



What you
need
to know.

Caring for Your Kidney Transplant

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Caring for your Kidney Transplant



Piedmont Transplant Institute offers superior medical and surgical care for recipients and donors, delivered by an interdisciplinary team of experienced dedicated specialists with decades of collective experience in caring for transplant patients. Our mission is to enhance patients' quality of life, save lives by reducing wait times for patients to receive organs, and advance the science of transplantation through progressive research.

We offer an integrated approach to care in a compassionate environment.

Congratulations! You have received a new kidney and are on the road to recovery. However, surgery is just the first step. Keeping yourself and your new kidney healthy requires a lifetime commitment from you. This booklet provides information on post-transplant care, medications, outpatient follow-up, and lifestyle questions. It will prepare you for complications that may occur such as rejection or infections.

You are the most important person on your transplant team! You must be responsible for your own care and assist us in keeping you and your new kidney healthy.

Our doctors, nurses, coordinators, pharmacists, social

workers and dieticians will give you all the information you need to care for yourself at home. Please read this entire manual. Your family members and anyone helping you after transplant should read it too. If you need additional copies, please ask your nurse or transplant coordinator.

It is normal to be anxious after transplant. Remember, you are not alone! Ask if you have questions. There is no such thing as a bad question – we will provide the information you need. No matter where you are, the Piedmont Transplant Institute team is only a phone call away: 1.888.605.5888.

Your hospital stay after surgery

Will my new kidney work right away?

A new kidney does not always work right away. This occurs particularly after deceased donor transplants due to the organ recovery process. You may need dialysis for a few days to weeks until the kidney function improves. Our team will let you know how your kidney is working and whether dialysis will be needed. Tests including an ultrasound or renal scan may be done to make sure there is normal blood flow to the kidney, and that the urine is draining properly into your bladder. A kidney biopsy will be done to check for rejection if you continue to require dialysis at two weeks after transplant. If you require temporary dialysis after transplant, this will not delay your discharge from the hospital as you can continue dialysis as an out-patient until the kidney recovers.

When will I be able to eat?

Initially after surgery, you can have ice chips. The morning after surgery, you will be given clear liquids if you are not nauseated. As your bowel function returns, you will be advanced slowly from a liquid diet to regular foods.

Your diet will be ordered depending on your kidney labs and other medical conditions such as diabetes. Please let us know if you have special dietary needs.

Fluid intake after transplant is very important. Unless instructed otherwise, you will be expected to drink approximately eight 8-oz glasses of water daily. You must avoid certain foods that interact with your new transplant medications; these include grapefruit juice, pomegranate juice and green tea. More details are in the **Diet** and **Medications** sections of this booklet.

What is the importance of deep breathing and the incentive spirometer?

Pneumonia can occur after any surgery. To keep your lungs healthy, it is best to get out of bed to a chair and walk as soon as you are able. The nurses will show you how to use an incentive spirometer which is a tool to help you take deep breaths.

What activities can I do immediately after surgery?

You should begin walking as soon as possible. In addition to reducing the risk of pneumonia, walking helps to prevent blood clots in the legs and will help post-operative constipation. Aim to walk at least three times a day. Physical therapy may be needed to help you improve your strength and activity.

How will surgical pain be controlled?

Immediately after surgery, you will be placed on a pain pump that allows you to control the amount of pain medication necessary to keep you comfortable. Once you are able to take in food, you will be placed on pain pills. These are ordered "as needed" which means you will need to tell the nurse when you need pain medication. You should always avoid ibuprofen and other non-steroidal anti-inflammatory medications (NSAIDs) as they can cause injury to your new kidney. You may use plain Tylenol for mild to moderate pain up to 3,000 mg/day. If needed, you may be given prescription pain medications. Most patients only need prescription pain medications for 1-2 weeks after surgery and should be discontinued as soon as possible.

What is a Foley catheter and when is it removed?

A Foley catheter is a tube inserted into your bladder during surgery that keeps your bladder empty. This allows the connection between your new kidney and the bladder to heal faster. The urine may be clear or bloody. When the urine has blood clots, the nurses may need to flush the catheter with fluid to help remove the clots. The Foley is normally removed by post-operative day two but may need to stay in for up to a week.

After removal of the catheter, please tell the nurse if you have pain over the new kidney/bladder or cannot urinate after 6 hours.

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What is a stent and when is it removed?

During the operation, a stent is placed in the ureter which connects the kidney to the bladder. The stent helps the connection between the ureter and bladder to heal faster. Most people cannot feel the stent, although sometimes there is the urge to urinate often. The stent remains for 2-3 weeks or per your surgeon and is removed during an outpatient clinic visit with a Urologist. The procedure done to remove the stent is called a cystoscopy. A small flexible tube is placed into the bladder in order to remove the stent. The entire procedure rarely takes more than 60 seconds.

How do I care for the transplant incision?

The transplant incision may be closed with surgical glue or staples. You may shower but must avoid baths until the incision is fully healed and the staples removed. Staples are removed during your clinic visit 2-3 weeks after transplant. Slight redness is common where staples enter the skin. Small amounts of clear yellow or pink-tinged drainage from the incision may

occur for 1-2 weeks. You should notify the transplant team right away if there is increasing drainage, swelling, redness, pain, or fever.

Avoid lifting anything greater than 10 pounds for 8 weeks after surgery and avoid exercises and activities that engage your abdominal/core muscles for the first 12 weeks. This will help your incision heal and lessen the risk of incisional hernia. Other activities, such as walking, are safe and encouraged!

How long will I stay in the hospital?

The average stay is four days. After discharge from the hospital, you will return to the transplant clinic within 3-4 days for your first clinic visit.

It is important that you make transportation arrangements for follow-up visits until you can resume driving. You will be able to drive in 3-4 weeks if you feel physically ready, your incision is healed and you no longer need to take prescription pain medications.



Preparing for Discharge

When is the discharge education class?

The discharge education class is held in the morning every Monday through Friday. Your nurse will inform you in advance when your education class will be. You are encouraged to have family or anyone assisting you in your recovery to attend the class with you! You will learn about your transplant medications, care of your incision, and post-transplant follow-up.

How will I know what medications to take after discharge?

Your medication list on discharge will be very different from when you came to the hospital. In addition to the new anti-rejection medications, you will take medications to help prevent infections after transplant (see Medications section). Some medications taken prior to transplant may be discontinued and you may

remain on others. Review your list of medications before you go home and ask if you have any questions. Your transplant team must approve any medications you take after transplant.

When will I be seen in clinic after discharge?

Initially, you will come to clinic and have labs drawn frequently to monitor the function of your new kidney and to make sure you are on the correct doses of anti-rejection medications. Rejection early after transplant does not cause symptoms until rejection is severe, the ONLY way to make sure your kidney is healthy is through frequent labs. Visits and labs become less frequent over time. This schedule is a guideline for how often you will come to transplant clinic, and will be modified based on your progress:

Time post-transplant	Clinic visit frequency	Lab frequency
Week 0-4	Once weekly	2 times a week
Months 2 and 3	Every two to three weeks	Once weekly
Months 4-6	Monthly	Every 2 weeks
Month 6	Resume follow-up with your primary nephrologist	
Months 7-12	At 9 months and 12 months	Monthly
Months 12-24	Every 6 months	Monthly
Year 2+	Every year	Every 2-3 months

When and where should I get my labs drawn?

