Medical Coverage Policy

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Stem-Cell Transplantation for Chronic Myelogenous Leukemia and Chronic Lymphocytic Leukemia

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Coverage Policy

Chronic Myelogenous Leukemia

Allogeneic hematopoietic stem-cell transplantation (HSCT) is considered medically necessary for the treatment of chronic myelogenous leukemia (CML) when an appropriately-matched human leukocyte antigen (HLA) donor is available in ANY of the following:

- hematologic remission not achieved after three months of tyrosine kinase inhibitor (TKI) therapy
- no cytogenetic response or those in cytogenetic relapse at 6, 12, or 18 months after achieving initial hematologic remission after three months of TKI therapy
- disease progression on TKI therapy to accelerated phase or blast crisis
- an individual who is not a candidate for TKI therapy

Autologous HSCT for the treatment of CML is considered experimental, investigational or unproven.

Chronic Lymphocytic Leukemia
Allogeneic hematopoietic stem-cell transplantation (HSCT) is considered medically necessary for the treatment of chronic lymphocytic leukemia (CLL) that is not responsive to standard therapy, when an appropriately-matched human leukocyte antigen (HLA) donor is available.

Autologous HSCT is considered medically necessary for the treatment of CLL in an individual in complete or good partial remission.

**Overview**

This Coverage Policy addresses stem-cell transplantation for chronic myelogenous leukemia (CML) and chronic lymphocytic leukemia (CLL).

Hematopoietic stem-cell transplantation (HSCT) involves taking hematopoietic stem cells from the bone marrow or blood of a donor and after chemotherapy is given, infusing them into a person with CML or CLL. The donor may be the person who is receiving the stem cells (i.e., autologous HSCT) or another person (i.e., allogeneic HSCT).

**General Background**

Hematopoietic stem-cell transplantation (HSCT) has been proposed for the treatment of chronic myelogenous leukemia (CML) and chronic lymphocytic leukemia (CLL).

The selection of an appropriately-matched allogeneic donor source is dependent on several variables including the availability of a human leukocyte antigen (HLA)-identical sibling donor, and stage of disease. It is preferable for donors to have an HLA type that is identical to the recipient due to the potential for increased complications such as graft rejection and graft-versus-host disease; however, only about one-third of individuals who might otherwise be eligible for allogeneic HSCT have an HLA-matched sibling donor. Especially for individuals with high-risk disease, additional appropriate donor sources may include HLA-matched unrelated and HLA partially-matched related donors.

**Contraindications**

Many factors affect the outcome of a tissue transplant; the selection process is designed to obtain the best result for each individual. The presence of any significant comorbid conditions which would significantly compromise clinical care and chances of survival is a contraindication to transplant. Relative contraindications for HSCT include (but are not limited to):

- poor cardiac function (ejection fraction less than 45%)
- poor liver function (bilirubin greater than 2.0 mg/dL and transaminases greater than two times normal), unless related to disease
- poor renal function (creatinine clearance less than 50 mL/min)
- poor pulmonary function (diffusion capacity less than 60% of predicted)
- presence of human immunodeficiency virus or active hepatitis B, hepatitis C or human T-cell lymphotrophic virus type 1 (HTLV-1)
- Karnofsky rating less than 60% and/or Eastern Cooperative Oncology Group (ECOG) performance status greater than two

**Chronic Myelogenous Leukemia**

Chronic myelogenous leukemia (CML), also called chronic granulocytic leukemia or chronic myeloid leukemia is an acquired clonal disorder causing rapid growth of myeloid originators in the bone marrow, peripheral blood and tissues. It is associated with a translocation of chromosomes 9 and 22, or (9,22), which results in a shortened chromosome 22, called the Philadelphia (Ph) chromosome (National Cancer Institute [NCI], 2016b; Drucker, 2008). Individuals with the Ph chromosome are considered to have high-risk disease.

Usually diagnosed in the chronic or more stable phase, CML has the capacity to progress to an aggressive leukemia. This more-aggressive or advanced phase can be further subdivided into accelerated and blastic...
phases, with survival in the blastic phase measured in months (NCI, 2016b; Drucker, 2008). HSCT has been proposed as a treatment option for selected individuals with CML.

The published, peer-reviewed scientific literature supports the safety and effectiveness of allogeneic HSCT for the treatment of CML in selected individuals. Although it remains a research interest, improved outcomes have not been demonstrated for autologous HSCT compared with conventional chemotherapy in individuals with CML and the role of autologous HSCT has not been established for this indication.

