

Hematopoietic Stem Cell Transplantation Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Allogeneic, Autologous), By Indication (Leukemia, Lymphatic Disorder, Myeloma, Other), By Application (Bone Marrow Transplant; Peripheral Blood Stem Cell Transplant; Cord Blood Transplant), By End User (Hospital Pharmacy, Retail Pharmacy, Specialty Clinics), By Region & Competition, 2021-2031F

<https://marketpublishers.com/r/HE6A8A8D8D0EEN.html>

Date: January 2026

Pages: 185

Price: US\$ 4,500.00 (Single User License)

ID: HE6A8A8D8D0EEN

Abstracts

The Global Hematopoietic Stem Cell Transplantation Market is projected to expand from USD 3.09 Billion in 2025 to USD 4.62 Billion by 2031, registering a CAGR of 6.93%. This therapeutic sector involves stem cell infusion procedures designed to rehabilitate bone marrow functionality in individuals suffering from immune deficiencies or hematological malignancies. Key factors fueling this growth include the increasing global frequency of blood cancers like multiple myeloma and leukemia, coupled with technological strides in donor matching that improve allogeneic transplant success rates. Data from the World Marrow Donor Association in 2024 indicates that the global registry network now encompasses over 44.3 million cord blood units and volunteer donors, significantly broadening access to compatible matches for patients without related donors.

Notwithstanding these positive developments, the market faces a substantial obstacle in the form of high post-transplant complication risks, specifically Graft-Versus-Host Disease. In this condition, donor cells aggressively target the recipient's tissues, requiring costly, long-term medical management and negatively affecting the patient's

quality of life. Consequently, these clinical risks and associated costs hinder the widespread adoption of the procedure, particularly within healthcare environments that are sensitive to financial constraints.

Market Driver

The rising global prevalence of hematologic malignancies serves as the central catalyst for the uptake of hematopoietic stem cell transplantation. As aggressive blood cancer rates increase, the clinical demand for curative bone marrow reconstitution intensifies, boosting procedural volumes across both established and developing healthcare sectors. The 'Cancer Facts & Figures 2025' report by the American Cancer Society, released in January 2025, forecasted 66,890 new leukemia diagnoses in the United States, highlighting the urgent requirement for effective transplant solutions. This expanding patient base demands a strengthened transplant infrastructure, prompting providers to increase capacity. Additionally, the '2023 EBMT Report on Hematopoietic Cell Transplantation and Cellular Therapies' from the European Society for Blood and Marrow Transplantation in February 2025 noted 47,731 transplants across European centers in 2023, evidencing strong procedural momentum.

In parallel, major breakthroughs in mismatched and haploidentical donor transplantation methods are eliminating traditional impediments to market expansion. The introduction of post-transplant cyclophosphamide protocols has significantly enhanced the safety of utilizing partially matched donors, thereby extending eligibility to patients who previously lacked a fully matched donor option. According to the 'Current Activity Trends and Outcomes in Hematopoietic Cell Transplantation and Cellular Therapy' report published by the Center for International Blood and Marrow Transplant Research in May 2025, the use of mismatched unrelated donors in adult patients has doubled since 2020. This technical progression decreases reliance on exact genetic matches and expedites donor selection, directly augmenting transplant center throughput and stimulating market growth through improved accessibility.

Market Challenge

The significant threat of post-transplant complications, particularly Graft-Versus-Host Disease (GVHD), remains a formidable obstacle to the growth of the Global Hematopoietic Stem Cell Transplantation Market. This adverse reaction, where the donor's immune cells attack the healthy tissues of the recipient, creates clinical uncertainty that discourages the adoption of the procedure. The potential for severe morbidity or mortality often dissuades both healthcare providers and patients from

choosing transplantation, particularly when the disease prognosis permits the use of alternative, less toxic treatments. As a result, the market faces difficulties in translating the increasing availability of donors into actual transplant numbers that match the prevalence of hematological malignancies.

Moreover, the financial burden linked to managing these complications severely hampers market expansion in cost-conscious healthcare settings. The requirement for prolonged immunosuppressive therapies and repeated hospital admissions to address GVHD imposes a fiscal strain that is unsustainable for many healthcare systems. Data from the Health Resources and Services Administration indicates that the C.W. Bill Young Cell Transplantation Program coordinated 7,550 unrelated blood stem cell transplants in 2024, a statistic that highlights the substantial number of patients necessitating expensive, rigorous post-operative care. In areas where reimbursement models are restricted, this operational cost effectively limits transplant accessibility, restricting the market's potential despite progress in donor matching capabilities.

Market Trends

The incorporation of CRISPR-Cas9 and gene editing technologies into stem cell therapies is fundamentally reshaping the market by shifting focus from allogeneic replacement to autologous genetic correction. This trend leverages existing hematopoietic stem cell transplantation infrastructure to administer gene-modified cells, thereby removing the need for donor matching and eliminating the risks associated with Graft-Versus-Host Disease. This methodology is rapidly advancing toward commercialization, especially for hemoglobinopathies, effectively transforming transplant centers into delivery hubs for bio-engineered treatments. As noted in the 'Third Quarter 2025 Financial Results' by Vertex Pharmaceuticals in November 2025, a total of 39 patients have received Casgevy gene-edited therapy infusions since its launch, indicating the concrete adoption of this innovative modality.

Concurrently, the application of HSCT is expanding to include autoimmune and non-malignant disorders, thereby diversifying procedural volumes beyond conventional oncological uses. Transplant centers are increasingly utilizing these procedures to address severe autoimmune diseases and hemoglobinopathies, encouraged by enhanced safety profiles and the curative possibilities offered by stem cell reconstitution. This widening of clinical indications effectively separates market growth from a strict reliance on cancer incidence rates. According to the '2023 EBMT Report on Hematopoietic Cell Transplantation and Cellular Therapies' released by the European Society for Blood and Marrow Transplantation in February 2025, 2,558 allogeneic

transplants were performed specifically for non-malignant conditions, underscoring the substantial portion of market activity now focused on benign disorders.

Key Market Players

Pluristem Therapeutics Inc

Lonza Group AG

Regen Biopharma Inc.

Bluebird Bio Inc.

CellGenix GmbH

Novartis AG.

Taiga Biotechnologies Inc.

Takeda Pharmaceutical Company Limited

Talaris Therapeutics Inc.

Merck & Co., Inc

Report Scope

In this report, the Global Hematopoietic Stem Cell Transplantation Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Hematopoietic Stem Cell Transplantation Market, By Type

Allogeneic

Autologous

Hematopoietic Stem Cell Transplantation Market, By Indication

Leukemia

Lymphatic Disorder

Myeloma

Other

Hematopoietic Stem Cell Transplantation Market, By Application

Bone Marrow Transplant; Peripheral Blood Stem Cell Transplant; Cord Blood Transplant

Hematopoietic Stem Cell Transplantation Market, By End User

Hospital Pharmacy

Retail Pharmacy

Specialty Clinics

Hematopoietic Stem Cell Transplantation Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Hematopoietic Stem Cell Transplantation Market.

Available Customizations:

Global Hematopoietic Stem Cell Transplantation Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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