



移植手术

肾脏/胰脏移植

当轮到您做移植手术时、您可能已经等待了很长的一段时间。在手术前阅读这章节、可协助您先了解它的过程。本章涵盖了术前、及手术过程的大纲

接到电话

当我们接到一个适合您的器官时、华大医疗中心（UWMC）移植组会打电话给您。我们拨打的电话号码可以来自任何区号。

当您接到这重要的电话时、我们会告诉您：

- 何时来医院及到那里去报到
- 如您是首选的受赠者、这就是您排在第一位、或者是后补受赠者、这就是您排在第二位
- 仅有关您的捐赠者的基本信息



当您接到做移植手术的电话时，我们会告诉您下一部作什么

即使我们正在计划您的手术、也要做好心理准备因为可能被取消。如您有新的健康问题、或肾脏质量不好、或最后的交叉配对表明肾脏不适合您、这种些情况都可能会发生。

如发生这种情况，尽量不要气馁。我们打电话给您的事实就是一个好的迹象、表明您在等候名单上已经移到前面了。

手术前

在我们开始为您做移植手术前：

- 需要为您抽血、胸部 X 光、及其他测试。这些测试包括最后的交叉配对以决定您的免疫系统能否接受肾脏及/或胰脏。
- 如您在做肾透析、可能会请您在平常的透析中心做透析、或来华大（UWMC）做透析。

- 您的外科医生、肾专科医生、麻醉师医疗组将给您做体检。他们会再审核您的病历、来确定您在手术时所需要的一切以便手术的安全。他们也将决定您将使用的移植药物。您也可能见其它的医生。
- 移植团队可能会询问您是否想参与研究。这个选择取决于您。提出问题以帮助您确定这对您是否合宜。
- 护士会告诉您该做些什么。如时间充裕、可能会请您先淋浴。也可能给您灌肠。也将给您口服或静脉注射（经由静脉）药物来为您的手术做准备。

移植的最终决定在于您的健康及交叉匹配的结果。当您获准移植时、就会带到手术室(OR)。

您的家人及支持团队

在您手术时、您的家人及其他支持团队、可以在手术室附近的家庭等候室或在您的病房等待。但必需要告之他们将在那里等候。以便我们可以在整个手术过程中、随时与他们联系。他们亦可用等候室的电话与手术室的医护人员联系。

我们会告诉您的支持团队手术开始时间。外科主治医生在您手术完成后、会与您的家人或您的支持团队的其他成员交谈。这时其他的外科组员会继续医护您、准备您离开手术室。

您的支持团队与外科医生谈话后必须准备再等一段时间才能见到你。护士通常会告诉您的支持团队何时他们可以来看您。

您的手术

手术室里会有很多人与您在一起：外科医生、麻醉师、护士及您的外科护理团队的其他成员。这些医生将共同努力，为您的外科手术做好准备。

- 您的麻醉师会为您：
 - 麻醉师通过静脉、及盖在口鼻的呼吸罩让您全麻 使您入睡
 - 放置一个呼吸管。以帮助您在手术过程中呼吸
 - 在整个手术过程中监控您、确保你睡着了没有疼痛感
- 当您在熟睡中：
 - 可能在颈静脉安置一个大的静脉输液导管。由这个静脉输液导管给您强力免疫抑制 药物。您从手术后醒来时，静脉输液仍然会在该部位。
 - 会在膀胱插尿管（一条细小的管子）、以便将尿液由新的肾脏导入膀胱排出。您从手术中醒来时，输尿管仍然会在该处。
 - 您会连上各式医疗设备、以监控您身体各个系统的功能。

- 也可能为您插鼻胃导管 (NG)、以便清空您的胃。该管经过鼻子进入胃部。如您是做胰脏移植、从手术中醒来时、鼻胃导管 (NG)、仍然会在该处。
- 您的刀口可能在下腹部的右边或左边、或在中间。外科医生会在手术前、告诉您切口的部位。
- 肾移植手术约需 2 至 4 小时。肾脏/胰脏移植手术约需 4 至 6 小时。
- 手术后您会去恢复室。您可能在那里或在您的病房里醒来。切口上会有绷带。

