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Waiting for Your Liver Transplant

Prepared by:

Multi Organ Transplant Program

Queen Elizabeth II Health Sciences Centre

Capital Health, Halifax, Nova Scotia



Capital Health

Waiting for your liver transplant

The Capital Health Multi Organ Transplant Program is at the Queen Elizabeth Health Sciences Centre (QEII) in Halifax, Nova Scotia. The team members of this program have written this handbook to help you learn about the various steps needed to prepare for a transplant. This handbook will describe the events that must happen before you receive a liver transplant. After your transplant, you will get a second handbook. Some of the topics in this second handbook include your recovery, self care, anti-rejection medications, and possible complications. The team members are always available to talk about your concerns with you.

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Waiting for your liver transplant

Your transplant assessment

You may find that the assessment needed to get ready for a liver transplant can very stressful and tiring. We strongly suggest that you have a family member or friend with you during your appointments. He/she can give comfort, support, and help to remember the information that you are given. The Transplant Team will be giving you a lot of information.

Team members will support you during your assessment. The recipient transplant coordinator will guide you through this time. Various tests and consults will be arranged for you. The Team will also be asking you to give them a lot of information. This is to find out about your general health, what type of liver disease you have, the stage of your liver disease, and what you can do to become as healthy as possible.

Team support

During your assessment, the Team will help with the following:

Coping

Anyone who is a candidate for a liver transplant will speak with the psychologist.

This is to find any areas that may affect your ability to cope. A family member or friend, your family doctor, and you will be interviewed to learn more about your coping abilities. The psychologist may make suggestions about how to improve your coping skills.

If you are depressed or anxious about the transplant, or because of some other stressful event, the psychologist may suggest counseling. She/he will offer the counseling or make arrangements for counseling in your community.

The social worker will work with you in Halifax or in your community. She/he will meet with you to talk about some practical needs such as how you will travel to the hospital, where your family will stay, if you have coverage for your medications after transplant, and if your home situation and finances are in order.

The social worker is also available to give emotional support and counseling to you and/or your family while you wait for your transplant.

Choosing healthy food

The dietitian will ask you about your eating habits. She will make a special plan for you and help you learn about healthy eating. You will be better prepared and healthier for your transplant if you cut down on salt and eat foods with recommended amounts of protein.

Exercise

A physiotherapist will meet with you. You and the physiotherapist can then create a home exercise program that will help you get ready for surgery. Being in good shape will help with your recovery after surgery.

Dental work

Bad teeth and diseased gums can be a major source of infection. You may need to see your dentist to make sure that your teeth and gums are in the best shape possible.

How to prepare

It is just as important to prepare financially for a liver transplant, as it is to prepare emotionally and physically. Social workers have few resources to make use of. Any financial planning patients and families can do before surgery may help the recovery process.

Patients and families may be caught off guard when they get “the call” from the recipient transplant coordinator. Many people have said, “I never really thought it would happen so I never prepared.”

- While you are waiting for your transplant assessment, the cost of your lodging will be taken care of. The person with you will only have his/her lodging costs taken care of if there is a medical reason why you need to have an escort.
- Most patients will spend at least 2-3 weeks at Point Pleasant Lodge upon discharge from the hospital.
- Patients do not pay for lodging while staying at Point Pleasant Lodge. Family members will have to pay for their own lodging. If a spouse, sibling, or friend plans to stay at Point Pleasant Lodge while a patient is recovering after transplant surgery, then money must be available to help with this cost.
- Lodging at Point Pleasant Lodge will cost \$40.25 (as of September 2014) a night (subject to change). A family member may be asked for a \$100 security deposit by either credit card or cash.

- **Nova Scotia:** patients will be given two \$5 meal tickets for each day. They can be used at Point Pleasant Lodge or in the hospital cafeteria. The Clinic nurse will give you these tickets.
- **New Brunswick:** patients will have \$25 a day towards meals, which can only be used at Point Pleasant Lodge.
- **Prince Edward Island:** patients will have \$25 a day towards meals, which can only be used at Point Pleasant Lodge.
- **Newfoundland:** patients will be given two \$5 meal tickets for each day. They can be used at Point Pleasant Lodge or in the hospital cafeteria. The Clinic nurse will give you these tickets.
- Travelling costs for the family also need to be considered.