For the first month after transplant, we ask that you return to a Piedmont hospital for all lab work. *Only the transplant hospitals in Georgia measure immunosuppression blood levels quickly.* If your kidney function and immunosuppression levels are stable three to four weeks post-transplant, you can obtain labs closer to home when you are getting labs in-between clinic visits. Preferred laboratories outside Piedmont hospitals include Lab Corp and Quest. Please discuss with your coordinator if you would like to set up labs close to home after the first month post-transplant.

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When should I return to my nephrologist and primary care physician (PCP)?

Approximately six months after transplantation, most of your care should be provided by your local doctors. It is important that you re-establish contact with your other physicians soon after you receive a transplant. We will send transplant clinic notes to the physicians you designate.

- Your transplant team will provide care for your transplanted kidney and prescribe your anti-rejection medications.
- Your local nephrologist will also monitor your kidney transplant function, and treat related conditions such as high blood pressure. Plan to resume regular follow-up with your nephrologist by six months post-transplant.
- ***For diabetics requiring insulin, please make an appointment with your PCP or Endocrinologist when you are discharged from the hospital.***
- All transplant recipients need a primary care physician to address routine medical conditions and to make sure you are current with age-appropriate cancer screening. You should see your PCP within 6 months after transplant.
- You should continue seeing any specialists (ex Cardiologist, Pulmonologist) that you saw prior to transplant.
- All transplant recipients need a skin cancer screening by a PCP or Dermatologist every year.

Discharge Checklist

Before you go home, you should have attended discharge education class and know the answers to all the following questions. If you do not, please notify your nurse or discharge coordinator.

- Medications to take after discharge
- How you will obtain your new transplant medications
- Name and phone number of your post-transplant coordinator
- Location of the post-transplant clinic
- Date and time of your first transplant clinic appointment
- How to care for your incision at home
- Arrangement for home health services (if applicable)
- How to check and record your blood pressure, temperature, pulse and weight

Who should I call if I have a question or concern after I am discharged?

If you have a question during office hours (8am-4:30pm), please call your post-transplant coordinator. Calls after 4:30pm on weekdays and during the weekend are transferred to our answering service and should be used if you require emergency access to a provider.

The Piedmont Transplant 24-hour phone number is **1.888.605.5888**.

You should call immediately if you experience any of the following symptoms before your first clinic visit:

- Any difficulty obtaining or taking your medications
- Temperature above 100°F (38.0°C)
- Increased pain, redness or drainage from your wound
- Weight gain of more than three pounds per day
- Decreased urinary output
- Bad smelling or very cloudy urine
- Pain or burning on urination
- Nausea, vomiting or diarrhea for over 24 hours
- Blood pressure lower than 100/60 or greater than 170/100
- Cough. If you have new difficulty breathing or chest pain, call 911.
- Thrush or ulcers of the tongue or mouth
- Blood sugar less than 60 or greater than 300 (greater than 200 if you received a pancreas transplant)

How do I use My Chart?

We encourage you to use My Chart, a free online tool to help you manage your appointments and see your test results. You can sign up for MyChart at <https://mychart.piedmont.org>.

Transplant Medications

Without medications called immunosuppressants, your immune system would attack a transplant and cause rejection and even failure of your new kidney. Because they suppress your immune system, immunosuppressants increase risk of infections especially right after transplant. We will prescribe anti-infection medications for the first 6 months. Immunosuppression medications can also increase your long-term risk of cancer. You will need to follow-up with your PCP to get routine cancer screening.

Taking your medications is one of the most important things you can do to keep your transplant functioning for years. It is a lot to keep track of – organization and commitment are the keys to your success!

These tips can make it easier. Try them and see what works best for you.

- Keep a list of medications in your wallet or on your cell phone.
- Choose specific times to take your medicine and stick to them.
- Use a watch or cell phone alarm to remind you it is time to take your pills.
- Use a pill dispenser to line up your medications for a whole week.
- Coordinate your pill-taking with other activities, such as meals.
- When traveling, take extra days of pills with you.
- Re-order your medications a week in advance so that you do not run out.
- Have a family member help to make sure you take your medicines.

Notify your transplant team if you:

- Cannot take or keep down your medications due to illness
- Are unsure of the correct dose of medication you should be taking
- Have a reaction to or side effect from a medication
- Receive a new prescription from a non-transplant doctor. Many medications interact with your

transplant medications so we need to verify if the new medication is okay to take.

General guidelines for storing your medications:

- Store in a cool, dry place.
- Do not store medications in the bathroom or above the stove as moisture and heat can damage them.
- Do not allow liquid medications to freeze.
- Do not store your medications in the refrigerator unless directed by the pharmacist.

You must take immunosuppressive medications for as long as your kidney transplant functions! **Never** stop taking your medications or change the dosage without the transplant team's approval. There is always a risk of rejection and loss of your new kidney.



How can I get my transplant medications?

Prescriptions for the transplant medications are initially ordered for a 30-day supply with 5 refills (6 months total). **You may be required to get your transplant medications from a certain pharmacy by your insurance.** Some pharmacies will mail your medications to you while others will require you to have them picked up. If you need to change pharmacies or wish to use mail order, discuss with your transplant coordinator.

TIP: If you have difficulty obtaining your transplant medications for any reason (insurance/financial), you must contact your transplant coordinator IMMEDIATELY.

Rejection may cause failure of your transplant kidney and return to dialysis. Our coordinators and social workers will assist you but we must know immediately if you cannot obtain your medications.

There are five classes of immunosuppression, you will take two to three to prevent rejection. Your doctors will choose the correct combination for you.

- Prednisone
- Tacrolimus or Cyclosporine
- Mycophenolic mofetil, Mycophenolic acid or Azathioprine
- Sirolimus or Everolimus
- Belatacept

Immunosuppression Medications

Immunosuppression medications are listed below by the generic name with brand names in parenthesis. Use of generic medications is allowed. Please notify us if your pharmacy dispenses a different generic for one of your anti-rejection medications.

Tacrolimus (Prograf, Envarsus)

Tacrolimus is available in an immediate release form (Prograf) or an extended release form (Envarsus).

Prograf is dispensed in 0.5 mg, 1 mg, and 5 mg capsules. Prograf is taken twice a day 12 hours apart. **Do not take Prograf until after your blood draw, and plan to take your Prograf 12 hours before your anticipated blood draw.** Bring your medication with you so that you can take it after your labs are drawn.

Envarsus is dispensed in 0.75 mg, 1 mg and 4 mg tablets. Envarsus is taken once a day and must be taken in the morning. **Do not take Envarsus until after your blood draw, and plan to take your Envarsus 24 hours before your anticipated blood draw.** Bring your medication with you so that you can take it after your labs are drawn.

Possible side effects of Tacrolimus:

- Increased serum creatinine. This can usually be reversed by lowering your dose.
- Tremors
- Headaches. Notify us if headaches are daily or severe.
- Hair thinning/loss. This usually improves over time.
- Diarrhea. Drink plenty of fluids to prevent dehydration. Notify your transplant coordinator if diarrhea lasts longer than 24 hours.
- Elevated blood sugar. Will be treated with medications if needed.
- Elevated potassium. You may require a low potassium diet.

