MVP Health Care Medical Policy

Medicare Part B: Lyfgenia (Lovotibeglogene Autotemcel)

Type of Policy:	Drug Therapy (administered by the pharmacy department)
Prior Approval Date:	06/01/2024
Approval Date:	07/01/2025
Effective Date:	09/01/2025
Related Policies:	Casgevy, Adakveo

Refer to the MVP Medicare website for the Medicare Part D formulary and Part D policies.

Refer to relevant CMS LCDs/NCDs/Policy Articles for most up to date Medicare Part B guidance if available

Drugs Requiring Prior Authorization under the medical benefit

J3590 Lyfgenia (Lovotibeglogene Autotemcel)

Overview

Lyfgenia (Lovotibeglogene Autotemcel) is an intravenous, one-time autologous genome edited hematopoietic stem cell-based gene therapy for patients with sickle cell disease suffering from vaso-occlusive crisis. A vaso-occlusive crisis is a potentially life-threatening complication caused when sickled red blood cells hinder blood flow causing pain, and lack of oxygen delivery to tissue. Lyfgenia is manufactured specifically for an individual using their own blood stem cells. The treatment course consists of multiple

phases including cell mobilization and apheresis to collect CD34+ cells for manufacturing, myeloablative conditioning, and finally the modified cells are returned to the patient via IV infusion. The hematopoietic cells (HCs) are transduced ex-vivo with a BB305 lentiviral vector encoding a modified β-globin gene. Following IV infusion, the modified CD34+ hematopoietic cells engraft in the bone marrow and differentiate to produce red blood cells that combine with α-globin to produce HbA which is modified adult hemoglobin. This then reduces intracellular and total hemoglobin S (HbS) levels ultimately limiting the sickling of red blood cells and potential for a vaso-occlusive crisis from occurring.

Medicaid Variation: Medications that are a pharmacy benefit are covered and billed to New York State Fee-For-Service (FFS) program. They are defined as medications that go through a retail or specialty pharmacy, including self-administered injectable products. Pharmacy medications are subject to FFS's clinical criteria including (but not limited to) coverage, quantity limit, step therapy, and prior authorization. Pharmacy benefit information can be found here: https://www.emedny.org/info/fullform.pdf

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Indications/Criteria

A. Sickle Cell Disease (SCD) with recurrent vaso-occlusive crises

Lyfgenia will be considered for coverage for SCD with recurrent vaso-occlusive crises when ALL of the following criteria is met:

- Prescribed by a board-certified hematologist
- Lyfgenia must be administered at a Qualified Treatment Center. Please see the link for treatment centers: LYFGENIA™ (lovotibeglogene autotemcel) Qualified Treatment Center Locator
- Chart notes documenting a diagnosis of sickle cell disease (SCD), with either βS/βS or βS/β0 or βS/β+ genotype.
    - Lyfgenia has not been studied in member's with more than two α-globin gene deletions
- Documentation that that the member has not received a prior allogeneic or autologous HSC transplant AND is not being considered for other gene or investigational therapies for SCD.
- Member is ≥ 12 years old

- Chart notes documenting ≥ 4 severe vaso-occlusive crises in the 2 years prior to screening while adhering to previous SCD therapy, defined as any of the following:
    - An episode of acute pain with no medically determined cause other than vaso-occlusion, lasting more than 2 hours
    - Acute chest syndrome (ACS)
    - Acute hepatic sequestration
    - Acute splenic sequestration
    - Vaso-occlusive episode requiring a hospitalization or multiple visits to an emergency department/urgent care over 72 hours and receiving intravenous medications at each visit Acute chest syndrome
    - priapism requiring any level of medical attention
- Member has failed to match with a hematopoietic stem cell donor
- Chart notes documenting that the member has tried and failed other sickle cell disease treatment (such as hydroxyurea, Adakveo, Oxbryta, Endari) up to the maximally indicated dose for ≥6 months. Documentation must include dates of use.
- Chart notes documenting that the member does not have advanced liver impairment or renal impairment which is documented with current renal and liver function tests
    - Renal impairment (defined as creatinine clearance ≤70mL/min/1.73m^2)
    - Examples of advanced liver impairment
        - Alanine transaminase > 3 times upper limit of normal
        - Direct bilirubin value > 2.5 times upper limit of normal
        - Baseline prothrombin time (international normalized ratio [INR]) > 1.5 times upper limit of normal
        - Cirrhosis
        - Bridging fibrosis
        - Active hepatitis
- For female members, a negative serum pregnancy test must be confirmed
- Documented provider attestation confirming that the member is an appropriate candidate for hematopoietic stem cell (HSC) transplantation
- Chart notes documenting that the member has a current negative screening for the following: HIV-1, HIV-2. Documentation must indicate that the member does not have active HIV-1 or HIV-2.

- Current documentation that the member does not have any active bacterial, viral, fungal, or parasitic infection(s)

Lyfgenia will be approved as a **one-time dose within 6 months**. Requests for **replacement due to lost or damaged product will not be covered**. Coverage is contingent on eligibility at the time of infusion.

Exclusions

- Age, dose, frequency of dosing, and/or duration of therapy outside of FDA approved package labeling
- Use in combination with other autologous genome edited hematopoietic stem cell-based gene therapies such as Casgevy
- Members with renal deficiency
- Members with hepatic deficiency
- Member is pregnant or planning to become pregnant
- Member not an appropriate candidate for hematopoietic stem cell transplantation
- **Member has received prior allogeneic or autologous HSC transplant**
- Member has tested positive for or has active HIV-1, HIV-2
- Members with active bacterial, viral, fungal, or parasitic infections
- Members with more than two α-globin gene deletions

References

1. bluebirdbio. (2024, February). Lyfgenia (Lovotibeglogene Autotemcel) | now FDA approved. https://www.lyfgenia.com
2. bluebirdbio. (2023, December). Lyfgenia (Lovotibeglogene Autotemcel) Package Insert. LYFGENIA_Prescribing_Information.pdf (bluebirdbio.com)
3. *A study evaluating the safety and efficacy of BB1111 in severe sickle cell disease - full text view*. ClinicalTrials.gov. (n.d.).

https://classic.clinicaltrials.gov/ct2/show/NCT02140554?term=02140554&draw=2&rank=1