Friends and colleagues can help with fundraising. Financial worries can lessen the joy of an otherwise life-changing event.

The transplant social worker will contact an income assistance worker for patients on social assistance.

We strongly encourage anyone who is waiting for a liver transplant to save money for their surgery. Please prepare far in advance so you are ready when you get “the call”.

Places to stay while you are in Halifax

While you are in Halifax for your assessment, you will be able to stay at Point Pleasant Lodge. The recipient coordinator will make your reservations for a 5-7 day stay at the Lodge. The patient will not have to pay for his/her stay at the Lodge. If you decide to stay anywhere except Point Pleasant Lodge, you must pay for everything yourself. A family member or friend must book and pay for himself/herself.

These places have special rates for patients with appointments at Capital Health:

Point Pleasant Lodge
1121 South Park Street, Halifax
902-421-1599

Atlantica Hotel
1980 Robie Street, Halifax
902-423-1161

Halifax Haven Guest Home
5897 Inglis Street, Halifax
902-421-1650

The Lord Nelson
1515 South Park Street, Halifax
902-423-6331

The Westin
1181 Hollis Street, Halifax
1-888-679-7834 (toll free)

Your questions for the team

Possible tests

You may have these tests to find out if it is the right time for you to be placed on the transplant wait list and if you are well enough for a transplant.

You may need some of these tests:

- Abdominal ultrasound
- Abdominal MRI scan
- Arterial blood gases
- Blood tests including HIV testing
- Chest X-ray
- Colonoscopy
- Echocardiogram
- Electrocardiogram
- ERCP/MRCP (Endoscopic retrograde cholangiopancreatography/Magnetic resonance cholangiopancreatography)
- Gastroscopy

- Liver biopsy
- Pulmonary function test
- TIPS (Transjugular intrahepatic portosystemic shunt)
- Triphasic abdominal CT scan

Some of these tests are explained under “Common tests” later in this guide.

Results of the assessment

After the assessment, you will return home. The Transplant Team will go over your test results, find out the risks and benefits of a transplant for you, and decide if this is the right time for your name to go on the liver transplant wait list. Some patients are too sick for a transplant, and they will be reassessed if their condition changes. It is also possible to have medical problems, such as severe heart disease, large tumours, or significant obesity that make a transplant too risky. If a transplant is recommended or not, the recipient transplant coordinator will call you either way with the Team’s decision. She/he will also contact your family doctor and referring doctor.

Please talk about any questions or concerns with the Transplant Team and your family as you are preparing to have your name added to the wait list.

Waiting period

It may be a few months to several years before a new liver is found for you. The length of time you wait for a liver transplant depends on:

- When a healthy donor becomes available
- Your blood type
- Your size
- Your health status including MELD score (model for end stage liver disease)
- The length of time you have been on the wait list

Most people are able to stay at home while waiting for the call to say that a liver has been found. Others may have to stay in hospital for lengthy periods of time, to make sure they are watched closely during this time.

You may be placed “on hold” temporarily if you have an infection or any other problem that needs to be treated. It is a sad fact that a person may be taken off the list if he/she becomes too sick while waiting.

Some patients find waiting for a transplant very stressful. People may become anxious, depressed, confused, or have other strong emotions. These feelings, though unpleasant, are often normal reactions. Sharing your thoughts and feelings with supportive family members and friends can be very helpful. You can contact the Team if you feel you need extra support.

Your responsibilities while you wait

- Do not smoke
- Take your medications as prescribed by your doctor
- Exercise regularly
- Follow your diet
- Do not drink alcohol
- Do not use illegal drugs
- Tell your recipient transplant coordinator of any changes in your health
- Keep all Clinic appointments
- Have your blood work taken monthly or as requested
- See your family doctor each month
- Tell the recipient transplant coordinator if your address or phone number changes

You may be taken off the list if you do not try to keep yourself in the best shape possible. Your physical and mental condition at the time of transplant is very important. What happens after your surgery will not be as good if your physical condition is poor.