Precautions:

- Tacrolimus absorption is affected by food. If you cannot tolerate Tacrolimus on an empty stomach you can take Tacrolimus with meals. **KEY: take Tacrolimus the same way each time (either before or with food) to maintain stable levels.**
- Tacrolimus levels are measured with every lab draw and the level is drawn BEFORE you take your morning dose. Do not take your medication until after labs are drawn.
- Tacrolimus has several interactions with other medications. Check with your transplant coordinator or transplant pharmacist before starting any new medication (including over the counter).
- Avoid herbal products, green tea, grapefruit or pomegranate juice.
- Notify the transplant clinic immediately if you think you are pregnant as Tacrolimus dosing is adjusted during pregnancy.

Cyclosporine (Neoral, Gengraf)

Cyclosporine is used as an alternative to Tacrolimus. It is dispensed in 25 mg or 100 mg capsules. It is taken twice a day, 12 hours apart. **Prior to your lab draws, do not take Cyclosporine until after your blood is drawn, and plan to take your Cyclosporine 12 hours the night before your anticipated blood draw.**

Possible side effects:

- Increased creatinine. This can usually be improved by lowering your dose.
- Increased blood pressure. Notify your transplant physician or coordinator if your blood pressure is elevated.
- Excessive hair growth.
- Overgrowth of gums. Maintain good oral hygiene
- and see a dentist every 6 months.
- Increased potassium. You may require a low potassium diet.
- Increased cholesterol. This may require medication.
- Edema/fluid retention. A low-salt diet can help.

Precautions:

- See **Tacrolimus** (above)

Mycophenolate mofetil (Cellcept)

Cellcept is given to prevent rejection. It is dispensed in 250 mg capsules or 500 mg tablets. It is prescribed twice a day and should be taken 12 hours apart. If you are having side effects from this medication, you may be instructed to take lower doses more frequently. Do not open capsules or cut tablets.

Possible side effects:

- Diarrhea. Drink plenty of fluids to prevent dehydration. Notify your transplant coordinator if diarrhea lasts longer than 24 hours.
- Nausea/vomiting. If you are unable to keep your medications down, notify your coordinator.
- Decreased white blood cell count. Your dose will be adjusted if this occurs.
- Anemia. Your dose may be adjusted if this occurs.

Precautions:

- Notify your transplant coordinator if you are experiencing any unusual bleeding or bruising.
- **Mycophenolate mofetil should NOT be used during pregnancy as it causes serious birth defects including ear malformations, cleft lip/palate.** Women of childbearing age sexually active with men should use two forms of contraception unless they have had a hysterectomy, an IUD, a tubal ligation or their partner has had a vasectomy.
- Birth control should be used for 6 weeks after stopping Mycophenolate mofetil before attempting pregnancy. If you would like to conceive after transplant, discuss with your physician before attempting pregnancy as we will change your mycophenolate to an alternative medication first (see **Fertility & Pregnancy** section). Men taking mycophenolate do not need to discontinue this medication when planning to father a child.

Immunosuppression Medications

Mycophenolic Acid (Myfortic)

Mycophenolic acid (Myfortic) is prescribed for patients that cannot tolerate Mycophenolate mofetil (Cellcept) due to side effects. It is dispensed in 180 mg or 360 mg tablets. It is taken twice a day, 12 hours apart.

Possible side effects:

- Constipation. You may need a stool softener. Drinking plenty of fluids will help.
- Nausea/vomiting. If you are unable to keep your medications down, notify your coordinator. You may require IV fluids.

Precautions:

- For better absorption, Mycophenolic acid should be taken on an empty stomach.
- **Mycophenolic acid should NOT be used during pregnancy as it causes serious birth defects** (see Mycophenolate Mofetil (Cellcept) above).

Prednisone

Prednisone is a steroid that helps prevent and treat rejection of your transplanted kidney. You will have to take this medication for as long as your kidney functions. Do not let anyone other than your transplant team adjust this medication. It is dispensed in 5 mg tablets and taken once a day.

Possible side effects:

- Increased appetite. Aim to eat three well-balanced meals a day (see **Diet**).
- Stomach ulcers. You will take medication such as Prevacid, Prilosec, Protonix, Nexium or Pepcid to block acid production for at least 1 month after transplant. Notify your coordinator if you have stomach discomfort, "heartburn" or acid reflux.
- Osteoporosis. Regular exercise can help counteract this effect.
- Diabetes. If you have diabetes, you may require more insulin after transplant. Diabetes developing after transplant is more common in people with history of diabetes during pregnancy and those that gain weight post-transplant.
- Mood swings. Inform your family members that this is a possible side effect. As the prednisone dose decreases, your mood swings will lessen. If you are hearing voices, hallucinating or feel like things are crawling on you, notify the transplant team immediately.
- Vision changes. May cause blurred vision. It can also cause permanent changes such as glaucoma and cataracts. Wait 3 months prior to getting new glasses or contacts as your vision may continue to adjust during that time.
- Skin changes. You may experience skin thinning, acne, sun-sensitivity and easy bruising. Cuts and scratches may heal more slowly. Wear gloves for activities such as yard work. Protect yourself by wearing SPF 30+ daily.

Alternative Immunosuppressants

If you are unable to tolerate our standard immunosuppression protocol, we will substitute one of the medications below. We will discuss the reasons for any alternative immunosuppression with you.

Azathioprine (Imuran)

Azathioprine is used in patients that cannot tolerate Mycophenolate mofetil (Cellcept) or Mycophenolic acid (Myfortic). It is also used as an alternative to Mycophenolate in female patients trying to conceive or pregnant as Mycophenolate causes birth defects. Azathioprine is dispensed in 50 mg tablets. It is prescribed once a day and can be taken morning or evening.

Possible side effects:

- Decreased white blood cell count. Your dose will be adjusted if this occurs.
- Anemia. Your dose may be adjusted if this occurs.

Precautions:

- Azathioprine strongly interacts with two medications for gout: Allopurinol and febuxostat (Uloric). Taking Azathioprine with either of these medications can cause severely low, even life-threatening blood counts. **Never take azathioprine with Allopurinol or Uloric without discussing with a physician first.**

Sirolimus (Rapamune)

Sirolimus is prescribed in 1 mg or 2 mg tablets. It is taken once a day in the morning. It should be taken 24 hours before anticipated blood draws. On lab days, bring your Sirolimus with you so that you can take it after blood is drawn.

Possible side effects:

- Increased cholesterol/triglycerides. You may need cholesterol medication.
- Anemia. Your dose may be adjusted.
- Low platelet count. This may result in unusual bleeding or bruising.
- Slower wound healing. **Notify the transplant team**

in advance if you are planning to have surgery. You may need to stop Sirolimus temporarily and take an alternative immunosuppressant until your surgical wounds are healed.

- Mouth ulcers

Everolimus (Zortress)

Everolimus is an alternative to Sirolimus. It is dispensed in 0.5 mg, 0.75 mg or 1 mg tablets. It is taken twice a day. Prior to your lab draws, do not take Everolimus until after your blood is drawn, and plan to take your Everolimus 12 hours the night before your anticipated blood draw. Bring your medication with you so that you can take it after your labs are drawn.

Possible side effects: See **Sirolimus** (above).

Immunosuppression Medications

Belatacept (Nulojix)

Belatacept is the only intravenous immunosuppression used after kidney transplant. It is used in patients who cannot tolerate *one* of their immunosuppression pills, you will still need to take other immunosuppression pills. Dose is based on your weight. It is given in an infusion center monthly.

Possible side effects:

- Edema. Eating a low salt diet will help.
- Anemia. We will monitor your lab work.

Precautions:

- Rarely, patients on Belatacept can develop a cancer called lymphoma, particularly affecting the central nervous system (brain/spinal cord). Notify your team immediately if you notice any enlarged lymph nodes, unexplained fever or weight loss, or develop any neurologic symptoms.

