



BlueCross BlueShield  
of Alabama

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**Name of Blue Advantage Policy:**  
**Inpatient Intestinal Rehabilitation Therapy**

Policy #: 152

Latest Review Date: December 2022

Category: Medical

**ARCHIVED EFFECTIVE 11/1/2023**

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**BACKGROUND:**

*Blue Advantage medical policy does not conflict with Local Coverage Determinations (LCDs), Local Medical Review Policies (LMRPs) or National Coverage Determinations (NCDs) or with coverage provisions in Medicare manuals, instructions or operational policy letters. In order to be covered by Blue Advantage the service shall be reasonable and necessary under Title XVIII of the Social Security Act, Section 1862(a)(1)(A). The service is considered reasonable and necessary if it is determined that the service is:*

- 1. Safe and effective;*
- 2. Not experimental or investigational\*;*
- 3. Appropriate, including duration and frequency that is considered appropriate for the service, in terms of whether it is:*
  - Furnished in accordance with accepted standards of medical practice for the diagnosis or treatment of the patient's condition or to improve the function of a malformed body member;*
  - Furnished in a setting appropriate to the patient's medical needs and condition;*
  - Ordered and furnished by qualified personnel;*
  - One that meets, but does not exceed, the patient's medical need; and*
  - At least as beneficial as an existing and available medically appropriate alternative.*

*\*Routine costs of qualifying clinical trial services with dates of service on or after September 19, 2000 which meet the requirements of the Clinical Trials NCD are considered reasonable and necessary by Medicare. Providers should bill **Original Medicare** for covered services that are related to **clinical trials** that meet Medicare requirements (Refer to Medicare National Coverage Determinations Manual, Chapter 1, Section 310 and Medicare Claims Processing Manual Chapter 32, Sections 69.0-69.11).*

## **POLICY:**

**Blue Advantage will treat an inpatient program of intestinal rehabilitation, consisting of metabolic evaluation, patient counseling and education, nutritional counseling, physical therapy, and treatment with growth hormone and glutamine as a non-covered benefit and as investigational for patients with short bowel syndrome who are dependent on total parenteral nutrition.**

*Blue Advantage does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Advantage administers benefits based on the members' contract and medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.*

## **DESCRIPTION OF PROCEDURE OR SERVICE:**

Short bowel syndrome (SBS) is a malabsorption syndrome that can occur after extensive small intestinal resection, significant damage to the small intestine, or poor motility. Individuals with SBS are not able to absorb enough vitamins, minerals, fats, calories, or other nutrients from food. It is characterized by chronic diarrhea, dehydration, electrolyte abnormalities, and malnutrition as a result of severe maldigestion and malabsorption. Common causes of SBS in adults include resection due to Crohn's disease, a catastrophic vascular event such as mesenteric arterial embolism or venous thrombosis, volvulus, trauma, or tumor. Most individuals are initially fed with total parenteral nutrition (TPN) to help prevent the development of malnutrition. Some individuals may be difficult to wean from TPN. This includes individuals with very short remaining small bowel segments (< 60 cm), loss of colon, loss of ileocecal valve, or small bowel strictures. This parenteral nutrition provides protein, calories, other macronutrients, and micronutrients until the bowel has had time to adapt.

After massive enterectomy, the intestine adapts to ensure more efficient absorption per unit length. There is slight lengthening, but also diameter and villus height increase, which increases the absorptive surface. This intestinal adaptation process continues for up to two years. The exact mechanisms are not known, but various factors have been shown to enhance adaptation, including growth hormone, glutamine, epidermal growth factor, certain peptides and interleukins, soluble fiber, short chain fatty acids, and pancreaticobiliary secretions. There has been a great deal of research interest in methods to increase intestinal adaptation as a nonsurgical alternative to intestinal transplantation. Specifically, the combination of the amino acid glutamine and human recombinant growth hormone (GH), in conjunction with a high carbohydrate, low fat diet, has been studied. Glutamine, administered either enterally or parenterally, and growth hormone, administered subcutaneously, is thought to have trophic effects on the bowel.

There are some inpatient programs specifically designed for individuals with short bowel syndrome who are dependent on TPN for their nutritional needs. The programs offer intensive

counseling and tailored regimens of diet modification, glutamine, and growth hormone therapy to these individuals. The goal of these programs is to help individuals either eliminate or reduce the need for total parenteral nutrition.

In 1993, the Nutritional Restart Center (NRC) for intestinal rehabilitation was started in Boston. In 2001, the NRC transferred its treatment methodologies to the Nebraska Medical Center in Omaha, NE. It offers individuals with intestinal failure comprehensive treatment options to help them transition from TPN to a more normal oral diet. They offer inpatient and outpatient services. The inpatient program lasts two to four weeks and the patient undergoes detailed metabolic evaluations to determine the feasibility of an oral diet, intestinal adaptation therapy with dietary modification (a high-carbohydrate, low-fat diet), glutamine and growth hormone, and a gradual weaning of TPN, if possible. Individuals also undergo extensive counseling and education and participate in a physical rehabilitation program. Each patient's treatment plan is individualized to meet their specific needs to improve bowel function. At completion of the program, individuals are discharged on only the diet and supplemental glutamine.