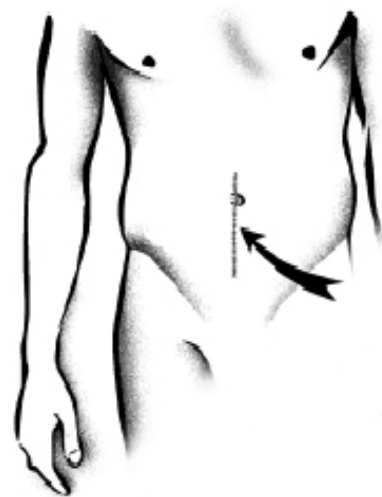
这些图片显示刀口的部位、以及如何放置及连接新的器官。胰脏或肾脏/胰脏移植会有其中的一个刀口。

肾脏移植术腹部的切口



此图显示的是右肾移植的刀口。您的刀口也可能在左边。

胰脏或肾脏/胰脏移植术腹部中间切口



此图显示的是肾脏/胰脏移植术的刀口。

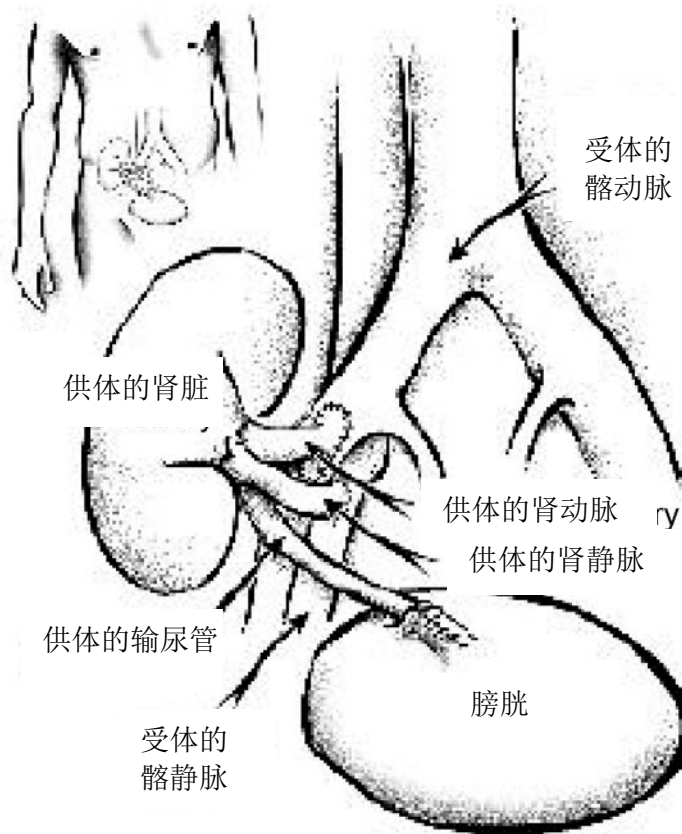
肾脏移植手术

新肾脏不会放在您自己肾脏所在的地方。在肾脏移植过程中、您自己的肾脏不会被切除。

肾移植的一般步骤（请参看第 5 页的图片）：

- 您的外科医生会在您的腹部做一个切口、露出骨盆内的血管。
- 下一步、将捐赠的肾脏置入腹内。将捐赠肾脏的血管缝接到您的血管。
- 血液开始循环到新的肾脏后、医生会将捐赠的输尿管连接到您的膀胱。
- 下一步、医生会装一个支架来支持连接到膀胱的新输尿管。