Tip: Always call your transplant team when prescribed any new medication. Many medications can affect how well the immunosuppression medications protect your kidney from rejection!

Anti-infection Medications

The risk of infection is greatest in the first 6 months after transplant. You will be placed on antibacterial and antiviral medications to prevent infection. More information about specific transplant-related infections can be found in the section **Infections**. You can help prevent infection by good hand washing, use of hand sanitizer, avoiding close contact with sick people, and obtaining recommended immunizations.

Antibacterial medications

Trimethoprim/sulfamethoxazole (Bactrim, TMP/SMX)

Trimethoprim/sulfamethoxazole, more commonly referred to as Bactrim, prevents Pneumocystis pneumonia, urinary tract infections and other bacterial infections. It is dispensed in single strength (400/80 mg) tablets. It is prescribed once a day for the first six months after transplant. If you are allergic to sulfa drugs, alternative medications will be prescribed to prevent Pneumocystis (**Dapsone, Mepron or inhaled Pentamidine**).

Possible side effects of Bactrim:

- High potassium levels
- Increased risk of sunburn. Do not forget to apply sunscreen daily!
- Nausea
- Itching/rash
- Low white blood count

Precautions:

- Do not take Bactrim if you are allergic to sulfa.
- Bactrim should not be used during pregnancy. Please call your transplant coordinator immediately if you think you are pregnant.

Alternatives to Bactrim:

- **Dapsone**
 - Dispensed in 100mg tablet taken once daily
 - Major side effects: anemia, low white blood count
- **Atovaquone (Mepron)**
 - Dispensed as a suspension, take 1,500mg (10ml) daily
 - Major side effects: rash, nausea
- **Pentamidine (Pentam)**
 - Inhaled medication administered once every 4 weeks in the pulmonary lab (77 Building 6th floor)
 - Major side effects: cough, wheezing, dizziness

Anti-Infection Medications

Antiviral Medications

Valganciclovir (Valcyte) or Acyclovir

Valcyte is given to help prevent or treat infections caused by a virus called cytomegalovirus (CMV). Over half of adults have been exposed to CMV during their lifetime, blood work obtained prior to transplant confirms if you have previously been exposed. If either you or your donor has been exposed to CMV, you are at risk for reactivation after transplant and will be prescribed Valcyte for 3-6 months to prevent reactivation. If neither you nor your donor have been exposed to CMV, Acyclovir is given for 3 months to protect against other viruses.

Valcyte is dispensed in 450 mg tablets. The dose is based on your kidney function. Acyclovir is dispensed in 200 mg or 400 mg tablets. Acyclovir is prescribed twice a day.

Possible side effects:

- Low platelet count. This may result in unusual bleeding or bruising.
- Decreased white blood cell count. Your dose will be adjusted if this occurs.

Precautions:

- Can cause birth defects. Use two reliable forms of birth control.
- Swallow the tablets whole. Do not break, crush or chew the tablet.

Antifungal Medications

Antifungal medications are used to treat fungal infections such as thrush and skin/vaginal yeast infections. Commonly used medications include Fluconazole (Diflucan) and Nystatin. Pancreas transplant recipients receive Fluconazole for 14 days post-transplant. Fluconazole is not routinely prescribed if you received a kidney transplant unless used to help increase Tacrolimus levels.

Precautions:

- Fluconazole and other antifungal pills will significantly raise Tacrolimus levels which can cause kidney dysfunction. If you need to take Fluconazole, we will adjust your Tacrolimus dose and monitor levels carefully. **Notify your coordinator before taking Fluconazole if ordered by a non-transplant provider.**

APPROVED OVER THE COUNTER (OTC) MEDICATIONS

Allergies	Constipation	Cough/Cold
Claritin/Alavert (loratadine) Allegra (fexofenadine) Zyrtec (cetirizine) Benadryl (diphenhydramine) Chlor-trimeton (chlorpheniramine) Flonase (fluticasone) Nasacort (triamcinolone) <i>*AVOID "D" products (pseudoephedrine/ phenylephrine)</i>	Colace (docusate sodium) Miralax (polyethylene glycol) Metamucil-like products (fiber laxative) Peri-Colace (docusate sodium/sennosides) <i>*Increase fluid and dietary fiber intake</i>	Mucinex/Robitussin (guaifenesin) Delsym (dextromethorphan) Cough drops (camphor and menthol) Vicks VapoRub topical <i>*OK to use "DM" products (guaifenesin/ dextromethorphan)</i> <i>*AVOID "D" products (pseudoephedrine/ phenylephrine)</i>
Diarrhea	Fever/Headache/Pain	Gas pain
Imodium (loperamide) <i>*Drink extra fluids like Pedialyte/ Gatorade/Powerade to replace electrolytes lost</i>	Tylenol (acetaminophen). Do not take more than 3,000 mg in 24 hours <i>*CALL clinic if temperature is > 101°F</i> <i>*AVOID NSAIDs (Advil, Aleve, Celebrex, Ibuprofen, Indocin, Midol, Mobic, Motrin, Naproxen, Vioxx, Voltaren)</i>	Gas-X/Mylicon (simethicone)
Heartburn/Acid-Reflux	Motion sickness	Nausea/vomiting
Pepcid/Pepcid AC/Pepcid Complete (famotidine) Zantac (ranitidine) Prilosec/Zegerid (omeprazole) Prevacid (lansoprazole) Nexium (esomeprazole) TUMS* Maalox/Mylanta* (calcium carbonate) <i>*Separate TUMS, Maalox, Mylanta from medications by 2 hours</i>	Dramamine (dimenhydrinate) Bonine/Antivert (meclizine) <i>*Take 1 hour prior to travel</i>	Cola syrup (flat soda) Emetrol (phosphorated carbohydrate) <i>*Contact the clinic if unable to keep anti-rejection medications down</i>
Sleeplessness/insomnia	Sore throat	Yeast infection
Unisom (doxylamine) Tylenol PM/Benadryl (diphenhydramine) Melatonin <i>*Exercise, avoid caffeine after noon, set a sleep schedule</i>	Chloraseptic spray/lozenges	Monistat vaginal cream (miconazole) Gynazole vaginal cream (butoconazole) Vagistat vaginal ointment (tioconazole)

Complications After Transplant

Infections

You will be more susceptible to infections after your transplant due to need for immunosuppressants. The risk of infection becomes less as your anti-rejection medications are decreased over time. You can help prevent infection with good hand washing, use of hand sanitizer, avoiding people when they are sick, and keeping up with recommended immunizations. If possible, avoid crowds for the first 4 weeks after transplant. It is not necessary to wear a mask unless instructed to by our physicians. Call your transplant coordinator if you think you have an infection.

Viral Infections

Cold and Flu

You will be more susceptible to catching the common cold. The best prevention is to limit exposure. Avoid others when they are sick, wash hands and/or use hand sanitizer frequently.

If you have a cold, our team has approved over the counter medications that are safe for you to take (see **List of Approved OTC Medications**). There are several over-the-counter cold and cough medications that may directly harm your kidney transplant, interfere with the level of your immunosuppressive medications or worsen high blood pressure. Carefully read the label as brands often have more than one formulation. **You should always avoid medications containing non-steroidal anti-inflammatory drugs (NSAIDs), pseudoephedrine, phenylephrine, and neo-synephrine.** For example, plain Claritin is safe, but Claritin-D which contains pseudoephedrine is not safe.

