

Clinical Policy: Allogeneic Hematopoietic Progenitor Cell Therapy

Reference Number: LA.CP.MP.249

Last Review Date: 06/26

[Coding Implications](#)

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Description

This policy describes the medical necessity criteria for allogeneic hematopoietic progenitor cell therapies, which include Omisirge® (omidubicel) and RegenCyte™ (HPC Cord Blood).

Policy/Criteria

- I. It is the policy of Louisiana Healthcare Connections that Omisirge® (omidubicel) is **medically necessary** when one of the following criteria are met:
 - A. Diagnosis of hematologic malignancies, all of the following:
 1. Member/enrollee is ≥ 12 years of age;
 2. Member/enrollee is planned for an umbilical cord blood transplantation following myeloablative conditioning to reduce the time to neutrophil recovery and the incidence of infection;
 3. Request is for one administration post-myeloablative conditioning;
 - B. Diagnosis of severe aplastic anemia, all of the following:
 1. Member/enrollee is $\geq$ six years of age;
 2. Request is for one administration following reduced intensity conditioning.
- II. It is the policy of non-Medicare health plans affiliated with Centene Corporation that RegenCyte™ is **medically necessary** when all of the following criteria are met:
 - A. Member/enrollee is planned for an unrelated donor hematopoietic progenitor cell transplantation procedure;
 - B. An appropriate preparative regimen for hematopoietic and immunologic reconstitution will be used in conjunction with the transplantation procedure;
 - C. Member/enrollee has a disorder affecting the hematopoietic system that is inherited, acquired, or a result from myeloablative treatment.

Background

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

of infections during and post-transplant.⁴ Any decrease in toxicity, without concomitant loss of efficacy, would be desirable.

Myeloablative means that the treatment kills (ablates) the stem cells in the bone marrow; the cells that produce new blood cells. Myeloablative conditioning (MAC) is a regimen that consists of a single agent or combination of agents that are anticipated to destroy the hematopoietic cells in the bone marrow.⁴ Extensive pancytopenia occurs within one to three weeks after administration of a MAC regimen and is typically irreversible.⁴

Omisirge® (omidubicel)

In April 2023, the U.S. Food and Drug Administration (FDA) approved Omisirge, a nicotinamide-modified allogeneic hematopoietic progenitor cell therapy. Omisirge is derived from cord blood and quickens the recovery of neutrophils in the body and reduces the incidence of infection. The product is intended to be used in patients ≥ 12 years of age with blood malignancies who have a planned umbilical cord blood transplantation following myeloablative conditioning.^{1,5} Additionally, in December 2025, the FDA approved Omisirge for patients aged six years and older with severe aplastic anemia following reduced intensity conditioning when a compatible donor is not available.

A randomized, multicenter study with 125 enrollees comparing transplantation of Omisirge to transplantation of umbilical cord blood supports the safety and effectiveness of Omisirge.^{5,6,7} The study found that 87% of subjects who received Omisirge attained neutrophil recovery in an average of 12 days after treatment. In comparison, neutrophil recovery was achieved in an average of 22 days in 83% of subjects who received umbilical cord blood transplantation.^{6,7} Additionally, subjects in the study who received Omisirge had fewer bacterial or fungal infections than the group of subjects who received umbilical cord blood transplantation.^{5,6,7} Further analysis of this study regarding healthcare resource utilization showed that in the first 100 days after transplantation, patients who received Omisirge had fewer days in the intensive care unit, a shorter total hospital length of stay, and fewer deaths compared to the group of patients who received umbilical cord blood transplantation.⁸ These findings suggest that the use of Omisirge is associated with reduced healthcare resources due to faster hematopoietic recovery.⁸

Assessment of the safety and effectiveness of Omisirge in the treatment of severe aplastic anemia was based on data from an ongoing, open-label, prospective, single arm study that included participants aged six years and older.¹³ Findings from this study demonstrated early and sustained neutrophil engraftment at 100 days in 12 out of 14 of patients with neutrophil recovery occurring at a median of 11 days.¹² Furthermore, red blood cell transfusion independence was achieved in 86% of patients, platelet recovery $\geq 20,000/\mu\text{L}$ occurred in 86% of patients, and platelet transfusion independence was observed in 79% of patients.¹²

RegeneCyte™ HPC (Hematopoietic Progenitor Cell), Cord Blood

In November 2024, the FDA approved RegeneCyte, an allogeneic hematopoietic stem cell therapy derived from human umbilical cord blood.¹¹ RegeneCyte is approved for unrelated donor hematopoietic progenitor cell transplantation procedures in conjunction with an appropriate preparative regimen for hematopoietic and immunologic reconstitution. The product is intended

for use in patients with disorders affecting the hematopoietic system that are inherited, acquired, or result from myeloablative treatment.^{9,10,11}

