



MedStar Health

MedStar Georgetown Transplant Institute

Pre-liver transplant handbook.

It's how we
treat people.

Members of my transplant team

Primary care physician: _____ Phone _____

FAX _____

Address: _____

Transplant clinic: _____ Phone _____

Transplant surgeon: _____ Phone _____

Hepatologist: _____ Phone _____

Other specialist: _____ Phone _____

Pre-transplant nurse coordinator: _____ Phone _____

Social worker: _____ Phone _____

Dietitian: _____ Phone _____

Physical therapist: _____ Phone _____

Post-transplant provider: _____ Phone _____

Pharmacy: _____ Phone _____

FAX _____

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Contacting the liver transplant team

The transplant team is available 24 hours a day, 7 days a week. **For emergencies, please call 911.**

- If the call can wait for normal business hours, call the transplant office at **202-444-3700**. The office is open from 8:00 am to 5:00 pm. If a coordinator is not available when you call, leave a message and your call will be returned. We ask that you call the office for medication refills, non-urgent questions, or anything that can wait for a response.
- If it is after hours or the weekend and the call is urgent, call **202-444-3700** and follow the prompts to reach the on call coordinator. This would include notification of a patient becoming sicker, being hospitalized locally, or having new problems.
- Please know that though the nurses are not at the hospital during non-business hours, we are available for urgent needs.

Patient rights and responsibilities

As a patient you have the right to:

- Respectful and considerate care.
- Privacy.
- Clear and complete description of your condition and treatment choices.
- Ask questions and expect answers about risk and benefit before you give your permission for any procedure or research study.
- Refuse a diagnostic or therapeutic procedure, treatment, or research study.
- Access your medical record.
- Contact a Patient Relations representative if you have concerns or complaints about the care you receive.
- Leave the Medical Center as soon as possible with instructions about caring for yourself at home.

As a patient, you have the responsibility to:

- Give your health care team the most complete and correct information about your health, health history, insurance, and related issues.
- Tell your transplant team about changes in the way you feel when you are in the hospital, in the clinic, or at home.
- Follow your plan of care.
- Be considerate and respectful of other patients and employees as well as others' property and equipment.

The MedStar Georgetown Transplant Institute liver transplantation program goals

Our goal is to return patients with advanced liver disease to a high level of health and productive life. It is important for patients and families to learn about the risks and benefits of liver transplantation. Education is an ongoing process based on the needs of the transplant recipient and family. The preoperative and postoperative care, long term follow-up, supportive services, and resources available for patients are reviewed throughout the process. Patient preferences, values, and needs are respected and supported through patient participation in decision-making and issues relating to their plan of care. The specific needs of each patient will be met during the waiting period and continue after the transplant. We value teamwork, which helps ensure high quality, patient-centered care. Liver transplantation provides a chance for an otherwise sick person to return to a productive life. It is an expectation of our program that liver recipients have an improved quality of life that allows them to hope for a productive future.

For your concerns, suggestions, and compliments, call our Patient Advocacy Line 24 hours a day, 7 days a week at **202-444-3040.**

History of liver transplantation

Organ transplantation has become a powerful form of treatment for those with debilitating and severe disease and is considered an effective treatment option for patients with end-stage liver disease.

Research in the field of liver transplantation began in 1955. Dr. Thomas Starzl and his team at the University of Colorado then went on to perform the first human liver transplant on March 1, 1963. The first efforts at liver transplantation met with disappointing results. It was not until July of 1967 that Dr. Starzl performed the first liver transplant with long-term survival. Since that time, liver transplantation has had great success due to improved medical management, surgical skill, and organ preservation methods.

The development of effective anti-rejection medications such as cyclosporine and tacrolimus, has also added to the increased success rate of liver transplantation. Survival for both adults and children has improved since these medications became available.

Before proceeding with the liver transplant evaluation, you must remember:

1. **No alcohol.** You will be asked to complete random testing for alcohol. You may be asked to attend an alcohol treatment program. If you continue to drink alcohol, you could be taken off the list permanently.
2. **No smoking.** The longer the time between stopping smoking and transplant, the better. Continued smoking leads to more problems after surgery and increases the risk of heart attacks, strokes, and cancers after transplant.
3. **No illegal drugs.** You will be drug tested and if illegal or un-prescribed drugs are found, you may be taken off the list.
4. **Compliance is critical.** You will be instructed on how to take your medications, and when to return for appointments. It is very important that you follow the instructions you are given to manage your liver disease and ensure timely listing for transplant.
5. **Social support is necessary.** Directly after the transplant you will need to rely on your family and friends for help. It is important to have someone with you at home while you are recovering to help with medications, clinic visits, and assistance with daily tasks.
6. **Keep the team up to date about financial changes.** Notify your financial coordinator as soon as possible if you have a change in your insurance or any insurance or financial issue that could impact the success of your transplant.

Role of the liver

The liver is one of the largest and most complex organs in the body. It is on the right side of your body under the rib cage and weighs about two pounds in adults. The liver is made of spongy tissue and has two main lobes, the right and left lobe. Each main lobe is then made up of smaller segments or lobes. Blood vessels from the intestines take substances and nutrients to the liver for processing. This helps you to live and perform daily activities. Aside from this, the liver has numerous other functions that are necessary for life.

The liver helps you every day by:

- Producing energy as needed.
- Keeping the proper level of many chemicals and drugs in the blood.
- Cleansing the blood by neutralizing and removing toxins.
- Making new body proteins.
- Storing certain vitamins, minerals, and sugars.
- Regulating blood clotting.
- Aiding the digestive process through bile production.
- Regulating transport of fat stores.
- Maintaining hormone balance.
- Helping the body resist infection.

Cirrhosis

When the liver is damaged it attempts to repair itself (regeneration). During the repair process, scar tissue (fibrosis) may develop. Over time, the scar tissue increases and can surround entire areas of liver. When large areas of the liver are surrounded by scar tissue, cirrhosis is said to be present. Cirrhosis is the result of the liver trying to repair itself.

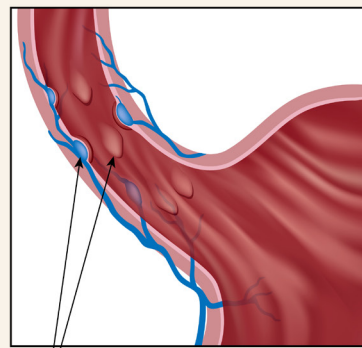
While some patients with cirrhosis have near normal liver function, many patients can have problems. Many of these problems (for example, esophageal varices, splenomegaly, ascites, encephalopathy), develop because of the way cirrhosis changes blood flow through the liver.