If you are diagnosed with flu, prescription Tamiflu is safe to take. After you are three months post-transplant, we recommend getting a yearly flu shot to reduce your risk of flu.

Cytomegalovirus (CMV)

CMV is one of the most common viral infections in the transplant patient. The risk of CMV is highest in the first 3 months after Valganciclovir (Valcyte) is discontinued. Symptoms can include low white blood cell count, fever, fatigue, diarrhea, night sweats, aching joints, headaches, vision problems, and cough or shortness of breath. A blood test can quickly confirm CMV infection. Treatment is with Valcyte or intravenous ganciclovir for several weeks, and may require hospitalization if symptoms are severe. Early detection is key! Notify your coordinator if you develop these symptoms especially if you recently stopped Valcyte prophylaxis.

BK virus (BKV)

BK is a virus that can cause a viral kidney infection (nephritis) within the transplanted kidney. Patients usually do not have symptoms of BK until there is dysfunction of the kidney transplant. BKV kidney infection can be prevented by screening your blood for the virus and lowering immunosuppression if BK is found. You will have screening tests for BKV done with your bloodwork every month for the first 6 months after transplant, and periodically thereafter. If you develop BK infection, your immunosuppression will be reduced, and you will have labs every 1-2 weeks until the blood result becomes negative.

Herpes simplex virus (HSV)

These viruses most often infect the skin but can also turn up in other areas like the eyes and lungs. Symptoms of herpes include feeling weak and having painful, fluid-filled sores in your mouth or genital area. Herpes infections in transplant patients are not necessarily transmitted sexually. Most herpes infections are mild and can be treated with lotions or pills; more severe cases may require intravenous antivirals.

Varicella-zoster virus (VZV)

When people are first infected with VZV, this is called varicella or “chicken pox”. This commonly appears as a rash or small blisters and usually occurs in childhood. Even after symptoms resolve, the virus can remain in the body. Reactivation of VZV causes herpes zoster or “shingles”.

If you did not have chicken pox prior to transplant, you are at risk for varicella infection. The varicella vaccine may be given prior to transplant, however, this vaccine cannot be given after transplant as it is a live vaccine and can cause disease in an immunosuppressed patient (see **Vaccinations** section).

If you have had chicken pox prior to transplant you are at risk for herpes zoster. You may receive a shingles vaccine prior to transplant. Zostavax cannot be given after transplant as it is a live vaccine, and there is not enough safety data to recommend the Shingrix vaccine in post-transplant recipients. The rash of zoster is usually very painful, located on only one side of the body, and appears as several red bumps filled with fluid (vesicles). It is treated with oral or intravenous anti-viral medication. You will need hospitalization if you develop zoster involving the face or in more than one area of the body.

Complications After Transplant

Bacterial infections

Wound infections

If you have a fever and/or see redness, thick discharge, pus, or swelling at your incision, call your transplant coordinator. We will prescribe an antibiotic and instruct in wound care if a wound infection is present. Rarely, opening of the incision or surgery may be needed to help treat a wound infection.

Urinary tract infections (UTI)

Signs of a urinary tract infection include pain with urination, urinary frequency, and fevers. UTI can also cause nausea and vomiting. You will be placed on an antibiotic for the first 6 months after transplant to prevent UTI. However, you should call if you develop any of these symptoms even if still taking the preventative antibiotic.

Clostridiodes difficile (C.diff)

Clostridiodes difficile causes an infectious diarrhea/colitis that can occur after transplant due to immunosuppression or antibiotic. C. diff. infection is treated with oral vancomycin and in some cases, reduction of immunosuppression. Severe cases require referral to an Infectious Disease specialist.

Fungal infections

Candida (yeast)

Candida is a fungus that can cause a wide range of infections in the transplant patient. It can infect the mouth and throat (thrush), esophagus, wound, vagina, bladder, lungs and eyes. Candida is most severe when it gets into the blood stream. Treatment of Candida can be with skin creams, pills or intravenous antifungal medications. **Pills and intravenous antifungals cause changes in your immunosuppressive drug levels and require close monitoring.**

Pneumocystis pneumonia

Pneumocystis jirovecii is a fungus that can cause pneumonia in immunosuppressed people. An antibiotic will be prescribed for the first 6 months after transplant to prevent this infection.

Vaccinations

Vaccinations can reduce risk of certain infections after transplant. Because vaccines depend on your immune system to be effective, transplant recipients do not respond as well to vaccines especially in the first 3-6 months after surgery. Immunizations should be given before transplant whenever possible.

After receiving a kidney transplant, **you may never have a live vaccine.** The following is a list of vaccines that are safe, and vaccines to avoid.

Safe After Transplant	Avoid After Transplant
Influenza-injectable	Influenza- mist
Pneumovax and Prevnar	Varicella
Diphtheria-tetanus-pertussis (Td or Tdap)	Shingles -Zostavax (live vaccine) -Shingrix: insufficient evidence on safety in transplant recipients
Hepatitis B	MMR (measles, mumps, rubella)
Hepatitis A	Smallpox
Inactivated polio	Oral polio
Meningococcal	BCG (Bacillus Calmette-Guerin)
Rabies	Yellow fever
HPV	Rotavirus
Japanese encephalitis	Anthrax

What if my family members need vaccination?

It is recommended that family members and close contacts of transplant recipients be immunized. If inactivated or “safe” vaccine options are available for household members, they are preferred (example the flu shot is preferred to the mist). With the exception of smallpox and oral polio vaccines, there is only a small risk of transmission from live vaccines that lasts 2-4 weeks after vaccination. Infection prevention techniques such as avoiding close contact and good hand washing will help minimize risk.

If you are directly exposed to a person who just received the varicella vaccine and developed a rash, received the live shingles (Zostavax) vaccine, or has chicken pox or shingles, please call the transplant team. Transplant recipients should avoid contact with anyone diagnosed with chicken pox/shingles until all lesions are completely crusted over. Before transplant, lab work was done to see if you had immunity to varicella. If you did not have immunity, we may prescribe an antiviral medication for 2 weeks.

Infants routinely receive the rotavirus vaccine, and live virus may be in the stool for up to 4 weeks after vaccination. Avoid changing the diapers of infants who have received the vaccine for 4 weeks and encourage those changing diapers to follow good handwashing practices.

Tip: Avoid any “live” vaccines after transplant. If you are unsure if a vaccination is safe, contact a member of the transplant team.

Kidney Rejection

What is rejection?

Kidney rejection occurs when your immune system attacks your new kidney because it recognizes the transplanted kidney as foreign. To prevent rejection, you must take anti-rejection medications exactly as prescribed for as long as your transplant functions.

Kidney rejection does not necessarily mean kidney failure. Many episodes of rejection can be treated successfully if detected early enough.

Even if you take all medications as prescribed, rejections can occur. Rejection occurs most frequently during the first six months after transplant. Early on, you may have rejection with no noticeable symptoms. Frequent blood tests are critical in the first several months after transplant to detect changes in the creatinine and immunosuppression levels. Always keep your clinic and lab appointments, even if you are feeling well. Notify your transplant coordinator immediately if you have any of the following:

- Pain or tenderness over your kidney transplant
- Less urine output than usual
- Weight gain of more than 3 pounds per day
- Sudden increase in blood pressure
- Fever
- Blood in the urine

Rejection episodes are diagnosed by a biopsy of your transplanted kidney and are treated by changing the dosages of your anti-rejection medications. Some patients with rejection need to be hospitalized for intravenous anti-rejection medications.