The FDA's decision to support the safety and effectiveness of RegeneCyte is based on data from the Cord Blood Transplantation (COBLT) study (Study 1), data in the FDA dockets and public information (Study 2), and data from the Center for International Blood and Marrow Transplant Research (Study 3).⁹

Study 1 is based on a prospective, single-arm study conducted by the COBLT study group of unrelated cord blood transplantation (CBT). The purpose of this study was to clarify the role of this stem cell source for patients requiring unrelated allogeneic transplantation. The chief aim of this study was survival at 180 days. Secondary objectives included engraftment, graft-versus-host disease, relapse, and long-term survival. The preparative regimens and graft-vs-host disease prophylaxis in this study were not standardized, and 79% (n=257) of the patients enrolled in this study were treated for hematologic malignancies.⁹

Among the 324 patients treated in this study, 76% achieved neutrophil recovery at day 42, platelet recovery (20,000/uL) (95% CI) was achieved in 57% at day 100, and 65% achieved erythrocyte recovery at day 100. The median time to neutrophil recovery was 27 days, the median time to platelet recovery (20,000/uL) was 90 days, and the median time to erythrocyte recovery was 64 days.⁹

Study 2 is based on a retrospective review of data from published literature and from observational registries, institutional databases, and multiple cord blood banks that reported to the FDA docket for HPC, Cord Blood. According to public data and information in the dockets, the preparative regimens and graft-vs-host disease prophylaxis varied, and 66% (n=862) of the 1,299 patients underwent transplantation as treatment for hematologic malignancy.⁹ In this study, 77% of patients achieved neutrophil recovery at day 42, and 45% of patients achieved platelet recovery at day 100. The median time to neutrophil recovery was 25 days, and the median time to platelet recovery was 122 days.⁹

Study 3 is based on retrospective reviews of data from an observational database for RegeneCyte, using information from the Center for International Blood and Marrow Transplant Research. In this database, 81.5% of patients (44 of 54) underwent transplantation for a hematologic malignancy. Preparative regimens and graft-vs-host disease prophylaxis were not standardized in this study group, and the reactions were not graded. Among the 54 patients treated in this study, 91% achieved neutrophil recovery at Day 42, and 72% achieved platelet recovery (20,000/uL) (95% CI) at Day 100. The median time to neutrophil recovery was 22 days, and the median time to platelet recovery (20,000/uL) was 50 days.⁹

Overall, the effectiveness of RegeneCyte is defined by hematopoietic reconstitution, which was demonstrated in all three studies.⁹

Coding Implications

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2025, American Medical Association. All rights reserved. CPT codes and CPT descriptions are from the current manuals and those included herein are not intended to be all-inclusive and are included for informational purposes only. Codes referenced in this clinical policy are for informational purposes only and may not support medical necessity. Inclusion or exclusion of any codes does not guarantee coverage. Providers should reference the most up-to-date sources of professional coding guidance prior to the submission of claims for reimbursement of covered services.

NOTE: Coverage is subject to each requested code's inclusion on the corresponding LDH fee schedule. Non-covered codes are denoted (*) and are reviewed for Medical Necessity for members under 21 years of age on a per case basis.

HCPSC Codes	Description
J3590	Unclassified biologics
C9399	Unclassified drugs or biologicals

Reviews, Revisions, and Approvals	Review Date	Approval Date	Effective Date
Converted corporate to local policy	07/23	9/13/23	
Policy/Criteria I. Background updated with no impact on criteria. References reviewed and updated. Reviewed by external specialist.	07/24	9/24/24	10/25/24
Annual review. Removed Omisirge specific language from title of policy due to expanding policy. Updated Description of policy to include RegeneCyte and updated title in the Note referencing the Medicare version of policy. Added Criteria II. to include medically necessary criteria for RegeneCyte...Background updated to include RegeneCyte information to align with updated criteria. Reviewed codes and descriptions. References reviewed and updated. Reviewed by internal specialist.	07/25	9/22/25	10/22/25
Updated Criteria I. to include severe aplastic anemia as a medically necessary indication for Omisirge. Background updated to reflect updated criteria. References updated. Reviewed by internal specialist.	03/26	5/27/26	6/26/26
Annual review. Coding and descriptions reviewed. References reviewed and updated. Reviewed by internal specialist and external specialist.	06/26	8/31/26	9/30/26

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Important Reminder

This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. LHCC makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved.

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