



WHAT TO EXPECT

After Kidney/ Pancreas Transplant



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Introduction and Who to Call

Your Transplant Coordinator

Now that you've received your kidney and/or pancreas transplant, your post-transplant coordinator will manage care for your new organ(s). Your transplant coordinator will assist you in making arrangements for getting outpatient lab tests, procedures and clinic visits. He or she can help you get refills for medicines prescribed by your transplant doctors.

Your transplant coordinator will consult with doctors, nurses, social services, physical therapists, pharmacists or other members of the healthcare team, and/or community resources, to assist in solving problems. He or she will also provide you with ongoing education in many aspects of healthcare so that you can actively maintain your health and improve the quality of your life.

Your transplant coordinator is:

Your coordinator can be reached at **412-647-5800** or **1-877-640-6746**.

Call your coordinator when something feels "off," when you have symptoms of rejection or infection, or with any questions or concerns about your transplant.

Your coordinator will call you when there are changes to your medicines or dosage, when your lab values are notable and may need repeated, or if the transplant team has any concerns.

Transplant Team Contact Information

Emergencies: **911** or local Emergency Department

Transplant Office: **412-647-5800** or **1-877-640-6746**

Transplant Fax Number: **412-647-5070**

Billing Issues: **412-647-8393** or **1-800-854-1745**

Before Leaving the Hospital

- If you agree and your insurance allows, the first month supply of your prescriptions will be filled by the hospital pharmacy. The hospital pharmacy will check for any insurance issues and prior authorization requirements to ensure that you have the medicines you need at the time of your discharge. If your insurance does not allow or at your preference, the case manager in the hospital can work with an outside pharmacy of your preference to fill the medicines prior to your discharge from the hospital.
- When you leave the hospital, choose a pharmacy where you will have your prescriptions filled when you need refills of your medicines. Speak to the pharmacy a week or two before you need refills to be sure it stocks the medicines you will need. Ask the pharmacist if he/she can bill correctly under your current insurance.
- Inform your transplant coordinator where you will be staying and how you can be reached.
- Arrange for transportation to clinic appointments and the laboratory (check with the transplant surgeon or coordinator regarding when you may drive again).

- Many patients may have had a stent placed in their ureter during the kidney transplant surgery. This normally needs to be removed 6 weeks after surgery by a urologist from UPMC. Your coordinator will make you aware of your appointment time. In order to prevent possible stent-related complications, please make every attempt to keep this appointment.
- You need to take on the responsibility of contacting your transplant coordinator, doctor or the clinic staff for questions or concerns. **You must follow the kidney transplant plan of care.**

First Visit After Discharge

Most kidney transplant patients will go to the Transplant Outpatient Unit (“7 West”) for 1-2 appointments after transplant, then be transitioned to the Thomas E. Starzl Transplantation Institute Sarris Clinic (“clinic”). Unit 7 West is located at UPMC Montefiore on the 7th floor, adjacent to the clinic.

Unit 7 West can be reached at **412-648-6473**. If you are instructed to report to “7 West,” you should arrive between 6 and 7 a.m.

Transplant Follow-Up at Unit 7 West

- Please bring with you your discharge summary, all medicines in their original bottles; your post-op education book with updated vital signs log, drain care log, and input and output log, and a filled water bottle which the staff will be happy to refill as needed.
- Please have a family member, friend or support person come with you to your appointment.
- Please check in with the 7 West transplant clerk in the transplant office if you are arriving between 5:30 and 7:15 a.m. If you arrive after this time, please go directly to 7 West to check in.
- Your visit may include labs which will be drawn on 7 West by your assigned nurse or patient care technician. The transplant team will see you once your lab results are available.
- When your visit ends, you will need to schedule your next appointment with the transplant clerk. Parking tickets can be validated at this time.

If you are unable to come in for the appointment or are running late, please contact Unit 7 West as soon as possible at **412-678-6473**.

Transplant Follow-Up at Clinic

- Once you are discharged from 7 West, your care will be managed at the Frank Sarris Clinic on 7 South in Montefiore Hospital. Your first clinic appointment will be on a Wednesday. Following your initial appointment, clinic appointments are on Tuesdays, Thursdays and Fridays. You should schedule your appointments with the transplant clerk at **412-647-5800** or **877-640-6746**. Please arrive at your scheduled time and check in with the clerk at the desk directly in front of you when you enter the clinic.
- If you've had your labs drawn at an outside facility other than Quest labs in Pennsylvania, please ensure the results have been faxed to our office prior to your appointment. Our fax number is **412-647-5070**. You may also bring a copy with you.
- If you are having labs drawn at the transplant office, you should arrive 90 minutes prior to your appointment for the results to be available during your appointment. If you are having your tacrolimus (Prograf®) level checked, do NOT take tacrolimus until after the labs have been drawn. Once labs have been drawn, you may choose to go for breakfast and return to the clinic at your scheduled appointment time. Please let the clerk know if you are leaving and upon your return to the clinic.
- During your appointment, you will be seen by a doctor or an advanced practice provider (nurse practitioner or physician assistant). Your medicines will be reviewed, and any needed updates made to the list. A transplant coordinator will be available to address any concerns or problems you may have.

Although every attempt is made to adhere to your scheduled appointment time, occasionally your wait time may be longer than anticipated. We appreciate your patience and understanding in the event of an unexpected delay.

What to Bring to 7 West and the Clinic:

- **All of your medicines in their prescription bottles** – even the ones you were taking before your transplant. Do not use a pillbox yet.
- Your discharge instructions and your discharge medicine list
- Your transplant book with updated logs (vital signs and fluid intake/urine output)
- A pencil with a good eraser
- If you are diabetic: a record of your blood sugars, your glucometer, insulin and all diabetic supplies
- If you still have one or more drainage tubes, record the amount of drainage and bring a record of the amount with you
- Your insurance cards
- A family member or friend
- A snack and some bottled water

Always bring your medicines and your transplant book. Do NOT take your morning dose of tacrolimus until AFTER your blood is drawn.



Early Post-Operative Period and Labs

Early Post-Operative Period

Wound Care

After your transplant surgery, if you have skin staples, they usually remain in place for 3 weeks. Your staples will be removed in the outpatient unit or in the clinic. This procedure is brief and causes little discomfort. If you have steri-strips they will fall off after you begin showering. Ordinarily, they should not require removal.

Check your incision daily for redness, tenderness, swelling, drainage, bleeding, or increased pain. These are common signs of infection that need to be reported to your transplant coordinator immediately. It will be necessary for a doctor or advanced practitioner to evaluate your wound to determine if an antibiotic or additional treatment is needed.

Showering and Bathing

Showering is permitted following transplant. Do not sit in a bathtub if you have wounds or incisions that are not healed.

Weight

You need to weigh yourself each week at approximately the same time and record this information in your transplant book. Weight gain occurs for 2 reasons: fluid accumulation (edema) or increased dietary intake (body weight). Any signs of edema should be reported immediately to your transplant coordinator. Please see the nutritional section of this booklet for proper dietary guidelines.

Temperature

Check your temperature any time that you feel warm or ill, have shaking chills or have any other signs of infection. This is the only accurate way of knowing if you have a fever. If you do not have a thermometer at home, ask your nurse in the hospital if they can provide one for you and make sure you know how to use it properly.

Blood Pressure

The medicines you take after your transplant may affect your blood pressure. It is recommended that you buy a home blood pressure cuff. If you were recently started on blood pressure medicine, check your blood pressure daily or as directed and record the results on the chart provided in this booklet.

Choosing a Laboratory

After you are discharged, you will need to choose a convenient laboratory to obtain your blood work. We recommend that your labs be drawn at a UPMC or Quest facility. **Remember to check with your insurance company prior to having your first set of labs drawn.** A specific lab may be required by your insurance provider.

If using a lab other than UPMC or Quest, it is your responsibility to ensure that your laboratory results are forwarded to the transplant office. Please request that the lab fax results to the attention of your transplant coordinator at **412-647-5070**. Also, please inform your transplant coordinator of the name and phone number of the lab that you decide to use.

If your labs are drawn at a UPMC facility, results can be obtained directly from MyUPMC. Laboratory services are available at many UPMC community locations as well as at UPMC Montefiore:

- Walk-in outpatient laboratory on the 5th floor: Laboratory slips will be provided by your transplant coordinator. This will prevent any unnecessary delays and ensure timely review of the laboratory results by the transplant team.
- Appointment-only laboratory on the 7th floor: Schedule your testing through the transplant clerk. Lab orders must be entered into the computer prior to your arrival. If you have any questions, you may call the lab directly at **412-802-3328**.

Importance of Lab Testing

Laboratory testing is used to monitor the function of your transplant. Often a change in your lab results is the first indication that a problem may exist. For this reason, **we strongly recommend that you always have your laboratory testing done as ordered by your transplant nephrologist.** Not having your blood work drawn can lead to complications that may be difficult or impossible to resolve.

The frequency of laboratory testing will be determined by your transplant nephrologist. Initially, you will be obtaining labs twice a week. Once your transplant function is stable, you will require laboratory testing less often. Your individualized schedule will be determined by your nephrologist. Any time a change is made in your anti-rejection medicine, you will be required to check labs **once a week for 2 weeks**.

After the labs are reviewed by your transplant nephrologist, you may be contacted regarding medicine changes, a request to repeat your laboratory studies, a review of your medicine regimen, or other additional instructions. **We will not call you if your lab results are stable.** Please feel free to call your transplant coordinator should you have any questions or concerns regarding your laboratory testing.

Lab Values

Albumin - (normal range 3.5 - 5.0 mg/dL) a blood protein manufactured by the liver.

Amylase - (normal range <100 IU/L) enzyme secreted by the pancreas.

Bilirubin - (normal range 0.3 - 1.5 mg/dL) a breakdown product of hemoglobin. An increased level may reflect breakdown of red blood cells or liver disease.

Blood Urea Nitrogen (BUN) - (normal range 6 - 20 mg/dL) a breakdown product of protein. An increased BUN may be due to kidney disease or from medicines.

Calcium - (normal range 8.6 to 10.5 mg/dL) a mineral which comes from bones. Calcium is needed for strong bones and heartbeat, and normal function of muscles and nerves.

Cholesterol - (normal range 150 - 200 mg/dL) a fatty substance used as a building block. Elevated levels can be associated with an increased risk of heart disease.

Creatinine - (normal range 0.5 - 1.4 mg/dL) a muscle breakdown product which is excreted by the kidneys and is a useful measure of kidney function. **An elevated creatinine may indicate rejection or toxicity in kidney transplant recipients.**

GGPT - (normal range <44 IU/L) an enzyme found in the liver and gallbladder.

Glucose - (normal range 75 - 110 mg/dL) the level of sugar in the blood. Tacrolimus and steroids may temporarily increase glucose levels.