### **KEY POINTS:**

The early published data are almost exclusively derived from researchers working at the NRC near Boston. Most reports were small case series with overlapping individuals. The most recent update of this policy includes a literature review through December 2022.

### **Summary of Evidence**

The evidence for inpatient intestinal rehabilitation consists of several industry sponsored and small studies. Study results indicate that this type of treatment is controversial and long term results are needed to determine the effect on net health outcomes.

### **U.S. Preventive Services Task Force Recommendations**

Not applicable.

### **KEY WORDS:**

Intestinal rehabilitation, short bowel syndrome (SBS), growth hormone (GH), glutamine (GLN), high carbohydrate, low fat diet (HCLF), Zorbitive™

### **APPROVED BY GOVERNING BODIES:**

Zorbitive is a recombinant human growth hormone indicated for the treatment of short bowel syndrome in adult patients receiving specialized nutritional support.

### **BENEFIT APPLICATION:**

Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

## **CURRENT CODING:**

### **CPT Codes:**

There are currently no CPT codes for this service.

## **REFERENCES:**

1. Byrne TA, Wilmore DW, et al. Bowel rehabilitation: An alternative to long-term parenteral nutrition and intestinal transplantation for some patients with short bowel syndrome, Transplant Proceedings, May 2002; 34(3): 887-90.
2. Byrne TA, Wilmore DW, Iyer K, Dibaise J, et al. Growth hormone, glutamine, and an optimal diet reduces parenteral nutrition in patients with short bowel syndrome: A prospective, randomized, placebo-controlled, double-blind clinical trial. Ann Surg, November 2005; 242(5): 655-661.
3. FDA. Prescribing information for Zorbtive. Available at [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2017/020604s074lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2017/020604s074lbl.pdf).
4. Fishbein TM, et al. An integrated approach to intestinal failure: Results of a new program with total parenteral nutrition, bowel rehabilitation, and transplantation, Journal of Gastrointestinal Surgery, July 2002; 6(4): 554-62.
5. Guo M, Li Y, Li J. Effect of growth hormone, glutamine, and enteral nutrition on intestinal adaptation in patients with short bowel syndrome. Turk J Gastroenterol. 2013;24(6):463-8.
6. IOM (Institute of Medicine). 2011. Clinical Practice Guidelines We Can Trust. Washington, DC: The National Academies Press.
7. Lauro A, Lacaille F. Short bowel syndrome in children and adults: from rehabilitation to transplantation. Expert Rev Gastroenterol Hepatol. 2019 Jan;13(1):55-70.
8. Sawyer M, Sawyer E, et al. Short bowel syndrome, [www.emedicine.com/med/topic2746.htm](http://www.emedicine.com/med/topic2746.htm).
9. Scolapio, JS. Tales from the crypt, Gastroenterology, February 2003, Vol. 124, pp. 561-571.
10. Seguy D, et al. Low dose growth hormone in adult home parenteral nutrition-dependent short bowel syndrome patients: A positive study, Gastroenterology, February 2003; 124(2): 293-302.
11. U.S. Preventive Services Task Force. <https://www.uspreventiveservicestaskforce.org/BrowseRec/Search?s=short+bowel+syndrome>.
12. Vugrinec Mamić M, Hojsak I, Mišak Z, Kerman V, Kolaček S. Treatment in a Tertiary Intestinal Rehabilitation Center Improves Outcome for Children With Short Bowel Syndrome. Gastroenterol Nurs. 2019 Mar/Apr;42(2):165-168.
13. Wilmore DW. Indications for specific therapy in the rehabilitation of patients with the short-bowel syndrome, Best Practice and Research Clinical Gastroenterology, December 2003; 17(6): 895-906.
14. Wu GH, et al. Effects of bowel rehabilitation and combined trophic therapy on intestinal adaptation in short bowel patients, World Journal of Gastroenterology, November 2003; 9(11): 2601-4.

15. Zhu W, et al. Rehabilitation therapy for short bowel syndrome, Chinese Medical Journal, May 2002; 115(5): 776-8.

## **POLICY HISTORY:**

Adopted for Blue Advantage, March 2005

Available for comment May 1-June 14, 2005

Medical Policy Group, March 2006

Medical Policy Group, March 2008

Medical Policy Group, March 2010

Medical Policy Group, July 2019

Medical Policy Group, November 2020

Medical Policy Group, January 2022: Reviewed by consensus. No new published peer-reviewed literature available that would alter the coverage statement in this policy.

Medical Policy Group, December 2022: Reviewed by consensus. No new published peer-reviewed literature available that would alter the coverage statement in this policy.

Medical Policy Group, November 2023: Archived effective 11/1/2023.

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*This medical policy is not an authorization, certification, explanation of benefits, or a contract. Eligibility and benefits are determined on a case-by-case basis according to the terms of the member's plan in effect as of the date services are rendered. All medical policies are based on (i) research of current medical literature and (ii) review of common medical practices in the treatment and diagnosis of disease as of the date hereof. Physicians and other providers are solely responsible for all aspects of medical care and treatment, including the type, quality, and levels of care and treatment.*

*This policy is intended to be used for adjudication of claims (including pre-admission certification, pre-determinations, and pre-procedure review) in Blue Cross and Blue Shield's administration of plan contracts.*