肾脏移植



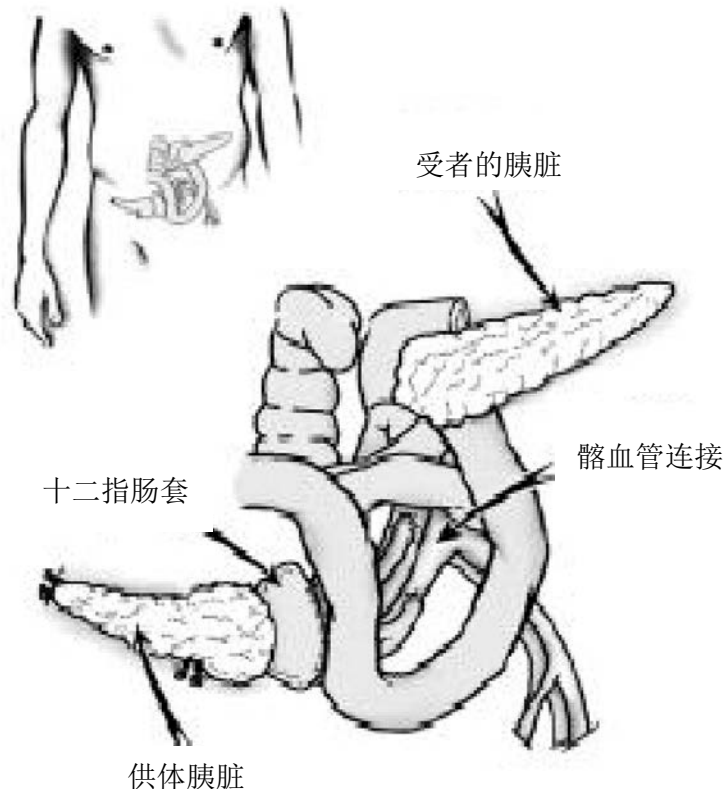
供肾的定位、及输尿管及血管的连接

肾脏及胰脏结合移植手术

您的胰脏在手术时不会摘除。下面是肾脏及胰脏结合移植手术的一般步骤：

- 外科医生会在您的腹部做一个正中切口（请参阅第 4 页的插图）、露出您骨盆内的血管。
- 供体的胰脏将置放在您的骨盆（请参阅第 6 页的插图）通常在您的右侧。供体胰脏的血管将与您的血管缝接。
- 血液开始循环到胰脏后、就会将胰脏连通到肠。
 - 因为这次手术涉及肠道、它们可能会在手术后“入睡”或蠕动减缓。您可能很难排气或排便。会插鼻胃管帮助缓解肠道内的胀气、直到它们“醒来”并且您能够排气。当您的肠道开始蠕动时、就可移除鼻胃管。
- 在胰脏移植完成后、外科医生会将供体的肾脏置放在盆腔左侧（请参阅“肾移植手术”第 4 页的插图）。

胰脏移植：肠内引流术（肠道排出）



十二指肠收集胰脏分泌物、然后由肠道排出（肠道排出）。

肾脏或胰脏移植手术后

- 手术后就送您到麻醉恢复室。当您由麻醉恢复后、会送到医院的病人护理单位。
- 在康复室、会做超声检查来检查血液如何流入您的移植器官。
 - 如您接受了胰脏移植、在您手术后的当晚会在加护病房(ICU)。护士会密切关注您并经常测试您的血糖。
- 如您有心脏病
 - 您将被连接到心脏监测仪。
 - 在您手术后的当晚会在加护病房(ICU)。

手术后的胰岛素

- 如您患糖尿病：
 - 如您**只接受了肾脏移植手术**、手术后会以静脉输液为您注射胰岛素。静脉输液止后、您就再自己注射胰岛素。您可能使用比移植前较高剂量的胰岛素。移植团队将密切关注您的血糖水平、观看您的胰岛素剂量是否需要调整。
 - 如您做了**肾脏/胰脏移植手术**、手术后您就不再需要注射胰岛素。
- 如您没有糖尿病并且只做了肾脏移植手术、您可能需要在手术后使用静脉注射胰岛素来控制血糖。