Hemoglobin - (normal range, female 11.7 - 15.7 g/dL - normal range, male 13.3 - 17.7 g/dL) component of the blood which carries oxygen to body tissues. **A decreased level may be related to blood loss or renal failure.**

Hematocrit - (normal range, female 35-47%, male 40-52%) percentage of blood that is composed of red blood cells. A lower level may be related to blood loss or renal failure.

Lipase - (normal range <200 IU/L) an enzyme secreted by the pancreas.

Platelet - a type of blood component necessary for blood clotting.

Potassium - (normal range, 3.6 - 5.0 mEq/L) an electrolyte found in body cells. Diuretics or "water pills" may decrease the level. Tacrolimus may increase the level.

(AST) SGOT - (normal range <34 IU/L) a non-specific liver enzyme.

(ALT) SGPT - (normal range <37 IU/L) a liver enzyme that is more specific.

Triglyceride - (normal range <150 mg/dL) fat components formed by the body in the blood. If elevated, you should follow a low fat, low cholesterol diet.

Uric Acid - (normal range <8.5 mg/dL) a breakdown product of purines. High levels are associated with gout.

White Blood Cells (WBC's) - (4.5 - 11.0) cells in the bloodstream which fight infection. Elevated levels can be caused by an infection. **Decreased levels may be caused by viruses or medicines.**



Medicine

Medicines

The function of your transplanted organ is dependent upon a careful balance of medicines. At first, your medicine schedule may appear to be overwhelming. In order to assist you, medicine teaching will be available in the hospital and the outpatient clinic. Please do not hesitate to contact your transplant coordinator if you have any questions regarding your medicines.

The transplant nephrologists, along with your local doctor, will monitor your condition and change your medicines as needed. **Your anti-rejection medicines should only be adjusted by your transplant team**, but your local doctor may adjust your other medicines. Please remember to contact your transplant coordinator if a medicine change is made by your local doctor and before taking any over-the-counter medicines. Do not take any herbal remedies. A new medicine may affect the function of your transplanted organ, the absorption of other medicines, or your ability to fight infection.

You should know the following about your medicines:

- The generic and brand name
- The reason for taking each medicine
- What each medicine looks like
- When to take each medicine
- How to take each medicine
- The most common side effects
- How to order your medicines
- The cost of your medicines:
 - > Some medicines may be covered by insurance, but others have a co-payment
 - > Insurance companies often have a deductible
 - > Discuss with the case manager, social worker or primary care nurse coordinator

Prescription Medicine and You

It is very important that you take your medicines exactly as prescribed. **This is your responsibility.** Follow dosing instructions closely. Do not increase or decrease the dose of your medicines or stop taking your medicines unless instructed to do so by your transplant physician. This can result in side effects or other problems. Do not stop taking any of the medicines unless instructed to do so.

You will be prescribed medicines for:

- Anti-rejection
- Preventing or treating infection
- Reducing stomach acid/antacids
- Treating electrolyte imbalances
- Other reasons as needed

After your kidney transplant:

- Plan a medicine schedule
 - > It should fit your normal daily routine
 - > Follow a written schedule or list
 - > Consider using medicine smartphone app, pill reminder container, or a medicine alarm
- Always keep a copy of your medicine list and your medicine schedule with you
- Keep pill container caps closed
- Keep all medicine in a safe place – away from children and pets
- **Do not take herbal products**

It is important to know your financial responsibility for your medicines. Plan ahead.

- Tell the doctor about any pre-existing illnesses that you may have. Also tell the doctor about any allergies that you have. Tell your doctor and pharmacist about any over-the-counter and prescription medicines that you are taking so that they can check for drug interactions. It is best to use one pharmacy for all your medicine needs.
- Laboratory tests will be done frequently while taking these medicines to monitor the kidney and/or pancreas function and to prevent side effects. Keep all doctor and lab appointments. Do not take your anti-rejections medicines until after your blood is drawn.
- Store all your medicines at room temperature, away from heat, light or moisture (unless instructed otherwise). Do not store your medicines in the bathroom. Keep all medicines out of the reach of children.
- Consider obtaining a medical alert bracelet, on which you can indicate transplant, allergies, and anti-rejection medicines. A medical alert necklace is also available. Keep a current list of medicines that you are taking in your wallet, purse or phone.
- Do not use a salt substitute or potassium supplement without checking with your doctor.
- Many post-transplant medicines should not be used during pregnancy or breast feeding. It is suggested that contraceptive measures be taken. Discuss the risks and benefits of pregnancy with your transplant coordinator or doctor.

For all prescription medicines, please do the following:

- Tell your doctor if you have side effects that continue or become bothersome
- Let your doctor or pharmacist know about any prescription or over the counter medicines you are taking so they can check for interactions
- If you miss a dose, take it as soon as remembered unless told otherwise. If it is within 2 hours of the time for your next dose, skip the missed dose and resume your usual dosing schedule. Do not “double up” the dose to catch up.

Call your transplant coordinator if:

- You can't take your medicine and have missed 2 or more doses due to nausea or vomiting.
- You have diarrhea and may not absorb your medicine.
- You notice that the directions on the label are different from what you were told.
- You feel that you are having an unusual reaction or side effect to a medicine.

Medicine to Prevent Rejection

Anti-rejection medicines suppress the immune system, and this increases the risk of infection. Avoid contact with people who have infections, if possible. Do not get close to them, and do not stay in the same room with them for very long. Frequent hand washing helps to prevent the spread of infection.

If you cannot avoid being around a person who is ill, consider wearing a protective face mask that covers the nose and mouth. Wash your hands with antibacterial soap if you have touched infectious materials.

Anti-rejection medicine also increases the risk of developing skin cancer or cancer of the lymph system. Use a 30 SPF or greater sunscreen when outdoors and see a dermatologist yearly. Check for swollen glands in your throat, under your arms, or in your groin area.

These medicines are taken for the lifetime of the transplanted organ.

Missed Anti-Rejection Doses

If you realize you have missed a dose of your anti-rejection and it is only several hours late, you should take your dose immediately. You may then proceed with your normal medicine schedule. If you realize you missed your dose close to the time that your next dose is due (less than 6 hours before your next dose), do not double dose. Simply take the next scheduled dose and resume your regular medicine schedule. If you have any questions regarding missed medicines, please contact your transplant coordinator.

Missing your anti-rejection medicine will place you at risk for rejection, loss of your transplant, and possibly even death.

Anti-Rejection Medicines

Tacrolimus: Brands are Prograf®, Envarsus®, Astagraf® (also called FK-506)

- Use: To prevent organ rejection by suppressing the body's immune system
- Side Effects: Common ones include headache, hand tremors, trouble sleeping, vivid dreams, diarrhea, nausea, loss of appetite, hair loss, change in blood pressure or blood sugar, increase in potassium level, decrease in magnesium level, insomnia, burning or tingling of the hands or feet can occur. Rare side effects are rash, vomiting, dizziness, anxiety, fever, chills, weakness, vision changes, chest pain, bruising or bleeding, swelling of the feet or ankles, breathing trouble, constant hunger or thirst, or frequent urination. Side effects are more common when the blood level is high. Tacrolimus can have an effect on kidney function.

- Drug Interactions: Do not take sodium bicarbonate, magnesium-oxide, sucralfate or antacids within 2 hours of taking tacrolimus. Avoid grapefruit and pomegranate fruit and juices. There are a number of medicines that should be avoided or need to be carefully monitored. The following list are medicines that require adjustment or monitoring if taken in combination with tacrolimus. This is not a complete list, so **it is absolutely essential to contact your transplant coordinator about any new prescription or non-prescription medicine that is prescribed.**

Erythromycin	Diltiazem
Clarithromycin	Verapamil
Fluconazole	Phenobarbital
Itraconazole	Rifampin
Azithromycin	Phenytoin
Ketoconazole	Ritonavir
Voriconazole	Cimetidine
Carbamazepine	NSAIDs

- How to take this medicine: This medicine can be taken with or without food, but you should be consistent with how you take it. Take this medicine exactly as prescribed. Take it at the same time every day to keep a constant blood level. Your dose may be adjusted based upon your response or tolerance. Have your blood drawn as ordered to monitor blood levels. Do not take this medicine before your blood level is drawn.

- Measuring your trough: The day before your lab draw, take tacrolimus as you normally would (ex. 8 a.m. and 8 p.m. – 12 hours apart). **If you took tacrolimus at 8 a.m./ 8 p.m. the day before, you must have your labs drawn as close to 8 am the next day as you can. Don't take tacrolimus in the morning before your labs.** We will measure the amount of tacrolimus in your blood for 12 hours. Between 8 p.m. and 8 a.m. the next day is your 12-hour trough. **Take your tacrolimus after your labs have been drawn.** Depending on the result, we will have you increase, decrease, or continue your dose of tacrolimus.

Cyclosporine: Brand names are Sandimmune®, Neoral®, Gengraf®

- Use: To prevent organ rejection by suppressing the body's immune system
- Side Effects: Common ones include increased hair growth, acne, tremors, restlessness, swollen or bleeding gums, stomach upset, nausea, cramps, diarrhea, headache, high blood pressure, changes in blood sugar, tingling in hands or feet, trouble sleeping, increased risk for infections. Rare side effects are change in urination, seizures, fever, sore throat, unusual bleeding or bruising, trouble breathing, confusion, blurred vision, stomach pain, hearing difficulty, chest pain, or fatigue. Side effects are more common when the blood level is high. Cyclosporine can have an effect on kidney function.
- Drug Interactions: Do not take large doses of aspirin or any nonsteroidal anti-inflammatory (NSAIDs) medicines when on cyclosporine. Avoid grapefruit and pomegranate fruit and juices. Do not use birth control pills when on this medicine. Use an alternative form of birth control, such as a condom. There are a number of medicines that should be avoided, need to be carefully monitored or require adjustment if taken in combination with cyclosporine.

It is absolutely essential to contact your transplant coordinator about any new prescription or non-prescription medicine that is prescribed.

- Notes: Sandimmune®, Neoral® and Gengraf® are different formulations of cyclosporine that cannot be substituted for one another.
- How to take this medicine: This medicine can be taken with or without food, but you should be consistent with how you take it. Avoid taking this medicine with grapefruit, pomegranate or papaya juices. Take at the same time every day to keep a constant blood level. Have your blood drawn as ordered to monitor blood levels. Do not take this medicine before your blood level is drawn.

