG
- ❑ Chest X-ray
- ❑ Cardiac clearance in the presence of any of the following: [ONE]
  - chronic smokers
  - > 50 years age
  - those with a clinical or family history of heart disease or diabetes
- ❑ Pulmonary clearance if evidence of pulmonary artery hypertension (PAH)or chronic pulmonary disease
- ❑ Neurological exam and clearance for transplant: [ONE]
  - Normal exam by H&P
  - Abnormal neurological exam with positive findings: [ONE]
    - Lumbar puncture normal cytology
    - Lumbar puncture with cytological exam abnormal: CNS disease treated prior to clearance
- ❑ Performance Status : [ONE]
  - Karnofsky score 70-100%; or
  - Eastern Cooperative Oncology Group (ECOG) grade 0-2

- ❑ Lab studies:
    - o *Complete blood count, Kidney profile (blood urea nitrogen, creatinine), electrolytes, calcium, phosphorous, albumin, liver function tests, Coagulation profile (prothrombin time, and partial thromboplastin time)
    - o *Serologic screening for HIV, Epstein Barr virus (EBV), Hepatitis virus B (HBV), and Hepatitis C(HCV), cytomegalovirus (CMV), RPR and/or FTA:
        - ▪ If HIV positive all of the following are met:
            - ➢ CD4 count >200 cells/mm-3 for >6 months
            - ➢ HIV-1 RNA undetectable
            - ➢ On stable anti-retroviral therapy >3 months
            - ➢ No other complications from AIDS (e.g., opportunistic infection, including aspergillus, tuberculosis, coccidioides mycosis, resistant fungal infections, Kaposi's sarcoma, or other neoplasm)
        - ▪ If abnormal serology need physician plan to address and/or treatment as indicated
    - o UDS (urine drug screen) if patient is current or gives a history of past drug abuse

- ❑ *Colonoscopy (if indicated or if patient is 50 ≥ older should have had an initial screening colonoscopy, after initial negative screening requires follow up colonoscopy every ten years) with complete workup and treatment of abnormal results as indicated
- ❑ *GYN examination with Pap smear (if indicated or > age 18) with in the last three year with complete workup and treatment of abnormal results as indicated

Within the last 12 months:

- ❑ Dental examination or oral exam showing good dentition and oral care or no abnormality on panorex or plan for treatment of problems pre or post-transplant
- ❑ *Mammogram (if indicated or > age 40) with complete workup and treatment of abnormal results as indicated
- ❑ *PSA if history of prostate cancer or previously elevated PSA with complete workup and treatment of abnormal results as indicated

Participating Centers of Excellence may waive these criteria

Criteria for Hematopoietic Autologous Stem Cell transplantation (HSCT) Transplantation:

1. ***Hematopoietic Autologous stem-cell transplantation (HSCT)*** may be considered medically necessary and may be authorized for the treatment of high risk neuroblastoma when the following criteria are met: [1 5 6 7 8 14-21 22-27 28-30 32 33 40 43]

    - ❑ All pre-transplant criteria are met; and

    - ❑ **Single** autologous hematopoietic stem-cell transplantation may be considered medically necessary
        - o For initial treatment when any of the following are present: [ONE]
            - ➢ age older than 1 year; or
            - ➢ disseminated disease; or
            - ➢ MYCN oncogene amplification; or
            - ➢ unfavorable histopathologic findings
        - o For recurrent or refractory neuroblastoma [1]: [ONE]
            - ➢ Relapse is defined as tumor recurrence after a prior complete response; or
            - ➢ Primary refractory disease is defined as a tumor that does not achieve a complete remission after initial standard-dose chemotherapy

- ❑ A **repeat** autologous hematopoietic stem cell transplantation may be considered medically necessary for either of the following: [ONE]
  - primary graft failure; or
  - failure to engraft

- ❑ A **planned tandem** (also known as sequential) autologous hematopoietic stem cell transplantation is considered medically necessary for the treatment of high-risk neuroblastoma when the criteria for hematopoietic cell transplantation is met above. [22-27 32 33 40 43 44]

AND

The requesting transplant recipient should not have any of the following **absolute contraindications**: [5]

- ❑ Cardiac, pulmonary, and nervous system disease that cannot be corrected and is a prohibitive risk for surgery
- ❑ Malignant neoplasm with a high risk for reoccurrence, non-curable malignancy (excluding localized skin cancer)
- ❑ Systemic and/or uncontrolled infection
- ❑ AIDS (CD4 count < 200cells/mm3)
- ❑ Unwilling or unable to follow post-transplant regimen
  - Documented history of non-compliance
  - Inability to follow through with medication adherence or office follow-up
- ❑ Chronic illness with one year or less life expectancy
- ❑ Severe irreversible extra renal disease
- ❑ Limited, irreversible rehabilitation potential
- ❑ Active untreated substance abuse issues, requires documentation supporting free from addiction for minimally 6 months if previous addiction was present
- ❑ No adequate social/family support

