Nusinersen in treating Spinal Muscular Atropy (SMA) - Approved at the meeting of COHERE on 15 March 2018

Recommendation		Beginning nusinersen treatment could be included in the national service range for SMA disease when • the SMA diagnosis has been confirmed for the patient before two years of age • the symptoms diagnosed by the physician of the patient have begun until the child was 20 months old • the patient is no more than 17 years old • the patient does not need permanent breathing support, and • there is no other medical impediment to the treatment. Continuing the treatment would be justified from a medical viewpoint in cases where clinical assessment shows that the patient has benefited from the treatment under regular monitoring. The current list price of nusinersen per patient is, however, too high in relation to the expected impacts. The medicine can therefore not be included in the service range, not even in case of patients referred to above. Nusinersen treatment of other patients than specified SMA patients as listed above is not medically justified.
Grounds	Seriousness and prevalence of the health issue	The clinical picture of SMA in different subgroups varies very much, from the most severe form of SMA leading to infant mortality to a form that causes mild muscular weakness in adulthood. Estimates on the number of new SMA patients annually vary between 3 and 10. Fimea's assessment report indicates that no more than 8 new patients with SMA are diagnosed annually in Finland. According to the report, the estimated number of patients with SMA is currently 180 or less. Nusinersen treatment would only be suitable for part of the patients.
	Impact	Studies show that nusinersen improves motoric ability and development in some children who are showing symptoms of SMA. Short-term studies show that, compared to placebo treatment, nusinersen reduces both the risk of infant mortality and the need for long-term breathing support among SMA patients who have fallen ill as infants. There are, however, no data on long-term impacts of the treatment. Nusinersen does not cure the faulty gene causing SMA.
	Safety	Adverse drug reactions have been reported relating to dosage of nusinersen. The reactions are similar to those in connection with lumber puncture. Reported adverse reactions also include various respiratory tract symptoms but it is difficult to separate them from natural symptoms of SMA. There are no data on long-term impacts of the treatment.
	Cost and budget impact	The list price of one dose of nusinersen is about EUR 83,000. Medicine cost per patient during the first year of treatment would be about EUR 500,000 and after that about EUR 250,000 annually. Fimea has estimated that the budgetary effects of nusinersen treatment would be about EUR 13.5 million during the first year of treatment and about EUR 8.4 million in the fifth year of treatment, calculated based on list prices for SMAI, SMAII and SMAIII patients. The calculations assume that the annual number of patients is slightly smaller than 30.
	Ethical and financial aspects as a whole	Nusinersen is a very expensive medicine. It is therefore ethically justified to restrict its use to those patients whose motoric abilities can be improved or maintained by nusinersen treatment that also reduces their need for extra help.
	Collection of further evidence	SMA is a rare disease and there is only little research data on the long-term effects of nusinersen treatment. It is therefore necessary to collect

		data systematically on nusinersen treatment if it is used clinically: data on its use, costs, treatment results and safety.
	Other information	In autumn 2018, at the latest, COHERE will issue a supplementary recommendation on detailed medical criteria to be applied to continued nusinersen treatment. This recommendation will expire by the end of 2022 at the latest.
Diagnosis (CD-10) codes		G 12.0 Infantile spinal muscular atrophy, type I [Werdnig-Hoffman] G12.1 Other inherited spinal muscular atrophy
Background information and references		Memorandum by COHERE (in Finnish), report by Fimea (in Finnish with English abstract)