Mycophenolate Mofetil: Brand names are CellCept® and Myfortic®

- Use: To prevent organ rejection by suppressing the body's immune system
- Side Effects: Common ones include loss of appetite, stomach pain, nausea, vomiting, diarrhea, constipation, weakness, gas, anemia, decrease in white blood cells (which fight infection) or decrease in platelets (which help your blood clot). Rare side effects are skin rash, itching, fever, chills, sore throat, swelling, frequent urination, blood in urine, stool or vomit, severe vomiting, weakness, bruising, swollen glands, chest pain, change in urination, or trouble breathing.
- Notes: If the capsule should come apart, avoid inhaling the powder or direct contact with the skin. If contact occurs, wash thoroughly with soap and water; rinse eyes with plain water. If you are a woman of childbearing age, discuss the use of this medicine with your transplant doctor and gynecologist. Caregivers who are of childbearing age should not touch the tablets or capsules.

- How to take this medicine: Usually prescribed with tacrolimus or cyclosporine. This medicine can be taken with or without food. Swallow the capsules whole. Do not break, crush, chew or open before swallowing.

Prednisone: Brands are Deltasone® and others

- Use: Corticosteroid to prevent and treat rejection
- Side Effects: Common ones include difficulty sleeping, mood changes, nervousness, increased appetite, retaining fluids, swelling, unusual weight gain, dizziness, nausea, indigestion, stomach irritation and/or ulcers, changes in blood sugar, changes in blood pressure, or changes in vision. Rare side effects are blood in urine, stools or vomit, severe nausea or vomiting, headache, muscle weakness, prolonged sore throat, fever or trouble breathing.
- Notes: The dose needs to be gradually reduced. If this medicine is suddenly stopped, you may experience extreme fatigue, weakness, stomach upset or dizziness. Avoid alcohol if possible.
- How to take this medicine: Take with food or milk or immediately after a meal to prevent upset stomach. When you take this medicine once a day, it should be taken in the morning before 9 a.m.

Belatacept: Brand is Nulojix®

- Use: To prevent organ rejection by suppressing the body's immune system
- Side Effects: Common ones include headache, dry mouth, nausea, vomiting, or constipation. Rare side effects are frequent urination, blood in urine, increased thirst or hunger, lightheadedness, dizziness, problems with memory, vision, or speech, swelling, tremors, bruising, confusion.
- How to take this medicine: This medicine is given through the veins (IV). Do not skip a dose of this medicine. You will need to work with your transplant coordinator to schedule where you will receive this medicine.

Everolimus: Brand name is Zortress®

- Use: To prevent organ rejection by suppressing the body's immune system
- Side Effects: Common ones include loss of appetite, stomach pain, nausea, vomiting, diarrhea, constipation, mouth ulcers, weakness, gas, anemia, shakiness, muscle cramps, headache, decrease in white blood cells (which fight infection) or decrease in platelets (which help your blood clot). Rare side effects are skin rash, itching, fever, chills, sore throat, swelling, frequent urination, blood in urine, stool or vomit, severe vomiting, weakness, bruising, swollen glands, chest pain, change in urination, or trouble breathing.
- Drug Interactions: Avoid grapefruit and pomegranate fruit and juices. There are a number of medicines that should be avoided or need to be carefully monitored. There are a number of medicines that require adjustment or monitoring if taken in combination with everolimus. **It is absolutely essential to contact your transplant coordinator about any new prescription or non-prescription medicine that is prescribed.**

- How to take this medicine: This medicine can be taken with or without food, but you should be consistent with how you take it. Take this medicine exactly as prescribed. Take it at the same time every day to keep a constant blood level. Tablets should be swallowed whole. Your dose may be adjusted based upon your response or tolerance. Have your blood drawn as ordered to monitor blood levels. Do not take this medicine before your blood level is drawn.

Anti-Infection Medicines

Sulfamethoxazole/Trimethoprim: Brands are Bactrim®, Septra® and others

- Use: To treat infections and for the prevention and treatment of pneumonia
- Side Effects: Common ones include upset stomach, nausea, vomiting, diarrhea, headache or loss of appetite. Notify your coordinator if you develop these rare side effects: breathing difficulties, skin rash, itching, hives, chills, fever, sore throat, aching of joints or muscles, easy bleeding or bruising, yellowing of the eyes and skin, peeling skin or tiredness. Patients who are allergic to sulfa products will have a reaction (rash, hives and/or itching). Other options are available.
- Notes: This medicine may cause increased sensitivity to the sun. Use sunscreen (without PABA) or protective clothing (hat and sunglasses) if you must be outside for a long period. Limit sun exposure.
- How to take this medicine: This medicine can be taken with or without food. Take this medicine with a glass of water. Drink several additional glasses of water daily unless otherwise directed.

Dapsone: Brand is Aczone®

- Use: To treat infections and for the prevention and treatment of pneumonia
- Side Effects: Notify your coordinator if you develop these rare side effects: unusual tiredness or weakness, skin rash, blistering or peeling skin, dark urine, pale stools, nausea, vomiting, loss of appetite, stomach pain, yellow skin or eyes, fever, sore throat, pinpoint red or purple spots on your skin or unusual bleeding or bruising.
- Notes: This medicine is generally used if you are allergic or cannot tolerate sulfamethoxazole/trimethoprim (Bactrim®).
- How to take this medicine: This medicine can be taken with or without food. Take this medicine with a glass of water.

Atovaquone: Brand is Mepron®

- Use: To treat infections and for the prevention and treatment of pneumonia
- Side Effects: Common side effects include cough, headache, mild skin rash or itching, nausea, vomiting, stomach pain, loss of appetite, weakness or dizziness. Notify your coordinator if you develop these rare side effects: itching or hives, swelling in your face or hands, chest tightness, trouble breathing, skin rash, blistering or peeling skin, fever, chills, headache, sore throat, seizures, or sores or white patches on your lips, mouth, or throat.
- Notes: This medicine is generally used if you are allergic or cannot tolerate sulfamethoxazole/trimethoprim (Bactrim®).
- How to take this medicine: This medicine is best taken with food or milk. Take this medicine at the same time every day.

Pentamidine: Brand is Pentam®

- Use: To treat infections and for the prevention and treatment of pneumonia

- Side Effects: Common side effects include change in taste, metallic taste in your mouth, nausea, loss of appetite, sore throat, hoarseness, dizziness. Notify your coordinator if you develop these rare side effects: coughing, wheezing, trouble breathing, skin rash, itching, hives or sharp chest pain.
- Notes: This medicine is generally used if you are allergic or cannot tolerate sulfamethoxazole/trimethoprim (Bactrim®).
- How to take this medicine: This medicine is administered through a machine called a nebulizer that turns the medicine into a fine spray that you breathe into your lungs. A nurse or other healthcare worker trained to use the nebulizer will give your medicine.

Valganciclovir: Brand is Valcyte®

- Use: Prevents or treats infections caused by herpes simplex virus (HSV), cytomegalovirus (CMV), and Epstein Barr virus (EBV)
- Side Effects: Common ones are headache, nausea, vomiting, numbness or tingling in hands or feet, difficulty sleeping, decrease in white blood cells (which fight infection) or decrease in platelets (which help your blood clot). Rare side effects are pancreatitis, change in urination, fever, sore throat, unusual bleeding or bruising, trouble breathing, confusion, blurred vision, stomach pain, chest pain, or fatigue.
- Notes: This medicine may reduce the number of blood cells which are needed for clotting. Avoid situations where bruising or injury may occur to prevent from bleeding.
- How to take this medicine: Tablets should be swallowed whole and taken with food. **This medicine is expensive and may require prior authorization by your insurance company before it can be obtained at an outpatient pharmacy.** The dose may change based on your kidney function.

Acyclovir: Brand is Zovirax®

- Use: Prevents or treats infections caused by herpes simplex virus (HSV), and Epstein Barr virus (EBV)
- Side Effects: Common ones are headache, nausea, vomiting, numbness or tingling in hands or feet, difficulty sleeping, decrease in white blood cells (which fight infection) or decrease in platelets (which help your blood clot). Rare side effects are pancreatitis, change in urination, fever, sore throat, unusual bleeding or bruising, trouble breathing, confusion, blurred vision, stomach pain, chest pain, or fatigue.
- Notes: This medicine may reduce the number of blood cells which are needed for clotting. Avoid situations where bruising or injury may occur to prevent from bleeding.
- How to take this medicine: This medicine can be taken with or without food. The dose may change based on your kidney function.

Anti-Ulcer Medicines

Your doctor may prescribe one of these medicines. If your insurance does not cover the medicine prescribed, ask your doctor if you can switch to another medicine.

Pantoprazole: Brand is Protonix®

Omeprazole: Brand is Prilosec®

Esomeprazole: Brand is Nexium®

Lansoprazole: Brand is Prevacid®

- Use: Prevents and treats ulcers or gastroesophageal reflux by reducing the amount of acid produced in the stomach
- Side Effects: Common ones include headache, diarrhea or mild stomach pain. Rare side effects are rash, fever, back or joint pain, swelling, unusual weight gain, dizziness, muscle cramps, twitching, severe diarrhea, stomach cramps.

- Notes: It may take a few days before the medicine begins to relieve stomach pain.
- How to take this medicine: This medicine works best if taken before a meal, preferably in the morning. Swallow whole, do not chew, crush or open the capsule or tablet. The long action may be destroyed and chance of side effects increased.

Other Medicines

Magnesium Oxide/Gluconate/Chloride: Brands are MagOx®; Magonate®; Slow Mag®; others

- Use: Treats low magnesium levels in the body. Magnesium is essential for normal functioning of nerves, muscles and cells. Lack of magnesium can lead to irritability, muscle weakness, irregular heartbeat or seizures. These medicines can also be used to treat heartburn, acid indigestion or sour stomach.
- Side Effects: Common ones include diarrhea, abdominal cramping, muscle weakness, nausea, stomachache, bloating or gas. Rare side effects are vomiting, slow reflexes, change in heart rate, flushing or faintness.
- Notes: Do not take within 2 hours of tacrolimus (Prograf®, FK-506). It may interfere with absorption. The best dietary sources of magnesium include green leafy vegetables, avocados, bananas, nuts, peas, beans, wheat germ and grains. A high fat diet causes less magnesium to be absorbed. Cooking decreases the magnesium content of foods.
- How to take this medicine: It is best taken with or just after a meal to improve absorption. Take each dose with a full glass of water.

Sodium/Potassium Phosphate: Brands are KPhos®, PhosNaK®, others

- Use: Treats low phosphorus levels in the body. Phosphorus is essential for normal functioning of nerves, muscles and cells. Lack of phosphorus can lead to muscle weakness or difficulty breathing.
- Side Effects: Common ones include nausea, diarrhea, headache or fatigue. Rare side effects are abdominal pain or dizziness. Notify your coordinator if you experience an abnormal heartbeat, changes in thinking clearly, feeling like passing out, numbness, tingling, or shortness of breath.
- Notes: Do not take within 2 hours of tacrolimus (Prograf®, FK-506). It may interfere with absorption. Do not take this medicine unless prescribed by your doctor. The best dietary sources of phosphorus include dairy products, such as milk, cheese, yogurt, ice cream. Dark colas and chocolate also contain phosphorus.
- How to take this medicine: It is best taken with or just after a meal. Take each dose with a full glass of water. Powder packets can be mixed in water or juice.