The requesting transplant recipient should be evaluated carefully and potentially treated if the following **relative contraindications** are present:

- ❑ Irreversible lung disease patients require consultation and clearance by a Pulmonologist prior to consideration of transplantation, this includes the following:
- ❑ Smoking, documentation supporting free from smoking for 6 months
- ❑ Active peptic ulcer disease
- ❑ Active gastroesophageal reflux disease
- ❑ CVA with long term impairment that is not amendable to rehabilitation or a patient with CVA/transient ischemic attack within past 6 months
- ❑ Obesity with body mass index of >30 kg/m^2 may increase surgical risk
- ❑ Chronic liver disease such as Hepatitis B/C/D, or cirrhosis which increases the risk of death from sepsis and hepatic failure [11,28,29] requires consultation by a gastroenterologist or hepatologist
- ❑ Gall bladder disease requires ultrasound of the gall bladder with treatment prior to transplantation

CONTINUATION OF THERAPY

When extension of a previously approved transplant authorization is requested, review using updated clinical information is appropriate.

- ❑ If Molina Healthcare has authorized prior requests for transplantation, the following information is required for medical review: [ALL]
  - Presence of no absolute contraindication as listed above;
  - History and physical within the last 12 months;
  - Kidney profile within the last 12 months;
  - Cardiac update if history of cardiac disease within two years (≥ 50 years of age);
  - Psychosocial evaluation or update within the last 12 months;
  - Per initial and updated history and physical, any other clinically indicated tests and/or scans as determined by transplant center physician or Molina Medical Director.

- ❑ If authorized prior requests for transplantation were obtained from another insurer, the following information is required for medical review: [ALL]
  - Authorization letter/documentation from previous insurer;
  - Presence of no absolute contraindication as listed above;
  - History and physical within the last 12 months;
  - Cardiac update if history of cardiac disease within two years (≥ 50 years of age);
  - Psychosocial evaluation or update within the last 12 months;
  - Per initial and updated history and physical, any other clinically indicated tests and/or scans as determined by transplant center physician or Molina Medical Director.

COVERAGE EXCLUSIONS

1. Autologous HSCT when the above criteria are not met
2. Autologous HSCT when used as initial treatment of low or intermediate-risk neuroblastoma [6]
3. Allogeneic HSCT is considered investigational to treat neuroblastoma as the evidence is insufficient [31]
4. Hematopoietic stem cell collection, storage and freezing for a future unplanned transplant

SUMMARY OF MEDICAL EVIDENCE

The evidence is sufficient and supports the safety and effectiveness of autologous hematopoietic stem-cell transplantation (auHSCT) as a component of the standard of care for the treatment of selected individuals with high-risk neuroblastoma Currently, some transplant centers use tandem autologous hematopoietic stem cell as the preferred treatment for high-risk neuroblastoma.

Cochrane

A Cochrane review (2013) assessed high-dose chemotherapy and autologous haematopoietic stem cell rescue for children with high-risk neuroblastoma. Three RCT's including 739 children were identified. They all used an age of one year as the cut-off point for pre-treatment risk stratification. There was a statistically significant difference in event-free survival in favor of myeloablative therapy over conventional chemotherapy or no further treatment (3 studies, 739 patients; HR 0.78, 95% CI 0.67 to 0.90). There was a statistically significant difference in overall survival in favor of myeloablative therapy over conventional chemotherapy or no further treatment (2 studies, 360 patients; HR 0.74, 95% CI 0.57 to 0.98). However, when additional follow-up data were included in the analyses the difference in event-free survival remained statistically significant (3 studies. 739 patients; HR 0.79, 95% CI 0.70 to 0.90), but the difference in overall survival was no longer statistically significant (2 studies, 360 patients; HR 0.86, 95% CI 0.73 to 1.01). According to the authors, based on the currently available evidence, myeloablative therapy seems to work in terms of event-free survival however no conclusions can be made regarding the best treatment strategy. [29]