If you don't have an answering machine or voice mail service, it would be very helpful if you could get one. This would make it much easier for the transplant coordinator to reach you about health issues. If you are not at home when the transplant coordinator calls, she/he could leave a message for you.

Because we respect your privacy, she/he will ask you, in advance, if it is ok to leave a message on your answering machine or voice mail service to say the call is from the Pre Liver Transplant Clinic. She/he will also ask you if it is ok to leave a message with the person who answers the phone at the number(s) you have given.

If you have a health emergency, please call your family doctor to be checked or go to your local Emergency Department. Please call the Pre Liver Transplant Office to tell us of any change in your health.

Call your recipient transplant coordinator from Monday to Friday (7 a.m.–3 p.m.). After hours, please call your transplant recipient coordinator's phone number and listen to the message for instructions about who to contact in an emergency.

Research

The QEII in Halifax is the major referral centre in the Atlantic provinces. We are always looking for better ways to care for our patients. Research is an important part of the Multi Organ Transplant Program. Since our program has a very good reputation, drug companies often ask us to take part in Canadian and international studies.

If you are placed on the wait list for a liver transplant, you may be asked to take part in a research study. Any decision you make will not affect your status on the wait list or your treatment. The Transplant Team will not be upset if you decide not to take part in a study. If you do choose to take part in a research study, you can leave it at any time.

Getting ready for the day a liver is donated

1. How will I travel to Halifax? Be sure to have more than one plan.

2. Who will travel with me?

3. How long will it take to travel to Halifax?

4. Who will look after my children, home, or pets when I am in the hospital?

5. Write a checklist to help you pack your suitcase:

6. Where will my family stay while I am in the hospital?

Valuables (jewelry, credit cards, cash) should be left at home.

Things you need to take to the hospital when you get “the call”

- Medications
- Provincial Health Care Card
- Private Insurance Card
- Toothbrush and toothpaste
- Comb/brush
- Soap (scent-free)
- Shampoo (scent-free)
- Deodorant or antiperspirant (scent-free)
- Razors, shaving cream (scent-free)
- Slippers (non-skid soles)
- Pajamas
- Housecoat
- Underwear
- Socks
- Loose fitting pants (such as sweatpants)
- Shirts that are easy to get on and off
- Books, magazines, or hobbies to pass the time
- Diabetic supplies (if needed) such as glucometer, pens, lancets, etc.

When you get “the call”

A recipient transplant coordinator is on call 24 hours a day to make the arrangements when a liver becomes available. Do not call the recipient transplant coordinator who is on call if you have a medical problem.

If you are in hospital, a member of the Team will let you know that a liver is available.

If you are waiting outside of the hospital, a recipient transplant coordinator will try to contact you by phone.

Travel to the hospital as quickly and safely as you can.

You will need to report to 6B Centennial building, Victoria General site. Enter the hospital using the Dickson building entrance.

The recipient transplant coordinator will ask you:

- How will you travel to the hospital?
- When do you expect to arrive at the hospital?

She/he will tell you:

- Do not eat or drink anything (not even water).
- Where to check in when you arrive at the hospital.

Before surgery

When you arrive on the nursing unit, you may feel that the staff is rushing you. Many things need to be done in a short period of time.

You will be asked to sign your consent for surgery. Some tests will be done (such as an electrocardiogram, chest X-ray, and blood work). A nurse and then a doctor will examine you. A research nurse may visit with you. The Unit nurses will give you some brief instructions about your surgery.

Your family will be able to stay with you in your room before you go to the Operating Room (OR).

While you are getting ready for surgery, the Transplant Team will be retrieving the donor liver. If the donated liver is not suitable, the surgery will have to be cancelled. If this were to happen, you would go home and wait until another liver is donated. Although this would be disappointing, it is done for your protection. You want to get a liver that will work well.