**Allogeneic HSCT:** According to the NCI (2016b), the only consistently successful curative treatment of CML beyond 10 years' follow-up has been high-dose chemotherapy followed by allogeneic bone-marrow or HSCT; however, it is associated with significant morbidity and mortality. With improved response rates achieved with the use of imatinib mesylate and other tyrosine kinase inhibitors the timing and sequence of allogeneic HSCT is currently being reassessed (NCI, 2016b). Allogeneic HSCT is no longer recommended as first-line therapy for treatment of chronic phase CML; however, it is regarded as an important salvage therapy in patients without optimal response to drug therapy or in early relapse (The National Comprehensive Cancer Network® [NCCN®], 2016b; Hehlmann, 2008). The use of myeloablative allogeneic HSCT is limited by donor availability and the high toxicity of the procedure.

In a retrospective study by Hehlman (2008), patients with Philadelphia chromosome negative, and/or breakpoint cluster-Abelson (BCR-ABL) positive chronic phase chronic myelogenous leukemia (CML) were randomized to hematopoietic stem-cell transplantation (HSCT) as first-line therapy (n=135) or best available drug treatment (n=219). Survival was superior for patients who received drug treatment compared to HSCT (p=.049), with outcomes most pronounced in low-risk patients (p=.032).

For those patients who cannot tolerate the toxicity of myeloablative conditioning, but are otherwise eligible for allogeneic HSCT, non-myeloablative conditioning may be an appropriate treatment option (Kebriaei, 2007; Krejci, 2005). Reduced-intensity or non-myeloablative conditioning regimens emphasize immunosuppression rather than myeloablation to facilitate engraftment. Results of several case series and retrospective clinical studies involving adult patients suggest that stable engraftment can occur and that treatment-related mortality is decreased with the use of non-myeloablative or reduced-intensity conditioning with allogeneic HSCT (Kerbauer, 2007; Baron, 2006; Krejci, 2005; Ruiz-Arguelles, 2005; Kerbauy, 2005). Disease-free survival (DFS) ranges from 40% to 85% at three-to-five years. Graft-versus-host disease (GVHD) remains the most significant concern after non-myeloablative HSCT; morbidity and mortality from this complication can be reduced by careful patient selection (Valcarcel, 2005; Kojima, 2005; Or, 2003).

In general, children experience less toxicity and have better outcomes after conventional allogeneic HSCT than after non-myeloablative HSCT; thus, there is limited justification for studying such transplantation in this population. This treatment modality for use in children with CML requires evaluation in prospective trials and should be used only in the context of clinical studies.

**Autologous HSCT:** Although the results of some studies suggest autologous HSCT may result in increased rates of hematological remission in some individuals with CML; whether this therapy improves overall survival is unknown.

The CML Autograft Trials Collaboration (2006) performed a meta-analysis of six clinical trials involving 416 patients with chronic myelogenous leukemia (CML) who received autologous hematopoietic stem-cell transplantation (HSCT) or interferon alpha with or without ara-C drug therapy (control arm). There were more complete hematological responses in the first year with the transplantation arm compared with the control arm; however, this was not statistically significant. In the absence of clear evidence of benefit in terms of survival, the meta-analysis does not demonstrate a benefit for performing autologous HSCT in the initial treatment of CML.

At this time the role of autologous HSCT in the treatment of CML has not been established.

**Chronic Lymphocytic Leukemia**

Chronic lymphocytic leukemia (CLL) is an extremely heterogeneous disease, characterized by the accumulation of mature-appearing, but immunologically immature lymphocytes in the blood, bone marrow, and lymphatic
tissue. Lymphocyte counts are usually $≥5000/mm^3$, and CD5- and CD23-positive B cells are present (National Cancer Institute [NCI], 2016a).

The clinical course of CLL varies. Some patients can live for decades and never require therapy, while others have a rapidly progressive and fatal malignancy (Gribben, 2007). Because CLL is generally not curable, occurs in the elderly population, and often progresses slowly, it is most often treated conservatively (NCI, 2016a). Although data are limited and not robust regarding the effectiveness of HSCT for CLL, high dose chemotherapy is regarded as an acceptable treatment option in selected individuals.

Improved overall survival has been demonstrated in individuals undergoing allogeneic HSCT for refractory or recurrent disease CLL. Although autologous HSCT is not curative, improvements in event-free survival and relapse rate have been demonstrated in individuals with who have achieved complete or partial remission. Allogeneic and autologous HSCT are considered acceptable treatment options for select individuals with CLL.

