**LETTER OF MEDICAL NECESSITY: HCU**

**Date:**

**Patient:**

**D.O.B:**

**Policy Number:**

To Whom It May Concern:

This letter of medical necessity is regarding the nutrition management of **[PATIENT NAME].** This patienthas an inborn error of metabolism, a genetic disorder, known as **Homocystinuria (HCU) (ICD 10: E72.1)** and is being followed in the genetic/metabolic clinic of **[CLINIC NAME].** This letter is to request coverage of **[CAMBROOKE PRODUCT NAME]** a medical food/formula(s) used for the treatment of HCU.

Homocystinuria results from a deficiency of an enzyme responsible for metabolizing the essential amino acid methionine. This deficiency results in the toxic build-up of a methionine by product, homocysteine, in the body. Homocystinuria is part of the newborn screening profile due to the devastating effects if undiagnosed or untreated. A patient with untreated homocystinuria will suffer dislocated optical lenses, osteoporosis, severe arterial and venous thromboses, heart disease, and blood clot formation. Irreversible brain damage will occur, manifesting as psychiatric problems and progressing to mental retardation and seizures if homocystinuria is not controlled. When appropriate therapy for homocystinuria is started in infants immediately upon diagnosis, it has been effective in preventing or delaying the onset of symptoms.

The three primary goals of treatment are:

1. To maintain a blood level of homocysteine that prevents toxicity to the eyes, central nervous system, skeleton and circulatory system
2. To ensure that energy intake is sufficient and sustained throughout the day to prevent fasting and breaking down of body proteins

To ensure that the individual’s overall nutritional requirements are met, allowing for normal growth and development and the avoidance of nutritional deficiencies

Currently, there is not an effective medication or gene therapy available for homocystinuria, though approximately 50% of patients do respond to therapy with pyridoxine (Vitamin B6). Patients with homocystinuria may also require supplementation with folate or Vitamin B12 as well as betaine and cystine. The standard of care for homocystinuria requires lifelong compliance with a methionine restricted diet and the consumption of special medical foods/formulas prescribed by a licensed physician. This specialized medical nutrition management is medically supervised by a Geneticist and implemented by a registered dietitian specially trained in the nutrition management of inborn errors of metabolism. It requires frequent blood testing to control the blood levels of homocysteine and methionine, as well as close nutrition follow-up with the registered dietitian and medical team. The recommended treatment range of blood levels for individuals with homocystinuria is generally:

* Homocysteine: <30 μmol/L

There is a strong correlation between cognitive function and maintenance of blood homocysteine levels in this treatment range. Elevated blood levels of homocysteine have been associated with multiple clinical symptoms. Currently, indefinite continuation of nutrition management is recommended for patients with homocystinuria.

The specialized medical nutrition management for homocystinuria involves:

* A protein-restricted diet that excludes all foods high in protein (e.g. meat, poultry, fish, eggs, cheese, dairy, nuts, and legumes) and markedly restricts all grains, including rice, breads, and pastas
* Special low-protein modified food products (which are not available in grocery stores)
* Sufficient calorie intake that is evenly distributed throughout the day to prevent catabolism
* Prescribed amino acid-based medical foods/formulas that are free of the amino acid methionine to provide 60-75% of protein intake

The term medical food/formula, is defined in section 5(b) of the Orphan Drug Act {21 U.S.C. 360ee (b) (3)}: a “food which is formulated to be consumed or administered enterally under the supervision of a physician and which is intended for the specific dietary management of a disease or condition for which distinctive nutritional requirements, based on recognized scientific principles, are established by medical evaluation.”

Currently, this patient is prescribed **HOMACTIN AA PLUS,** which is medical food/formula(s) used to manage homocystinuria. The amino acids in medical food/formula are the primary protein constituent (in general 60-75% of protein needs) for the homocystinuria dietary treatment regimen. Medical nutrition therapy must also provide a sufficient and balanced intake of other nutrients to avoid nutritional deficiencies. Nutrition therapy of homocystinuria without the use of medical foods is not possible, because it would cause severe protein malnutrition, calorie deprivation, vitamin and mineral deficiency, failure-to-thrive, and, ultimately, death.

**HOMACTIN AA PLUS** is only available by prescription through a pharmacy, durable medical equipment (DME) company, or directly from the manufacturer, Cambrooke Therapeutics, Inc. **[PATIENT NAME]** requires **[# OF GRAMS]** grams of protein equivalents per day from medical food/formula; therefore, we have prescribed **[# of tetras]** drink cartons of **HOMACTIN AA PLUS** per day (250 mL each) to meet the protein requirements for homocystinuria.

We appreciate your attention to this request for **HOMACTIN AA PLUS** medical food/formula(s), **[AMOUNT OF PRODUCT]** to be covered by their current medical insurance.

Please do not hesitate to contact us if you have any questions.

Sincerely,

**[Physician name, M.D.]**

**[Physician’s credentials, contact info, clinic name]**

**[Dietitian name, RD, LDN]**

Cc: **[Parents’ names]**

**References:**

1. National Institute of Health (n.d.) Brief history of newborn screening. Retrieved March 27, 2017, from https://www.nichd.nih.gov/health/topics/newborn/conditioninfo/pages/history.aspx.
2. Kraus, J.P. (2015) Homocystinuria due to Cystathionine Beta-Synthase Deficiency. National Organization for Rare Disorders. Retrieved 4/26/2017 from https://rarediseases.org/rare-diseases/homocystinuria-due-to-cystathionine-beta-synthase-deficiency/.
3. Picker JD, Levy HL. (2014) Homocystinuria Caused by Cystathionine Beta-Synthase Deficiency. [Updated Nov 13]. GeneReviews® [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2015. Available from: http://www.ncbi.nlm.nih.gov/books/NBK1524/.
4. Bernstein, L.E., Rohr, F., & Helm, J.R. (Eds.). (2015). Nutrition Management of Inherited Metabolic Disorders, Lessons from Metabolic University. New York: Springer International Publishing.
5. Boyer, S.W., Barclay, L.J., & Burrage, L.C. (2015). Inherited Metabolic Disorders: Aspects of Chronic Nutrition Management. Nutr Clin Pract. Aug; 30(4):502-10.
6. Camp, K.M., Lloyd-Puryear, M.A., & Huntington, K.L. (2012). Nutritional treatment for inborn errors of metabolism: indications, regulations, and availability of medical foods and dietary supplements using phenylketonuria as an example. Mol Genet Metab. September; 107(1-2): 3–9.
7. van Calcar, S. (2010). Chapter 7 Nutrition Management of patients with inherited disorders of sulfur amino acid metabolism. In PB Acosta (Eds.), Nutrition Management of Patients with Inherited Metabolic Disorders (pp. 237-267). Sudbury, Massachusetts: Jones and Bartlett Publishers.