Another Cochrane review (2015) compared the efficacy, that is event-free and overall survival, of high-dose chemotherapy and autologous bone marrow or stem cell rescue with conventional therapy in children with high-risk

neuroblastoma. Three RCTs including 739 children were found. They all used an age of one year as the cut-off point for pre-treatment risk stratification. The first updated search identified a manuscript reporting additional follow-up data for one of these RCTs, while the second update identified an erratum of this study. There was a significant statistical difference in event-free survival in favour of myeloablative therapy over conventional chemotherapy or no further treatment (three studies, 739 patients; HR 0.78, 95% CI 0.67 to 0.90). There was a significant statistical difference in overall survival in favour of myeloablative therapy over conventional chemotherapy or no further treatment (two studies, 360 patients; HR 0.74, 95% CI 0.57 to 0.98). However, when additional follow-up data were included in the analyses the difference in event-free survival remained statistically significant (three studies, 739 patients; HR 0.79, 95% CI 0.70 to 0.90), but the difference in overall survival was no longer statistically significant (two studies, 360 patients; HR 0.86, 95% CI 0.73 to 1.01). The meta-analysis of secondary malignant disease and treatment-related death did not show any significant statistical differences between the treatment groups. Data from one study (379 patients) showed a significantly higher incidence of renal effects, interstitial pneumonitis and veno-occlusive disease in the myeloablative group compared to conventional chemotherapy, whereas for serious infections and sepsis no significant difference between the treatment groups was identified. No information on quality of life was reported. In the individual studies we evaluated different subgroups, but the results were not univocal in all studies. All studies had some methodological limitations. According to the authors, myeloablative therapy seems to work in terms of event-free survival. For overall survival there is currently no evidence of effect when additional follow-up data are included. [42]

Single auHSCT:

A large RCT by Berthold et al. (2005) [14] randomized 295 patients to receive either high-dose chemotherapy with autologous HSCT or conventional chemotherapy. Children who received high-dose therapy with autologous hematopoietic stem-cell transplantation had significantly improved three-year overall survival (OS) compared with those who received conventional therapy (66% versus 52%, respectively), as well as a significant improvement in three-year event-free survival (EFS) (53% versus 30%, respectively). Another more recent RCT by Kreissman (2013) showed that immunomagnetic purging of peripheral blood stem cells does not appear to improve survival in children and young adults with high-risk neuroblastoma receiving autologous stem cell transplant. Non-purged PBSC are acceptable for support of myeloablative therapy of high-risk neuroblastoma. [30] Additionally, several large prospective series and retrospective studies suggest improved outcomes with overall survival (OS) rates of 29%-37%. [15-19] High-dose chemotherapy and surgery have been shown to achieve minimal disease states in more than 50% of patients. Consolidation therapy, consisting of myeloablative therapy with autologous hematopoietic stem-cell transplantation rescue, results in 30–83% long-term disease-free survival. [20-21]

Tandem auHSCT: [22-27 32 33 40 43 44]

Preliminary evidence suggests that tandem transplants may result in improved disease outcomes relative to single transplants. In a multicenter study, 355 patients with high-risk neuroblastoma were randomly assigned after induction therapy to either single transplant with carboplatin-etoposide-melphalan (CEM) or tandem transplant with thiotepa-cyclophosphamide, followed by a modified CEM (TC:CEM). [43] High-risk disease was defined as a tumor with amplification of the MYCN oncogene occurring in children of any age or as metastatic disease occurring in children who were older than 18 months at diagnosis. While the tandem transplant group experienced improved three-year event-free survival (EFS) compared with those receiving single transplants (61 versus 48 percent), the difference in overall survival at three years did not reach statistical significance (74 versus 69 percent). For the subset of patients receiving immunotherapy, tandem transplants were associated with improvements in both EFS (74 versus 56 percent) and overall survival (OS; 84 versus 76 percent); however, longer-term follow-up will be needed to confirm these results. Cumulative rates of severe mucosal, infectious, or liver toxicities and regimen-related mortality were similar between arms. In addition, as dose intensity of treatment increases, the need to monitor for late effects including secondary cancers becomes

even more important. [43] Another study of 26 patients with high risk neuroblastoma reported the results of an intensified high-dose chemotherapy (HDC) strategy to improve the prognosis of VHR patients. [40] This strategy was based on tandem HDC with thiotepa and busulfan-melphalan (Bu-Mel) followed by autologous stem cell transplantation (ASCT). All patients were eligible for tandem HDC. The median age at diagnosis was 4.4 years (1-15.9). All patients had metastatic disease. MYCN was amplified in 5/26 tumours. Despite the cumulative toxicity of alkylating agents, the toxicity of the intensified HDC strategy was manageable. Thiotepa-related toxicity was mainly digestive, whereas sinusoidal obstruction syndrome was the main toxicity observed after Bu-Mel. The 3-year event-free survival of this cohort was 37.3% (21.3-56.7). [40]

