



Medical Coverage Policy

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Kidney Transplantation, Pancreas-Kidney Transplantation, and Pancreas Transplantation Alone

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INSTRUCTIONS FOR USE

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Overview

This Coverage Policy (CP) addresses kidney transplantation, pancreas-kidney transplantation, and pancreas transplantation alone. See CP 0355 for liver-kidney transplantation.

Coverage Policy

Kidney Transplantation

Kidney transplantation is considered medically necessary when ANY of the following criteria are met:

- adults (i.e., >18 years of age) measured or calculated creatinine clearance or glomerular filtration rate (GFR) less than or equal to 20 mL/min/1.73m².

- pediatric (i.e., ≤18 years of age) stage 4 chronic kidney disease (estimated GFR <30 mL/min per 1.73m²)
- end-stage renal disease (ESRD) on regularly administered dialysis

Simultaneous Pancreas-Kidney (SPK) Transplantation

Simultaneous pancreas-kidney (SPK) transplantation is considered medically necessary when BOTH of the following criteria are met:

- medical necessity for kidney transplantation is met, and
- EITHER of the following indications:
 - diabetes mellitus (if individual is at least 18 years old must be on insulin)
 - pancreatic exocrine insufficiency

Pancreas Transplantation Alone (PTA)

Pancreas transplantation is considered medically necessary for an individual who meets ONE of the following criteria:

- diabetes mellitus (if individual is at least 18 years old must be on insulin)
- pancreatic exocrine insufficiency
- requires the procurement or transplantation of a pancreas as part of a multiple organ transplant for technical reasons

Pancreas-After-Kidney (PAK) Transplantation

Pancreas-after-kidney transplantation (PAK) is considered medically necessary when pancreas transplantation criteria are met.

Not Covered

Kidney, pancreas, or pancreas-kidney transplantation for an individual with ANY of the following contraindications to transplant surgery is considered not medically necessary:

- malignancy that is expected to significantly limit future survival
- persistent, recurrent or unsuccessfully treated major or systemic extra-renal infections
- systemic illness or comorbidities that would be expected to substantially negatively impact the successful completion and/or outcome of transplant surgery
- a pattern of demonstrated patient noncompliance which would place a transplanted organ at serious risk of failure
- human immunodeficiency virus (HIV) disease unless ALL of the following are noted:
 - CD4 count greater than 200 cells/mm³
 - HIV-1 ribonucleic acid (RNA) undetectable
 - Stable anti-retroviral therapy for more than three months
 - Absence of serious complications associated with HIV disease (e.g., opportunistic infection, including aspergillus, tuberculosis, coccidioidomycosis, or resistant fungal infections; or Kaposi's sarcoma or other neoplasm)

The following are considered experimental, investigational or unproven:

- living donor pancreas transplantation (i.e., partial pancreas transplantation, segmental pancreas transplantation)
- bioartificial pancreas device

An organ transport system (e.g. Paragonix SherpaPak™) for use with kidneys and/or pancreas transplantation is considered experimental, investigational or unproven for ANY indication.

General Background

Kidney Transplantation

End-stage renal disease (ESRD) occurs when the kidneys are no longer able to function at a level that is necessary for day-to-day life. ESRD almost always follows chronic kidney failure, which may exist for 10–20 years or more before progression to ESRD. Glomerular filtration rate (GFR) is considered the best measure of kidney function. While the lower limit of normal GFR varies with age, a GFR level below 60 mL per minute per 1.73m² represents loss of one half or more of the adult level of normal kidney function. A GFR of <30 mL/min/1.73 m² is considered to be abnormal in all ages other than neonates.

Kidney failure, (i.e., chronic kidney disease [CKD] stage 5) is defined as either a GFR below 15 mL per minute per 1.73 m² which, in most cases is accompanied by signs and symptoms of uremia, or a need to start kidney replacement therapy (i.e., dialysis or transplantation) for the treatment of complications of decreased GFR (Johnson, et al. 2004; Levey, et al. 2003). Patients with advanced CKD (Kidney Disease Outcomes Quality Initiative [K/DOQI™] CKD Stages 4 and 5) have a high propensity for progression to ESRD in a relatively short period of time with well-known multiple comorbid conditions and poor outcomes.