Sodium Bicarbonate (Baking Soda): Brands are Neut® and others

- Use: Treats or prevents too much acid in the blood or urine. It can also be used as an antacid to treat heartburn or indigestion.
- Side Effects: Common ones include bloating, gas, stomach cramps, edema, headache, nausea, or irritability. Rare side effects are muscle rigidity, weakness, vomiting, loss of appetite, slow reflexes, confusion, nervousness, swelling of feet or ankles, increased thirst, or urge to urinate.
- Notes: Do not take within 2 hours of tacrolimus (Prograf®, FK-506). It may interfere with absorption. Watch your salt intake, since this medicine has a high sodium content.

- How to take this medicine: This medicine can be taken with or without food. Avoid large amounts of dairy products.

Aspirin: Brands are Anacin®, Bayer®, Bufferin® and others

- Use: In a low dose, used as a blood thinner to prevent blood clots. Aspirin is also effective in reducing the risk of stroke and heart attack.
- Side Effects: Common ones include upset stomach, heartburn, loss of appetite, or nausea. Rare side effects are vomiting, diarrhea, confusion, drowsiness, severe stomach pain, unusual bruising, bloody or black stools, dizziness, hearing loss, or ringing in ears. Stop taking aspirin if hives, rash, swelling, difficulty swallowing or breathing develop. This is a sign that you are allergic to aspirin.
- Notes: Do not take a higher dose of aspirin than your doctor prescribes. Higher doses can affect kidney function. Avoid drinking alcohol when taking aspirin, since alcohol can also thin the blood.
- How to take this medicine: Take this medicine with food, milk or a large glass of water to reduce stomach irritation.

Patiromer: Brand is Veltassa™

- Use: Treats high potassium levels in the body. Potassium is a mineral that helps keep your heartbeat regular and your muscles working properly. High potassium levels can lead to irregular heartbeat.
- Side Effects: Common ones include constipation, abdominal discomfort, nausea, gas or diarrhea. Rare side effects are muscle cramps, confusion, stomach pain, swelling or bloating of the stomach, unusual tiredness or weakness.
- Notes: Do not take within 3 hours of tacrolimus (Prograf®, FK-506) or any other medicines. This medicine binds to potassium in your stomach and can also bind to other medicines.

- How to take this medicine: This medicine is a powder that must be mixed in water. Once it is mixed in water, it should be taken right away. If you have more than 1 month supply of the medicine, it should be stored in the refrigerator. Do not take any other medicines within 3 hours of this medicine.

Sodium Zirconium Cyclosilicate: Brand is Lokelma[®]

- Use: Treats high potassium levels in the body. Potassium is a mineral that helps keep your heartbeat regular and your muscles working properly. High potassium levels can lead to irregular heartbeat.
- Side Effects: Common one is swelling (edema) in your ankles or feet. Rare side effects are swelling of hands or face or rapid weight gain (over a few days).
- Notes: Do not take within 3 hours of tacrolimus (Prograf[®], FK-506) or any other medicines. This medicine binds to potassium in your stomach and can also bind to other medicines.
- How to take this medicine: This medicine is a powder that must be mixed in water. Once it is mixed in water, it should be taken right away. Do not take any other medicines within 3 hours of this medicine.

Over-the-Counter Medicines

Many over-the-counter medicines can be taken safely, but there are some that can be harmful to your transplant. **Please contact your coordinator prior to taking any new medicines.**

Non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided. These medicines are often taken or prescribed for arthritis, joint pain, headaches and premenstrual discomfort. **Even in small doses, these drugs can interfere with the function of your transplant.** Some common names or brands of NSAIDs include:

Ibuprofen	Advil [®]
Excedrin [®]	Aspirin
Indocin [®]	Naprosyn [®]
Motrin [®]	Toradol [®]
Feldene [®]	Mobic [®]
Aleve [®]	Orudis

Unless specifically ordered by your physician, **avoid taking regular dose aspirin** as it may cause stomach irritation. If you are prescribed aspirin, make sure to take it with food.

Colds and flus are viruses and cannot be treated effectively with antibiotics. They generally have to run their course. The only treatment is for the symptoms. There are several over-the-counter medicines that are safe to take when you have a cold or the flu or other minor illness. You should always take these medicines according to the manufacturer's instructions on the package label. Read all labels carefully.

Avoid phenylephrine (Sudafed PE®) and any multi-symptom cold relief remedies.

- You should be concerned if your symptoms persist more than a few days or if you have a fever. Other symptoms to be concerned about include nausea, vomiting, diarrhea, productive cough, or shortness of breath. Any of these symptoms should be reported to your local doctor or your transplant coordinator as soon as possible.
- Many herbal remedies work by stimulating the immune system and are not recommended for transplant patients. Please contact your transplant coordinator before taking any herbal remedy.
- If you have any questions concerning your symptoms or any over-the-counter medicines, call your transplant coordinator.
- Use the chart on the next page to learn which over-the-counter medicines are safe for transplant recipients.

Symptom	Generic Names	Brand Names	Notes
Allergies	Cetirizine, Cromolyn, Diphenhydramine, Fexofenadine, Loratadine, Fluticasone, Levocetirizine	Allegra®, Benadryl®, Claritin®, NasalCrom®, Zyrtec®, Flonase®, Xyzal®	Do NOT use Claritin D® or Zyrtec D®
Bloating, Gas	Simethicone	Gas-X®, Mylanta Gas®, Mylicon®	
Cold, Congestion	Guaifenesin, Topical Menthol	Benadryl®, Coricidin HBP®, Dimetapp®, Mucinex®, Robitussin®, Vicks Vaporub®	Do NOT use phenylephrine (Sudafed PE®)
Constipation	Bisacodyl, Docusate, Polyethylene Glycol 3350, Psyllium, Senna	Colace®, Dulcolax®, Metamucil®, Miralax®, Senokot®, Senokot-S®	Contact your coordinator if constipation lasts for more than 3 days or if you have fever and abdominal pain
Cough	Dextromethorphan, Guaifenesin, Topical Menthol	Coricidin HPB®, Delsym®, Mucinex®, Robitussin®, Robitussin DM®, Vicks Vaporub®	Diabetics should look for sugar-free and alcohol-free cough medicine
Diarrhea	Loperamide®	Imodium A-D®	Contact your coordinator if you have diarrhea for more than 24 hours or if you have a fever and abdominal pain
Dry Eyes	Artificial Tears	Refresh Tears®, TheraTears®	
Fever, Headaches, Mild Pain, Body Aches	Acetaminophen	Tylenol®	Contact coordinator if your temperature is over 100.4 Do NOT use Ibuprofen (Advil®, Motrin®) or Naproxen (Aleve®)
Insomnia	Diphenhydramine, Melatonin	Benadryl®, Simply Sleep®, Unisom®, Zzzquil®	Do not take melatonin within 2 hours of taking tacrolimus
Nausea, Heartburn	Calcium Carbonate, Famotidine, Omeprazole, Ranitidine	Pepcid®, Prilosec®, Tums®	Do NOT use bismuth subsalicylate (Pepto-Bismol®)
Sinus Congestion, Dry Nose	Oxymetazoline, Sodium Chloride	Afrin®, Ocean Spray®	Do NOT use phenylephrine (Sudafed PE®)
Sneezing	Chlorpheniramine	Chlortrimeton®, Coricidin HBP Cold and Flu®	
Sore Throat	Benzocaine, Menthol	Chloraseptic®, Halls®, Ludens®, Vicks®	



Complications

Complications After Transplant

Surgical and Medical Issues

Following your kidney transplant, the Transplant Team will watch you closely for bleeding, a clot in a blood vessel (called thrombosis), narrowing or a scar in a blood vessel (called stenosis), urine leakage, and delay in kidney function. It is important to tell your doctor, nurse or other member of the Transplant Team if you notice a change to prevent and control possible problems.

After you are discharged, the Transplant Team will continue to watch for:

- Wound complications
- Rejection – your body tries to reject the transplanted kidney
- Infection – transplant patients are always at risk for infection because of their anti-rejection medicine
- Cancer – transplant patients are always at risk for cancer because of their anti-rejection medicine
- Changing medicine levels – kidney function tests and drug level tests are ordered regularly
- Medical problems – other medical conditions such as high blood pressure, high cholesterol, etc.

Delayed Graft Function

There are times when a transplanted kidney may not work initially; this is known as Delayed Graft Function (DGF). Dialysis may be necessary while the transplanted kidney is not working. It is difficult to predict how long you may require dialysis. Signs that your kidney is beginning to function include an increase in your urine output and a decrease in your creatinine. If you are discharged from the hospital and you have DGF, it is very important to have lab work done frequently so that the transplant surgeon can monitor your progress. Rejection can occur in a DGF kidney; therefore, kidney biopsies will be necessary, as determined by the transplant physician.

Post-Transplant Diabetes Mellitus (PTDM)

Occasionally, a patient may develop diabetes after transplantation because of the anti-rejection medicine. This type of diabetes is usually, but not always, temporary. When we review your lab results, we will monitor your fasting blood sugar (glucose) for abnormalities. If we notice your fasting glucose is higher than normal, we may request more frequent laboratory studies to monitor your blood sugar. Oral medicine may be ordered to reduce your blood glucose. If the glucose remains elevated, you may require hospitalization for insulin therapy. Usually, after your anti-rejection medicine doses are adjusted, we will be able to reduce and eventually discontinue your insulin. While your glucoses are elevated, you will have to follow a diet to limit foods high in sugar and calories. Dietary counseling will be provided. Home glucose monitoring will be necessary.

If you develop diabetes following your transplant, you will be referred to an endocrinologist or your primary care doctor for diabetes follow-up and care.

Rejection

Your immune system recognizes your transplant as foreign and tries to attack it through a process known as rejection. Many patients will have one or more episodes of rejection. The first episode of rejection can occur as early as 7 to 10 days after surgery. The chances of rejection diminish with time but may occur at **ANY TIME** following transplantation. If rejection is diagnosed and treated early, it can usually be reversed. Therefore, it is important that you be aware of the signs and symptoms of rejection and report them to your transplant coordinator immediately.

