Cigna Medical Coverage Policy

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

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Coverage Policy

Chronic Myelogenous Leukemia

Cigna covers allogeneic hematopoietic stem-cell transplantation (HSCT) as 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

Cigna does not cover autologous HSCT for the treatment of CML because it is considered experimental, investigational or unproven.

Chronic Lymphocytic Leukemia

Cigna covers allogeneic hematopoietic stem-cell transplantation (HSCT) as 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.

Cigna covers autologous HSCT as medically necessary for the treatment of CLL in an individual in complete or good partial remission.

General Background

Hematopoietic stem-cell transplantation (HSCT) has been proposed for the treatment of chronic myelogenous leukemia (CML) and chronic lymphocytic leukemia (CLL). HSCT refers to the transplantation of hematopoietic stem cells (HSCs) from a donor into a patient or recipient. HSC transplantation (HSCT) can be either autologous (i.e., using the patient's own stem cells) or allogeneic (i.e., using stem cells from a donor).

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 precursors in the bone marrow, peripheral blood and tissues. It is associated with a translocation of chromosomes 9 and 22, or t(9,22), which results in a shortened chromosome 22, called the Philadelphia (Ph) chromosome (National Cancer Institute [NCI], 2012; Drucker, 2008). Individuals with the Ph chromosome are considered to have high-risk disease.

Usually diagnosed in the chronic or more stable phase, chronic myelogenous leukemia (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, 2012; Drucker, 2008). Hematopoietic stem-cell transplantation (HSCT) has been proposed as a treatment option for selected individuals with CML.

Allogeneic HSCT: According to the National Cancer Institute ([NCI], 2013), the only consistently successful curative treatment of CML beyond 10 years' follow-up has been high-dose chemotherapy followed by allogeneic bone-marrow or hematopoietic stem-cell transplantation (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, 2013). 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®], 2013; 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 (Kerbriaei, 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.

Professional Societies/Organizations
National Cancer Institute (NCI): Regarding chronic phase CML, the NCI (2013) notes “The only consistently successful curative treatment of CML beyond 10 years 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.”

Regarding accelerated phase CML, the NCI notes allogeneic BMT or HSCT is a treatment option. Regarding blastic phase CML, the NCI notes, “Allogeneic bone marrow transplantation (BMT) represents the only potentially curative approach in these patients. Allogeneic BMT is more effective in patients induced into a second chronic phase.”

National Comprehensive Cancer Network Network™ (NCCN™): Regarding advanced phase CML, the Clinical Practice Guidelines in Oncology for CML (2013) note “Allogeneic HSCT can be considered based on response to tyrosine kinase inhibitor therapy. It may be considered is a potentially curative treatment for patients with CML but the excellent results with imatinib have challenged the role of HSCT as a first-line therapy. Wide-spread application of allogeneic hematopoietic stem-cell transplantation (HSCT) is limited by donor availability and the high toxicity of the procedure in older patients, which limits the age of eligibility at many centers to <65 years.” “Investigational studies using non-myeloablative reduced intensity conditioning show that molecular remissions may be achieved.”

Allogeneic HSCT is an appropriate treatment option for the very rare patient presenting with blast crisis at diagnosis, patients with T315I mutation and other BCR-ABL mutations that are resistant to all TKIs, and for rare patients intolerant of all TKIs. For chronic phase CML, the Guideline notes “Evaluation for allogeneic HSCT

based on response to second-line TKI therapy is recommended for all patients with failure to first-line TKI therapy as indicated by: BCR-ABL/ABL>10% (IS) or less than PCyR at three months, minor or no cytogenetic response at 12 months, PCyR at 18 months, cytogenetic relapse at six, 12, or 18 months." For advanced-phase chronic myelogenous leukemia (CML), allogeneic hematopoietic stem-cell transplantation (HSCT) should be considered for patients with disease progression to accelerated or blast phase on tyrosine kinase inhibitor (TKI) therapy."

National Marrow Donor Program (NMDP)/American Society for Blood and Marrow Transplantation (ASBMT): Referral guidelines developed jointly between the NMDP and the ASBMT (2012) list CML as an indication for allogeneic HSCT when there is no hematologic or minor cytogenetic response post-TKI initiation, no complete cytogenetic response post-TKI initiation, disease progression, intolerance to TKI, accelerated phase, or blast crisis (myeloid or lymphoid).

Summary for Chronic Myelogenous Leukemia: 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. At this time the role of autologous HSCT for this indication 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], 2012). CLL occurs most frequently in middle-aged and elderly individuals (NCI, 2012).

According to the NCI (2012), there is no standard staging system for CLL. Common staging and classifications systems include the Rai staging system and the Binet classification system. In addition, an NCI-sponsored Working Group has formulated standardized guidelines for criteria related to eligibility, response, and toxic effects which are summarized below (Hallek, 2008):

Parameter	Complete Remission	Partial Remission
Lymphocytes	≤4,000/mcL	≥50% decrease
Lymph nodes (liver, spleen)	No palpable disease	≥50% decrease
Neutrophils	≥1,500/mcL	≥1,500/mcL or ≥50% improvement
Platelets	>100,000/mcL	>100,000/mcL or ≥50% improvement
Hemoglobin	>11 g/dL (untransfused)	>11 g/dL or ≥50% improvement
Hepatomegaly, splenomegaly	None	NA
Constitutional symptoms	Absent	NA
Symptomatology	None	Variable

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 (National Cancer Institute [NCI], 2012). 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.

