



## **Patient Referral Guidelines**

### **Intestinal and Multi-Visceral Transplantation**

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### **Criteria**

#### **For Medicare Members**

<b>Source</b>	<b>Policy</b>
CMS Coverage Manuals	None
National Coverage Determinations (NCD)	<a href="#">Intestinal and Multi-Visceral Transplantation (260.5)</a>
Local Coverage Determinations (LCD)	None
Local Coverage Article	None

#### **For Non-Medicare Members**

Transplantation may be considered for patients with end-stage or life-threatening disease who have no prospect for prolonged survival, or whose quality of life is severely impaired. These guidelines for referral for transplant evaluation are not intended as an automatic inclusion or exclusion of a candidate for referral.

Intestinal Transplantation alone may be considered for selected pediatric and adult patients with Short Bowel Syndrome and/or intestinal failure who require chronic Total Parenteral Nutrition (TPN) and have severe complications that lead to serious morbidity and could lead to mortality.

Combined Intestinal/Liver Transplantation may be considered in selected pediatric and adult patients with Short Bowel syndrome and irreversible progressive chronic liver disease when there is no prospect for prolonged survival with conventional therapy.

The following are current, generally accepted, guidelines for Intestinal Transplantation.

#### **1. GENERAL PRINCIPLES**

- 1.1. If clinical parameters of end-stage or life-threatening disease indicate the need for transplantation, then early referral should be made.
- 1.2. Patients with a history of malignancy with a moderate to high risk of recurrence (as determined after consultation with oncologist considering tumor type, response to therapy, and presence or absence of metastatic disease) may be unsuitable candidates for transplantation. Patients with low risk of recurrence may be considered.
- 1.3. Uncontrollable active infection is a contraindication to transplant.
- 1.4. Candidates with a history of substance abuse must be free from alcohol and other substance abuse for six (6) months and have been evaluated by a substance abuse program. The risk of recidivism, which has been documented to negatively impact transplant outcomes, must be addressed and considered to be low<sup>1,2,3</sup>. Exceptions may be made on a case-by-case basis.
- 1.5. Candidates for thoracic organ (heart, lung and heart/lung) transplants must be free from tobacco use for the previous six (6) months. Routine monitoring may be required. Specific programs for abdominal organs (liver, intestines, and kidney) may require abstinence from tobacco products in order to be actively listed.
- 1.6. Candidates must have adequate social support systems and display a proven record of adherence to medical treatment.

- 1.7. Patients must be willing and able to travel within short notice to a KP approved transplant Center of Excellence and, if necessary, return for treatment of complications.
- 1.8. Patient must have a caregiver or caregivers who are physically and cognitively able to assist the patient with self-care activities and are available to travel within short notice to the KP approved transplant Center of Excellence.
- 1.9. The presence of significant irreversible neurologic dysfunction, active psychological and/or psychiatric conditions, and/or other social behaviors that prevent adherence with a complex medical regimen, are considered contraindications for referral for transplant.
- 1.10. Evidence of such nonadherence may be: failure to keep appointments, failure to make steady progress in completing pre-transplant evaluation requirements, failure to accurately follow medication regimens or failure to accomplish the activities required.
- 1.11. Whenever transplant is considered as an option and discussed with the patient and/or family, consultation with Advanced Life Care Planning/Palliative Care resources is strongly recommended.

## **2. INDICATIONS FOR INTESTINAL TRANSPLANT**

### **2.1. Intestinal Transplant**

- 2.1.1. Pediatric or adult patients with irreversible Short Bowel Syndrome or intestinal failure<sup>4</sup>, who have severe complications of TPN, including, but not limited to the following:
  - 2.1.1.1. Lack of vascular access
  - 2.1.1.2. Recurrent central venous catheter-related infections
  - 2.1.1.3. Metallic bone disease
  - 2.1.1.4. Evidence of severe or progressive hepatic dysfunction

### **2.2. Combined intestinal-liver transplant.**

- 2.2.1. Adult and pediatric patients with Short Bowel Syndrome and/or intestinal failure and irreversible progressive chronic liver disease.

## **3. CONTRAINDICATIONS FOR INTESTINAL TRANSPLANT**

- 3.1. Advanced cardiopulmonary disease or any other life limiting disorders, excluding hepatopulmonary syndrome.
- 3.2. Inability to accept the procedure, understand its nature, or cooperate with the treatment protocol.
- 3.3. Patients with HCC, who exceed Region 5<sup>5</sup>/UCSF<sup>4</sup> criteria, should not be sent for intestinal transplant evaluation at this time because they are not medically appropriate. Exceptions may be made on a case by case basis for hepatoblastoma.<sup>5</sup>
- 3.4. Irreversible brain damage or significant neurologic dysfunction.