Complications of cirrhosis

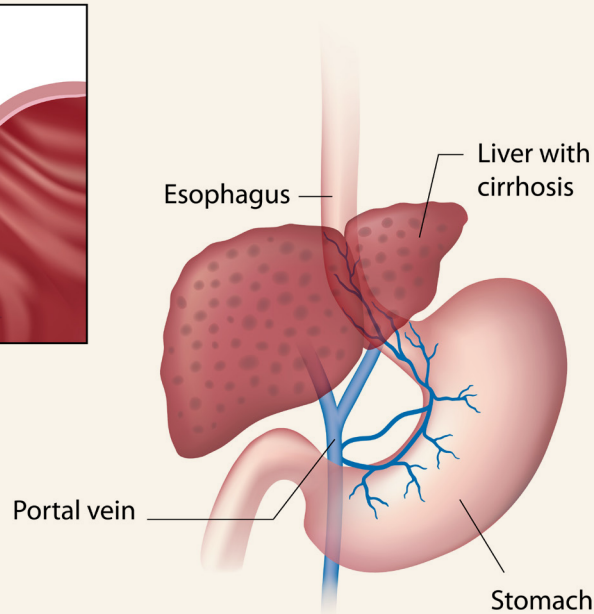
Esophageal and gastric varices

Definition: Varices are enlarged veins in the lower end of the esophagus (swallowing tube) or stomach. These veins develop because cirrhosis blocks blood from flowing freely through the liver. When the blood is blocked from flowing through the liver, it finds another way to return to the heart. The veins around the esophagus and stomach provide a way for blood to return to the heart. Over time, these veins become larger. The enlarged veins around the esophagus are esophageal varices. The veins around the stomach are gastric varices. If the pressure within these veins becomes high enough, the veins can break and cause life threatening bleeding.

Esophageal Varices



Esophageal varices



Symptoms: Bleeding from varices is usually quick and causes symptoms. The most common symptoms are weakness, light-headedness, nausea, vomiting of bright red blood or coffee ground colored material, and bowel movements that are bloody or black (like tar). Bleeding from varices is a life-threatening medical emergency. **If you develop signs of bleeding, go to the nearest hospital or call an ambulance immediately.**

Prevention: Variceal bleeding may be prevented with medications that lower pressure within the varices. Propranolol or nadolol are two medications most often used. These drugs are beta blockers. They help to slow the heart rate which reduces the blood pressure inside the varices and reduce the risk of bleeding. A usual goal heart rate for cirrhotic patients on beta blockers is 55 to 60 beats per minute. These medications can lower your blood pressure too much and cause dizziness, lightheadedness, and fatigue. It is important to let us know if you have any of these symptoms on these medications. Your doctor may also treat your varices with procedures to prevent bleeding.

Treatment (endoscopic therapy): Bleeding from esophageal varices can usually be stopped with endoscopic therapy (EGD). The endoscope is a flexible tool that is inserted through the mouth and looks at the esophagus, stomach, and small intestine. For patients with bleeding varices, the bleeding can usually be controlled by with a small rubber band around the vessel or by injecting the vessel with medication to stop the bleeding. If you have bleeding from varices, you will be in the hospital after the procedure to monitor you closely.

Ascites

Definition: Fluid that collects in the abdomen due to cirrhosis.

Symptoms: Pain in the abdomen, abdominal swelling and firmness, loss of appetite, back pain, shortness of breath, fluid retention, and leg swelling.

Treatment: Salt restriction and diuretics (water pills) are the main treatments. When patients eat salt, the body absorbs more water from the intestines to offset the salt intake. In patients with cirrhosis, the liver cannot handle extra fluid very well. The fluid then spills over (weeps) into the abdomen, causing ascites. It is very important to maintain a low sodium (salt) diet. For many patients, salt restriction alone is not effective, and they are treated with diuretics to help remove the fluid (for example spironolactone and/or furosemide). When diuretics do not work, patients may need to have the fluid removed by an interventional radiologist who will place a needle in the abdominal cavity to drain the fluid. This procedure is also known as a paracentesis.

Spontaneous bacterial peritonitis (SBP)

Definition: An infection in the ascites fluid.

Symptoms: Increased ascites, abdominal pain, soreness, fever, confusion, or altered mental status. If there is concern there may be an infection, a diagnostic paracentesis will need to be done. This is when a small needle is inserted into the abdomen and fluid is removed. The fluid is sent to the lab for testing.

Treatment: Antibiotics

Prevention: Antibiotics may prevent this infection. Preventive antibiotics are given to patients who have had a previous infection in the fluid or those who have a high risk of developing this infection.

Splenomegaly

Definition: Enlargement of the spleen. Splenomegaly happens in patients with cirrhosis when blood backs up into the spleen because of the elevated pressure within the liver.

Symptoms: Enlargement of the spleen occurs without any pain or discomfort. Some patients will be able to feel the spleen in the left side of the abdomen. With splenomegaly, platelets and white blood cells can become trapped in the spleen. This leads to abnormally low platelet and white blood cell counts. Low platelet counts can lead to bleeding problems.

Treatment: No treatment is required for splenomegaly due to cirrhosis. The problem is in the liver, not the spleen. Surgical removal of the spleen is not needed and can have significant risk.

Hepatic encephalopathy

Definition: A brain dysfunction caused by the buildup of toxins in the blood stream. A normal liver acts as a filter by removing harmful substances from the blood. In patients with cirrhosis, the liver is not able to remove a variety of toxic chemicals. These chemicals remain in the blood, eventually enter the brain, and cause a variety of disturbances with brain function. One such toxin is ammonia.

Symptoms: Fatigue, sleepiness, confusion, depression, irritability, personality changes, forgetfulness, slurred speech, tremors (shakes), and problems with balance may occur. As the condition worsens, patients become sleepier and can go into a coma. Some patients with encephalopathy have an odd odor on their breath from the toxins.

Treatment: The toxins are made in the intestine. The following can help reduce the levels of ammonia and other toxins:

- **Lactulose:** This medication helps reduce the amount of ammonia entering the bloodstream from the intestines. In part, this medication works by making you have regular stools. Constipation may make you more likely to have ammonia build-up. We recommend that people with encephalopathy have at least 2 to 3 soft bowel movements each day. Lactulose clears more ammonia from the intestines than other laxatives. The dose may need to be adjusted from time to time to make sure you are having adequate bowel movements. Lactulose can cause abdominal bloating because of increased intestinal gas. It is easier to take when mixed with juice.
- **Rifaximin:** This is an antibiotic that helps to decrease the ammonia-forming bacteria in your intestines. It is often added to lactulose if the symptoms do not resolve with lactulose alone. **Rifaximin can be expensive and some insurance carriers do not cover the entire cost. If you are prescribed this medication and have a large co-pay, please let us know. There are often financial assistance programs available to help you pay for this medication.**
- **Avoidance of medications:** Certain medications may increase the brain's sensitivity to ammonia and other toxins. These medications include sedative drugs (Valium, Ativan, Xanax), pain medications (Darvocet, Codeine, Vicodin, Percocet, Oxycontin, Demerol), anti-nausea agents (Phenergan, Compazine), and antihistamines (Benadryl). These medications should not be taken unless cleared by your physician.
- Patients with hepatic encephalopathy should not drive.

Jaundice and itching

Definition: The liver makes bile and processes bilirubin so that it can be removed from the body. Bilirubin is formed from the breakdown of red blood cells. Under normal conditions, it travels to the liver to be processed and removed. Bile is produced in the liver and then drains into the intestine to aid in digestion of food. In people with cirrhosis and poor liver function, bilirubin is not processed appropriately, and it can build up, often in the skin. The buildup of bilirubin and bile make people appear jaundiced (yellow).

Symptoms: Other than appearing yellow, jaundice does not have other symptoms. Sometimes in liver disease, bile acids build up in the body and deposit in the skin, which then causes itching. Often, the itching is worse at night when you are trying to sleep but can be present all day in severe cases. Not everyone who has itching will have jaundice, so it is important to tell your doctor if you have these symptoms.

Treatment: Soaking in hot baths leaves the skin very dry and can make the itching worse. Skin lotions may help, but often patients will need medication to help with the symptoms. One commonly used medication is cholestyramine. This is a powder that is mixed in water or juice and helps to bind the bile acids before they get absorbed. It is very important to separate this medication from your other medications by 2 to 3 hours, as cholestyramine may also bind to other medications and prevent them from being absorbed. If itching continues, other medications may be prescribed by your doctor.