Kidney transplantation is the grafting of a kidney from either a living or deceased (i.e., cadaver) donor. Both pediatric and adult kidney transplant recipients have increased survival compared to patients who remain on dialysis. Kidney transplantation should be timed to occur as close as possible to when the recipient would be expected to require dialysis; however, transplantation should be delayed in patients who may regain kidney function (e.g., malignant hypertension, severe, acute tubular necrosis). Transplantation performed prior to the need for dialysis is called preemptive transplantation. It confers a survival advantage to the recipient and is more common for recipients of living-donor kidneys. Preemptive kidney transplant has been shown to provide better outcomes compared to transplant after any period of time on dialysis; however, because of the shortage of donors, preemptive transplantation may not be possible. Kidney transplantation is an accepted and successful treatment for many individuals with ESRD. The transplant evaluation should begin when it is clear that the patient is destined to develop ESRD. In the event of subsequent renal graft failure, retransplantation is often performed.

Calculation of glomerular filtration rate (GFR): The Modification of Diet in Renal Disease (MDRD) Study equation and the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation are commonly used for estimating GFR in patients age 18 and over. Both the MDRD Study and CKD-EPI equations include variables for age, gender, and race.

The National Kidney Foundation (NKF) and American Society of Nephrology (ASN) established a task force in 2020 to reassess the inclusion of race in the estimation of GFR in the United States. The Task Force Interim report (Delgado, et al., 2021) states that the use of race to estimate GFR (eGFR) has shortcomings that the task force is currently examining. The Task Force findings may have implications for diagnosis and subsequent management of patients with or at risk for kidney diseases, including kidney transplant.

A prospective cohort study used National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) public repository data for the Chronic Renal Insufficiency Cohort (CRIC) multicenter study (Zelnick, et al., 2021). For the present analysis, Zelnick et al. included the 1658 participants with chronic kidney disease (CKD) who self-identified as Black. Results demonstrated that inclusion of the race coefficient in the estimation of GFR was associated with greater bias in GFR estimation. Specifically, over a median follow-up time of 4 years, use of the race coefficient in the creatinine-based CKD-EPI equation was associated with an eGFR that was a mean of 4.8 mL/min/1.73m² higher than when no race coefficient was used. Not using the race coefficient to estimate GFR (vs the standard race-based calculation) was also associated with a 35% higher risk of achieving the transplant referral threshold of an eGFR less than 20 mL/min/1.73m², with a decrease in median time to achievement of an eGFR less than 20 ml/min/1.73m² of 1.9 years. The authors concluded that the biases in race-based GFR

estimates, while numerically modest, may be associated with delays in potential preemptive transplant referral and eligibility among Black patients with CKD.

Living donor: An integral part of the nation's organ donation system is the living donor. Living donors can be related or unrelated to the recipient. Living kidney donation eliminates the recipient's need for waiting time on a national waiting list, are often more successful, and can add psychological benefits to both donor and recipient. Nonetheless, the benefit to the recipient of a live-donor organ must outweigh the risks to the donor. In the absence of a living donor, many transplanted kidneys come from deceased (i.e., cadaver) organ donors.

Retransplantation

In general, retransplantation is considered by some to be a controversial procedure, in part due to ethical concerns over the limited supply of organs. A wide range of donor, recipient and other transplant-related factors can influence graft survival. In the event of renal graft failure, renal replacement therapy consists of either dialysis or retransplantation. Although allograft survival is considered good, it is considerably less compared to the primary transplant. Candidates awaiting kidney retransplant are often allosensitized and may be less likely to receive a transplant than primary candidates. As a result, some transplant centers have developed ongoing efforts involving desensitization protocols to prevent antibody-mediated acute rejection. Although desensitization protocols may be considered for deceased donor kidney, protocols are generally attempted with living donation so that antibody response against donor tissue can be monitored; patients proceed to transplant surgery only if antibody levels are low. Authors contend that desensitizing highly sensitive patients improves clinical outcomes (short-term patient and graft survival) however acute antibody-mediated rejection is a barrier in 20-30% of patients and there is no consensus regarding which protocol is ideal.