## **4. RELATIVE CONTRAINDICATIONS FOR INTESTINAL TRANSPLANT**

- 4.1. Relative contraindications include, but not necessarily limited to:
  - 4.1.1. Renal Failure (excluding hepatorenal syndrome)
  - 4.1.2. Portal Vein thrombosis
  - 4.1.3. Active infection outside the hepatobiliary system
  - 4.1.4. Advanced malnutrition
  - 4.1.5. Severe diabetic complications
  - 4.1.6. Multiple abdominal surgeries

### **Footnotes:**

1. Liver Transplantation 2006, .12:813-820. Alcohol consumption patterns and predictors of use following liver transplantation for alcoholic liver disease.
2. Liver Transplant Surg, 1997, Vol 3, 304 – 310. The natural history of alcoholism and its relationship to liver transplantation.
3. Alcohol abstinence prior to liver transplantation for Alcoholic Liver Disease (G110807), TPMG New Medical Technology

4. May be due, but not necessarily limited, to the following examples:

- a. Volvulus
- b. Atresia
- c. Necrotizing Enterocolitis
- d. Crohn's Disease
- e. Gastroschisis
- f. Superior Mesenteric Artery Thrombosis
- g. Trauma

5. The Region 5 criteria for intestinal patients with HCC is 1 tumor: S5 cm or 2 – 3 lesions, none >3 cm and no vascular invasion. NEJM 1996, 334: 633-699. Pediatr Surg Int. 2016 Oct 11., J Pediatr Surg. 2007 Jan;42(1):184-7., Pediatr Transplant. 2016 Jun;20(4):515-22. doi: 10.1111/petr.12699. Epub 2016 Mar 27.

REVISED BY CLINICAL MANAGEMENT SUBCOMMITTEE: SEPTEMBER 23, 2020

ADVISORY COUNCIL APPROVED AND EFFECTIVE DATE: OCTOBER 22, 2020

**If requesting this service, please send the following documentation to support medical necessity:**

- Last 6 months of clinical notes from requesting provider &/or specialist.

The following information was used in the development of this document and is provided as background only. It is provided for historical purposes and does not necessarily reflect the most current published literature. When significant new articles are published that impact treatment option, Kaiser Permanente will review as needed. This information is not to be used as coverage criteria. Please only refer to the criteria listed above for coverage determinations.

## Background

Intestinal transplantation is an evolving procedure that was experimentally developed more than 30 years ago. It involves transplantation of a cadaveric intestinal allograft for the purpose of restoring bowel function for patients with irreversible failure. The intestine's massive lymphocyte content and heavy bacterial load provided barriers for nearly three decades. Intestines are more susceptible to rejection and carry higher risk of graft versus host disease (GVHD). The procedure proved to be clinically feasible for humans in the late 1980s but had considerable morbidity and mortality. The initial recipients of the intestinal grafts did poorly because of technical complications, graft rejection and sepsis. Recently better results were reported due to improved surgical techniques, more potent immunosuppressive drugs, and standard prophylaxis for infections and lymphoproliferative disease. Although the purpose of intestinal transplantation is to restore bowel function, patient survival should be considered the primary outcome of interest.

The first long-term success was reported in 1988 when cyclosporin-based immunosuppression was used, yet there were many failures due to rejection. The introduction of FK 506 or Tacrolimus have led to an explosion of the intestinal transplantation activity in the 1990s. It is 100 times more potent than cyclosporin and is somewhat less toxic. Steroids are administered during the early postoperative period and discontinued completely within a month. Since 1990 surgeons at the University of Pittsburgh Medical Center (UPMC) and Children's Hospital of Pittsburgh have performed more than 115 transplants involving the small intestine. This is close to half the total number performed worldwide.

There are three types for intestinal transplantation: small bowel transplantation (SBT), Small bowel/liver transplantation (SB/LT), and multivisceral transplantation (MVT) which is defined as en-bloc transplantation of 3 or more abdominal organs that include liver, stomach, pancreatic-duodenal complexes as well as the intestine with or without the right hemi-colon. Intestinal transplantation is not an alternative to total parenteral nutrition (TPN) but is only intended for selected patients who are predicted to have poor survival on TPN. It should be considered as a life-saving procedure. Patients who can be maintained on long term TPN are not considered for transplantation at the present time.