Fatigue

For many patients with liver disease, the most common symptom is fatigue. The diseased liver does not convert food to energy or store vitamins. The fatigue may come and go, making you feel drained. To cope with the fatigue, try to change your schedule to include rest periods during the day. You should continue to exercise moderately each day. You need to evaluate your limits and know your strengths. Avoid driving and using equipment if the fatigue is unmanageable.

Hepatocellular carcinoma (liver cancer)

Cancer of the liver (hepatocellular carcinoma, HCC, or hepatoma) can happen because of cirrhosis and other types of liver disease. Some types of cirrhosis are more likely to be linked with hepatocellular carcinoma (HCC). Patients with cirrhosis caused by hemochromatosis, hepatitis B, and hepatitis C viruses have the highest risk. Men are more likely to develop HCC than women, drinkers more than non-drinkers, and smokers more likely than non-smokers.

You will need to have an imaging study every 6 months to look for HCC. There are many ways to image the liver. Common studies to look at the liver include MRI, CT, or ultrasound.

Nutrition and liver disease

The liver is the largest organ in the body and plays an important role in our health. Nutrition and the liver are connected in many ways. The liver processes nutrients taken in from the gut into forms that are easier for the rest of the body to use. When people have chronic liver disease, your body can't use the food as well as it normally would when healthy.

It is important that patients with liver disease keep a balanced diet of carbohydrates, protein, and fat. A balanced diet can help reduce the risks linked with malnutrition and help prevent muscle loss. For most liver diseases, nutrition can become a form of treatment. This is why it is important for people with liver disease to eat foods that focus on supporting liver health.

Your body needs enough calories and protein to promote healing, fight and prevent infection, and maintain a healthy body weight.

Diet Recommendations:

- **Small, frequent meals:** If you have ascites (fluid in your abdomen) or edema (swelling in your lower legs and feet) you may feel better and more comfortable if you eat 4 to 6 small meals per day, instead of 3 larger meals. You may have a poor appetite or change in your sense of taste. Even though you may not feel hungry, it is still important to eat something. If you get full quickly, choose foods that are high calorie and high protein, such as eggs, yogurt, pudding, cottage cheese, unsalted nuts, peanut butter, and shakes.
- **Carbohydrates:** This is your body's main source of energy. They help your brain, kidneys, heart muscles, and central nervous system. The best carbohydrates are those that contain a lot of fiber, like vegetables, fruit, brown rice, and whole grain bread and pasta. Avoid refined carbohydrates, like white bread and pasta, cakes, and cookies, which have added sugar. If you have diabetes, eat meals at regular, consistent times every day and do not skip meals. Avoid sweets, such as regular soda, candy, fruit juices, canned fruit in syrup, and jams. Choose water over soda, juice, and sweetened beverages.
- **Protein:** Protein helps to prevent malnutrition and maintain muscle mass. Choose lean meats such as fish, chicken, and turkey more often than red meats and processed meats (like ham, bacon, sausage, fried foods, hotdogs, and deli meats). Vegetable proteins, like tofu, soy, and beans, can serve as good sources of protein as well. Eggs, dairy (milk, cheese, yogurt), nuts, and peanut butter also contain a lot of protein. Nutrition shakes, such as Boost, Ensure, Glucerna, Nepro, Muscle Milk, Orgain, Premier Protein, and protein powders can also help add protein to your diet. A low protein diet is not recommended. There are no major benefits to limiting protein intake and research shows that it does not improve liver function or reduce ammonia levels. In fact, a low protein diet may cause muscle to break down faster.
- **Fat:** A heart-healthy diet is recommended to reduce unhealthy blood cholesterol levels, manage high blood pressure, and lower your risk of heart disease. Fat supplies the body with a source of energy reserve. However, fat is also the most calorically dense macronutrient. Limit the amount of saturated fats and trans fats you eat. Trim the fat off meat and remove the skin from poultry before cooking. A well-balanced diet includes healthy fats, such as fish, seafood, nuts and nut butters, hummus, avocados, whole eggs, and olive oil. If you are overweight or need to lose weight, aim for less than 60 grams of fat daily.
- **Sodium (salt):** Limit your intake to 2,000 milligrams (mg) or less per day. Your body needs a little sodium, but too much can cause your body to hold onto extra water - this is known as ascites (fluid in your abdomen) or edema (swelling in your lower legs or feet). The extra water can raise your blood pressure and harm your heart, kidneys, and liver. Even if you take medication to remove fluid (like a diuretic or fluid pill), it is still important to have less salt in your diet.

To cut down on the amount of sodium, try these options:

- Don't add salt to the food at the table or when you're cooking. One teaspoon of salt has 2,000 mg of sodium.
- Avoid easy foods, such as canned soups and vegetables, boxed meals (like macaroni and cheese), frozen ready-to-eat meals, fast food, take-out, and restaurant meals.
- Try fresh or dried herbs, spices, oils, vinegar, or juices to add flavor and replace the taste of salt. Mrs. Dash seasonings and marinades are also good for salt-free ways to flavor your food. Avoid seasoning salt, garlic salt, onion salt, celery salt, meat tenderizer, and high-sodium sauces such as soy, teriyaki, oyster, barbeque, and steak sauces.
- Look for low-sodium, no-sodium, or reduced-sodium versions of your favorite foods.
- Read the nutrition facts label. If a food has more than 300 mg of sodium per serving, then it is a high-sodium food.
- Prepare your own meals and snacks so you know how much sodium is in them.
- Buy fresh foods. If you are unable to buy fresh fruits or vegetables, remove the excess sodium or sugar from canned foods by rinsing under running water.
- Table salt, kosher salt, sea salt, and Himalayan salt all contain about 40% sodium by weight. All these salts contain roughly 500 mg of sodium per ¼ teaspoon. So, there is little difference between each kind of salt.

- **No alcohol:** You are not allowed to have alcohol (including non-alcoholic beer or wine) before or after transplant.
- **Caffeine:** There is no evidence that caffeine hurts your liver.
- **Food safety:** Avoid raw or undercooked shellfish and seafood as they can carry bacteria that lead to illness. Unpasteurized dairy, juice, and honey are also considered high-risk for foodborne illness. Do not eat/drink items past their “use-by” dates and throw away refrigerated leftovers after 2 to 3 days. Never thaw frozen foods at room temperature or on the countertop. Thaw in cold water or in the microwave and cook immediately. You may also thaw in the refrigerator for 1 to 2 days.
- **Weight:** It is the goal of the Transplant Team to improve or maintain a good nutritional status before your surgery. If you are currently overweight, we suggest that you begin a diet and exercise program as soon as possible. If you are underweight or meet criteria for malnutrition, the Transplant Dietitian will work with you to develop methods to support healthy weight gain. During your evaluation, your Clinical Transplant Coordinator will help determine your goal weight, which should be reached prior to transplantation.

The transplant team

Your transplant team consists of doctors, nurses, social workers, dietitians, and others who have been trained to meet the unique needs of transplant patients. Each member is very interested in you and your medical and personal needs. They will depend on you to share your concerns, questions, and fears, and to report any changes in the way you feel.

Remember, you are the most important team member!