导管及医疗设备

手术后可能为您安置了一些或所有的这些设备：

- **静脉注射管 (IV)**、给您输液及药物。静脉注射管 (IV) 通常在出院当天取出。
- **鼻氧气管**、给您氧气、直到您的氧气水平恢复正常。
- **膀胱导管** (称为导尿管)。这导管用以排出您膀胱内的尿液。以便在正常排尿前、给缝接处有足够的时间愈合。约需要放置 3 至 4 天。
- **手术订针**、用来缝合刀口。手术后 2-3 周拆除。
- **输尿管支架**、手术后 4 至 6 周在住院期间或在门诊时取出。但您要在医院逗留半天。
- **引流管** (也称为 JP 引流管)、将腹部液体排出。多数情况下、这在手术数天后流体量减少就可移除。
- **鼻胃管 (NG) 管** (肾脏/胰腺移植手术后)。会一直插着直到您排气。

- **腹膜透析导管**。这通常是在移植手术时或肾脏移植后 4 至 8 周取出。
- **连续压缩 (SCDs) 器**。它们是包裹在您的腿上不时充气、以改善血液流动。它们有助于防止血栓形成。会持续使用这些压缩器。您的护士会在安全的情况下将它移除。



连续压缩(SCDs)器。有助于您在卧床期间血液流动。

加速您的康复的自我护理

- 您苏醒后、护士会教您：
 - **做深呼吸及咳嗽的锻炼**。每小时做一次这些锻炼以帮助降低呼吸（呼吸）的问题、及肺部感染（肺炎）的风险。
 - **使用患者自控镇痛 (PCA) 泵**。此仪器可让您在需要时给自己止痛药。
- 您还需要尽快**开始行走**。步行可以降低患血栓、肺炎、便秘及腹胀的风险。它还有助于加速您的康复。

就如所有大的手术一样、这种手术也有其风险。请与您的外科医生讨论这些风险、并详读本指南中“益处及风险”一章。

您有疑问吗？

我们很重视您的疑问。当有疑问或顾虑时，请致电您的医生或医护人员。

移植科电话：
206.598.3882

Transplant Surgery

For a kidney/pancreas transplant

By the time you have your transplant surgery, you may have been waiting a long time. This chapter covers the basics about what happens just before and during surgery. Reading this chapter before surgery will help you know what to expect.

The Phone Call

A UWMC transplant team member will call you when we accept an organ that is a good match for you. **When we call, the phone number we call from could be from any area code.**

When you receive this important call, we will tell you:

- When to arrive at the hospital and where to check in.
- If you are the primary recipient, which means you are 1st in line, or the backup recipient, which means you are 2nd in line.
- Only basic information about your donor.

Even while we are planning for your surgery, be prepared that it might be cancelled. This could happen if you have a new health problem, if the kidney is not good quality, or if the final cross-match shows that the kidney is not a good match for you.

If this happens, try not to be discouraged. The fact that we called you may be a good sign that you are moving up on the wait list.

Before Surgery

Before we can go ahead with your transplant surgery:

- You will have more blood tests, a chest X-ray, and other tests. These tests include a final cross-match to find out if your immune system will accept the kidney and/or pancreas.



When you receive the call for transplant surgery, we will tell you about your next steps.

- If you are on dialysis, you may be asked to go to your regular dialysis session or come to UWMC and have dialysis here.
- Your surgeon, nephrologist, and anesthesiologist will examine you. They will review your health records to make sure you have everything you need for a safe operation. They will also decide what your transplant medicines will be. You may see other doctors, too.
- The transplant team may ask if you want to be part of a research study. This choice is up to you. Ask questions to help you decide if it is a good idea for you.
- The nurse will tell you what to do. If there is time, you will be asked to take a shower. You may also be given an enema. You may be given medicines by mouth or through an *intravenous* (IV) line in your arm to prepare you for your surgery.

The final decision to proceed with the transplant depends on your health and the results of your cross-match. When you are cleared for transplant, you will be taken to the operating room (OR).

Your Family and Support Team

During your surgery, your family and support team may stay in the waiting area near the OR or in your hospital room. They need to tell us where they will be so we can stay in touch with them during your surgery. They can use the phone in the waiting area to talk with someone on the team in the OR.