**Allogeneic HSCT:** To date, the only potentially curative therapy for CLL is allogeneic HSCT (Oscier, et al., 2004). Although this therapy has significant morbidity and mortality from regimen-related toxicity, graft-versus-host disease (GVHD) and infection, surviving patients have long-term disease control (Gribben, 2007). According to the NCI (2016a), a survival plateau for allogeneic stem cell support suggests an additional graft-versus-leukemia effect (GVL). The GVL effect makes possible the coexistence of some residual leukemic cells with a prolonged, clinical complete remission and may be the main contributor to durable disease control, even in poor-risk CLL (Dreger, 2007, Moreno, 2006). According to the NCI (2015), treatment with conventional doses of chemotherapy is not curative; selected patients treated with allogeneic stem cell transplantation have achieved prolonged disease-free survival.

There are scarce randomized controlled trials evaluating the role of allogeneic hematopoietic stem-cell transplantation (HSCT) in chronic lymphocytic leukemia (CLL); however, the evidence demonstrated by several nonrandomized trials suggests that high-dose allogeneic HSCT may be potentially curative for a select population of patients with CLL based on the long-term survival of some patients who have achieved a complete remission (Oscier, 2004).

Moreno et al. (2005) reported on outcomes of patients with advanced CLL who received either allogeneic (n=23) or autologous (n=27) HSCT subsequent to high-dose chemotherapy. Patients were selected for autologous HSCT if they had chemosensitive disease. The groups differed as to the amount of tumor burden at the time of transplantation, with patients who underwent allogeneic HSCT having more advanced clinical stage and a higher degree of peripheral blood and bone marrow involvement compared to the patients who received autologous HSCT. Analysis of outcomes demonstrated a lower risk of progression- and improved overall- and relapse-free survival (RFS) for patients undergoing allogeneic HSCT compared to those receiving autologous HSCT.

The use of non-myeloablative preparative regimens has also been proposed for the treatment of CLL. Several factors, including the high treatment-related mortality of myeloablative allogeneic HSCT, have provided the impetus for the study of this therapy (Oscier, 2004). Non-myeloablative conditioning is designed to reduce regimen-related toxicities, allowing allogeneic HSCT in patients who are older, have comorbid conditions or have toxicities from previous treatment, while attempting to exploit the graft-versus-leukemia effect (Gribben, 2009; Maloney, 2002). Although generally less than that seen with myeloablative conditioning, treatment-related mortality remains high as does the incidence of acute and chronic graft-versus-host disease.

Several case series and retrospective studies involving non-myeloablative conditioning and allogeneic HSCT have demonstrated improved remission rates, improved progression-free (39%–67%) and overall survival rates (37%–72%), at variable time intervals (European Group for Blood and Marrow Transplantation [EBMT], 2008; Khouri, 2007; Brown, 2006; Sorror, 2005; Khouri, 2004;). Evidence of a graft-versus-leukemia effect was also noted.

Additionally, in one study comparing non-myeloablative (n=72) and myeloablative conditioning (n=82), followed by allogeneic hematopoietic stem-cell transplantation (HSCT) in both groups, an unadjusted comparison of the two groups did not reveal significant differences in terms of overall (OS) and event-free survival (EFS), or treatment-related mortality (TRM). After adjusting for age, sex, donor source and remission status prior to
transplant, analysis revealed a decreased TRM for patients who had received reduced-intensity conditioning (hazard ratio [HR] 0.4, p=0.03) although use of reduced-intensity conditioning was associated with an increased risk of relapse (HR 2.65, p=0.054) (Dreger, 2005). Data suggest that reduced-conditioning allogeneic HSCT may support immune modulation and remission of leukemia.

Although data are not robust, allogeneic HSCT with myeloablative or non-myeloablative conditioning is considered an appropriate option for the treatment of CLL that is not responsive to standard therapy. Additionally there is consensus support for this therapy in the form of published guidelines by professional societies/organizations.

**Autologous HSCT:** The use of high-dose chemotherapy with autologous stem-cell support is based on the hypothesis that major dose escalations within the myeloablative range are needed to overcome tumor-cell resistance and produce a meaningful clinical improvement. Patients undergoing autologous HSCT for CLL represent a highly select group (Scriber, 2005). This treatment is not curative; however, patients in complete or good partial remission in whom other therapies have been exhausted may have improved long-term survival. Issues after autologous transplantation remain relapsing disease, late complications such as the development of myelodysplasia and acute myelogenous leukemia, and no evidence of a plateau on disease-free survival (DFS) (Gribben, 2007). The relative effectiveness of autologous HSCT must be weighed against the efficacy and toxicity of newly developing non-transplantation approaches (Scriber, 2005).