Transplant surgeon: This is the doctor who will perform the surgery. He or she will meet with you during your evaluation and discuss the suitability of a transplant based on the information from your evaluation. The surgeon will answer questions related to the surgery and discuss the significance of having a liver transplant, the risks of the surgery, and possible complications. After your transplant, the surgeon will decide which medications you will take and monitor them closely. The surgeon will also work with your hepatologist daily to ensure that you are getting the best care possible.

Transplant hepatologist: This is a medical doctor who specializes in liver disease with a focus on liver transplantation. You will meet with him or her to discuss the need for liver transplant, as well as the implications of this process. If you are an appropriate candidate for transplant listing, you will be followed at regular intervals by the hepatologist while you await transplantation. The hepatologist will work with your primary care physician or referring gastroenterologist to manage your medical care. Following your liver transplant, the hepatologist will work with your surgeon to manage your immunosuppression medications.

Anesthesiologist: This is the physician who will evaluate you for liver transplantation from the standpoint of heart and lung disease. He or she will recommend cardiac testing and assess your risk of going through transplant surgery. She or he will care for you during and directly after your operation.

Clinical transplant coordinator: This is a nurse who will provide education about the transplant process, listing for transplant, and patient responsibilities before and after transplant. The coordinator will answer any questions that come up during the liver transplant process. The transplant coordinator will be your main contact and will work with the other members of the transplant team to coordinate your care. A transplant coordinator will also coordinate the transplant surgery.

Living donor transplant coordinator: A donor coordinator is a nurse who will provide you with education about the living donor process. If you are an appropriate candidate for living donor transplantation, potential donors may reach out to start the living donor evaluation process.

Social worker: The transplant social worker will evaluate your ability to cope with the possible stress of transplantation and assess your ability to follow a strict treatment program. The social worker will evaluate your social support system and assess for any substance abuse issues that could affect your ability to receive a successful transplant.

The transplant social worker can assist you and your family with a variety of helpful resources. She or he will help determine your needs and help you understand and cope with the basic problems that can be related to your disease. The social worker can also help you with information about Medicare, Medicaid, other insurance coverage, and fundraising. A social worker will see you in the hospital after a transplant and help prepare you for discharge to home.

Transplant psychiatrist: This physician will see you at the recommendation of the social worker or other members of the transplant team. They will assess your mental health for transplant, the presence/severity of substance abuse disorders, and the need for specialized substance abuse rehabilitation or psychiatric treatment. We encourage ongoing partnership between our transplant psychiatrist and other mental health specialists who may be involved in your care.

Financial coordinator: The financial coordinator will meet with you to discuss the costs associated with a transplant and the cost of medications that will be required after a transplant. The coordinator will work with you to help you understand your insurance coverage.

Staff nurse: After your transplant surgery, you will be admitted to the surgical intensive care unit. Once you have stabilized, you will be transferred to the transplant floor. The nurses on these floors will assess you every day and coordinate the activities of your health care providers. They will help prepare you for discharge and assist in teaching you about your post-transplant care and medications.

Post-transplant advanced practice providers: Nurse practitioners (NP) or physician assistants (PA) will manage your post-transplant care. Once you have your surgery, this provider (NP or PA) will be your main point of contact. Prior to discharge from the hospital, you will have a teaching session to go over the management of your new transplant and medications. Your clinic visits will be scheduled with your advanced practice provider. At your clinic visit, he or she will perform your clinical exam, assess your medical status, and adjust your medications as necessary, under the supervision of your transplant physicians.

You: You are the most important team member! Only you can tell other team members how you feel and whether or not you have any questions. It is important that you share your concerns to help all of us make your transplant a successful one!

Pre-transplant evaluation (the work-up)

Each person who decides to pursue transplantation must complete a pre-transplant evaluation, or "work-up". This consists of meetings with members of the transplant team as well as completing testing. The reason for this evaluation is to look for any conditions that might affect the success of your transplant (for example, a current infection or possible source of infection). The most successful transplants are those who are in good shape physically and emotionally before the transplant. Below is the standard work-up for all transplant candidates. Additional tests may be ordered based on your medical history and will be determined during your evaluation.

Interviews

Transplant surgeon

Transplant hepatologist

Transplant anesthesiologist

Clinical transplant coordinator

Living donor transplant coordinator

Transplant social worker

Financial coordinator

Nutrition assessment

Research coordinator

Laboratory work

A variety of blood tests will be drawn to determine your blood type, check your metabolic status, and to look for any past or current viruses that you may have including hepatitis and HIV. These tests will determine the degree of your liver disease. Urine tests will be used to look for the protein or bacteria in your urine. It will also be used to screen for the presence of drugs in your system.

Radiology

Chest X-ray: This is used to look at your lungs and heart and help identify any problems.

MRI or CT scan: This determines the extent of liver disease, the presence of any tumors, and the status of vessels going in and out of the liver.

Cardiovascular

EKG or ECG: This test records your heart's electrical activity.

Echocardiogram and/or cardiac stress test: This will show how well the heart is beating, the function of your heart valves, and any problems that may occur when your heart is stressed. Pictures are taken of your heart to look for any unusual findings. If abnormal, more tests and/or treatment may be needed to get you in the best shape possible before your transplant.

Other

For women: Women will be required to have up-to-date pap smear and mammogram prior to transplantation.

Dental exam: All patients must have a dental exam to look for any possible source of infection. Any infections, such as an abscess, must be taken care of before your transplant. You are required to have all dental problems, such as fillings, corrected to be cleared for transplantation.

Colonoscopy: Required for anyone over the age of 45 to screen for colon cancer. A recommendation for screening earlier than age 45 may be requested for family history of colon cancer or symptoms that may suggest colon cancer or have blood in your stools.

The following tests may also be required to complete your evaluation:

Pulmonary function tests: This test may be required if you are a smoker or have a history of lung disease. This is a breathing test to study your lung capacity. Pulmonary function tests measure lung volume and the rate of air flow through your lungs. You will perform a variety of breathing exercises by blowing into a tube. The result of this test measures the progress of your lung disease. Please inform the respiratory technician before these tests if you are taking inhaled medications.

EGD (upper endoscopy): This is an exam that will help screen for and possibly treat varices. It may be performed to evaluate symptoms such as abdominal pain, nausea, vomiting, difficulty swallowing, or anemia (low red blood cell counts).

Liver biopsy: A liver biopsy may be requested by your transplant physician. During a liver biopsy, a needle will be used to remove a tiny portion of your liver. This is an outpatient procedure. This will provide information to your physicians about the nature and severity of your liver disease.

Additional consults, as indicated by your medical condition or other known diseases may include:

- Nutritional support
- Blood bank/Hematology
- Cardiology
- Infectious disease
- Nephrology
- Pulmonology

Transplant selection process

The evaluation process determines if you are medically able to receive a liver transplant. This includes an assessment to make sure that there are no psychological or social barriers to transplant surgery. The goal of the evaluation is to make sure your health status is good and that you will benefit from liver transplantation. If a new health problem is found during the evaluation, you may be referred to another medical specialist.

After we have received the results of your evaluation, the team will review these results with the evaluation committee. This committee consists of transplant hepatologists, transplant surgeons, transplant coordinators, anesthesiologists, psychiatrists, social workers, and financial coordinators. You will be notified by your transplant coordinator regarding the committee decision. If the screening committee decides that you are an acceptable candidate and transplant is the best option for treatment, you will be placed on the waiting list for a liver transplant once all testing is received. The national computer system is maintained by the United Network for Organ Sharing (UNOS). If the workup is incomplete, you will be notified as to what will be required in order to be placed on the list. If the decision is made that you are not a candidate for liver transplant, the reason will be reviewed with you. A letter is sent to you and the referring doctor letting her or him know the decision of the committee. Medical follow-up is important, even if you are not placed on the transplant list.

