PRIOR AUTHORIZATION POLICY

POLICY: Metabolic Disorders – Nulibry Prior Authorization Policy
- Nulibry™ (fosdenopterin intravenous infusion – Origin Biosciences)

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OVERVIEW

Nulibry, a cyclic pyranopterin monophosphate (cPMP), is indicated to reduce the risk of mortality in **molybdenum cofactor deficiency** (MoCD) **Type A**.[1] Treatment is initiated based on a confirmed diagnosis or presumptive diagnosis of MoCD. In patients with a presumptive diagnosis, Nulibry should be discontinued after genetic testing does not confirm MoCD Type A.

MoCD is a rare, life-threatening, autosomal-recessive disorder characterized by the deficiency of three molybdenum-dependent enzymes: sulfite oxidase (SOX), xanthine dehydrogenase, and aldehyde oxidase.[2] Patients with MoCD Type A have mutations in the *MOCS1* gene leading to deficiency of the intermediate substrate, cPMP.[1] Substrate replacement therapy with Nulibry provides an exogenous source of cPMP, which is converted to molybdopterin. Molybdopterin is then converted to molybdenum cofactor, which is needed for the activation of molybdenum-dependent enzymes, including SOX, an enzyme that reduces levels of neurotoxic sulfites. Onset of the disease is often seen at birth with median survival estimated at 4 years of age without intervention.[3] The most common symptoms of MoCD are seizures, feeding difficulties, and hypotonia. Patients usually experience irreversible neurological damage leading to severe developmental delays (trouble speaking or sitting) and brain abnormalities (atrophy of brain tissue). Biochemical features suggestive of MoCD include elevated urine S-sulfocysteine (SSC), thiosulfate, hypoxanthine, xanthine, or decreased serum uric acid. Genetic testing gives confirmation for differential diagnosis of MoCD Type A, B, or C.

POLICY STATEMENT

Prior Authorization is recommended for prescription benefit coverage of Nulibry. All approvals are provided for the duration noted below. Because of the specialized skills required for evaluation and diagnosis of patients treated with Nulibry as well as the monitoring required for adverse events and long-term efficacy, approval requires Nulibry to be prescribed by or in consultation with a physician who specializes in the condition being treated.

Automation: None.

RECOMMENDED AUTHORIZATION CRITERIA

Coverage of Nulibry is recommended in those who meet the following criteria:

FDA-Approved Indication

1. **Molybdenum Cofactor Deficiency (MoCD) Type A.** Approve for the duration noted if the patient meets ALL of the following (A, B, and C):
   - **A)** According to the prescriber, the diagnosis was confirmed by ONE of the following (i or ii):
     - **i.** Approve for 1 year if the patient has genetic testing confirmation of biallelic pathogenic or likely pathogenic variants in the *MOCS1* gene; OR

ii. Approve for 1 month if the patient has laboratory findings suggestive of molybdenum cofactor deficiency (MoCD) and genetic testing is in progress; AND
Note: Laboratory findings include elevated urinary S-sulfocysteine, thiosulfate, xanthine, hypoxanthine, or decreased serum uric acid.

B) According to the prescriber, based on the current condition, the patient is expected to derive benefit with Nulibry and the disease state is NOT considered to be too advanced; AND

C) The medication is prescribed by or in consultation with a pediatrician, geneticist, or a physician who specializes in molybdenum cofactor deficiency (MoCD) Type A.

CONDITIONS NOT RECOMMENDED FOR APPROVAL

Coverage of Nulibry is not recommended in the following situations:

1. Coverage is not recommended for circumstances not listed in the Recommended Authorization Criteria. Criteria will be updated as new published data are available.

REFERENCES

1. Nulibry intravenous infusion [prescribing information]. Boston, MA: Origin Biosciences; October 2022.
2. Mechler K, Mountford WK, Hoffmann GF, et al. Ultra-orphan diseases: a quantitative analysis of the natural of molybdenum cofactor deficiency. *Genet Med.* 2015 Dec;17(12):965-70.
3. Misko A, Mahtani K, Abbott J, et al. Molybdenum Cofactor Deficiency. 2021 Dec 2 [Updated 2023 Feb 2]. In: Adam MP, Feldman J, Mirzaa GM, et al., editors. GeneReviews® [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2024. Available from: https://www.ncbi.nlm.nih.gov/books/NBK575630/. Accessed on April 03, 2024.