Important facts about rejection:

- Rejection does not necessarily lead to loss of your transplant
- You may feel perfectly well without any symptoms and still experience rejection
- Rejection may be acute, occurring suddenly (10-20% during the first year after transplant)
- Rejection may be chronic, occurring slowly over time (50% at 10 years after transplant)
- If not treated, rejection will worsen
- Rejection can occur at any time
- Early detection of rejection improves response to treatment

Recommendations for early detection:

- Have laboratory testing as recommended by your transplant team
- Make sure that your transplant coordinator receives your results promptly
- Take your medicines as prescribed
- **Report signs of rejection immediately**

Signs and symptoms of kidney transplant rejection may include:

- No symptoms at all
- Fever
- Decreased urine output
- Increased pain or tenderness over the site of the transplant
- Fatigue/lack of energy
- Fluid retention resulting in weight gain (swelling in the legs)
- Increased blood pressure
- increased creatinine level
- Increased amylase or lipase (in pancreas recipients)
- Decreased urine amylase level (in pancreas recipients)

Treating Rejection

Abnormal laboratory results can indicate a possible rejection but only a biopsy can correctly determine the diagnosis. Other factors can cause your lab reports to be abnormal. For this reason, treatment of rejection should be managed only by the transplant team. The transplant team may ask you to come to the hospital for a biopsy to diagnose and treat you promptly.

We recommend that you have a plan in place should you need to return to Pittsburgh. Such a plan would include having extra money for travel expenses and transportation. In addition, you will need to make arrangements for the care of your children, other dependents, or pets while you are away.

Due to the medicine side effects associated with treating rejection, you will be prescribed anti-ulcer medicines. Anti-viral medicines may also be increased or started. These preventative medicines will be needed for a short period of time only to protect you from the side effects of increased anti-rejection medicines.

If you are diabetic, you must monitor your blood sugar levels very closely for 1-2 weeks after treatment for rejection. Often, blood sugars will increase, and you may require adjustments in your insulin or oral hypoglycemic medicines.

Transplant Biopsy

A biopsy of your transplant may be necessary to determine if rejection, infection, drug toxicity, or recurrence of your original disease is present. The results of the biopsy will be reviewed by your transplant surgeon and nephrologist, who will determine the plan of treatment. Biopsies may be necessary at any time, from several days to years after the transplant.

Once you are discharged, biopsies will be performed in an outpatient setting. Outpatient biopsies will be scheduled by your transplant coordinator.

Day of Biopsy Procedure

When you are scheduled for a biopsy, please report directly to Unit 7 West at 6 a.m. Your procedure will be at 8 a.m. You may eat a light breakfast before you arrive. You must be accompanied by a responsible adult who will need to drive you home once you are discharged.

Do not take any aspirin, fish oil, or blood thinner medicine for 1 week prior to the biopsy. Please take any blood pressure medicine you are prescribed prior to arriving. Do not take any other medicine before your biopsy but bring all your medicines in their original containers.

Leave your jewelry (including rings and watches) and other valuables at home. Do not carry excessive cash or credit cards. Bring your insurance cards with you. After your arrival, staff will arrange any necessary laboratory tests.

Biopsy Procedure

You will be transported to the Radiology Department where ultrasound guidance will be used to identify the site for the biopsy.

Once the site is identified, a local anesthetic is administered. A needle is inserted into the transplanted organ and a small tissue sample is obtained. There may be some minor discomfort associated with the procedure.

Following your biopsy, you will be observed for any signs or symptoms of bleeding. This will include checking your blood count and monitoring for blood in your urine.

You will receive preliminary results before leaving the hospital. If rejection is detected, you may receive immediate treatment. You will be discharged when the doctor decides you are ready. If further care is necessary, you may be admitted to the hospital.

Biopsy Results

The biopsy results are reviewed by the pathologist and your transplant nephrologist. You will be informed of the preliminary results of the biopsy by the transplant team prior to discharge from 7 West. Expect to be on 7 West until 2:30 or 3:00 p.m. If IV treatment is needed the first dose will be given that day.

Final biopsy results may take a few days. The treatment plan will be discussed with you. Any necessary arrangements for treatment will be made at this time.

Post-Transplant Infections

Signs of infection include the following:

- Fever above 101 degrees Fahrenheit (F)
- New onset of aches or pains
- Change in the wound (redness, increased drainage, foul odor, increasing pain over the surgical site)
- Painful, cloudy or foul-smelling urine
- Nausea, vomiting or diarrhea that lasts more than 24 hours
- Flu-like symptoms such as cough, body aches or cold symptoms

Fever

A fever may be an early sign of an infection and must be investigated thoroughly and promptly. We recommend that you check your temperature any time you feel ill, hot, or have shaking chills. **If you have a low-grade temperature of 100° F for more than 24 hours, or if you develop a sudden high fever of 101° F or higher, you must notify your transplant office immediately.**

Your transplant coordinator will advise you regarding your fever. **Do not take Tyleno® or any other medicine for a fever; they will lower your temperature without treating the infection.** Your symptoms and physical condition will help decide if further testing or treatment is necessary. You may be advised to see your doctor or to go to the hospital Emergency Department.

To prevent dehydration caused by a fever, remember to drink extra fluids, preferably water, juice, or ginger ale. Avoid beverages with caffeine.

Vomiting and Diarrhea

Vomiting and diarrhea (liquid stools) can lead to dehydration and decreased absorption of your medicines, which may put you at risk for rejection. Prolonged vomiting or diarrhea is cause for concern and needs to be evaluated. Some medicines can cause diarrhea. However, do not adjust any medicine without discussing it with your doctor or transplant coordinator.

If vomiting occurs, we recommend that you do not immediately eat or drink. You may want to rest your stomach for approximately 1 hour. If you vomit within 1 hour of taking your medicines, we suggest that you wait approximately 1 to 2 hours before repeating the dose.

Diarrhea requires diet modification. We suggest that you avoid high fiber foods, milk products, and caffeine. Drink enough fluids to prevent dehydration. We recommend water, juice, or ginger ale.

If vomiting and/or diarrhea continues for **more than 12 hours**, we recommend that you contact your doctor or transplant coordinator. Hospitalization for intravenous fluids, medicines, and testing may be necessary.

Preventing Infections

Your anti-rejection medicines, which are necessary to prevent rejection, reduce your ability to fight infections. This does not require you to avoid contact with people. By making some changes in your activity and lifestyle, you can significantly reduce your risks of acquiring infections. You must consider the risks, remembering that it will be easier for you to acquire an infection and harder to fight it off.

It is important to prevent infections following a transplant. Wash your hands before preparing food and eating. Wash your hands before and after touching your eyes or mouth, touching wounds, and changing diapers.

Avoid close contact with people with respiratory infections. Avoid crowded areas, like malls and sporting events, during flu seasons. Avoid smoking and second-hand tobacco smoke. Avoid construction or other dust-laden environments that may have a high concentration of mold spores.

Surgical site infections occur in less than 5% of patients after transplant. To care for your incision, clean it daily with soap and water, and pat it dry. Inspect the incision daily for redness, swelling or drainage.

Contact with Pets

Animals can harbor organisms that may be harmful to the transplant recipient. Birds, especially pigeons, carry a fungus that is dangerous to people on anti-rejection medicine. We do not recommend birds as pets for transplant patients.

Regarding other house pets, please do the following:

- Wash your hands with an antibacterial soap after touching pets or other animals.
- Have someone else care for sick pets.
- Have someone else clean up after the pet. This includes changing the kitty litter and cleaning the bottom of the bird cage and chicken coops. Bird droppings often carry fungi that are dangerous for transplant patients. Wear gloves to clean fish tanks.
- Avoid contact with animal urine, feces and vomit.
- Avoid stray animals.
- Do not let your pets run freely outside. Cats in particular may acquire infectious diseases that can be transmitted to humans.

Gardening Safety

Wear gloves for all gardening or yard work activities. Wash hands after gardening or working in the yard. Avoid exposure to environmental molds in soil, fertilizer and compost, especially during the first year post-transplant.

Some actions you can take to decrease your risk of infection include:

- Eat properly, get rest, exercise, and reduce stress.
- Avoid people with infections, especially those with active infections such as chicken pox, mumps, measles, mononucleosis, tuberculosis, colds, or flu.
- Take medicines to prevent infection as prescribed, e.g., Bactrim®, Valcyte®.
- Call your transplant coordinator with any signs of infection.
- Follow the recommended food safety guidelines.
- Practice good handwashing, especially before eating, after touching objects that carry micro-organisms (money, doorknobs,

public telephones), and after using the bathroom. Scrub with soap for at least 10 seconds, rubbing between fingers.

- Avoid composts piles, construction sites, and damp hay. Avoid plants, fruits, and vegetables that are decaying.
- Wear gloves when you are involved in activities such as gardening, to prevent exposing small cuts in your hands to potentially dangerous micro-organisms.
- Wear shoes when walking outside.
- Cover your body, including arms and legs, when hiking.
- Avoid touching your eyes, nose, and mouth if your hands are not clean.
- Do not receive any live vaccinations. Avoid anyone who has received an oral polio vaccine for 8 weeks. Ask your transplant coordinator if a vaccine is safe. Members of your household can have live vaccines.
- Receive a tetanus shot as needed (animal bites, dirty cuts).
- Receive a yearly flu shot yearly in the Fall. These are not live vaccines. You must wait 1 month after your transplant before receiving the flu shot. It is safe to have a high-dose flu vaccine.
- Do not share razors, toothbrushes, or eating and drinking utensils.
- Avoid drinking well water. Use bottled water or boil water for 10 minutes if there is a question of contamination.
- Practice safe sex.

Vaccines

There are 2 types of vaccines: live (weakened) and dead. **You cannot receive a live vaccine. Dead vaccines are safe for transplant patients to receive.** You may receive these vaccines 3 months after your transplant. Examples of dead vaccines are the flu vaccine, diphtheria, tetanus, and pertussis (DTP), hepatitis B, and pneumovax. It is recommended that family/caregivers also receive the seasonal flu vaccine.

Close contacts of transplant patients can receive most routine live vaccines (EXCEPT smallpox and polio vaccines). There is little to no risk if household members receive live vaccines. In fact, it is preferred that household members be vaccinated to reduce the risk of exposure. Avoid the saliva and stool of any child who has received a live vaccine for up to 8 weeks. Examples of live vaccines are oral polio, measles, mumps, rubella (MMR) and chicken pox (Varivax). **Pets should be fully immunized.** There is little to no risk of transmission following immunization of pets with live vaccines.

Influenza Vaccine

The influenza vaccine can be given as early as 1 month after transplant. The flu can be very serious, particularly in immunosuppressed patients. We recommend a flu shot (dead virus vaccine) yearly between October and April. Transplant patients and household members, including children, should not receive the nasal flu vaccine (FluMist®).

Hepatitis B Vaccine

Patients who are hepatitis B antibody negative may choose to receive the hepatitis B vaccine. The vaccine protects you from getting hepatitis B. The hepatitis B vaccine can be administered 6 months after your transplant.