Pancreas Transplantation

The standard treatment for control of blood sugar levels in type 1 diabetes mellitus (DM) is the use of exogenous insulin; however, this does not entirely restore normal glucose metabolism. Most people who are newly diagnosed with type 2 diabetes are usually treated with a combination of diet, exercise, and an oral medication. Some oral medications (e.g., metformin) improve the body's response to insulin. Other medications cause the body to produce more insulin. Some people will need to add insulin or another injectable medication because their blood sugar levels are not controlled. Using a combination of treatments (oral medication plus insulin) generally means that the person can take a lower dose of insulin, compared with if insulin treatment is used alone.

Pancreas transplantation has been demonstrated to improve the quality of life of people with diabetes, primarily by eliminating acute complications. Pancreas transplantation eliminates the need for exogenous insulin, daily glucose monitoring and many dietary restrictions imposed by diabetes. Additional benefits of pancreas transplantation include the elimination of life-threatening risks of hypoglycemic unawareness and prevention and reversal of diabetic nephropathy. Pancreas transplantation may be performed:

- alone (i.e., Pancreas Transplantation Alone [PTA]), or
- simultaneously with kidney transplants (i.e., Simultaneous Pancreas-Kidney [SPK]) or
- after a kidney transplant (i.e., Pancreas After Kidney [PAK])

SPK is by far the most common pancreas transplant type. According to the Scientific Registry of Transplant Recipients (SRTR) data (United States), in 2014, 77% of pancreas transplants were SPKs, while PAK and PTA accounted for 13.6% and 9% of the transplants performed, respectively (Giorgakis, et al., 2018).

Evidence in the scientific published literature supports pancreas transplantation as an appropriate therapeutic intervention for individuals with diabetes on insulin or who have pancreatic exocrine insufficiency who require or have previously had a kidney transplant. Pancreas transplantation is a well-established and accepted method of treatment for these individuals, particularly the type 1 diabetic. More recently, pancreas transplant has become an accepted method of treatment for type 2 diabetics, with both short-term and long-term outcomes commensurate with type 1 diabetes patients (Gruessner, et al., 2017; Redfield, et al., 2015; Weems, et al., 2014; Margreiter, et al., 2013, Light, et al., 2013; Wiseman, et al., 2012; Sampaio, et al., 2011; Chakkerla, et al., 2010). Gruessner et al. (2017) reported patient, pancreas, and kidney graft survival rates increased significantly over

time and reached 95.8, 83.3, and 91.1%, respectively, at 3 years post-transplant for transplants performed between 2009 and 2015.

Living Donor Pancreas Transplantation: Both the American Diabetes Association and UNOS recognize and provide information regarding living donor pancreas transplantation. Living donor pancreas transplantation has been performed in a few centers, including those outside the United States; however it is not considered widespread in clinical practice. In many cases, the living pancreas donor is a relative of the recipient. In the United States living donor pancreas transplantation has been largely studied at one center, the University of Minnesota. Between January 1, 1994 to May 1, 2013, a total of 46 living-donor segmental pancreas transplants (LDSPTx) including 40 SPK, 2 PAK, and 4 PA were performed at the University of Minnesota (Kirchner, et al., 2016). Kirchner et al. stated that the rate of LDSPTx has significantly decreased over the last few years (on intent) in order to assess donor outcomes and safety prior to actively continuing the living donor (LD) pancreas program. The new onset of diabetes mellitus (DM) requiring oral hypoglycemic management was diagnosed in 7 (15%) donors and insulin-dependent DM in 5 (11%). LD pancreas transplantation (especially SPK) should be offered in carefully selected donor-recipient pairs if metabolic risks for the donor are minimized by careful pre-donation screening and meticulous post-donation follow-up with interventions to prevent significant weight gain. Kirchner et al. concluded that LDSPTx can be performed with good recipient outcomes. The donation is associated with donor morbidity including impaired glucose control. Donor morbidity can be minimized by using risk stratification model and pre-donation counseling on life style modifications post-donation (Kirchner, et al., 2016).

The evidence for living donor pancreas transplantation is limited and primarily in the form of few retrospective reports and patient-registry data (Henderson, et al., 2018; Lam, et al., 2017; Kirchner, et al., 2016; Choi, et al., 2016; Sutherland, et al., 2012). Donor and recipient selection criteria for living donor pancreas transplantation have not been clearly defined in the medical literature. Long-term clinical outcomes for the donor and recipient have not been reported. In the short-term, there is limited evidence supporting normalizing insulin production for selected recipients but concerns remain regarding negative metabolic impact to donors.