We will tell your support team when your surgery starts. The lead surgeon will talk with your family or other members of your support team when your surgery is over. Other surgery staff will still be working with you at this time to prepare you to leave the OR.

Your support team must be prepared to wait a little while longer to see you after they talk with the surgeon. A nurse will often be the one who tells your support team when they can see you.

Your Surgery

There will be many people in the operating room with you: the surgeon, the anesthesiologist, nurses, and other members of your surgical care team. These providers will work together to prepare you for surgery.

- Your anesthesiologist will:
 - Give you *general anesthesia* to make you sleep. You will receive this medicine by IV and through a mask over your nose and mouth.
 - Place a breathing tube to help you breathe during surgery.
 - Monitor you during the entire surgery to make sure you are asleep and not feeling pain.

- While you are asleep:
 - You may have a large IV placed in your neck vein. You will receive powerful *immunosuppression* medicines through this IV. The IV will still be in place when you wake up from surgery.
 - You will have a *catheter* (thin tube) placed in your bladder to drain urine from the new kidney. The catheter will still be in place when you wake up from surgery.
 - You will be connected to equipment that monitors your body functions and systems.
 - A *nasogastric* (NG) tube may also be placed to empty your stomach. This tube goes through your nose and into your stomach. If you are having a pancreas transplant, you will have an NG tube in place when you wake up from surgery.
- Your incision will be on your right or left lower abdomen, or in the middle. Your surgeon will tell you before surgery where your incision will be.
- A kidney transplant takes about 2 to 4 hours. A kidney/pancreas transplant takes about 4 to 6 hours.
- After surgery you will go to the recovery room. You may wake up there or in your hospital room. You will have a bandage over your incision.

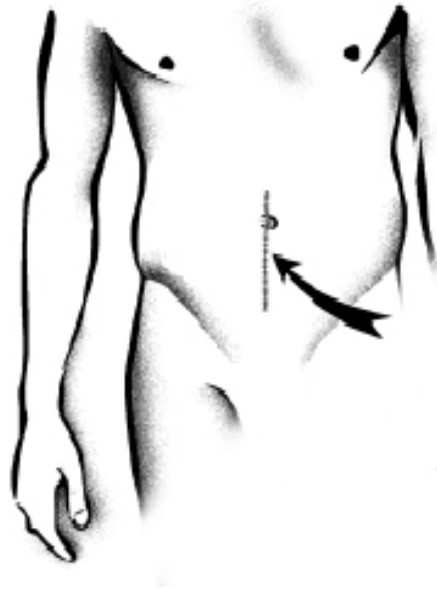
The drawings below and on the next page show where the incisions are made and how your new organ(s) is placed. You will have one of these incisions for your pancreas or kidney/pancreas transplant.

Abdominal Incision for a Kidney Transplant



This drawing shows an incision for a right kidney transplant. Your incision could also be on the left.

Abdominal Midline Incision for Pancreas or Kidney/Pancreas Transplant



This drawing shows the incision for a kidney/pancreas transplant.