NOTE: If you have any questions at any time about what you should do next, please call your transplant coordinator. Your timely completion of the evaluation plays a large part in how quickly you are placed on a transplant list or are cleared for a living donor transplant. We are always happy to help, but you must take the initiative!

Waiting for your liver

Now that you are on the UNOS waitlist, the wait for a liver to become available can be as short as a few hours or several months to years. Waiting for a liver transplant can be a difficult and stressful process for you and your family. The transplant team will do all that is possible to help you during this trying time. You are encouraged to continue your daily activities in your routine and lifestyle.

You are listed in UNOS with a MELD score based on your lab numbers. That score ranges from 6 to 40. The higher the MELD score, the sicker the patient, and the higher they will be on the transplant waiting list. Livers are matched by blood type (A, B, O, AB), size, and are distributed based on distance from the donor hospital.

The MELD score assigned to each patient is reassessed and recertified by the transplant coordinator in accordance with the following UNOS schedule:

Adult patient reassessment and re-certification schedule

Status 1 (generally people who are in acute liver failure)	Status re-certification every 7 days	Laboratory values must be no older than 48 hours.
MELD score 25 or greater	Status re-certification every 7 days	Laboratory values must be no older than 48 hours.
Score 19 to 24	Status re-certification every month	Laboratory values must be no older than 7 days.
MELD score 11 to 18	Status re-certification every 3 months	Laboratory values must be no older than 14 days.
MELD score 6 to 10	Status re-certification every 12 months	Laboratory values must be no older than 30 days.

It is very important to keep your transplant team updated. Make sure that the team has every possible telephone number available of family members so that we can get in touch with you when a donor organ becomes available. If you wish to travel, let the team know the date of your travel and a number where you can be reached. If you become sick and are hospitalized, notify your transplant team as soon as possible. Remind your doctors to share any records, tests, or lab results with the transplant team so that we may have the most current medical reports regarding your care.

Communication is very important! Feel free to contact us anytime if you have questions or concerns, but please be sure to let us know about any of the following changes:

- **Infection, illness or hospitalization:** In some cases, your medical condition may stop you from being transplanted for the time being.
- **Traveling out of town:** Call the Transplant office and let us know the dates you will be gone and phone numbers where you can be reached.
- **Demographic data:** If you change home/work addresses, telephone numbers, dialysis unit or shifts, hepatologist, or insurance companies, let us know.
- **Keep in touch:** Call your Clinical Transplant Coordinator once every two to three months even if there have not been any changes, just to touch base.

Waiting time transfer and multiple listing

If listed for transplant, you can be listed at multiple transplant centers. You have the ability to transfer your waiting time to a different transplant center without loss of the accumulated waiting time.

Liver transplant options

There are more people waiting for liver transplants than available organs. All patients accepted by a transplant program are registered on the national organ transplant waiting list managed by the United Network for Organ Sharing (UNOS). This is a non-profit organization that works with the Organ Procurement and Transplantation Network (OPTN) under federal contract. UNOS maintains a computer network and organ placement specialists run it 24 hours a day, seven days a week. Patients are ranked on the waiting list based on several factors.

If you are a candidate for transplant, you will be put on the UNOS waiting list. You will be given a MELD score based on your blood work. In order to maintain your UNOS listing, routine blood and medical testing will be required.

Adult liver transplant patients are ranked using the MELD system. This is a formula that can show how sick they are. A higher score means that you are sicker and will be higher on the list.

A MELD score can change depending on the status of the patient's liver disease. Patients will have their MELD score updated several times while they are waiting for a transplant. This is to ensure that donated organs go to the patients that are in the greatest need of a transplant at that time.

Your medications may be changed to keep you in the best possible shape for transplant. It is very important that you keep all your appointments and lab testing up to date.

Organ transplant by standard allocation/deceased donor:

Deceased donor organs are from a person with brain death. Brain death means that there is no brain function, but the heart is still beating, and blood is still flowing to all the body's organs. When an organ is available, medical data about the potential donor is entered into the UNOS computer system and a list of possible recipients is made.

The transplant centers with patients on the recipient list are then alerted. The transplant surgeon looks over the donor's information and decides whether to accept it based on medical data, organ condition, recipient condition, patient availability, and organ transportation. By policy, the transplant team has one (1) hour to make their decision. If the organ is declined, it will then be offered to the next patient on the list. This will be done until the organ has been placed.

The transplant team takes into account if:

a) The donor has a history of hepatitis B. Even if someone has cleared the hepatitis B virus from their blood, small amounts of the virus could be in their liver. If that liver is then given to you, there is a chance that the hepatitis B could come back inside of you. It is safe for you to receive a liver from someone who may have been exposed to hepatitis B, but you will need to take extra medicine after transplant.

b) The donor has a history of hepatitis C. If a donor has active hepatitis C, the transplant center might use this organ in someone that also has hepatitis C. These donor livers can also be offered to patients that do not have hepatitis C. If you do not have hepatitis C and accept one of these livers, you may then need to complete a course of treatment for hepatitis C. Before transplanting this liver, testing will be done, such as a liver biopsy to check that there is no damage to the donor liver from hepatitis C.

Some donors have additional risk factors for certain infections. This may include drug use or other high-risk behavior. Since the HIV and hepatitis tests can be falsely negative after exposure, there is a very small chance that the donor may test falsely negative for the virus at the time the organ is being offered. You will be tested for these viruses after the transplant.

All organs are reviewed by the surgeon prior to transplantation. Accepting a liver is based on your needs at the time the liver is offered. The transplant surgeon may advise you to consider accepting a liver from the groups listed above based upon your medical condition.

The decision to accept extended criteria organs must be weighed against the risk of dying or becoming sicker while on the waiting list. Taking part in these transplants option is fully voluntary. You will always have the choice to turn down a donor liver at the time it is offered to you. Please remember that we will not offer you an organ unless we believe it is a good option for your circumstances. If you turn down an organ, it will not affect your rank on the UNOS wait list.

Living donor transplant

There are 14,000 people waiting for a liver transplant in the U.S. Being on the waitlist does not guarantee that you will get a transplant. Some patients on the waitlist become too sick or may die while waiting. Living donor liver transplant is an alternative for many patients who may be at risk for remaining on the transplant waitlist for a long time and you can talk to your provider at any time regarding this option. Please visit [MedStarGeorgetown.org/LiverLivingDonor](https://www.medstar-georgetown.org/liverlivingdonor) for more information.

Preparing for transplant and when an organ becomes available

Once a suitable donor organ match has been found, the transplant coordinator will call and go over the organ offer with you. There are two different calls that you may receive - you will either get a call that you are primary (first in line) for an organ offer, or back up for an organ offer.

If you accept the organ offered, the coordinator may give you these instructions:

- Do not eat or drink anything from that point on.
- If you are at home, you may be asked to come to MedStar Georgetown University Hospital. You will go to the admitting office or another location depending on the time of day.
- Your vital signs (temperature, pulse, blood pressure, and respiration) and weight will be taken on admission. A doctor will give you a physical examination. An intravenous line (IV) will be started in your arm, blood will be drawn, and you will be asked for a urine sample. A chest X-ray and EKG (electrocardiogram) will be done.
- You will be given surgical soap for your arms, abdomen, and groin area.
- You will be asked to sign a surgical consent form and the complications and risks of surgery will be reviewed with you.
- Once it is time, you will be assisted to a stretcher and wheeled down to the operating room.