Note: For islet cell transplantation, see Coverage Policy 0107 Pancreatic Islet Cell Transplantation.

Retransplantation: For all three types of pancreas transplants, survival rates for a second transplant are lower than for the primary transplant, although an elective retransplant may be considered suitable for a select group of patients. The medical literature suggests in some patients, a retransplant could improve health outcomes after graft loss, although there is insufficient data regarding health outcomes associated with third and subsequent pancreas transplants to allow strong conclusions.

Bioartificial Pancreas

Bioartificial pancreas devices are currently being investigated by some authors. In theory, the technology involves transplanting healthy islet cells (pancreatic cells that release insulin) into a subject with diabetes; current studies consist mainly of animal trials. Islet cell sources include human or allogeneic cells, porcine or xenographic cells, and engineered cells. The islet cells are encapsulated with a semipermeable membrane, such as hydrogel or polymer, and are then placed in the body. Authors contend the bioartificial pancreas device acts a substitute for the endocrine portion of the pancreas, avoiding obstacles in islet cell transplantation which include limited supply and immunosuppressive drug therapy. The optimal site for implantation has not been clearly defined, although the intended use is for implantation into a vascular site or the peritoneal cavity.

Contraindications to Kidney Transplantation, Pancreas-Kidney Transplantation, and Pancreas Transplant Alone

Many factors affect the outcome of a solid organ transplant. A fairly rigid selection process is required in order to obtain the best result for each patient. In addition to the absolute contraindications noted in the Coverage Policy above, relative contraindications to pancreas or pancreas-kidney transplantation include, but are not limited to, the following:

- active substance abuse within the last six months, including tobacco, alcohol and narcotic/other addictive pain medications
- potential complications from immunosuppressive medications that are unacceptable to the patient

- cerebrovascular disease or accident or progressive neuropathy or myopathy that is not amenable to rehabilitation
- body mass index (BMI) less than 17 or greater than 33
- any active medical process that is currently not optimally treated and/or stable and that is likely to result in end-organ damage or medical emergency without appropriate management, such as active peptic ulcer disease, diverticular disease, active hepatitis, cholecystitis, pancreatitis, hypertension, autoimmune disease or cytopenia
- untreated osteoporosis with a T-score greater than 2.5 standard deviations (SD) from mean or Z-score greater than two SD from mean
- hepatic fibrosis or cirrhosis
- hepatitis C with biopsy-proven, histologic evidence of hepatic disease
- uncorrected abdominal aortic aneurysm greater than four centimeters
- advanced age
- peripheral vascular disease not amenable to surgical or percutaneous therapy as evidenced by:
 - asymptomatic stenosis greater than 75% or symptomatic carotid stenosis of less severity
 - ankle brachial index less than 0.7 or substantial risk of limb loss with diminished perfusion
- systemic infection making immune response risky, including human immunodeficiency virus (HIV), hepatitis B virus (HBV) in the recipient or cytomegalovirus (CMV) in the donor

Additionally, there are other conditions that may affect the outcome of kidney transplantation, pancreas-kidney transplantation and pancreas alone transplantation and require further investigation to ensure the best chance for successful transplantation:

- history of recurrent infection or bladder dysfunction indicates the need for a urological evaluation
- potential for renal malignancy should be screened by use of magnetic resonance imaging (MRI), computed tomography (CT) or renal ultrasound
- reflux nephropathy, history of recurrent infections, nephrolithiasis, heavy proteinuria, hypertension resistant to therapy, or enlarged or symptomatic polycystic kidneys should be evaluated for potential nephrectomy

For pancreas-kidney transplantation further investigation for the following should occur to ensure the best chance for successful pancreas-kidney transplantation:

- autosomal dominant polycystic kidney disease (ADPKD): high-resolution CT or MRI to evaluate for intracranial aneurysms

Professional Societies/Organizations

In 1984 the National Organ Transplantation Act directed the Secretary of HHS to 'establish by contract the Organ Procurement and Transplantation Network (OPTN) which shall be a private, non-profit entity that has an expertise in organ procurement and transplantation'. The United Network for Organ Sharing (UNOS) is the current OPTN Contractor. OPTN policies are updated annually and are rules that govern operation of all member transplant hospitals, organ procurement organizations (OPOs) and histocompatibility labs in the U.S. Policies are made through a collaborative process involving committees, the board of directors and the public.