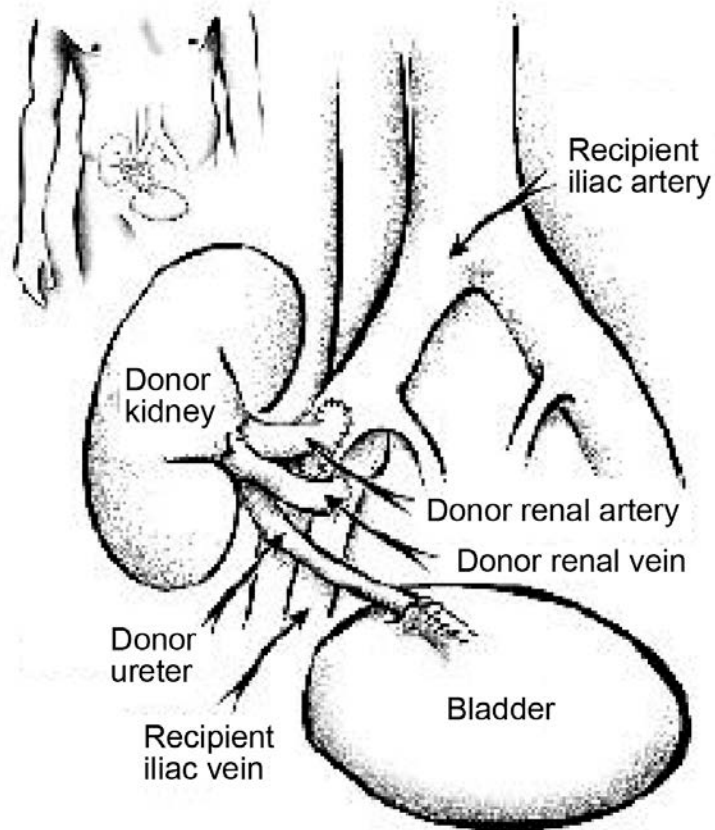
Surgery for a Kidney Transplant

Your new kidney will not be placed where your own kidneys are. Your own kidneys will not be removed during kidney transplant.

These are the usual steps for a kidney transplant (see drawing on page 5):

- Your surgeon will make an incision in your abdomen and expose blood vessels in your pelvis.
- Next, the donor kidney will be placed in your abdomen. The donor kidney blood vessels will be sewn into your blood vessels.
- After blood starts flowing to the new kidney, your surgeon will connect the donor ureter into your bladder.
- Next, the surgeon will place a stent to support the connection of the new ureter to the bladder.

Kidney Transplant



Placement of the donor kidney and ureter and blood vessel connections.

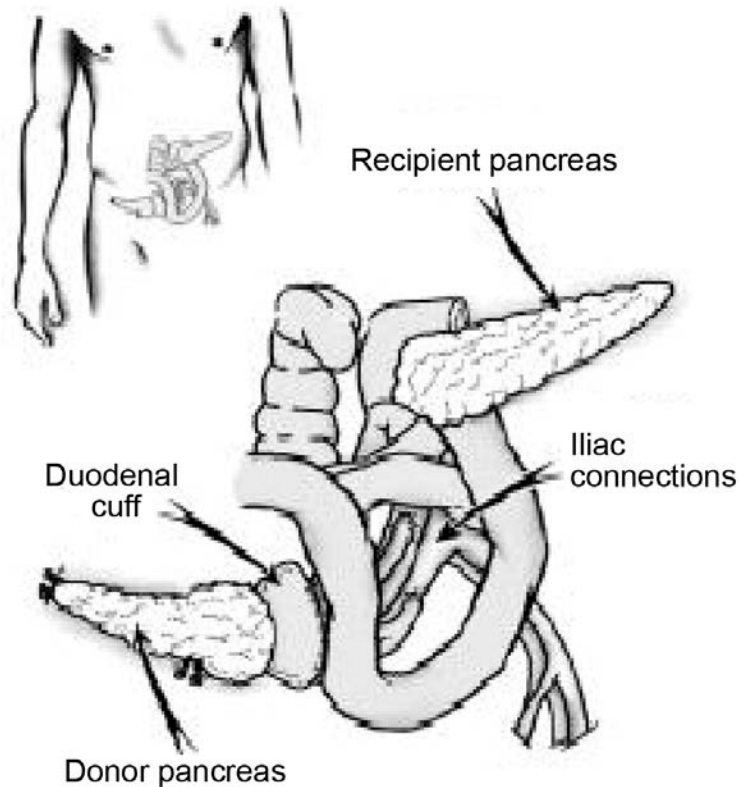
Surgery for a Kidney/Pancreas Transplant

Your own pancreas will not be removed during surgery. These are the usual steps for a transplant of both a kidney and a pancreas:

- Your surgeon will make a midline abdominal incision (see drawing on page 4) and expose the blood vessels in your pelvis.
- The donor pancreas will be placed in your pelvis (see drawing on page 6). Most times, this is on the right side. The donor pancreas blood vessels will be sewn into your blood vessels.
- After blood starts flowing to the pancreas, a connection is made to from the pancreas to your bowel.
 - Because your bowels are involved in this surgery, they may “fall asleep” or slow down after surgery. It may be hard for you to pass gas or have a bowel movement. The nasogastric tube will help relieve pressure in your bowels until they “wake up” and you are able to pass gas. When your bowels start moving again, the nasogastric tube can be removed.