Kidney Biopsy

The most accurate way to diagnose kidney rejection is through a kidney biopsy.

What is a kidney biopsy?

A kidney biopsy is a minimally invasive procedure performed to obtain a small sample of your kidney and determine why the kidney isn't functioning normally. It can be done as an outpatient or inpatient.

Preparing for the biopsy

Do not eat or drink anything after midnight the night before the procedure. You will be instructed to hold any medications that increase risk of bleeding for several days prior to the biopsy (For example, Aspirin, Coumadin, Plavix, Eliquis, other blood thinners) but you should take all other medications. For outpatient biopsies, a family member or friend needs to accompany you to the test and the total procedure/recovery time is approximately 6 hours. Kidney biopsies are done by Radiologists.

Test procedure

An ultrasound of the kidney will be done first. You will lie on your back and a small probe called a Doppler is placed on the skin over the transplanted kidney to obtain pictures of the kidney. If there is a fluid collection in or around the kidney, or blockage of urine flow from the kidney into the bladder, the radiologist will call the transplant team.

Your skin will be cleaned with a disinfectant. The skin is then injected with an anesthetic that can burn when

first injected, and then makes the skin and tissues between the skin and the kidney numb. The physician then makes a small incision and inserts a biopsy needle through the incision into the transplant kidney. Approximately two small pieces of kidney are obtained. The procedure only lasts a few minutes.

Once the biopsy is done, you will need to be on "bedrest" for four hours. The nurse will check your urine for visible blood and monitor your vital signs. Your blood counts will also be checked before you are released home to ensure no significant bleeding was caused by the biopsy. In rare cases, you may need to stay in the hospital overnight if there is blood in the urine or bleeding around the kidney.

If you are discharged home after the biopsy, make sure a family member or friend accompanies you home and that you follow these steps:

- Perform no strenuous activity for 24 hours (includes sexual activity).
- If your urine is pink, drink more fluids.
- If you see a blood clot or bright red urine, call the transplant clinic/after-hours number immediately.
- If you are having trouble urinating or your urine output is less than usual, call the transplant clinic immediately.

Your biopsy results will be available in 1-2 days. You will be notified by the physician or transplant coordinator to discuss the results.



Life After Transplant

After your transplant, there will be adjustments as you recover from surgery and adapt to new medications and diet. You and your family should expect some ups and downs related to your physical recovery as well as emotional reactions to transplant. If you had a sudden, unexpected transplant, you may experience even more difficulty adjusting even if you are feeling physically better. Life after transplant is different for everyone, no one can predict exactly what your recovery will be like, and what complications may occur. Our goal is to help you along the way! Our transplant physicians, coordinators, social workers and dietitians can provide assistance and resources to help with issues commonly encountered after transplant.

Diet

Healthy eating is an important part of healing after transplant. Our transplant dietitians can help you develop an eating plan that provides a balanced diet. By meeting your nutritional needs, you will help your body heal, fight infection, and achieve a good body weight. Even if your appetite is not normal right after surgery, it is still important to eat. Think of food as medicine – it helps you get well. Although weight loss commonly occurs in the first post-transplant month, it is common to gain weight as you feel better due to improved appetite and reduced dietary restrictions. Excessive weight gain can be avoided by eating a healthy, balanced diet combined with regular exercise. For in-depth information on “Food Safety for Transplant

Recipients”, we suggest an excellent booklet available online from the USDA. Your coordinator can also email you a copy of the PDF:

https://www.fsis.usda.gov/shared/PDF/Food_Safety_for_Transplant_Recipients.pdf

Below are some tips to help you achieve a well-balanced diet:

- Drink plenty of water. Avoid sodas and other beverages high in calories.
- Increase the amount of vegetables, fruits and whole grains in your diet.
- Choose a diet low in saturated fat and cholesterol. Saturated fats are those that are solid at room temperature such as fat found on steak, butter, and fats in cheese and cream. You can reduce saturated fat intake by trimming meat, removing skin from poultry, and grilling, boiling or steaming food instead of frying.
- Keep salt intake moderate. Limit salt if your blood pressure is hard to control or you have fluid retention/swelling.
- Limit sugar intake. Sugars have no nutritional value and are empty calories!
- Avoid “super sized” portions. If you finished eating your meal and still feel hungry, drink some water and wait 20 minutes before eating something else. It may take your stomach awhile to signal that it is full.



Foods, teas and supplements to avoid after transplant

There are foods and beverages that you **must avoid** after transplant as these foods interact with your transplant medications:

- Grapefruit/grapefruit juice (also found in Fresca and Sunny D)
- Pomegranate juice
- Jackfruit
- Green tea
- Herbal supplements: these are not regulated by any government agency and are not tested for safety, side effects, or drug interactions. For example, St. John’s Wort is known to increase the risk of rejection by decreasing the amount of anti-rejection drugs in your blood.

May I have raw sushi, raw oysters or have my steak cooked medium rare?

No, no and no! Here are safety tips

- You should not eat rare or medium-rare foods.
- Ensure fruits and vegetables have been thoroughly washed.
- All dairy products (milks/cheeses) should be pasteurized.
- Do not eat raw or undercooked eggs.

What can I use to season my foods?

You may use the following herbs and spices in moderate amounts for cooking. You should avoid consuming them in large amounts. It is NOT safe to take them in the form of supplements (capsules, tablets, powders) or as a tea. Please ask your transplant coordinator or pharmacist if you have any questions or concerns:

- Allspice, anise, basil, bay leaf, caraway, cilantro, cinnamon, cloves, coriander, curry, dill, dry mustard, garlic/garlic powder, ginger root/powder, marjoram, mint, nutmeg, onion/onion powder, oregano, paprika, parsley, pepper, rosemary, sage, saffron, tarragon, thyme, turmeric.

Potassium, phosphorus and magnesium

Many patients develop LOW phosphorus and magnesium after transplant, but may have HIGH potassium levels due to medications (particularly Bactrim). **Unless instructed otherwise, you should follow a low potassium diet for the first 6 months.** Your physician/coordinator will tell you if you need to increase your phosphorus or magnesium intake.

The following foods are **high** in potassium, phosphorus and magnesium:

POTASSIUM (limit these foods in the first 6 months)	PHOSPHORUS	MAGNESIUM
Banana	Dark cola	Spinach
Cantaloupe	Milk	Peanuts, other nuts
Oranges/OJ	Yogurt	Shrimp
Tomatoes (whole/sauce)	Beans	Tomatoes
Potatoes	Tofu	Chocolate
Raisins	Whole grains	Beets
Broccoli	Cheese	

Life After Transplant

Exercise

Exercise is important for your health and well-being. Exercise improves your energy level, helps to achieve and maintain a healthy weight, improves sleep, reduces stress, can help keep bones strong, and decreases the risk of cardiovascular disease! Initially, you may find it hard to get started as you heal from surgery and adjust to your new medications. It is also difficult to change behavior if you were not previously exercising. Remember, you have already overcome obstacles that few people have had to endure. We hope your new kidney will help you feel better and give you the motivation to start a regular exercise routine.

What exercise can I do immediately after transplant?