The UNOS/OPTN Policies have established waiting time criteria for Kidney Transplantation depending on the age of the transplant candidate.

8.4.A Waiting Time for Candidates Registered at Age 18 Years or Older

If a kidney candidate is 18 years or older on the date the candidate is registered for a kidney, then the candidate's waiting time is based on the earliest of the following:

1. The candidate's registration date with a measured or calculated creatinine clearance or glomerular filtration rate (GFR) less than or equal to 20 mL/min.
2. The date after registration that a candidate's measured or calculated creatinine clearance or GFR becomes less than or equal to 20 mL/min.

3. The date that the candidate began regularly administered dialysis as an End Stage Renal Disease (ESRD) patient in a hospital based, independent non-hospital based, or home setting.

8.4.B Waiting Time for Candidates Registered prior to Age 18

If a kidney candidate is less than 18 years old at the time of registration on the waiting list, then the candidate's waiting time is based on the earlier of the following:

1. The date that the candidate registered on the waiting list regardless of clinical criteria.
2. The date that the candidate began regularly administered dialysis as an ESRD patient in a hospital based, independent non-hospital based, or home setting.

The UNOS/OPTN Policies for Pancreas Transplant includes the following:

11.3 A Pancreas Registration

Each candidate registered on the pancreas waiting list must meet ONE of the following requirements:

- Be diagnosed with diabetes
- Have pancreatic exocrine insufficiency
- Require the procurement or transplantation of a pancreas as part of a multiple organ transplant for technical reasons

11.3 B Combined Kidney-Pancreas Registration (i.e., Simultaneous Pancreas-Kidney [SPK])

Each candidate registered on the kidney-pancreas waiting list must

- be diagnosed with diabetes, or
- have pancreatic exocrine insufficiency with renal insufficiency.

11.4 A Kidney-Pancreas Waiting Time Criteria for Candidates Less than 18 Years Old

To accrue waiting time for a kidney-pancreas transplant, a kidney-pancreas candidate who is less than 18 years old at the time of kidney-pancreas registration does not have to meet the qualifying criteria according to Policy 11.4 B below.

11.4 B Kidney-Pancreas Waiting Time Criteria for Candidates At Least 18 Years Old

If a kidney-pancreas candidate is 18 years or older on the date the candidate is registered for a kidney-pancreas, then the candidate begins to accrue waiting time once the candidate has met ALL of the following conditions:

- candidate is registered for a kidney-pancreas.
- candidate qualifies for kidney waiting time according to Policy 8.4: Waiting Time.
- candidate is on insulin.

American Diabetes Association (ADA): The ADA 2006 Position Statement on Pancreas and islet transplantation in Type 1 Diabetes states "Pancreas transplantation should be considered an acceptable therapeutic alternative to continued insulin therapy in diabetic patients with imminent or established end-stage renal disease who have had or plan to have a kidney transplant, because the successful addition of a pancreas does not jeopardize patient survival, may improve kidney survival, and will restore normal glycemia. Such patients also must meet the medical indications and criteria for kidney transplantation and not have excessive surgical risk for the dual transplant procedure" (Robertson, et al., 2006).

The American Board of Internal Medicine's (ABIM) Foundation Choosing Wisely® Initiative: No relevant information found.

Organ Transport Systems

Paragonix SherpaPak™ Kidney Transport System is single-use, disposable cold storage device intended to standardize and control donor kidney preservation and transport. The Paragonix (Providence, RI) SherpaPak™ Kidney Transport System received 510k FDA-approval on March 30, 2018. It is intended to be used for the static hypothermic preservation of kidney organs during transportation and eventual transplantation into a recipient.

Paragonix SherpaPak™ Pancreas Transport System is intended to be used for the static hypothermic preservation of pancreas organs during transportation and eventual transplantation into a recipient. The Paragonix (Providence, RI) SherpaPak™ Kidney Transport System received 510k FDA-approval on December 20, 2019.

XVIVO (Sweden) has submitted a 510(k) file with the US FDA for Kidney Assist Transport, a transportable organ preservation system designed for kidneys. This device is not FDA-approved at this time.

There is a lack of evidence in the peer-reviewed scientific literature addressing SherpaPak™ Transport Systems for kidney or pancreas transplantation.