An isolated intestinal graft is recommended for patients who have fluid and electrolyte loss that cannot be managed by TPN, those with severely limited venous access and/or moderate liver dysfunction secondary to TPN. Combined SB/LT is offered to patients with irreversible liver failure due to TPN, or intestinal/liver failure associated with a hyper-coagulable state that is corrected by a simultaneous liver graft. Multivisceral

transplantation is offered to patients with locally aggressive tumors that can only be removed by a massive evisceration of the abdominal organs. Intestinal transplantation is contraindicated in old age, cardiopulmonary deficiency, AIDS, systemic malignancy and life-threatening infections.

The FDA does not regulate surgical procedures such as intestinal and multivisceral transplantation. However, immunosuppressive drugs are FDA regulated. Tacrolimus, the primary immuno-suppressant used with these transplants was approved by the FDA in April 1994 for rejection prophylaxis in allogenic liver transplantation.

## Medical Technology Assessment Committee (MTAC)

### Intestinal Transplantation

#### 04/10/2002: MTAC REVIEW

**Evidence Conclusion:** The literature reviewed did not reveal any study that compared intestinal transplantation to the long term TPN therapy, and the evidence available does not allow for definitive conclusions. The studies reviewed show that the one- year survival rate of intestinal transplantation varied among studies from 54% to 75%. This dropped to around 42-50% at 5 years. Infection was responsible for more than 40% of the deaths. All studies were case series with limitations including potential selection bias, and lack of control or comparison group. However, it is unlikely that controlled trials, in which outcomes from intestinal/multivisceral transplantation are compared to TPN and medical management, would be conducted. The current use of intestinal transplantation as a rescue therapy for TPN-dependent patients invalidates any comparison with TPN.

**Articles:** Articles were selected based on study type. The search yielded 175 articles most of which were reviews, opinion pieces, editorials, and letters. The literature did not reveal any randomized controlled trials, or meta-analyses, only clinical reports and case series. The articles with the largest size, longest follow-up duration, and with patient survival as the primary outcome of interest were selected for critical appraisal. *Evidence tables were created for the following case series:* Abu-Elmagd K, et al. Clinical intestinal transplantation. *Annals of Surgery* 2001;234(3):404-17. See [Evidence Table](#) Jamieson NV. Adult small intestine transplantation in Europe. *Acta Gastro- Enterologica Belgica* 1999;62(2):239-43. See [Evidence Table](#) Madariaga JR, et al. The long-term efficacy of multivisceral transplantation. *Transplantation proceedings* 2000; 32:1219-20. See [Evidence Table](#).

The use of Intestinal Transplantation in the treatment of irreversible intestinal failure does not meet the *Kaiser Permanente Medical Technology Assessment Criteria*.

## Applicable Codes

**Considered Medically Necessary when criteria in the applicable policy statements listed above are met:**

CPT® Codes	Description
44135	Intestinal allotransplantation; from cadaver donor
44136	Intestinal allotransplantation; from living donor
44137	Removal of transplanted intestinal allograft, complete

**\*Note:** Codes may not be all-inclusive. Deleted codes and codes not in effect at the time of service may not be covered.

**\*\*To verify authorization requirements for a specific code by plan type, please use the [Pre-authorization Code Check](#).**

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Date Created	Date Reviewed	Date Last Revised
05/30/2001	04/06/2010 <sup>MDCRPC</sup> , 02/10/2011 <sup>MDCRPC</sup> , 12/06/2011 <sup>MDCRPC</sup> , 10/02/2012 <sup>MDCRPC</sup> , 08/06/2013 <sup>MPC</sup> , 06/03/2014 <sup>MPC</sup> , 04/07/2015 <sup>MPC</sup> , 02/02/2016 <sup>MPC</sup> , 12/06/2016 <sup>MPC</sup> , 10/03/2017 <sup>MPC</sup> , 08/07/2018 <sup>MPC</sup> , 08/06/2019 <sup>MPC</sup> , 08/04/2020 <sup>MPC</sup> , 08/03/2021 <sup>MPC</sup> , 08/02/2022 <sup>MPC</sup> , 08/01/2023 <sup>MPC</sup>	06/12/2020

<sup>MDCRPC</sup> Medical Director Clinical Review and Policy Committee

<sup>MPC</sup> Medical Policy Committee

Revision	Description
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<b>History</b>	
04/07/2020	MPC approved to adopt Kaiser Permanente National coverage policy
06/12/2020	Added "Patient Referral Guidelines" to title