Pneumovax® Vaccine

Transplant patients should receive the Prevnar® vaccine, if you did not receive it before transplant. This helps to protect against many types of pneumococcal pneumonias. You should only receive 1 dose of this vaccine. You may also receive the pneumovax® vaccine, which can prevent different types of pneumococcal pneumonias. The pneumovax vaccine is usually administered every 5 to 10 years. These vaccines can be administered 6 months after your transplant.

Chicken Pox/Shingles Vaccine

Varivax® is a vaccine to prevent chicken pox (varicella zoster). It contains the live virus and should **not** be given to transplant patients. Avoid close contact with someone who has received the Varivax® vaccine. There is some evidence that children who develop a rash after receiving the vaccine may be capable of transmitting the chicken pox virus.

We recommend the Shingrix vaccine to prevent Shingles. Transplant patients should not receive Zostavax, which is a live shingles vaccine. Please see the Exposure to Childhood Diseases section of this booklet for more information.

Exposure to Childhood Diseases

Chicken Pox and Shingles

Chicken pox, caused by the varicella virus, can be a very serious disease in a transplant patient. If you are exposed to chicken pox, call your transplant coordinator immediately. Even if you have had chicken pox in the past, you may contract the virus again if your level of immunity is low. People with chicken pox can be contagious as early as 5 days before the rash develops.

If you are exposed to someone with shingles, you will need to contact your transplant coordinator. If you have no immunity to the varicella virus, our doctors will make recommendations for preventive medicine.

Epstein-Barr Virus

Epstein-Barr virus (EBV) is a commonly found virus that can present as mononucleosis or may have a connection to lymphoproliferative disease. Post-transplant lymphoproliferative disorder (PTLD) is a cancer-like condition that occurs in a small percentage of transplant recipients. Symptoms of EBV infection may include sore throat, weight loss, abdominal pain, swollen lymph nodes, fever, or fatigue. Any of these symptoms should be reported to your transplant coordinator or transplant surgeon as soon as possible.

Early diagnosis and treatment of PTLD are critical. The diagnosis may be determined by a biopsy of a swollen lymph gland, if present. Additional testing may be required. Therapy usually includes reduction or discontinuation of anti-rejection medicine and the use of anti-viral medicines. For many patients this usually results in regression of the disease. If the PTLD is resistant to this therapy, chemotherapy may be necessary. Once the disease is in remission, the immunosuppressive medicines may be resumed.

Cytomegalovirus

Cytomegalovirus (CMV) is the most commonly seen viral infection in transplant recipients, occurring in 10-25% of patients. CMV infection is characterized by flu-like symptoms. These symptoms may include fever, fatigue, nausea, vomiting, diarrhea, decreased appetite, abdominal pain or burning, generalized achiness, and/or a decrease in the white blood cell count. Please report any of these symptoms to your transplant coordinator. When CMV is suspected, blood tests can be done to determine if the infection is present. Additional testing may be necessary to confirm the diagnosis. CMV can affect the kidney, liver, eyes, lungs, and gastrointestinal tract.

Treatment for CMV is with intravenous or oral valganciclovir (Valcyte®). The length of treatment depends upon the severity of the infection and your response to the medicine. Symptoms of CMV can present at any time and may occur more than once.

Pneumocystis Carinii Pneumonia

Pneumocystis carinii pneumonia is a serious illness that can be life threatening in the transplant patient. Symptoms may include fever, dry cough, shortness of breath, chest discomfort, and fatigue. Because of the rapidly progressive nature of the disease, it is important that you notify your transplant coordinator immediately should you experience these symptoms.

Pneumocystis pneumonia rarely occurs today because of the routine use of prophylactic Bactrim®, Dapsone®, atovaquone or pentamidine inhalation therapy. We recommend that you remain on this prophylactic regime indefinitely. If your local doctors suggest discontinuing any of these prescribed drugs, please inform your transplant coordinator immediately.

Other Common Infections

Urinary tract infections are common following a transplant. They may occur with or without symptoms. BK virus affects 10-15% of patients after transplant. There are no symptoms. It is diagnosed by blood and urine test. Fungal infections (oral or skin) may also occur.



Outpatient Follow-up

Follow-up Medical Care

Primary Care Doctor

Your primary care doctor has been kept updated regarding your progress since your transplant. We recommend that you contact your doctor as soon as possible after returning home so he/she can be familiar with your present condition and reevaluate you when changes occur. It is very important that you maintain follow-up with your primary care doctor 3 months and 1 year after transplant. Your doctor can best determine how often you need to be examined. **After your initial recovery from your transplant, this should be at least yearly, but may be more often as indicated by your medical condition. Continue to see your primary care doctor for preventative healthcare and routine physical examinations.**

You or your doctor should feel free to contact us if you are having side effects from your anti-rejection medicines. Your doctor may manage your other medicines, but we ask that you contact your transplant coordinator when:

- A new medicine is started, either prescribed or over the counter.
- Any medicine is discontinued.

Nephrologists

Your **transplant nephrologist** will manage your anti-rejection medicines as long as your transplant is functioning. This is done by monitoring your laboratory results and clinical condition along with your doctor.

Your **primary nephrologist** will follow your kidney function. You should see your primary nephrologist 3 months, 6 months, and 1 year after transplant. Future frequency of visits will be determined by your primary nephrologist. Continue to see your primary nephrologist for preventative healthcare.

Ophthalmologist

Routine eye examinations will be very important after your transplant. Deltasone® (Prednisone) may cause a change in your eyesight or blurry vision. For this reason, routine exams should not be done until 3 months after your transplant. Your medicines will change frequently during this time, and it will be difficult to obtain a proper exam. You should inform your eye doctor of all of your medicines especially Deltasone® (Prednisone). Visual changes may be related to the dosage of Deltasone® (Prednisone) prescribed. Refer to your ophthalmologist for guidance when deciding the appropriate time to change your corrective eyewear.

Cataracts and glaucoma are eye problems that may develop as a result of Deltasone® (Prednisone). Since routine screening for these problems may not be part of all routine eye examinations, you may have to specifically request that these examinations be performed.

Your ophthalmologist can best determine how often you need to be examined. This should be at least yearly but may be more often as indicated by your ophthalmologist.

Dentist and Oral Health

It is important to maintain good oral care to prevent mouth infections. Brush your teeth twice a day with a soft toothbrush. Inspect your mouth, gums and tongue for white patches. This may indicate an oral thrush infection. Notify your transplant coordinator if this occurs. Routine dental care should be maintained. Bacteria in the mouth can cause infection. Visit your dentist for regular check-ups and cleaning every 6 months.

An antibiotic is needed prior to dental procedures only if you have the following conditions:

- Prosthetic heart valves, including mechanical, bioprosthetic, and homograft valves (transcatheter-implanted as well as surgically implanted valves are included)
- Prosthetic material used for cardiac valve repair, such as annuloplasty rings and chords
- A prior history of endocarditis (infection in the heart)
- Unrepaired cyanotic congenital heart disease
- Repaired congenital heart disease with residual shunts or valvular regurgitation at the site or adjacent to the site of the prosthetic patch or prosthetic device
- Repaired congenital heart defects with catheter-based intervention involving an occlusion device or stent during the first 6 months after the procedure
- Valve regurgitation due to a structurally abnormal valve in a transplanted heart

If any item on the above list applies to you, the prescription will come from the treating cardiologist. It is important to remember that some the medicines commonly prescribed for dental procedures interfere with your anti-rejection medicine, and, therefore, should NEVER BE USED. These may include Erythromycin and NSAIDs like Ibuprofen.

Gynecologist

Female patients should see their gynecologist yearly for an examination including a pap smear. Patients should follow established guidelines for pap smear and mammogram. A baseline mammogram should be done for patients over age 40 or as recommended by your gynecologist. We also advise that all women perform a monthly breast self-examination.

Dermatologist and Skin Cancer Risk

You will be referred to see either your local dermatologist or Transplant Dermatology. After your transplant, you have an increased risk of skin cancer. This is due to your anti-rejection medicine. There may be a lag time of 5 to 7 years after transplant surgery before skin cancers begin to develop. This period will vary for each recipient depending on individual risk factors. For example, if you are older when you receive your transplant, skin cancers may develop earlier. Also, the longer you take anti-rejection medicine and the higher the dose, the greater your risk of skin cancer. All transplant recipients are at increased risk of skin cancer, but those with the following characteristics are at a significantly increased risk of skin cancer:

- Fair or easily burned skin
- Extensive freckling
- Blue, green or hazel eyes
- Red or blonde hair
- Outdoor occupation
- History of extensive sun exposure
- Family or personal history of skin cancer

Sun exposure may increase your risk of developing skin cancer and cataracts. Limit sun exposure, especially between the hours of 10 a.m. and 4 p.m. Apply a broad-spectrum sunscreen and lip protection with a SPF of 30 or higher that protects against UVA and UVB rays. Make sunscreen part of your morning routine – apply sunscreen before you leave the bathroom every day. Use sunscreen on all exposed skin, especially the face, neck, back of the hands and forearms. Reapply sunscreen every 2 hours when outdoors, especially when you are swimming and sweating.

Wear sunglasses that block ultraviolet rays. Broad-brimmed hats (at least 4 inches wide) and tightly woven long-sleeved shirts and pants can serve as protective clothing. **Remember that ultraviolet rays are present on cloudy days and can also be reflected from sand, concrete, and snow. Do not use a tanning booth.**

Most skin cancers can be treated if discovered early. Check monthly for new or changing growths, scaly growths, pink patches or spots, bleeding spots or changing moles. Notify your doctor and/or transplant coordinator of any changes in your skin such as newly raised areas, changes in a wart or mole, non-healing sores, or discolored areas. **We recommend that your skin be checked yearly by a dermatologist for signs of skin cancer.**



Resuming Activity and Miscellaneous Information

Resuming Activity

Lifting

For your protection you should not lift or carry anything that weighs more than 10 pounds for 8 weeks after your surgery. As a marker, a gallon of milk weighs approximately 10 pounds. Temporary modifications in your lifestyle will be necessary. You can avoid lifting a small child by sitting down and have someone hand the child to you. You should also avoid activities that cause excessive strain, such as vacuuming, mowing the lawn, or moving furniture. Performing these activities may cause a hernia to occur. This may require additional surgery. After this 2 to 3-month period, you may resume normal activities as tolerated.

Exercise

You should maintain a regular exercise program that is suited to your individual needs. Active physical exercise is necessary to maintain your normal weight and to minimize the potential effects of prednisone on your muscles and bones. Walking is an excellent form of exercise and can be started immediately after your transplant. If information is necessary about a particular exercise, consult your transplant surgeon.

Activities with High Risk of Injury

Activities with a high risk of injury, such as skiing, playing football, or motorcycling, should be avoided for the first year after transplantation. During this time, your anti-rejection doses will be the highest. If you are injured or require surgery, you will be at an increased risk for infection or other complications. We suggest you discuss your interest in participating in a potentially high-risk activity with your transplant surgeon.