Use Outside of the US

The NHS Organ Donor Register is the equivalent to the US' UNOS. In Japan, an Organ Transplant Law took effect in October 1997 and the Japan Organ Transplant Network (JOTNW) was established to deal with heart and liver transplants in addition to kidneys. The Canadian Organ Replacement Register (CORR) is a pan-Canadian information system and is responsible for maintaining a list of contact information for dialysis, transplant and organ procurement centers across Canada as well as producing in-depth reports and analyses on long-term trends on organ transplants. The Australia and New Zealand Organ Donation (ANZOD) Registry records and reports on organ donation within Australia and New Zealand.

Medicare Coverage Determinations

	Contractor	Determination Name/Number	Revision Effective Date
NCD	National	NCD for Pancreas Transplants (260.3)	2006
NCD		No National Coverage Determination found for Kidney.	
LCD		No Local Coverage Determination found.	

Note: Please review the current Medicare Policy for the most up-to-date information.

Coding/Billing Information

- Note:** 1) This list of codes may not be all-inclusive.
 2) Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement.

Kidney Transplantation

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

CPT®* Codes	Description
50300	Donor nephrectomy (including cold preservation); from cadaver donor, unilateral or bilateral
50320	Donor nephrectomy (including cold preservation); open, from living donor
50323	Backbench standard preparation of cadaver donor renal allograft prior to transplantation, including dissection and removal of perinephric fat, diaphragmatic and retroperitoneal attachments, excision of adrenal gland, and preparation of ureter(s), renal vein(s), and renal artery(s), ligating branches, as necessary
50325	Backbench standard preparation of living donor renal allograft (open or laparoscopic) prior to transplantation, including dissection and removal of perinephric fat and preparation of ureter(s), renal vein(s), and renal artery(s), ligating branches, as necessary
50327	Backbench reconstruction of cadaver or living donor renal allograft prior to transplantation; venous anastomosis, each

CPT®* Codes	Description
50328	Backbench reconstruction of cadaver or living donor renal allograft prior to transplantation; arterial anastomosis, each
50329	Backbench reconstruction of cadaver or living donor renal allograft prior to transplantation; ureteral anastomosis, each
50340	Recipient nephrectomy (separate procedure)
50360	Renal allotransplantation, implantation of graft; without recipient nephrectomy
50365	Renal allotransplantation, implantation of graft; with recipient nephrectomy
50370	Removal of transplanted renal allograft
50547	Laparoscopy, surgical; donor nephrectomy (including cold preservation), from living donor

HCPCS Codes	Description
S2152	Solid organ(s), complete or segmental, single organ or combination of organs; deceased or living donor(s), procurement, transplantation, and related complications; including: drugs; supplies; hospitalization with outpatient follow-up; medical/surgical, diagnostic, emergency, and rehabilitative services, and the number of days of pre- and post-transplant care in the global definition

Simultaneous Pancreas-Kidney (SPK) Transplantation

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

CPT®* Codes	Description
48550	Donor pancreatectomy (including cold preservation), with or without duodenal segment for transplantation
48551	Backbench standard preparation of cadaver donor pancreas allograft prior to transplantation, including dissection of allograft from surrounding soft tissues, splenectomy, duodenotomy, ligation of bile duct, ligation of mesenteric vessels, and Y-graft arterial anastomoses from iliac artery to superior mesenteric artery and to splenic artery
48552	Backbench reconstruction of cadaver donor pancreas allograft prior to transplantation, venous anastomosis, each
48554	Transplantation of pancreatic allograft
48556	Removal of transplanted pancreatic allograft
50300	Donor nephrectomy (including cold preservation); from cadaver donor, unilateral or bilateral
50320	Donor nephrectomy (including cold preservation); open, from living donor
50323	Backbench standard preparation of cadaver donor renal allograft prior to transplantation, including dissection and removal of perinephric fat, diaphragmatic and retroperitoneal attachments, excision of adrenal gland, and preparation of ureter(s), renal vein(s), and renal artery(s), ligating branches, as necessary
50325	Backbench standard preparation of living donor renal allograft (open or laparoscopic) prior to transplantation, including dissection and removal of perinephric fat and preparation of ureter(s), renal vein(s), and renal artery(s), ligating branches, as necessary
50327	Backbench reconstruction of cadaver or living donor renal allograft prior to transplantation; venous anastomosis, each
50328	Backbench reconstruction of cadaver or living donor renal allograft prior to transplantation; arterial anastomosis, each
50329	Backbench reconstruction of cadaver or living donor renal allograft prior to transplantation; ureteral anastomosis, each