- After the pancreas transplant is done, your surgeon will place the donor kidney on the left side of your pelvis. (See “Surgery for a Kidney Transplant” on page 4.)

Pancreas Transplant: Enteric Drainage (Bowel Drained)



The duodenum collects pancreas secretions, which drain into the bowel (enteric drainage).

After Kidney or Pancreas Transplant Surgery

- You will be taken to the recovery room after surgery. When you are ready, you will be taken to a care unit in the hospital.
- In the recovery room, you will have an ultrasound exam to check how the blood is flowing into your transplanted organ(s).
 - If you received a pancreas transplant, you will spend the first night after your surgery in the intensive care unit (ICU). Nurses will watch you closely and check your blood sugars often.
- If you have heart problems:
 - You will be connected to a heart monitor.
 - You may spend the first night after your surgery in the intensive care unit (ICU).

Insulin After Surgery

- If you have diabetes:
 - And you received **only a kidney transplant**, you will receive insulin through your IV after surgery. You will also return to self-injected insulin after the IV is stopped. You may need a higher dose of insulin than you needed before transplant. The transplant team will watch your blood sugar levels closely, to see if your insulin dose needs change over time.
 - And you received **a kidney/pancreas transplant**, you will no longer need insulin after your surgery.
- If you do not have diabetes and receive only a kidney transplant, you may need IV insulin after surgery to control your blood sugar levels.

Tubes and Devices

You may have **some or all** of these devices in place after your surgery:

- An **intravenous tube (IV)** for giving you fluids and medicines. The IV is usually removed on your day of discharge.
- **Nasal prongs** to give you oxygen, until your oxygen level is normal.
- A **bladder catheter** (Foley catheter). This tube drains urine from your bladder. This allows the sutures in this area time to heal before you start urinating normally. The catheter will stay in place for about 3 to 4 days.
- **Surgical staples** to close your incision. These will be removed about 2 to 3 weeks after your surgery.
- A **ureteral stent**, which will be removed about 4 to 6 weeks after your surgery, either during your hospital stay or in the clinic. Plan to be in the hospital for half a day for this visit.
- A **drainage tube** (also called a JP drain) to drain fluid from your abdomen. Most times, this is removed several days after surgery, when the amount of fluid has decreased.
- A **nasogastric (NG) tube** (after a kidney/pancreas transplant). This will stay in place until you pass gas.
- A **peritoneal dialysis catheter**. This is usually removed during the transplant surgery or 4 to 8 weeks after a kidney transplant.
- **Sequential compression devices (SCDs)**. These wraps on your legs inflate from time to time to improve blood flow. They help keep blood clots from forming. Keep these wraps on. Your nurse will remove them when it is safe to do so.



Sequential compression devices (SCDs) help keep blood flowing through your legs while you are lying in bed.

Self-care to Speed Your Recovery

- After you are awake, your nurse will teach you to:
 - **Do deep-breathing and coughing exercises.** Do these exercises about once every hour to help lower your risk of breathing (*respiratory*) problems and lung infection (*pneumonia*).
 - **Use your patient-controlled analgesia (PCA) pump.** This device allows you to give yourself pain medicine when needed.
- You also need to **start walking** as soon as you are able. Walking will reduce your risk for getting blood clots, pneumonia, constipation, and bloating. It will also help speed your recovery.

Like all major surgeries, this surgery involves risks. Please talk with your surgeon about these risks and carefully read the chapter on “Benefits and Risks” in this guide.

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

Transplant Services:
206.598.3882