In some cases, if the organ quality is not good, the transplant may be cancelled. If this happens, you will be notified by a member of the transplant team and discharged. If you were called regarding a backup offer, you will get a call from the coordinator either asking you to come to the hospital or that you have been released as back up and continue to await other offers. This process could take 24 hours and you can always call the on-call coordinator for an update.

The surgery

The operation can be challenging due to the complex blood supply to the liver. The severity of a patient's condition can also present potential complications. The average time for the surgery is 5 to 8 hours. During the operation, the liver and gall bladder are removed and the donor liver is placed in the same area.

The normal incision used for the liver transplant goes across the upper abdomen from right to left. There is also a short up and down incision starting under the sternum (breastbone). It is also known as a "Mercedes-Benz" incision or peace sign. Occasionally, a venous bypass machine may be used between the time the liver is removed and the new liver is put in place. This machine assists in maintaining body chemistry, urine output, and blood pressure. You will have two additional incisions if the bypass machine is used. One incision will be under your arm and the other will be in your groin area.

There are risks in any type of surgery. Potential problems during a liver transplant include but are not limited to bleeding with need for transfusions, cardiac arrest, stroke, infection, need for further surgery or re-transplantation, and death.

The recovery period after surgery will be hard and may seem lengthy at times for both patient and family. The expected length of stay in the hospital averages around 7 to 10 days. The time between discharge from the hospital and the return to full-time work or school is generally 4 to 6 months.

During the surgery, we ask that family and friends wait in the surgical waiting area. The family will be given periodic updates. We encourage the family to call the Transplant office with any questions regarding the procedure.

Possible complications

There are risks with all surgeries, but liver transplant is one of the most complex surgeries. Most complications are minor and get better with time. In some cases, the complications are serious enough to need another surgery or medical procedure and rarely may result in death.

- After surgery, you may experience pain. Most patients have a major decrease in pain several weeks after surgery. Some people may still have discomfort for a longer time.
- There may be a delay in the function of your new liver. This may increase the length of your hospital stay and increase the risk of other complications. There is a rare possibility that the transplanted liver will not function. If this were to happen, a second transplant would be needed. You would be put back on the list in the highest priority category allowed.
- Hepatic artery thrombosis (clot in the major blood vessel going to the liver), can happen in a small number of liver transplant cases. It may cause two types of complications including an abscess in the liver and/or biliary strictures (narrowing of the bile ducts). If this were to happen, other procedures, additional surgery, or a second liver transplant may be needed.
- Some patients may have long term complications from biliary strictures. Bile is a secretion of the liver that helps with the breakdown of food and digestion. A stricture is a narrowing of the ducts moving that bile. Most of these strictures can be corrected by placing a stent (small tube) into the bile duct. This will prevent any further narrowing and allow the bile to move. Some patients may need surgery to repair the damaged bile ducts.
- Some patients may have bile leaks. Fortunately, most bile leaks can be fixed without surgery. These leaks can usually be treated by placing a stent in the bile duct. Occasionally (if endoscopic treatment is not possible or successful), a small tube will be placed through the skin into the bile ducts to help drain the bile while the leak heals.
- After surgery, the transplant team will closely monitor you for signs and symptoms of infection. If an infection happens, the infectious disease team will work with the transplant team to find the best treatment plan.
- Intravenous (IV) lines may need to be changed during your hospital stay. This lowers the risk of an infection occurring from these lines. The lines will be removed when you are eating regularly and no longer receiving intravenous medications.
- Blood clots are a concern after surgery. These usually develop in the legs. The clot can break free and move through the heart to the lungs. When the clot moves into the lungs, it can cause serious trouble breathing, which can lead to death. Blood clots are treated with blood thinning medications, which may need to be taken for a long period of time.
- Bleeding can happen during or after surgery. You may require blood transfusions or blood products. Complications can happen from getting blood products. This includes itching, rash, fever, headache, trouble breathing, kidney damage, and exposure to blood-borne diseases.
- Nerve damage may occur due to positioning of arms, back, or legs during the surgery. Signs and symptoms of nerve damage are numbness, weakness, paralysis, or pain. Most of the time symptoms are temporary and resolve with time. There have been occasions when the symptoms become long-lasting.

After surgery: The Intensive Care Unit

After surgery, you will be in the Intensive Care Unit (ICU) for several days. In the ICU, you will see and hear a variety of monitors and equipment. The monitors will measure your vital signs, such as heart rate and blood pressure. Below is a list of some of the other equipment that you will see or experience during your ICU stay.

- **Nasogastric tube:** This tube will go through your nose into your stomach and will drain the acids that your stomach makes. It will prevent you from becoming nauseated. This tube will be taken out when your bowel function returns and then you will be able to eat.
- **Breathing tube (endotracheal tube):** This tube will be put in while in the operating room. The tube will come out of your mouth and attach to a breathing machine or ventilator. The machine will assist your breathing while you are under anesthesia until you are awake. The tube will be taken out once you are fully awake.
- **Urinary catheter:** This will be put in during surgery to let you to urinate. You may feel the need to pass urine, but the catheter will drain the urine out of your bladder. This catheter will only be in place a few days.
- **Intravenous (IV) lines:** You will have multiple lines going into your veins. The lines will be used to give fluids, nutrition, and medications until you are able to take them by mouth.
- **Drains:** You will have several small tubes coming from your incision site. These tubes are used to collect expected fluid drainage from the wound. The tubes will be taken out when the amount of drainage fluid decreases.
- **Blood clot prevention devices:** You will have alternating inflating stockings on your legs. They will be used to help increase the blood flow in your legs and prevent blood clots.
- **Patient safety devices:** Patients have different reactions to anesthesia. After surgery it may be necessary to use safety devices, so you do not hurt yourself or dislodge your tubes. These items may be used until you are awake.

The ICU can be a noisy place filled with activity. This can be stressful for patients. Your ICU nurse will make your time in the unit as comfortable as possible. You will stay in the ICU only about 2 to 5 days, until you no longer need continuous monitoring. You will then be moved to the general transplant unit.

Care on the general transplant unit

Once on the general transplant floor (6-Bles), you will be encouraged to cough and deep breathe to decrease the chance of developing lung complications. It will be important to get out of bed at least three times a day to walk around your room and down the halls. Walking will help to increase the blood moving in your body and maintain muscle.

Common medications after transplant surgery

You will be required to take many new medications after your liver transplant. It is important that you take the medications as ordered. You should never change or skip a dose of your medication without talking to the post liver transplant team. You will call them to have your medications refilled. Please do not wait until the last minute to call for medication refills. The coordinator can also put you in touch with a pharmacy that can deliver your medications to your home. If you ever have problems getting your transplant medications, financially or otherwise, please call the Post Liver Transplant Coordinator.