CPT®* Codes	Description
50340	Recipient nephrectomy (separate procedure)
50360	Renal allotransplantation, implantation of graft; without recipient nephrectomy
50365	Renal allotransplantation, implantation of graft; with recipient nephrectomy
50370	Removal of transplanted renal allograft
50547	Laparoscopy, surgical; donor nephrectomy (including cold preservation), from living donor

HCPCS Codes	Description
S2065	Simultaneous pancreas kidney transplantation
S2152	Solid organ(s), complete or segmental, single organ or combination of organs; deceased or living donor(s), procurement, transplantation, and related complications; including: drugs; supplies; hospitalization with outpatient follow-up; medical/surgical, diagnostic, emergency, and rehabilitative services, and the number of days of pre- and post-transplant care in the global definition

Pancreas Transplantation Alone (PTA)

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

CPT®* Codes	Description
48550	Donor pancreatectomy (including cold preservation), with or without duodenal segment for transplantation
48551	Backbench standard preparation of cadaver donor pancreas allograft prior to transplantation, including dissection of allograft from surrounding soft tissues, splenectomy, duodenotomy, ligation of bile duct, ligation of mesenteric vessels, and Y-graft arterial anastomoses from iliac artery to superior mesenteric artery and to splenic artery
48552	Backbench reconstruction of cadaver donor pancreas allograft prior to transplantation, venous anastomosis, each
48554	Transplantation of pancreatic allograft

HCPCS Codes	Description
S2152	Solid organ(s), complete or segmental, single organ or combination of organs; deceased or living donor(s), procurement, transplantation, and related complications; including: drugs; supplies; hospitalization with outpatient follow-up; medical/surgical, diagnostic, emergency, and rehabilitative services, and the number of days of pre- and post-transplant care in the global definition

Pancreas-After-Kidney (PAK) Transplantation

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

CPT®* Codes	Description
48550	Donor pancreatectomy (including cold preservation), with or without duodenal segment for transplantation
48551	Backbench standard preparation of cadaver donor pancreas allograft prior to transplantation, including dissection of allograft from surrounding soft tissues, splenectomy, duodenotomy, ligation of bile duct, ligation of mesenteric vessels, and Y-graft arterial anastomoses from iliac artery to superior mesenteric artery and to splenic artery
48552	Backbench reconstruction of cadaver donor pancreas allograft prior to transplantation, venous anastomosis, each

CPT®* Codes	Description
48554	Transplantation of pancreatic allograft
48556	Removal of transplanted pancreatic allograft

HCPCS Codes	Description
S2152	Solid organ(s), complete or segmental, single organ or combination of organs; deceased or living donor(s), procurement, transplantation, and related complications; including: drugs; supplies; hospitalization with outpatient follow-up; medical/surgical, diagnostic, emergency, and rehabilitative services, and the number of days of pre- and post-transplant care in the global definition

Considered Experimental/Investigational/Unproven when used to report living donor pancreas transplantation (i.e., partial pancreas transplantation, segmental pancreas transplantation):

CPT®* Codes	Description
48999	Unlisted procedure, pancreas

Considered Experimental/Investigational/Unproven when used to report bioartificial pancreas device:

HCPCS Codes	Description
L8699	Prosthetic implant, not otherwise specified

Considered Experimental/Investigational/Unproven when used to report an organ transport system (e.g. Paragonix SherpaPak™) for use with kidneys and/or pancreas transplantation:

HCPCS Codes	Description
A9270	Non-covered item or service

***Current Procedural Terminology (CPT®) ©2020 American Medical Association: Chicago, IL.**

References

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2. American Diabetes Association (ADA). Standards of Medical Care in Diabetes.2021. Accessed August 2021. Available at URL address: <https://professional.diabetes.org/content-page/practice-guidelines-resources>
3. American Society of Transplantation. Guidelines and Opinions. Accessed August 2021. Available at URL address: <https://www.myast.org/education/guidelines-and-opinions>
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