School or Work

Following your transplant, you should be able to return to your normal lifestyle, i.e., the level of activity you had before you developed renal failure. Most people are able to return to school or work. Do not return to school or work until approved by your doctor. It usually takes at least 12 weeks until a person is approved to return. You should discuss your plans with your transplant surgeon. Upon your request, we can provide a release to return to work or to school.

Swimming

Swimming may be permitted after you have fully recovered from your transplant surgery and your wounds are healed. If you have intravenous lines, drains, or catheters in place, you may not be permitted to resume swimming until they are removed. Please consult your transplant team before doing any water sports.

Swimming in chlorinated pools or saltwater is the safest. Avoid public hot tubs. Beware of waters posted for “no swimming.” These may contain infectious microorganisms, toxic chemicals, dangerous vegetation, or sewer overflow. You can check with your local health department, which often tests water for safety. If in doubt, do not enter the water.

Driving

After your transplant surgery, it is recommended that you do not drive until your staples are removed, although this may be too soon for some people. You must not be taking pain medicine in order to drive. Check with your transplant coordinator or transplant surgeon before you resume driving. **PLEASE WEAR YOUR SEAT BELT AT ALL TIMES.**

Your reflexes, judgment, and vision may be affected by the medicines you are taking. Do not drive if you feel any of these are impaired. It is recommended to have a licensed driver with you the first time you drive.

If you have had a seizure after transplantation, it is recommended that you check with your doctor before driving. The laws vary from state to state; in Pennsylvania, you must be seizure-free for 1 year before you may resume driving.

Updating Personal Information

Please contact your transplant coordinator with any changes in your name, address, telephone number, insurance information, laboratory, or local physicians. This information is essential in order to maintain ongoing communication regarding your care.

Smoking

In order to maintain your health, **we strongly recommend that you do not smoke or vape.** Smoking has been found to cause multiple health problems, which include heart disease, lung cancer, emphysema, and stroke. There are several methods available that can help you to quit smoking. We encourage you to discuss this with your transplant surgeon, your nephrologist, or your family doctor to select the method that is best for you.

Writing to Your Donor's Family

If you've received your kidney from a deceased donor, we encourage you to write to your donor's family. It is a way for them to celebrate that their loved one's donation has saved a life, and to give them comfort as they grieve. If you would like to communicate with the donor's family, you may write an anonymous card or letter.

We have greeting cards available to send to your donor's family. Please let your coordinator know if you'd like one of these cards. You are also welcome to send your own card or a letter.

In order to maintain your confidentiality and that of the donor's family, please do not include your name, address, or any identifying information. You may provide general information such as your first name; basics about your family (such as marital status and any children/grandchildren); your job, hobbies or interests; and why you needed to have a transplant. When you sign your card or letter, only use your first name. Do not share any contact information for you, your family, your hospital or your physician.

Once you have finished your letter or card, put it in an unsealed envelope. This is so that our region's organ procurement organization (CORE), can review the letter to ensure confidentiality. You do not need to put postage on the envelope. Please send in a separate note in the envelope with your full name and the date of your transplant so that CORE can forward your letter to the proper family.

You may or may not hear back from the donor's family. Some families decide to communicate with recipients, and others simply take comfort in knowing their loved one's donation provided a second chance at life.

The card or letter should be sent to our local organ procurement organization at:

CORE
Attn: Family Correspondence
204 Sigma Drive
RIDC Park
Pittsburgh, PA 15238

You may call CORE at **1-800-366-6777** with questions or for assistance.

Support Groups

If you are in need of peer support following your transplant, you may contact these organizations:

Western PA Kidney Support Groups,
www.wpakidneysupport.org

Transplant Recipients International
Organization (TRIO), **www.trio-pittsburgh.org**

Travel Safety

Wait 6 months after your transplant to do any extensive traveling. If you are planning to be away from home for an extended period of time, we recommend that you leave a number where your coordinator can reach you. If this is not feasible, you may designate another individual with whom your coordinator can leave a message if necessary.

When traveling, be sure to take extra medicines with you. Bring enough medicine to cover any unexpected delays that may occur. Pack your medicines in your carry-on baggage to minimize the risk of missing your medicine. Always carry a current list of your medicines.

When traveling to foreign countries, we advise you to check with the Centers for Disease Control (**1-800-232-4636**) or your County Health Department for current recommendations. The Allegheny County Health Department may be contacted at **412-687-2243**.

When traveling outside of the United States, or other industrialized countries, contaminated food and water can be a cause of infection leading to intestinal illness. It is safest to drink canned or bottled water and beverages, or boiled water, in areas with questionable sanitation. Avoid tap water, ice and beverages made with tap water. Do not use tap water to brush your teeth.

Uncooked fruits and vegetables, salads, unpasteurized milk/dairy products, and fruit juices, raw meat, and shell fish should be avoided. Fruit that you peel is generally safe, as is cooked food that is still hot. Areas of high risk include the developing countries of Africa, the Middle East, and Latin America. The lowest risks exist in private homes; the greatest risk is in food from street vendors.

If you develop traveler's diarrhea, you should consult a doctor. To prevent dehydration, we recommend crackers, decaffeinated soft drinks, and bottled pasteurized fruit juice. Doxycycline may be prescribed to prevent dehydration and traveler's diarrhea.

Air Travel

If you will be traveling by airplane, the Transportation Security Administration (TSA) has special guidelines for people who have medical conditions. All travelers are required to undergo screening at security checkpoints. You may provide your TSA officer with any medical documentation that describes your condition and medicine.

Medicines in pill or other solid form must undergo security screening. It is recommended that medicine be clearly labeled to facilitate the screening process. You are responsible for displaying, handling and repacking the medicine when screening is required. Medicine can undergo a visual or X-ray screening and may be tested for traces of explosives. Inform the TSA officer that you have medically necessary liquids and/or medicines and separate them from other belongings before screening begins. Also declare accessories needed to administer your medicines.

Sexual Activity

You may resume sexual activity when you feel well enough. If you have any concerns, please discuss them with your doctor. To prevent urinary tract infections, women should empty their bladder before and after sexual intercourse. Women should always wipe from front to back after urination and bowel movements.

Safe Sex

As a transplant recipient, you should protect yourself from sexually transmitted diseases. When used properly, latex condoms decrease the transmission of microorganisms spread during sexual contact. This is very important if you are with a new partner.

Birth Control

The choice to have children is an important decision that is influenced by a number of factors that should be discussed with your partner, transplant nephrologist, local doctor, and gynecologist. Female patients generally resume their menstrual cycle after transplantation. High dose prednisone may stop the menstrual flow, but ovulation (the time when you are fertile) will continue. Therefore, you could become pregnant even though you are not yet having normal periods.

Pregnancy

The transplant doctor do not recommend trying to become pregnant during the first 1 to 2 years after transplantation. This is the time when most complications occur, and the medicine doses are highest.

If you plan on becoming pregnant, talk to your transplant nephrologist about adjusting your medicines. **Find out when it is safe to discontinue your current birth control.**

Contact your transplant coordinator if you become pregnant. Your obstetrician may also call us as needed. It is important that you seek prenatal care both before and after you become pregnant.

A number of female transplant recipients have delivered healthy babies. There is a greater chance of premature births, low birth weights, and cesarean sections. There is also a risk of impaired transplant function and/or complete failure of the transplant. The effects of anti-rejection to the fetus are not yet known. It is strongly recommended that you do not breast feed. This will avoid passing on the medicines to the baby through the breast milk.



Nutrition After Transplant

Nutrition After Transplant

Eating well after transplant is a very important part of your recovery and maintaining good overall health. You need proper nutrients in adequate amounts to give you strength, energy and help with healing after surgery.

There are 4 major nutrient groups:

- **Carbohydrates** come from starches and sugars found in fruit, bread, potatoes, pasta and cereals. They can be used by your body immediately or stored by the liver and kidneys for later use.
- **Proteins** come from meats, fish, eggs, nuts, beans, and dairy. They are building blocks used to make new tissues in the body. They are key to wound healing.
- **Fats** come from butter, lard, cooking oils, animal products, nuts, and seeds. These help your body to absorb vitamins and can be stored for later use.
- **Fluids**, especially water, help you to stay hydrated and maintain good organ function. If you have had a kidney transplant, your team will give you instructions on fluid intake and keeping track of your urine output. In general, it is recommended to drink 2 liters or 64 ounces of fluid per day, and your intake should equal or slightly exceed your output.

Use MyPlate as a guide to help figure out how much of each of these types of foods you need. More information can be found online at www.choosemyplate.gov.

Special Diets

Sometimes after a transplant, medicines can cause specific nutrients to be too high or low in your blood. If your doctor suggests a change in your diet, please contact your transplant coordinator to arrange for a dietitian consultation.

Your doctor or your dietitian may recommend a multivitamin or other vitamin/mineral supplements as needed in addition to food.

Maintaining a Healthy Weight

Your body needs a lot of calories and protein to heal after transplant. This may be difficult if you are not feeling well. Here are some tips to improve your intake based on your symptoms.

Loss of Appetite:

- Eat small, frequent meals or add snacks between meals.
- Do light exercise such as walking before a meal to stimulate your appetite.
- If your appetite is better at a certain time of the day, plan your largest meal then.

Feeling of Fullness:

- Eat more foods that are higher in carbohydrates and protein than foods high in fat. High fat foods stay in your stomach longer.
- Drink liquids between meals instead of with them.
- Eat small, frequent meals or add snacks between meals.

Nausea and Vomiting:

- If the smell of food makes you nauseous, avoid foods with strong odors.
- Avoid very spicy or greasy foods.
- Try not to lie down after eating.

Changes in Taste:

- Use more seasonings such as basil, oregano, rosemary, or items like Mrs. Dash.
- Use fresh lemon to stimulate your taste buds.
- For marinades to put on meats or vegetables, try adding vinegar, lemon or orange juice with different spices.

Controlling Weight Gain

Eventually you may find that your appetite will increase after transplant, either due to steroids or due to feeling healthier in general. You may also find that you are able to eat certain foods that were previously restricted, which may lead to excessive weight gain. If you need to control weight gain, remember these tips.

Mindful Eating:

- Eat 3 meals per day. Skipping meals may lead to overeating at a later meal.
- Pay attention to your body. Stop eating before you feel full, stuffed, or sick.
- Eat slowly and take breaks during meals. Cut your food one bite at a time.
- Try not to eat while in the car or watching TV.

Make Healthy Choices:

- Have healthy snacks on hand such as raw vegetables, fruits, low fat yogurt or cheese. This will help you eat healthier instead of eating whatever is available.
- Drink plenty of calorie-free fluids.