A small single arm study of tandem high dose chemotherapy with stem cell rescue as consolidation for high risk neuroblastoma was conducted by Granger et al (2012) in the Children's Oncology Group (COG). [32] A total of 33 patients were enrolled. Twenty-two patients completed at least one HDC/SCR procedure and 17 patients completed both. The PFS of the 33 patients treated on this study is 24.2% ± 7.5% and OS is 36.4% ± 8.4% at 5 years. For patients who received at least one transplant PFS is 36.4% ± 11.0% and OS is 45.5% ± 11.2% at 5 years. Another small study by Seif et al (2013) [33] was done to assess feasibility and toxicity of a tandem myeloablative regimen without total body irradiation (TBI) supported by autologous CD34 selected peripheral blood stem cells. Forty-one patients with high-risk neuroblastoma were enrolled; eight patients did not receive any myeloablative consolidation procedure, and seven received only one. From the time of study enrollment, the overall 3-year event-free survival (EFS) and overall survival (OS) were 44.8±9.6% and 59.2±9.2% (N=41). Several case series demonstrated outcomes for individuals with high-risk disease who received tandem autologous transplantation compared with single autologous transplantation. Three-year OS rates ranged from 57–79%. [22-25] Sung et al. (2007) evaluated 52 patients > one year with newly diagnosed stage IV neuroblastoma who were assigned to receive tandem high-dose chemotherapy and autologous HSCT. Fifty patients received the first HSCT and 44 patients underwent a second HSCT with high-dose chemotherapy. Five-year OS and event-free survival (EFS) rates for the entire cohort were 64.3% and 62.1%, respectively. [26] In another study, George et al. (2006) reported the outcomes of 97 patients with high-risk neuroblastoma who were treated with two consecutive courses of myeloablative therapy and autologous HSCT. Progression-free survival (PFS) at five and seven years from diagnosis was 47% and 45%, respectively. OS at five and seven years was 60% and 53%, respectively. Relapse occurred in 42% of patients, mainly within three years of transplantation and in primarily diffuse osseous sites. [27]

Professional Organizations

According to the National Cancer Institute (NCI) Neuroblastoma Treatment PDQ 2019 [6], treatment is stratified according to the following tumor risk:

- For low-risk tumors, the approach is either observation or resection. Five-year overall survival (OS) was 97% in a large COG study.[34]
- For intermediate-risk tumors, chemotherapy is often given before definitive resection, with the amount and duration based on clinical and tumor biological risk factors and response to therapy. In recent studies, select patients have been observed without undergoing chemotherapy or attempted resection. The 3-year OS rate for intermediate-risk patients was about 96% in a large COG study; [35] thus, the current trend is to decrease chemotherapy to diminish side effects.
- For high-risk tumors treatment has intensified to include chemotherapy, surgery, radiation therapy, myeloablative therapy and stem cell transplantation, isotretinoin, and immunotherapy, resulting in survival rates of 40% to 50%.

CODING INFORMATION: THE CODES LISTED IN THIS POLICY ARE FOR REFERENCE PURPOSES ONLY. LISTING OF A SERVICE OR DEVICE CODE IN THIS POLICY DOES NOT IMPLY THAT THE SERVICE DESCRIBED BY THIS CODE IS A COVERED OR NON-COVERED. COVERAGE IS DETERMINED BY THE BENEFIT DOCUMENT. THIS LIST OF CODES MAY NOT BE ALL INCLUSIVE.

CPT	Description
	Collection Codes

38205	Blood-derived hematopoietic progenitor cell harvesting for transplantation, per collection; allogeneic
38206	Blood-derived hematopoietic progenitor cell harvesting for transplantation, per collection; autologous
38230	Bone marrow harvesting for transplantation; allogeneic
38232	Bone marrow harvesting for transplantation; autologous
	Cell Processing Services
38207	Transplant preparation of hematopoietic progenitor cells; cryopreservation and storage
38208	Transplant preparation of hematopoietic progenitor cells; thawing of previously frozen harvest, without washing
38209	Transplant preparation of hematopoietic progenitor cells; thawing of previously frozen harvest, with washing
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
	Cell infusion codes
38240	Bone marrow or blood-derived peripheral stem cell transplantation; allogeneic
38241	Bone marrow or blood-derived peripheral stem cell transplantation; autologous
38242	Bone marrow or blood-derived peripheral stem cell transplantation; allogeneic donor lymphocyte infusions
38243	Bone marrow or blood-derived peripheral stem cell transplantation; allogeneic hematopoietic cellular transplant boost

HCPCS	Description
S2140	Cord blood harvesting for transplantation, allogeneic
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 post-transplant care in the global definition

ICD-10	Description: [For dates of service on or after 10/01/2015]
C74-C74.92	Malignant neoplasm of adrenal gland

RESOURCE REFERENCES

Government Agency

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Professional Society Guidelines, Hayes, Other Resources

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Review/Revision History:
7/17/14: Policy created
6/2/15: Updated pre-transplant criteria, continuation of therapy, absolute and relative contraindications and coding sections
6/15/16: Policy reviewed, no changes
6/12/17: Added criteria for tandem transplants as medically necessary
7/10/18, 6/19: Policy reviewed, no changes