- Start walking as soon as you can. Ask the nurse to assist you while in the hospital. When you are at home, get a family member or friend to walk with you.
- **Do not lift more than 10 pounds for 8 weeks after transplant.**
- **Avoid exercises that use or put strain on abdominal “core” muscles for 12 weeks.** Common examples would be crunches, a golf swing, yoga poses with abdominal twisting.
- Postpone water exercises until your incision is fully healed/closed.
- Safe exercises in the first 12 weeks include walking, treadmill, elliptical, stationary bike.
- Activity should be gradually increased based on your comfort level and ability. Try increasing the duration of your activity by one minute every two days. *Your goal should be 30 minutes of consistent aerobic activity 3-5 days a week.*

Do not exercise if you have any of the following:

- Pain in the joints that is made worse with activity
- Chest pain, palpitations or unusual shortness of breath

Driving

You may return to driving once cleared by your transplant physician. Normally, you can resume driving in 3-4 weeks once you feel ready, your incision is healed, and you are no longer requiring prescription pain medications.

Returning to Work

If you were working before the transplant, you should be able to return to your job in 6-12 weeks once your transplant physicians feel you are ready. You may have certain restrictions at first depending on your physical condition and your job duties. Please ask your transplant coordinator if you need paperwork completed for your employer.

If you were not working before the transplant, Georgia Transplant Foundation has a program called JumpStart (gatransplant.org) that will help train you or assist you in finding a job. All you have to do is call and speak with your social worker about this unique program.

Sexuality, Fertility & Pregnancy

You may resume sexual activity as soon as you feel well enough and your incision is healed. Your sexual functioning may be affected by your surgery and certain medications. If you experience sexual dysfunction, talk to your transplant physician.

Women

Female transplant recipients commonly develop urinary tract infections and this may be related to sexual intercourse. Urinating soon after intercourse may minimize the risk of a urinary tract or bladder infection.

Contraception

Although pregnancy is rare for women on dialysis, fertility is rapidly restored within weeks in premenopausal females. Women who have not had periods while on dialysis may regain periods soon after transplant. You can get pregnant! One-third of pregnancies after transplant are unplanned and medications used after transplant can cause serious birth defects. **If you are of child-bearing age, you must use contraception to prevent unplanned pregnancy.** Your transplant physician and gynecologist can discuss various methods of birth control with you.

Intrauterine devices (IUD) have failure rates <1% and are a safe form of birth control if preferred by you and your gynecologist. Other acceptable options include combined hormonal pills, progestin only pills, injectable contraception (example Depo-Provera), and implantable contraception (example Nexplanon). Contraception with high pregnancy rates include condoms alone, rhythm method and withdrawal.

Due to the risk of serious birth defects, women on mycophenolate (Cellcept/Myfortic) who are sexually active with males must use 2 forms of birth control unless they have had a hysterectomy, IUD, tubal ligation, or partner with vasectomy. Some hormonal birth control methods (example birth control pills) have

risks including blood clots in the legs and worsening of high blood pressure. Discuss your contraception plan with your transplant physician and pharmacist.

Remember, condoms should be used in addition to birth control to prevent sexually transmitted diseases.

Pregnancy

There are thousands of women who have received a kidney or kidney-pancreas transplant that have had successful pregnancies. If you are interested in pregnancy, you need to discuss with your transplant physician **before** trying to conceive. In order for your kidney graft to stay healthy, and to have a healthy baby, we recommend:

- Wait to attempt pregnancy for a minimum of 1 year after transplant because:
 - Outcomes for both mom and baby are best if you have good kidney function with minimal protein in the urine, no rejection episodes and well-controlled blood pressure.
 - Infections such as CMV which can impact the baby are less common after the first post-transplant year.
 - Medications used in the first year (example Valcyte) can cause birth defects.
 - Doses of immunosuppression (tacrolimus) which affect fetal growth are lower after the first post-transplant year.
- Certain anti-rejection medications (example Mycophenolate) and blood pressure medicines (example Lisinopril) can cause birth defects. These medications must be stopped and replaced with safe alternatives for **a minimum of 6 weeks** before pregnancy is attempted. Your physician needs to review your medication list in advance.
- If your kidney disease is genetic (example polycystic kidney disease) discuss with your physician the risk of your child being affected.

Life After Transplant

If you become pregnant:

- Notify your transplant team immediately.
- You are encouraged to register with the Transplant Pregnancy Registry International, an organization that monitors outcomes of mom and baby (www.transplantpregnancyregistry.org).
- Levels of anti-rejection drugs in your blood can change during pregnancy. To avoid rejection, these levels must be more closely monitored (at least once a month).
- It is more important to monitor your blood pressures at home during pregnancy and notify your transplant physician and OB immediately if they are high.
- Once pregnant, you will need to see an obstetrician experienced in treating transplant patients. Your pregnancy will be treated as “high-risk”.

Breastfeeding

Breast feeding can benefit mom and baby. Benefits include bonding between mom and baby, decreased risk of infant infections including ear and gastrointestinal infections, decreased post-partum depression, maternal weight loss and financial considerations. There is limited but increasing evidence on the safety of breastfeeding if you take Prednisone, Tacrolimus and Azathioprine (Imuran). Studies on Tacrolimus show that due to limited transfer from maternal blood to breastmilk, exposure to the breastfed infant is < 1% the maternal dose. This is less than the fetus was exposed to in utero. There is minimal information on breastfeeding with less commonly used immunosuppressants such as Belatacept. Your wishes, your health and health of your baby, immunosuppression regimen and pediatrician recommendations should be discussed with our team if you wish to breastfeed.

Men

Sexuality

Men can experience erectile dysfunction prior to and after kidney transplant. Common causes include diabetes, medication effects, and low testosterone levels. If you experience this, our transplant team can refer you to a Urologist.

Fertility

Thousands of men have fathered children after having kidney transplants. Some anti-rejection medications can affect fertility (example Sirolimus, Everolimus). Please discuss with your physician if you are diagnosed with fertility issues. Unlike female transplant recipients, men taking Mycophenolate (Cellcept/Myfortic) do not need to stop their medication to father a child. Outcomes for children fathered by male transplant recipients are similar to the general population.

Smoking/Smokeless Tobacco

Do not smoke cigarettes, cigars, pipes, vape or use marijuana after your transplant. It is well known that tobacco is harmful to your health, and use of any form of tobacco while being on immunosuppression drugs further increases your risk for diseases such as emphysema, lung and oropharyngeal cancers, heart disease, and bacterial pneumonia. Additionally, avoid smoking marijuana as this has been associated with fungal pneumonia. *All of these complications can be life-threatening in a transplant patient.* You may want to join a program to help you quit using tobacco. There are medications (example Chantix) that can be used in transplant patients. Speak with your transplant coordinator or physician if you need help.

Alcohol

If you have a history of alcohol abuse or alcoholism, avoid alcohol after transplant. Otherwise, you may have alcohol in moderation, not exceeding 1-2 drinks per day.

Pets

Some pets including birds, turtles, chickens and reptiles can carry diseases that can spread to humans; these are NOT recommended post-transplant. You can have dogs, cats, fish, cows, and horses with precautions. Keep pets well-groomed and clean. Wash your hands thoroughly after handling pets. Make sure your pets have appropriate and regular veterinary care including vaccination. Keep cat litter boxes away from kitchen/eating areas and have someone else clean the litter box.

Travel

You should not plan long-distance (more than 5 hours by car) or air travel for 3 months within the US and for 6-9 months outside the US (including cruises) unless a transplant physician has given approval. Complications including rejection and infection (UTI/CMV) are most common during the first 9 months, and you may require hospitalization to treat them. Travel to rural locations where there is no transplant center nearby can be especially risky.