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 (2012), 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 (2012), 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; Dreger, 2003). 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.

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.

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.

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): The NCI (2013) notes “Bone marrow and peripheral stem cell transplantations are under clinical evaluation. Patients younger than 60 years with adverse prognostic factors are very likely to die from CLL. These types of patients are candidates for clinical trials that employ high-dose chemotherapy and immunotherapy with autologous peripheral stem cell support or myeloablative and nonmyeloablative allogeneic peripheral stem cell transplantation. Although most patients who attain complete remission after autologous stem cell transplantation eventually relapse, a survival plateau for allogeneic stem cell support suggests an additional graft-versus-leukemia effect.“ Bone marrow and peripheral stem cell transplantations are under clinical evaluation for recurrent and refractory CLL.

National Comprehensive Cancer Network™ (NCCN™): For individuals with CLL, the NCCN (2013) notes “Allogeneic HSCT can be considered for a select population of patients (without significant comorbidities) with short responses to chemoimmunotherapy regimen, but would generally be considered after reinduction of remission.” For CLL with del(17p) the Guidelines note “ Patients who have achieved complete or partial response to first-line therapy should be considered for allogeneic HSCT, if eligible.” For CLL with del(11q) the Guidelines note “Patients with partial response first-line therapy should be considered for allogeneic HSCT.”

Summary for Chronic Lymphocytic Leukemia: 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.

Use Outside of the US
Professional Societies/Organizations
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 LeukemiaNet: On behalf of the European LeukemiaNet, Baccarani et al. (2009) confirm “Allogeneic HSCT is recommended for patients in accelerated phase or blastic phase or with the T3151 mutation, and for patients who experience failure on second-line tyrosine kinase inhibitors (TKIs). Allogeneic HSCT is also a significant option in the patients who have a suboptimal response to dasatinib or nilotinib.”

European Society for Medical Oncology (ESMO): On behalf of the ESMO, Baccarani et al. (2012) published updated Clinical Practice Guidelines for chronic myeloid leukemia (CML). The Guidelines note that allogeneic hematopoietic stem-cell transplantation (HSCT) may be considered in as a second-or third-line treatment option in the case of failure of TKI therapy for an individual in chronic phase CML. Allogeneic HSCT may also be considered for tyrosine kinase inhibitor (TKI)-naïve or TKI-pretreated individuals in accelerated or blastic phase CML. Regarding chronic lymphocytic leukemia (CLL) the EMSO notes " first-line treatment may be repeated, if the relapse or progression occurs at least 12–24 months after a monotherapy or 24–36 months after chemoimmunotherapy, respectively." "If relapse occurs within 12–24 months after monotherapy or 24–36 months after chemoimmunotherapy, or if the disease does not respond to any first-line therapy, the therapeutic regimen needs to be changed to one of the following options: Salvage regimen, e.g. alemtuzumab, followed by allogeneic stem cell transplantation in physically fit patients."

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.

Summary
Although randomized controlled clinical trial data are limited, allogeneic hematopoietic stem-cell transplantation (HSCT) is considered an effective treatment with curative intent for chronic myelogenous leukemia (CML) and for chronic lymphocytic leukemia (CLL). Additionally there is professional society consensus support for these indications. Published peer-reviewed data have demonstrated improved response rates, event-free survival and relapse rates with the use of autologous HSCT for CLL in individuals who have achieved a complete or good partial response to therapy. However, there is insufficient evidence in the published peer-reviewed scientific literature demonstrating a clear survival benefit with the use of autologous HSCT for CML. At this time the role of autologous HSCT has not been established for this indication.

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

Covered when medically necessary when used to report allogeneic bone marrow or blood-derived stem cell procedures:

CPT®* Codes	**Description**
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
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
38242	Allogeneic lymphocyte infusions

HCPCS Codes	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 or pre-and post-transplant care in the global definition

Covered when medically necessary when used to report autologous bone marrow or blood-derived stem cell procedures for CLL:

CPT* Codes	Description
38206	Blood-derived hematopoietic progenitor cell harvesting for transplantation, per collection; autologous
38211	Transplant preparation of hematopoietic progenitor cells; tumor cell depletion
38232	Bone marrow harvesting for transplantation; autologous
38241	Hematopoietic progenitor cell (HPC); autologous transplantation

Experimental/Investigational/Unproven/Not Covered when used to report autologous bone marrow or blood-derived stem cell procedures for CML:

CPT* Codes	Description
38206	Blood-derived hematopoietic progenitor cell harvesting for transplantation, per collection; autologous
38211	Transplant preparation of hematopoietic progenitor cells; tumor cell depletion
38232	Bone marrow harvesting for transplantation; autologous
38241	Hematopoietic progenitor cell (HPC); autologous transplantation

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