Immunosuppressants

Transplant recipients will take immunosuppressive (anti-rejection) medications for as long as they have their transplant. These medications are important because they suppress the immune system in order to avoid rejection. **NEVER SKIP A DOSE OR CHANGE THE AMOUNT UNLESS INSTRUCTED TO DO SO BY THE TRANSPLANT TEAM.** Stopping these medications without being told to do so is one of the major causes of transplant failure. If you forget to take your medication, or lose a dose because of vomiting, call the transplant team for advice. **DO NOT MAKE THIS DECISION YOURSELF.**

These medications are very powerful and can cause serious side effects. Fortunately, most of these will lessen once the dose is lowered by your transplant team. Most side effects will occur during the first few months after your transplant because this is when you will be on the highest doses. **DO NOT CHANGE THE DOSE BECAUSE YOU ARE FEELING SIDE EFFECTS.** Report these to your transplant team who may be able to make changes for you. Dosages are changed according to your weight, organ function, and how much medication is absorbed by your body. Because of the potential side effects and harm to your new organ(s), blood levels are measured often. Below are some of the medications you will be taking. Although some of these medications are to prevent rejection, you will not take all of them but rather a combination.

Tacrolimus (Prograf or FK506): This is the main medication you will be on long-term. It keeps your new liver working and prevents your body's immune system from attacking your new liver (rejection).

Cyclosporine (Neoral, Gengraf): You may be on this medication instead of Prograf. It acts in a similar way to suppress the immune system.

Prednisone: This is a steroid and acts to decrease the inflammation caused by your immune system.

Mycophenolate mofetil (Cellcept) or Mycophenolate Sodium (Myfortic): This medication helps to prevent rejection of your new organ.

Sirolimus (Rapamune) or Everolimus (Zortress): These medications may be used instead of tacrolimus or cyclosporine if either one cannot be given.

Preventive medications:

Bactrim is an antibiotic to prevent bacterial infections such as pneumonia.

Valcyte is an antiviral to prevent a viral infection known as Cytomegalovirus (CMV).

Nystatin is an antifungal to prevent fungal infections.

Other medications you may need to take include:

- Diuretics (for fluid retention or high blood pressure)
- Antihypertensives (to lower high blood pressure)
- Protonix/Prevacid (to help prevent stress ulcers)
- Ursodiol (to assist in the drainage of bile)
- Multivitamins

Rejection

The immune system protects the body against foreign substances that can cause harm. Like a virus or bacteria, a transplanted organ is also considered foreign and the immune system will try to attack and destroy the organ(s). If the attack is successful, rejection of the organ(s) occurs. After transplantation, you will be given medications to suppress the immune system and prevent rejection. There are four types of rejection that can occur:

- **Hyperacute:** This type of rejection can occur immediately, even in the operating room, requiring that the organ(s) be removed at once. This is a very rare occurrence.
- **Accelerated:** This can occur within a few hours to a week and if diagnosed and treated early, it can be reversed.
- **Acute:** This type can occur within a week of transplant and anytime thereafter. If caught early, it can be reversed.
- **Chronic:** This can occur at any time and unfortunately is very difficult to reverse. The organ(s) eventually lose their function and the recipient may require a second transplant. This occurs in < 10% of transplant patients.

Signs and symptoms of rejection: Rejection can be mild or severe. While you are in the hospital, your doctors and nurses are watching your lab values for signs of rejection.

However, only **YOU** can tell them the symptoms. Symptoms include:

- Fever over 100°F (38°C)
- Flu-like symptoms (chills, tiredness, aches, headache, nausea, vomiting)
- A sudden increase in blood pressure
- Pain or tenderness around the transplant
- Swelling in your legs, feet or hands, and weight gain

IF YOU NOTICE ANY OF THESE SYMPTOMS, YOU SHOULD TELL YOUR DOCTOR OR NURSE IMMEDIATELY.

A rise in the liver function tests may often be a sign of rejection and a liver biopsy may be needed. It is important to understand that many patients experience some form of reversible acute rejection. Acute rejection can occur as early as 8 to 11 days after transplantation and it is most common within the first 6 to 12 months after transplant. When rejection occurs, you may experience any of the symptoms above, or no symptoms at all.

The treatment for acute rejection is to increase the amount of immunosuppressive medication that you are taking. Moderate to severe cases of rejection will usually respond to steroids and increasing the dose of your other immunosuppressant medications. The medications can be started in the hospital and continued at home. The treatment may range from 2 to 14 days. In most cases, changing the dosage of the medication or using a different combination of medications will bring the rejection under control.

It is important to know that a single episode of acute rejection does not change the function of the new liver, and that the liver will continue to work well after the rejection has been successfully treated.

Your original disease may recur after a liver transplant. Some of the most common diseases are hepatitis C and autoimmune disease. In some cases, a second liver transplant is recommended. However, not all patients are appropriate candidates for another transplant. We can help prevent the recurrence of some diseases after transplant with medication.

Infection

Infection can occur because the anti-rejection medications you will be taking may also increase your risk of infection. The greatest risk will be in the first few months after transplant. As the doses are lowered, your risk of infections will also decline. Some of the common symptoms of infection include:

- Fever over 100°F (38°C)
- Flu-like symptoms
- Cough or shortness of breath, sore throat
- Pain or burning on urination or feeling that you need to urinate often
- Drainage from a wound or a wound that is warm to touch and is not healing

Because your ability to fight infections is lowered, you will want to avoid close contact with people who are sick and avoid crowds in the first few months after your transplant. In addition, you may have been previously exposed to viruses, for example, cytomegalovirus (CMV). About 70% of adults have been exposed to CMV at some time. It usually causes a flu-like illness with fever, body aches, and a reduced appetite which lasts for two to three days.

After exposure to the virus, the virus remains in your body but does not cause symptoms. You also form antibodies to the virus. Because of the immunosuppressant medications, you will be at risk for infection with CMV after transplant. If either you or your donor were positive for CMV antibodies, you will be given an antiviral medication for the first few months after your transplant.

In a small number of patients, a condition known as post-transplant lymphoma can occur as a result of immunosuppressive medications.

Follow-up care after discharge

Once released from the hospital, you will have frequent clinic visits and blood tests. Patients must stay in the local area (within a few hours of Washington, D.C.) for 12 months after the transplant. You will be provided with a medication plan and daily diary to record your weight, temperature, and blood pressure. You will need to bring these tools to every follow-up visit.

Lab work and clinic visits are 1 to 2 times a week to start. After the first 3 months, you will be seen once a month with lab work every two weeks. Once you are stable, you may be able to be seen in one of our clinics closer to your home. Patients are then seen every three months for 6 to 12 months following transplant, with monthly lab work. Lab work will then decrease to once every three months with yearly clinic visits. Long-term follow-up managed by the Transplant Clinic and referring physicians.

You will continue to see your primary care physician. He or she will help manage your health for non-transplant needs. Your blood pressure, blood sugar, and cholesterol should be checked often. It is important that you continue a healthy diet and exercise after transplant to avoid gaining weight. Remember to let the transplant team know about any changes in your health.

Information and support

Social, emotional, and/or financial burdens are often a concern for people who need a liver transplant. Social services will be available to assist you and your family during the evaluation, hospitalization, and recovery phase.

They will provide you with information about resources such as temporary lodging for family members during your hospitalization, pharmacy assistance programs, and monthly support groups.

Below are just a few of the organizations available to offer material and aid. If you are interested in an organization that is not listed here, please ask one of the transplant team members.

UNOS

The United Network of Organ Sharing provides a toll-free patient services line to help transplant candidates, recipients, and family members understand organ allocation practices and transplant data. You may also call this number to discuss any concerns or experiences you would like to share about your transplant center or the transplant system. The toll-free patient services line number is **1-888-894-6361**.