Plan Ahead:

- Plan your meals ahead of time. You are more likely to make better food choices when working off a grocery list, and a list also makes it easier to stick to a budget.
- Don't go to the grocery store hungry.

Food Safety Concerns for Transplant Recipients

As a post-transplant patient, it is likely that you are on a medicine (called an immunosuppressant) to prevent rejection of the transplanted organ. One very important side effect of these medicines is that they weaken your immune system. This may cause you to be more susceptible to infections. Food may contain disease-causing bacteria, viruses or parasites that can make you sick.

The person who prepares and handles your food must be careful that they do not bring about a foodborne illness, sometimes called food poisoning. Foodborne illness may result in hospitalization and could be fatal. The best way to ensure that your food is safe to eat is to follow the 4 basic steps to food safety listed below.

Basic Steps to Food Safety:

1. Clean

- Wash your hands and food prep surfaces often.
- Rinse fruits and vegetables and rub firm skinned produce under running water, including fruits with rinds that are not eaten.
- Clean lids of canned goods before opening.

2. Separate

- Separate raw meat, poultry, and fish from other foods in your shopping cart and refrigerator.
- Use one cutting board only for raw meat. Clean it thoroughly between uses with warm, soapy water.
- Never re-use plates that held raw meat without washing them first.

3. Cook

- Use a food thermometer to check the internal temperature of cooked meats and eggs.
- Heat hot dogs and deli/luncheon meats to steaming hot or 165°F.
- Reheat leftovers to steaming hot or 165° F.

4. Chill

- Refrigerate perishables within 2 hours of purchasing or cooking.
- Thaw foods in the refrigerator, in cold water, or in the microwave, but never on the counter at room temperature.
- Store leftovers in small, shallow containers in order to chill them more quickly.

USDA Recommended Safe Internal Temperatures:

- Steaks, Roasts & Chops (Beef, Pork, Veal, Lamb, Venison): 145°F
- Fish: 145°F
- Ground Beef, Pork, Veal, Lamb and Venison: 160°F
- Eggs: 160°F
- Whole, Pieces, and Ground (Chicken, Turkey, Duck) 165°F

Choose Foods Wisely

Animal Products:

- Choose meat, poultry, and seafood that have been cooked to a safe internal temperature.
- Wild game – chill within 2 hours after slaughter; 1 hour in temperatures above 90°F. All wild games should be professionally processed and cooked to recommended temperatures.
- Reheat hot dogs and luncheon or deli meats to steaming hot (165°F).
- Choose dairy products that are pasteurized.
- Choose pasteurized egg products when recipes call for undercooked or raw eggs.
- Cook eggs until the white and yolk are completely set.

Fruits and Vegetables:

- Choose well-washed fresh fruits and vegetables without bruises or blemishes.
- Wash all “pre-washed” bagged products thoroughly.
- Avoid raw sprouts, such as alfalfa, bean or any other sprout.
- Choose only fruit juices that are pasteurized.

Water

- Water from municipal sources is generally considered safe.
- Well or fresh spring water should be boiled for 1 minute before consuming or using for food preparation.
- Bottled water is a safe alternative.

Restaurant Safety

- Avoid buffets and salad bars, as these may contain undercooked food items or those sitting at room temperature for too long. They are also more open to contamination by other people.
- Make sure to ask your server about recipes containing undercooked items.
- If you’re taking leftovers home, refrigerate them as soon as possible.

Magnesium Content of Common Foods

Food Items	Amount	Magnesium Content
Vegetables		
*Black beans cooked	1/2 cup	121
*Lima beans frozen boiled	1 cup	100
Lima beans boiled	1 cup	97
Mung beans boiled	1 cup	97
Pinto beans boiled	1 cup	95
Black Eye Peas cooked	1 cup	91
Kidney beans cooked	1 cup	80
Spinach boiled	1/2 cup	79
Broad beans cooked	1 cup	73
Hummus	1 cup	71
Lentils boiled	1 cup	71
Avocado	1 medium	70
Chick peas canned	1 cup	70
Beet greens boiled	1/2 cup	49
Okra boiled	1/2 cup	47
Beets boiled	1/2 cup	31
Parsley raw, chopped	1/2 cup	13
Nuts/Seeds		
*Pumpkin and squash seeds dried	1 oz	152
*Watermelon seeds	1 oz	146
*Soybean nuts	1/2 cup	125
Almonds	1 oz	86
Hazelnuts	1 oz	84
Cashews	1 oz	74
Peanuts	1 oz	49
Pistachio nuts	1 oz	45
Meats		
Chicken cooked	3 oz	25
Beef cooked	3 oz	18-25
Cereal and Grain Products		
*100% bran	1/2 cup	134
*Kellogg's® All-Bran®	1/3 cup	106
Oatmeal cooked	3/4cup	35
Pumpnickel bread	1 slice	22
Whole wheat bread	1 slice	11
White bread	1 slice	5

High Phosphorus Foods

Dairy:

- Milk
- Cheese
- Cottage cheese
- Yogurt
- Ice cream
- Pudding
- Custard
- Cream soups
- Casseroles with cheese
- Milkshakes
- Eggnog
- Instant Breakfast

Protein:

- Sardines
- Lobster
- Liver
- Nuts
- Peanut butter
- Pumpkin seeds
- Sunflower seeds

Grains and Cereals:

- Bran muffins
- Brown bread
- Brown bagels
- Brown rice
- Bran cereal
- Bulgur
- Fruit & Fiber
- Granola
- Grapenuts
- Life
- Mini-Wheats®,
frosted or plain
- Oatmeal
- Pearled barley
- Ralston®
- Shredded wheat
- Total®
- Wheaties®
- Wheat germ

Other:

- Colas
- Chocolate
- Cocoa
- Caramel
- Mushrooms
- Dried fruit
- Pizza
- International coffees
- Tang® (especially grape)
- Dr. Pepper®
- Pumpkin pie
- Custard/cream pie

Potassium

Potassium is a mineral that helps keep your heartbeat regular and your muscles working properly. Certain medicines and/or poor kidney function may cause blood potassium (K+) levels to become too high and a low K+ diet is needed (2,300 mg/day). You will not feel any specific symptoms if your potassium is high (the normal range is 3.5-5.0). You only need to restrict K+ in your diet if your blood levels are running high. To limit your intake of K+, follow the guidelines below. When cooking vegetables, use a lot of water and drain before serving. Drain canned fruits and vegetables and discard the liquid; add fresh water if needed for cooking. Avoid salt substitute (potassium chloride) or foods made with it.

High Potassium Foods to Avoid

If you are instructed to follow a low-potassium diet, avoid these high-potassium foods (> 200-250 mg/serving).

Fruits	Vegetables	Other
<ul style="list-style-type: none"> • Apricots • Avocado • Banana • Cantaloupe • Dates • Dried Fruits • Elderberries • Figs (dried) • Guava • Honeydew • Kiwi • Mango • Nectarines • Orange • Orange Juice • Papaya • Passion Fruit Juice • Pomegranate • Prunes • Prune Juice • Raisins • Tangerine Juice 	<ul style="list-style-type: none"> • Artichoke Hearts • Beans (adzuki, baked, black, broad, butter, kidney, lima, northern, pinto, refried, wax, yellow) • Carrot Juice • Brussel Sprouts • Falafel • Lentils • Okra • Peas (blackeye and split) • Potatoes (baked, canned, chips, friend, and sweet) • Pumpkin • Soybeans • Spinach • Squash (acorn, butternut, hubbard, zucchini) • Tomatoes • Tomato Juice/Sauce • Vegetable Juice • Yams 	<ul style="list-style-type: none"> • All-Bran® type cereal • Ketchup (limit to 2T) • Cereal with fruit and nuts • Chocolate Milk • Cocoa • Coffee (limit to 2 cups) • Hot Chocolate • Instant Breakfast • International Coffees • Molasses • Nuts (limit to 1 oz.) • Peanut Butter • Salt substitute/Lite salt • Soy Flour • Wheat Bran • Wheat Germ

High Potassium Foods to Limit

Limit these foods with 150-200 mg/serving. Follow recommended serving sizes.
1 serving = 1 medium-sized fruit or 1/2 cup fruit/vegetable or juice.

Fruits

(3 servings/day)

- Apples
- Applesauce
- Apple Juice
- Apricot Nectar
- Blackberries
- Blueberries
- Boysenberries
- Cherries
- Cranberries
- Cranberry Juice
- Cranberry Sauce (1 cup)
- Figs (canned in syrup)
- Fruit Cocktail
- Fruit Salad
- Gooseberries
- Grapes
- Grape Juice
- Grapefruit Juice
- Kumquat
- Lyches (raw or canned)
- Mandarin Oranges
- Mulberries (raw)
- Nectarine (1/2)
- Orange (1/2)
- Papaya Nectar
- Passion Fruit
- Peaches
- Peach Nectar

- Pears
- Pear Nectar
- Pineapple
- Pineapple Juice
- Plums
- Prunes (canned in syrup)
- Turnips
- Raspberries
- Strawberries
- Tangerine
- Watermelon

Vegetables

(2 servings/day)

- Alfalfa Sprouts
- Asparagus
- Beets
- Broccoli
- Cabbage
- Carrots
- Cauliflower
- Corn
- Cucumber (1 cup)
- Eggplant
- Green Beans
- Green Peas
- Green Pepper (1 cup)

- Greens:
 - > Collard
 - > Mustard
 - > Kale
 - > Dandelion
 - > Beet
 - > Turnip
- Hot Peppers
- Leeks
- Lettuce (1 cup)
- Mushrooms
- Olives
- Onions
- Potatoes (skinned, soaked, and boiled)
- Pumpkin Flowers
- Radishes
- Rhubarb
- Sauerkraut
- Spaghetti Squash
- Tofu

Dairy Products

(1-2 cups/day)

- Milk
- Ice Cream
- Yogurt
- Pudding



Patient Logs

Vital Signs Log

Remember to check your vital signs before taking your medicines.

Date						
AM						
Blood Pressure						
Heart Rate						
Temperature °F						
Weight (pounds)						
Comments						
PM						
Blood Pressure						
Heart Rate						
Comments						

Please notify your coordinator if you experience any of the following:

- Top number in your blood pressure more than 150 or less than 100
- Bottom number in your blood pressure more than 100 or less than 60
- Heart rate higher than 100 or less than 55 when at rest
- Temperature more than 100° F for more than 24 hours or a sudden high fever of 101° F or higher
- Weight gain of more than 3 pounds in 24 hours
- Feeling dizzy or light-headed when you make sudden changes in position



UPMC
LIFE CHANGING MEDICINE

UPMC Transplant Services

UPMC Montefiore, 7 South
3459 Fifth Ave.
Pittsburgh, PA 15213

412-647-5800

877-640-6746

[UPMC.com/KidneyTransplant](https://www.upmc.com/KidneyTransplant)

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