Several prospective randomized trials, nonrandomized comparisons, and single-arm studies have investigated the safety and effectiveness of autologous HSCT for CLL (Brion, 2012; Dreger, 2012; Michalett, 2011; Jantumen, 2006; Gribben, 2005; Milligan, 2005). Brion et al. (2012) reported on a randomized controlled trial comparing conventional chemotherapy and HSCT with autologous stem cell support. On an intent-to-treat basis and a median follow-up time of 77 months, autologous HSCT was found to prolong progression-free survival (p=0.0001) (Brion 2012). Michalett et al. (2011) reported the results of a Phase III randomized clinical trial comparing autologous HSCT and observation. Although no survival advantage was noted with autologous hematopoietic stem-cell transplantation (HSCT) (five-year OS: 85% and 84.3%, respectively, for autografting and observation, p=.77), event-free survival (EFS) was improved in the group undergoing autologous HSCT compared with observation (five-year EFS: 42% and 24%, respectively, p<0.001). Five-year relapse rate was also improved for the group undergoing transplantation compared with observation (54% versus 76%, respectively, p=0.001).

In the study by Gribbon, six-year OS was 58% for those undergoing autologous HSCT and 55% for those undergoing allogeneic HSCT which compares favorably to five-year historical survival outcomes of 60% for individuals with high-risk CLL receiving standard therapy. In a systematic review, Kharfan-Dabaja et al. (2007) noted that autologous HSCT may induce clinical and molecular responses with low TRM in patients with relapsed/refractory CLL. They also noted that success of autologous HSCT requires that patients preferably achieve complete response prior to initiation of HSCT.

However, results of a randomized controlled trial (RCT) reported by Magni et al. (2014) compared high-dose chemotherapy plus autologous stem cell transplant (HSCT) and conventional dose rituximab, fludarabine and CY (R-FC) in 96 patients with histologically confirmed Binet B(II) or C stage B-CLL. After 5 years of follow-up, progressive-free survival was 60.4% for the high-dose group and 65% in the R-FC group with no statistical difference (p=0.66). Overall survival (OS) was comparable in both groups (p=0.99%). Data from this study do not demonstrate improved PFS or OS with the use of high-dose chemotherapy and autologous HSCT.

Reljic et al. (2015) reported results of a systematic review involving 600 patients receiving autologous HSCT or observation as front-line consolidation therapy for CLL. Four studies met inclusion criteria. Three hundred one patients were randomized to the high-dose therapy (HDT)/autologous HSCT arms and 299 patients to observation in the four studies. All four studies reported data on overall survival (OS).

There was no statistically significant difference in OS with the use of auto-HCT versus observation (HR = 0.91, p = 0.64). There was no heterogeneity between studies. When progression-free (PFS) and event-free survival (EFS) were combined in analysis, there was a statistically significant benefit with the use of auto-HSCT versus observation (HR = 0.54, p = 0.004). Two studies (178 patients) reported data on PFS. There was no statistically
significant difference in OS with the use of auto-HSCT versus observation (HR = 0.70, p = 0.37). Two studies (422 patients) reported EFS. A statistically significant benefit was observed with the use of auto-HCT versus observation (HR = 0.46, p = 0.01). The heterogeneity between studies ranged from 69-75%. Findings of this meta-analysis do not support the use of HDT/autologous HSCT as a consolidative strategy following front-line therapy in patients with CLL, as this strategy was not associated with improvement in PFS or OS. Authors note this approach should not be offered outside the context of a clinical trial.

Although the data demonstrating improved overall survival are not robust, autologous HSCT may result in improved response rates with low treatment-related mortality and is an acceptable treatment option for individuals who have achieved a complete or good partial response to prior therapy.

Professional Societies/Organizations
National Cancer Institute ([NCI]):
CML (2017b):
- Chronic phase
  - Allogeneic bone marrow transplantation (BMT) or stem cell transplantation (SCT) has been applied with curative intent. The only consistently successful curative treatment of CML beyond 10 years’ follow-up has been allogeneic bone marrow transplantation (BMT) or stem cell transplantation (SCT). Patients younger than 60 years with an identical twin or with human leukocyte antigen (HLA)-identical siblings can be considered for BMT early in the chronic phase. Reduced-intensity conditioning allogeneic SCT is under evaluation in first or second remissions.
- Accelerated phase
  - Allogeneic HSCT is noted to be a treatment option
- Blastic phase
  - Allogeneic BMT represents the only potentially curative approach. Allogeneic BMT is more effective in patients induced into a second chronic phase.