Liver disease foundations and groups

American Liver Foundation

The American Liver Foundation (ALF) is the nation's leading nonprofit organization encouraging liver disease prevention and liver wellness. ALF provides research, education, and advocacy for those affected by liver-related diseases, including hepatitis.

liverfoundation.org

Hep C Connection

Hep C Connection focuses on community education, patient support, and prevention strategies for those affected by, or at risk for, hepatitis C.

hepc-connection.org

Transplant organizations

Transplant Living

No matter where you are in the transplant experience, Transplant Living can help you be prepared. You can personalize the site to manage your health information needs.

transplantliving.org

The Transplant Foundation

Transplant Foundation, INC (TF) focuses on providing financial and emotional support to transplant patients. Their mission is to educate the public on the importance of organ donation and to fund transplant research.

804-285-5115

Medication and transplant assistance

National Foundation for Transplants

This national non-profit organization helps people seeking a new life through transplantation. Limited emergency grants of up to three months are available for medications.

transplants.org

National Transplant Assistance Fund—Help Hope Live

Help Hope Live has more than 24 years' experience helping patients and communities raise funds to cover uninsured medical expenses related to transplantation and injury. The staff can help with the process of raising funds in the community and applying for financial assistance.

helphopelive.org

HealthWell Foundation

The HealthWell Foundation provides financial assistance to cover health care costs and deductibles for certain medications and therapies.

healthwellfoundation.org/

Needy Meds

Needy Meds provides a list of patient assistance medication programs/ <http://www.needymeds.org/>

Medication Patient Assistance Programs

Prograf (Astellas): **1-800-477-6472**

Cellcept (Genentech): **1-888-754-7651**

Valcyte (Genentech): **1-888-754-7651**

Rapamune (Pfizer): **1-888-327-7787**

Other resources

Transplant Support Group

This is a monthly support group for both pre- and post-transplant patients and their support people. You will learn about topics including nutritional recommendations, medications, and financial health. The group also offers a time for patients to talk about their transplant experience and meet with others. Please contact your social worker so your email address can be added to the support group list if you are interested. You will be notified by email when a new support group meeting has been scheduled.

Transplant Buddy Program

This program offers post-liver transplant patients the chance to receive emotional support from other patients who have also had a liver transplant. Please contact your social worker if you are interested in this program.

The **MedStar Georgetown Transplant Institute** provides evaluation, diagnosis, and treatment for people suffering from a variety of liver disorders. You can be treated at one of our seven convenient locations.

We make getting the care you need as easy as possible. Visit our secure, easy-to-use online portal, **myMedStar.org**, to access medical records, set up appointments, check test results, email doctors, request prescription refills, share medical records with other doctors, and pay hospital and doctor bills.

To schedule and appointment, call **202-444-0766**.

1. MedStar Georgetown University Hospital

3800 Reservoir Rd., NW
2nd Floor PHC
Washington, DC 20007

2. MedStar Washington Hospital Center

110 Irving St., NW
POB South, Ste. 215
Washington, DC 20010

3. MedStar Georgetown Transplant Institute at Fairfax

3020 Hamaker Ct., # 501
Fairfax, VA 22031

4. MedStar Franklin Square Medical Center

9000 Franklin Square Dr.
Baltimore, MD 21237

5. MedStar Georgetown Transplant Institute in Frederick

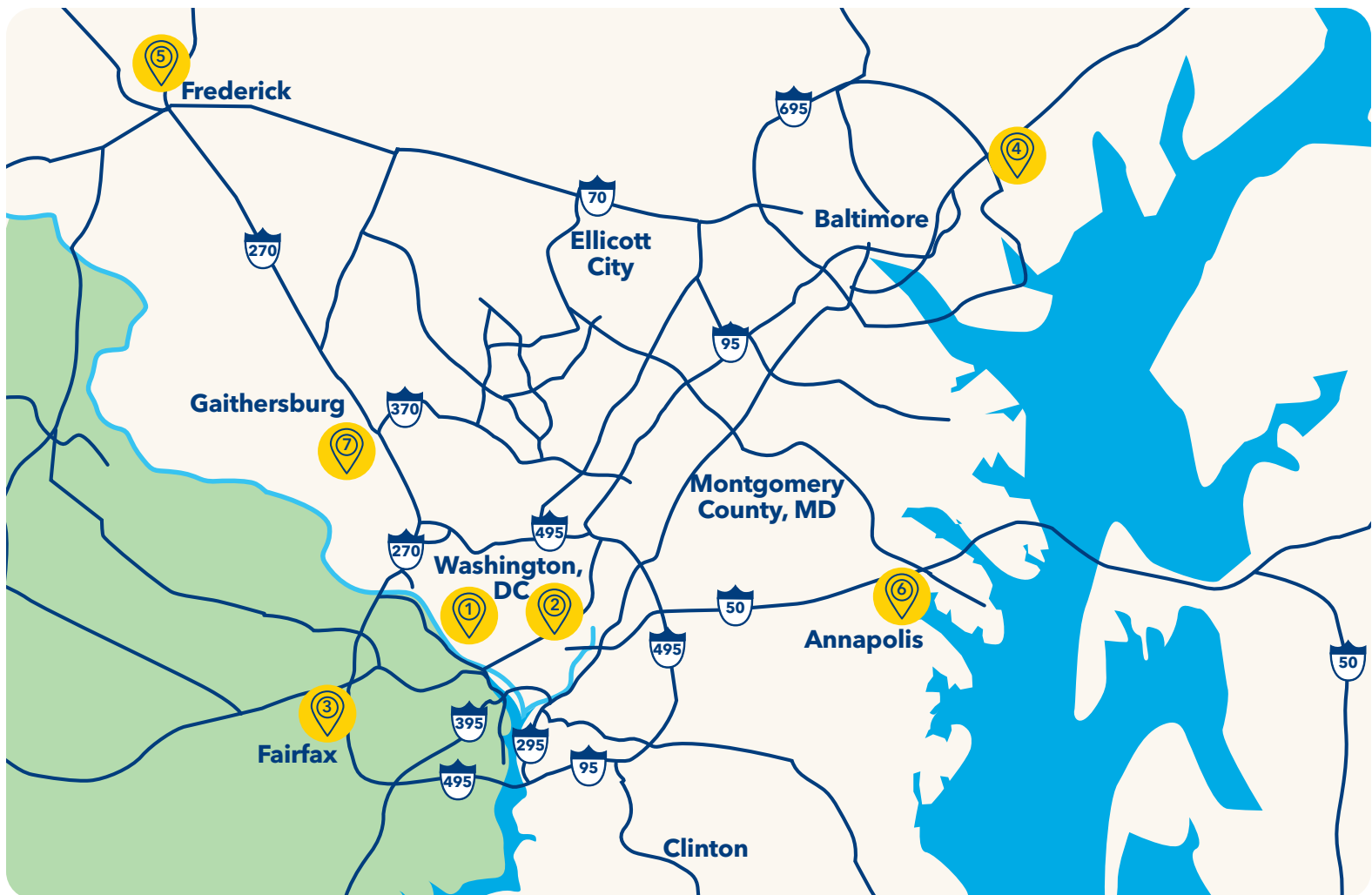
110 Thomas Johnson Dr.
Ste. 120
Frederick, MD 21702

6. MedStar Georgetown Transplant Institute in Annapolis

810 Bestgate Rd, Ste. 310
Annapolis, MD 21401

7. MedStar Georgetown Transplant Institute

12111 Darnestown Rd.
Ste. A
Gaithersburg, MD 20878



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[MedStarGeorgetown.org/LiverTransplant](https://www.MedStarGeorgetown.org/LiverTransplant)



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