Travel tips:

- In the first 3 months after surgery, you are at higher risk for blood clots in the legs. When taking a trip, it is important to walk every 90 minutes.
- You will not need a physician’s note to fly.
- When traveling by air, keep your medications in their original containers and transport in your carry-on luggage. You can take a pill box to use when you arrive at your destination. It is always a good idea to bring a few extra days’ supply of medications in case your return is delayed.
- In a foreign country, drink bottled water and avoid ice in your drink. Brush your teeth with bottled water. Avoid raw fruits and vegetables.

- Travel to a foreign country may require special vaccines. Speak with your transplant team to ensure you are appropriately vaccinated. Some vaccines are live vaccines and are not safe for transplant patients (see **Vaccinations** section). We will provide a letter indicating that you cannot receive these vaccines if needed.

Outdoor Activities

You may enjoy outdoor activities such as hiking, camping and hunting. Following are tips to increase safety of these activities:

- Remember to follow the 10-pound lifting restriction for 8 weeks after transplant. This includes a backpack!
- Stay well hydrated. You may need to increase your fluid intake if outside in the heat.
- Certain illnesses are transmitted by tick and mosquito bites that can be serious in a transplant patient (example Rocky Mountain Spotted Fever, West Nile virus). Wear protective clothing and use DEET-based insect repellent on exposed skin and applied to clothes. Check your body, gear and pets for ticks when you return.
- Wear sunscreen (including lip balm with SPF) and protective clothing to reduce risk of skin cancer.
- You may swim as long as your transplant incision and any other surgical sites (example peritoneal dialysis catheter removal site) are fully healed. You can swim in swimming pools and the ocean. Not all pools are equally maintained; you must use your best judgment to select safe, clean pools for swimming. We recommend that you avoid swimming in fresh water (lakes/rivers) due to risk of infection.
- Hot tubs should be avoided due to risk of infection.

Life After Transplant

Dental and Eye Care

When can I go to the dentist?

- Except for a tooth ache or dental emergency, we recommend resuming regular follow-up at 3-6 months post-transplant. Good dental hygiene (including flossing) decreases risk of gum disease or oral infection. Cyclosporine can cause overgrowth of the gums called hyperplasia. The American Heart Association no longer recommends routine use of antibiotics before dental procedures for kidney transplant patients. If you have a history of heart valve infection, heart valve surgery, heart transplant or congenital heart disease, please check with your cardiologist to see if antibiotics are necessary for dental visits.

When can I get an eye exam?

- After transplant, you may notice changes in your vision. Prednisone can cause blurred vision or cataracts. Except in the case of an emergency, you should wait to have your vision checked for corrective lenses until 3 months post-transplant as your vision may take time to stabilize. Have an eye exam every year, or earlier if you experience eye pain or changes to your vision.

Cancer Screening

The immune system naturally helps to protect our bodies against cancer. Patients on immunosuppression are therefore at higher risk for developing cancer. The risk of colon, breast, and prostate cancer is slightly higher than the general population, while the risk of skin cancer is much greater. Following are guidelines regarding cancer screening after transplant:

Women

- Pap and pelvic exams if over age 18. Follow recommendations of your gynecologist regarding frequency of repeat PAP testing.
- Self-breast exam every month.
- Annual mammogram when over the age of 40. If close family members have had breast cancer, discuss with your gynecologist whether you need earlier screening.

Men

- Prostate exam and PSA done starting at age 50 or per your PCP/Urologist. If close family members have had prostate cancer, you may need earlier screening.

Men and Women

- Colonoscopy at age 45. You may benefit from earlier screening if close family members have had colon cancer, discuss with your physician. *You do not need an antibiotic prior to a colonoscopy.*
- Annual skin cancer screening by a dermatologist or your PCP. Schedule your first skin exam within 6-12 months post-transplant. If you develop skin cancer, you will be seen more frequently.

Skin and Hair Care

Because of your immunosuppressive medications, you are at increased risk of skin cancer. The most common types of skin cancers are squamous cell carcinoma (SCC), basal cell carcinoma (BCC) and melanoma. Squamous cell carcinoma is 65 times more common in transplant recipients, is slow-growing and rarely fatal. Melanoma is the most dangerous type of skin cancer, and is 3 times more likely to develop in transplant patients. The key to avoiding skin cancer is prevention!

- Daily use of sunscreen on exposed skin including face, use SPF 30+.
- Lip balm containing sunscreen.
- Wide-brimmed hats (many cancers occur on head, neck and arms).
- Avoid sun between the hours of 10 am and 2 pm.
- The more skin you cover, the better.
- Annual skin exams. Be seen earlier if you notice any unusual skin changes!

Hair loss can occur soon after transplant. Common reasons include: stress of surgery, effect of Tacrolimus, and other issues such as iron deficiency, thyroid dysfunction. Although hair loss can be upsetting, it usually improves over time. Discuss with your physician if this occurs. Helpful tips:

- Avoid putting stress on hair (leave hair loose, avoid ponytails or anything that pulls on hair).
- Use of over-the-counter shampoos such as Rogaine or Nioxin, or shampoos containing biotin is safe and may help.
- Over the counter Biotin supplements (2-5 mg/day) are also safe to take.

It is ok to color your hair after transplant. However, if you are experiencing hair loss or breakage in the initial post-transplant period, you may wish to postpone hair color until this improves.

Life After Transplant



Writing to your Donor Family

A letter is a wonderful way to express your thanks to the donor family for the gift of life. We can provide you with suggestions for preparing the letter. Your coordinator will ensure the letter is delivered to the donor family.

Many donor families are very pleased to hear from the transplant recipients and are grateful for the opportunity to share about their loved one. Other donor families are so grief-stricken that they need time to respond, and some may never be able to respond. Over time, you may wish to write to them again. You may have an opportunity to speak to them on the phone or even meet them, but building this relationship often takes time. In the beginning, just focus on your first letter. Do not worry about saying just the “right thing” or bringing back difficult memories for the donor family. The words “thank you” really do say it all.

Best Wishes!

Congratulations and best wishes on your transplant! We hope that in appreciation of the gift of life given by your donor, you will do the best you can to care for your new kidney and maintain good health. Most importantly, commit to always taking your medications and following up with the transplant team as advised. **If you encounter a problem obtaining or taking your medications, contact us the same day.** Know the warning signs of rejection and infection, and familiarize yourself with your new medications and their side effects.

Call your transplant team if you have any concerns. The earlier you detect and report a problem, the greater the chance your transplant kidney will stay healthy. Remember, we are never more than a phone call away!

Contacts

Piedmont Transplant Institute

Office: **404.605.4600**

24-hour: **1.888.605.5888**

Website: **piedmonttransplant.org**

Helpful Websites

Georgia Transplant Foundation

www.gatransplant.org

GTF has several programs helping transplant candidates and recipients with financial and transportation issues. Additionally, the JumpStart program helps transplant patients transition to employment.

www.Transweb.org.

A site dedicated to transplant patients and donors that presents detailed information about transplantation in simple to understand language, including real stories from patients and their families.

www.Unos.org.

UNOS is the United Network for Organ Sharing, a non-profit organization that manages the nation’s transplant system with the federal government. This is a very comprehensive website aimed at both patients and medical professionals interested in solid organ transplant.

USDA Food Safety for Transplant Recipients

https://www.fsis.usda.gov/shared/PDF/Food_Safety_for_Transplant_Recipients.pdf

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