CLL: The NCI (2017a) notes that bone marrow and peripheral stem cell transplantation are under clinical evaluation for Stage I, II, III, and IV chronic lymphocytic leukemia (CLL).

National Comprehensive Cancer Network ™ (NCCN™):
CML: The Guidelines Clinical Practice Guidelines in Oncology for CML (2017b) note that allogeneic HSCT is potentially curative but excellent results with tyrosine kinase inhibitor (TKI) therapy has challenged the role of hematopoietic stem-cell transplantation (HSCT) as a first-line therapy. Evaluation for allogeneic HSCT is recommended if the following response milestones are not achieved: BCR-ABL transcripts >10% (IS) or lack of partial cytogenetic response (PCyR) at three or six months, less than PCyR at 12 months, cytogenetic relapse at 12 months. Non-myeloablative allogeneic HSCT is a well-tolerated treatment option for patients with a matched donor. The selection of patients is based on age and the presence of comorbidities

- Accelerated-phase CML: Allogeneic HSCT can be considered based on response to TKI therapy.
- Blast-phase CML: Allogeneic HSCT is an appropriate first-line treatment option for the very rare person presenting with blast phase at diagnosis, patients with T31TI mutations and other BCR-ABL mutations that are resistant to all TKIs or intolerant to all TKIs.
- Chronic phase CML: Allogeneic HSCT is no longer recommended as a first-line therapy for an individual with chronic phase CML.

CLL: NCCN (2017a) notes that studies involving allogeneic hematopoietic cell transplantation (HCT) are subject to significant selection bias. Nonetheless, evidence from non-randomized trials suggest that allogeneic HCT may be an effective treatment option for an individual with high-risk CLL, characterized by disease refractory to purine analog-based chemoimmunotherapy or disease relapse within two years after treatment with the same and/or disease with del (17p) or TP53 mutation. Allogeneic HCT is not considered a reasonable treatment option for an individual in remission after first-line therapy, even with del(17p) or TP53 mutation.

National Marrow Donor Program (NMDP)/American Society for Blood and Marrow Transplantation (ASBMT):
CML: The NMDP/ASBMT (2017) developed guidelines for referral to evaluate for potential HSCT for individuals with CML. Allogeneic may be appropriate when any of these clinical scenarios are present: inadequate hematologic or cytogenetic response to tyrosine kinase inhibitor (TKI) therapies, disease progression, intolerance to TKI therapies, accelerated phase, blast crisis (myeloid or lymphoid).

CLL: The NMDP/ASBMT (2017) developed guidelines for referral to evaluate for potential HSCT for individuals with CLL. Allogeneic may be appropriate when any of these clinical scenarios are present: high-risk cytogenetics or molecular features (e.g., del(11q) or del(17p); ZAP70, CD38 positivity, unmutated Ig V H mutational status, complex karyotype), poor initial response, short initial remission, chemotherapy- or targeted therapy resistant, Richter's transformation.

The American Board of Internal Medicine’s (ABIM) Foundation Choosing Wisely® Initiative (2014): No relevant statements.

Use Outside of the US
European Group for Blood and Marrow Transplantation (EBMT): On behalf of the EBMT CLL subcommittee, Dreger et al. (2007) reported recommendations for the use of stem-cell transplant for CLL which note that allogeneic HSCT is a reasonable treatment option for younger patients with non-response or early relapse after purine analogues, with p53 abnormalities, and treatment indication or relapse within 24 months after having achieved a response with intensive therapy, including autologous HSCT. Current evidence is not sufficient to identify a generally superior conditioning regimen. Graft-versus-leukemia mediated long-term disease control can be achieved with a broad range of conditioning intensities. The available body of evidence is robust enough to state that reduced-intensity conditioning regimen with an allogeneic HSCT is an effective treatment for poor-risk CLL. Consideration of allogeneic HSCT in less well-defined risk situations may be justified but should be performed within clinical protocols.

