

**POLICY:** Enzyme Replacement Therapy – Elaprase® (idursulfase injection for intravenous use – Shire Human Genetic Therapies)

**DATE REVIEWED:** 04/15/2020

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### OVERVIEW

Elaprase is human iduronate-2-sulfatase (idursulfase), produced in a human cell line using recombinant DNA technology.<sup>1</sup> Idursulfase hydrolyzes the 2-sulfate esters of terminal iduronate sulfate residues from dermatan and heparin sulfate in lysosomes of various cell types.

Elaprase is indicated for patients with Hunter syndrome (Mucopolysaccharidosis type II [MPS II]).<sup>1</sup> Elaprase has been shown to improve walking capacity in patients  $\geq 5$  years of age. In patients 16 months to 5 years of age, no data are available to demonstrate improvement in disease-related symptoms or long-term clinical outcome; however, treatment has reduced spleen volume similar to that of patients  $\geq 5$  years of age.

### Disease Overview

MPS II or Hunter syndrome, is a rare, X-linked lysosomal storage disorder characterized by a deficiency of iduronate-2-sulfatase leading to the accumulation of the glycosaminoglycans dermatan sulfate and heparin sulfate.<sup>2,3</sup> Males are almost exclusively affected, although there have been a few case reports of females with Hunter syndrome.<sup>3,4</sup> The onset, progression, and severity of MPS II is variable.<sup>2,4</sup> Most of the patients with MPS II have a severe form with neurologic involvement leading to cognitive impairment and neurologic regression.<sup>3,4</sup> Other manifestations of Hunter syndrome include coarse facial features, hepatosplenomegaly, cardiac and respiratory disease, short stature, and stiff joints and contractures.<sup>2,3</sup> The definitive diagnosis of MPS II is established by demonstrating deficient iduronate-2-sulfatase activity in leukocytes, fibroblasts, serum, or plasma, or mutations in the iduronate-2-sulfatase gene.<sup>2,5</sup> Definitive treatment of MPS II consists of enzyme replacement therapy with Elaprase.<sup>2,4</sup> Hematopoietic stem cell transplantation has not demonstrated clear neurological benefit to date and is not recommended for MPS II due to the high rate of morbidity and mortality associated with this therapy.<sup>2,4</sup>

### POLICY STATEMENT

Prior authorization is recommended for medical benefit coverage of Elaprase. Approval is recommended for those who meet the Criteria and Dosing for the listed indication(s). Extended approvals are allowed if the patient continues to meet the Criteria and Dosing. Requests for doses outside of the established dosing documented in this policy will be considered on a case-by-case basis by a clinician (i.e., Medical Director or Pharmacist). All approvals are provided for the duration noted below.

Because of the specialized skills required for evaluation and diagnosis of patients treated with Elaprase as well as the monitoring required for adverse events and long-term efficacy, approval requires Elaprase to be prescribed by or in consultation with a physician who specializes in the condition being treated.

## RECOMMENDED AUTHORIZATION CRITERIA

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

### FDA-Approved Indications

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1. **Mucopolysaccharidosis Type II (Hunter Syndrome).** Approve for 1 year if the patient meets the following criteria (A and B):
  - A) The diagnosis is established by one of the following (i or ii):
    - i. Patient has a laboratory test demonstrating deficient iduronate-2-sulfatase activity in leukocytes, fibroblasts, serum, or plasma; OR
    - ii. Patient has a molecular genetic test demonstrating iduronate-2-sulfatase gene mutation; AND
  - B) Elaprase is prescribed by or in consultation with a geneticist, endocrinologist, a metabolic disorder sub-specialist, or a physician who specializes in the treatment of lysosomal storage disorders.

**Dosing.** Each dose must not exceed 0.5 mg/kg administered intravenously no more frequently than once a week.<sup>1</sup>

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### CONDITIONS NOT RECOMMENDED FOR APPROVAL

Elaprase has not been shown to be effective, or there are limited or preliminary data or potential safety concerns that are not supportive of general approval for the following conditions.

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. Elaprase® injection for intravenous use [prescribing information]. Lexington, MA: Shire Human Genetic Therapies, Inc.; November, 2018.
2. Scarpa M, Almassy Z, Beck M, et al. Mucopolysaccharidosis type II: European recommendations for the diagnosis and multidisciplinary management of a rare disease. *Orphanet J Rare Dis.* 2011;6:72.
3. Muenzer J, Beck M, Eng CM, et al. Multidisciplinary management of Hunter syndrome. *Pediatrics.* 2009;124:e1228-e1239.
4. Giugliani R, Federhen A, Munoz Rojas MV, et al. Mucopolysaccharidosis I, II, and VI: Brief review and guidelines for treatment. *Genet Mol Biol.* 2010;33:589-604.
5. D'Avanzo F, Rigon L, Zanetti A, Tomanin R. Mucopolysaccharidosis type II: One hundred years of research, diagnosis, and treatment. *Int J Mol Sci.* 2020;21:E1258.

### HISTORY

Type of Revision	Summary of Changes	Date Reviewed
New Policy	--	04/17/2019
Annual Revision	Added "serum" as a source to test to demonstrate deficient iduronate-2-sulfatase activity.	04/15/2020