Highly Specialised Technologies (HST) criteria checklist

Fosdenopterin for treating molybdenum cofactor deficiency type A [ID6264]

### Introduction

The NICE HST criteria checklist is to highlight where a technology meets/partially meets or does not meet the criteria for routing to the HST programme. Its purpose is to show the details of why a technology may not be appropriate for HST evaluation, but also where it has been identified as suitable. For more information, please see [section 7 of NICE health technology evaluation topic selection: the manual](https://www.nice.org.uk/process/pmg37/chapter/highly-specialised-technologies)

### Key – Please use the colour key to advise if the technology meets the criteria

|  |  |
| --- | --- |
| Met  | There is clear and strong evidence that the criterion is met |
| Not met | There is some, but not enough clear evidence that the criterion is met or There is no evidence or limited evidence that the criterion is met.  |

### Expected MA wording: Fosdenopterin for the treatment of patients with molybdenum cofactor deficiency (MoCD) Type A.

| **Number** | **Criterion** | **Description of how the technology meets the criteria**  | **Does the technology meet the criteria?** |
| --- | --- | --- | --- |
|  | The disease is very rare defined by 1:50,000 in England  | **Live birth/incidence estimate:** * The EMA has given this an orphan designation, MoCD (types A, B and C) is estimated to affect less than 1 in 100,000 to 200,000 newborns worldwide1 (0.005 per 10,000 people).
* Based on above, the incidence of MoCD type A is likely to be lower than 1 in 100,000 to 200,000
* In European Union, so far 53 cases have been reported leading to an estimated prevalence of 0.005 per 10, 000.1
 | **Met** |
|  | Normally no more than 300 people in England are eligible for the technology in its licensed indication and no more than 500 across all its indications  | * When applying the incidence rate above to the total England population (0-5 years) of 693,024 this would mean only 7 people would be eligible to receive fosdenopterin.
 | **Met** |
|  | The very rare disease for which the technology is indicated significantly shortens life or severely impairs quality of life  | * MoCD A is a very severe and life-threatening condition, which is associated with poor overall survival and death in the neonatal period.1.2
* The most common symptoms of MoCD Type A are seizures, feeding difficulties and encephalopathy.2
* People with MoCD type A who survive beyond infancy suffer from progressive brain damage which leads to severe psychomotor impairment and an inability to make coordinated movements or communicate with their movement.2
* Death commonly occurs in the neonatal period, and patients who survive that period usually develop encephalopathy and developmental delay.3
* The 1-year survival for children with MoCD type A was reported at 75.3%, this survival was further reduced to 35.1% (neonatal onset) and 41.6% (all MoCD-A) at 5 years of age.4
* A Study reported people with MoCD type A had a median age at death of 2.4 years. The median survival time was 4.23 (MoCD-A; 3.98 years with neonatal onset).4
 | **Met** |
|  | There are no other satisfactory treatment options, or the technology is likely to offer significant additional benefit over existing treatment options. | * No licensed treatment options are available for MoCD type A.5
* Current treatment for people with MoCD type A aims to provide relief of symptoms (e.g., treatment with anticonvulsants for seizures) and support in the care of the child, such as placement of a feeding tube.5
* Thiamine supplementation can be used for people with thiamine deficiency. Magnesium supplementation and standardized migraine prophylactics can be used for those with headaches. Dietary restriction of sulfur-containing amino acids may be used to decrease sulfite excretion but is not able to stop the neurological progression of the disease.
* Fosdenopterin was shown to be effective at improving the survival of people with MoCD type A. Studies also indicate that early treatment with fosdenopterin improves the quality of life and delays disease progression.6
* The results of a study (n=15) treated with fosdenopterin compared with historical data from two studies who did not receive fosdenopterin or any other treatment showed that one year, around 93% of people using fosdenopterin were alive compared with around 75% of those who received no treatment.3,6
 | **Met** |

**References**

1. European medicines agency. [Assessment report](https://www.ema.europa.eu/en/documents/assessment-report/nulibry-epar-public-assessment-report_en.pdf). 2022. Accessed June 2023
2. Sentynl therapeutics: [National Organization for Rare Disorders (NORD) honors NULIBRY® (fosdenopterin) for the Treatment of molybdenum cofactor deficiency (MoCD) Type A with 2022 Industry Innovation Award](https://sentynl.com/news/national-organization-for-rare-disorders-nord-honors-nulibry-fosdenopterin-for-the-treatment-of-molybdenum-cofactor-deficiency-mocd-type-a-with-2022-industry-innovation-award/): accessed June 2023
3. Mechler, K., Mountford, W.K., Hoffmann, G.F. and Ries, M. (2015). Ultra-orphan diseases: a quantitative analysis of the natural history of molybdenum cofactor deficiency. *Genetics in Medicine*, 17(12), pp.965–970. [doi.org/10.1038/gim.2015.12](https://www.gimjournal.org/article/S1098-3600%2821%2903788-6/fulltext) (Accessed June 2023).
4. Spiegel, R., Schwahn, B.C., Squires, L. and Confer, N. (2022). Molybdenum cofactor deficiency: A natural history. Journal of Inherited Metabolic Disease. [doi.org/10.1002/jimd.12488](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9313850/pdf/JIMD-45-456.pdf) (Accessed June 2023).
5. Health Research Authority: [ALXN1101 in Newborns with molybdenum cofactor deficiency](https://www.hra.nhs.uk/planning-and-improving-research/application-summaries/research-summaries/alxn1101-in-newborns-with-molybdenum-cofactor-deficiency/) Accessed June 2023
6. European medicines agency. [Nulibry (fosdenopterin)](https://www.ema.europa.eu/en/documents/overview/nulibry-epar-medicine-overview_en.pdf) 2022. Accessed June 2023.