European Society for Medical Oncology (ESMO): CML: On behalf of the ESMO, Hochhaus et al. (2017) published updated Clinical Practice Guidelines for chronic myeloid leukemia (CML). The Guidelines note that allogeneic hematopoietic stem-cell transplantation (HSCT) remains an important therapeutic option for patients in chronic phase CML who fail at least two tyrosine kinase inhibitors (TKIs) or potentially harbors the T315I mutation (after a trial of ponatinib therapy). Patients with a high risk for transformation should be considered for alloSCT, since outcome of allogeneic SCT after transformation is unfavorable. The only curative option for patients in blast phase disease is allogeneic SCT.

CLL: Eichorst et al. (2015) published Clinical Practice Guidelines for the diagnosis, treatment and follow-up of CLL. Regarding the role of HSCT, the Guidelines note autologous stem-cell transplantation is not useful in CLL. Allogeneic HSCT should be considered in patients achieving remission with kinase inhibitors or BCL2 antagonists after early relapse from chemoimmunotherapy and/or with del(17p) or TP53 mutation.

Italian Society of Hematology, the Italian Society of Experimental Hematology, and the Italian Group for Bone Marrow Transplantation: Brugiatelli et al. (2006) published Clinical Practice Guidelines for the treatment of CLL. The Guidelines note that younger patients (e.g. <60 years) with unfavorable biological prognostic factors should be considered for high-dose chemotherapy and autologous or allogeneic stem cell transplantation, which might achieve a durable good quality remission. However, it is recommended that first-line autologous or allogeneic stem cell transplantation is performed only within approved clinical trials. Younger patients refractory to first-line fludarabine plus cyclophosphamide should be considered for stem cell transplant procedures, after disease debulking.

Coding/Billing Information

Note: 1) This list of codes may not be all-inclusive.
2) Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement.
Considered medically necessary when used to report allogeneic bone marrow or blood-derived stem cell procedures:

<table>
<thead>
<tr>
<th>CPT® Codes</th>
<th>Description</th>
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<tbody>
<tr>
<td>38205</td>
<td>Blood-derived hematopoietic progenitor cell harvesting for transplantation, per collection; allogeneic</td>
</tr>
<tr>
<td>38207</td>
<td>Transplant preparation of hematopoietic progenitor cells; cryopreservation and storage</td>
</tr>
<tr>
<td>38208</td>
<td>Transplant preparation of hematopoietic progenitor cells; thawing of previously frozen harvest, without washing, per donor</td>
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<td>38209</td>
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<td>38210</td>
<td>Transplant preparation of hematopoietic progenitor cells; specific cell depletion within harvest, T-cell depletion</td>
</tr>
<tr>
<td>38212</td>
<td>Transplant preparation of hematopoietic progenitor cells; red blood cell removal</td>
</tr>
<tr>
<td>38213</td>
<td>Transplant preparation of hematopoietic progenitor cells; platelet depletion</td>
</tr>
<tr>
<td>38214</td>
<td>Transplant preparation of hematopoietic progenitor cells; plasma (volume) depletion</td>
</tr>
<tr>
<td>38215</td>
<td>Transplant preparation of hematopoietic progenitor cells; cell concentration in plasma, mononuclear, or buffy coat layer</td>
</tr>
<tr>
<td>38230</td>
<td>Bone marrow harvesting for transplantation; allogeneic</td>
</tr>
<tr>
<td>38240</td>
<td>Hematopoietic progenitor cell (HPC); allogeneic transplantation per donor</td>
</tr>
<tr>
<td>38242</td>
<td>Allogeneic lymphocyte infusions</td>
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<td>S2140</td>
<td>Cord blood harvesting for transplantation, allogeneic</td>
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<tr>
<td>S2142</td>
<td>Cord blood-derived stem-cell transplantation, allogeneic</td>
</tr>
<tr>
<td>S2150</td>
<td>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</td>
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Considered medically necessary when used to report autologous bone marrow or blood-derived stem cell procedures for CLL:

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<td>38206</td>
<td>Blood-derived hematopoietic progenitor cell harvesting for transplantation, per collection; autologous</td>
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<td>38211</td>
<td>Transplant preparation of hematopoietic progenitor cells; tumor cell depletion</td>
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<tr>
<td>38232</td>
<td>Bone marrow harvesting for transplantation; autologous</td>
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<td>38241</td>
<td>Hematopoietic progenitor cell (HPC); autologous transplantation</td>
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Considered Experimental/Investigational/Unproven when used to report autologous bone marrow or blood-derived stem cell procedures for CML:

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<td>38206</td>
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</table>
38232 Bone marrow harvesting for transplantation; autologous
38241 Hematopoietic progenitor cell (HPC); autologous transplantation


References