Surgery

If the liver is suitable for transplant, you will be taken to the OR. The anesthetist will put you to sleep. The operation will take from 4-8 hours. Although every effort will be made to cut down on blood loss, you may need a blood transfusion.

While your family waits

Once you are in the OR, the wait for your family can be very long. This is a great time for your family to find a place to stay, if they have not already made plans. Feel free to contact the social worker for support Monday-Friday (9 a.m.-5 p.m.). Your family can also check in with the Intensive Care Unit (ICU) staff to make sure they have a phone number to contact them once your surgery is over and you arrive in the ICU. There is a waiting area on the 10th floor, Victoria building.

From Monday–Friday (8 a.m.-4 p.m.) there is a surgical liaison nurse who visits the waiting area to give families an update on how things are going during the surgery. If you are having your surgery outside of these hours, there is no one who can directly give your family any information.

The nurses in the ICU may not have any information about you until just before you come back to that unit.

After surgery

We will now give you some information about the first few days after surgery as we feel it is important that you and your family know at this time what to expect immediately after surgery. The second handbook, *After Your Liver Transplant*, will describe your care after you are moved to 6B. A person who has a liver transplant is usually in the hospital for 4-6 weeks.

The Intensive Care Unit (ICU)

You will be closely observed and monitored in the ICU for a number of days after your surgery. The time spent in the ICU varies from person to person. The average stay is 3 days but this depends on how you respond to surgery, how quickly you recover from the anesthetic, and how sick you were before the transplant.

The ICU nurses are specially trained to care for patients who are very sick. Each nurse cares for 1-2 patients.

When you wake up from the general anesthetic you can expect to:

- Have a tube in your windpipe that comes out of your mouth which is connected to a breathing machine. This is only needed until you can breathe on your own. The nurse will use a small tube to suction and remove any sputum (phlegm) from the tube. When the tube is in your mouth, you will not be able to talk, eat, or drink. The nurses are good at reading lips and will give you pencil and paper to write on, if needed. After the tube is removed, an oxygen mask is placed over your mouth and nose. It is common to have a sore throat for a few days after this tube is taken out. Later, a small tube (nasal prongs) may be used to give you oxygen through your nose. It is important for you to take deep breaths and cough to clear your throat and expand your lungs.
- Feel overwhelmed by the noise and light in this busy area. You may have some mild confusion due to the anesthetic. Nights and days may begin to blend together. Your sleep pattern may be affected. This will go away as your medications are adjusted.
- Have some anxiety and fear. This is normal. There will always be a nurse monitoring and caring for you in the ICU.
- Have a lot of tubes connected to parts of your body to help monitor your organs and vital signs (temperature, pulse, blood pressure, and breathing rate).

- Have a large dressing on your abdomen. Your incision (cut) will be in the shape of an upside down “Y” across your abdomen. You may have staples/ sutures.
- Get medication for your pain.

You will learn how to move around with as little discomfort as possible. Expect to be sitting on the side of the bed the first day after your surgery. To prevent muscle and joint stiffness, you will be shown how to do gentle bed exercises.

There is a waiting room in the ICU area for your family.

We want you and your family to know about your condition and your plan of care. Family members can get a full update from the nurse on each shift. We ask you to choose one family member to get and share information with other family members. This keeps everybody updated and gives the nurse more time to care for you. Visiting hours are flexible.

The nurse in the ICU can plan for your family to meet with the doctors at any time. The attending ICU doctors direct your care while you are in the Unit. They work very closely with your surgeons, liver specialists, and other team members. They will review your progress everyday and adjust your plan of care.

At this point in your recovery, you will meet the post liver transplant clinic nurse. She/he will follow you during your hospital stay and for the life of your new organ.

Once your condition is stable and you can breathe on your own, you will probably be moved to the Intermediate Care Unit.

The Transplant Unit

After leaving the ICU, you will be moved to either unit 6A or 6B on the Intermediate Care Unit (IMCU). This is a 4-bed room shared by men and women. Two nurses care for 4 patients around the clock. You will be here until the team feels your condition is stable enough for you to move to the General Nursing Unit on 6B. Men and women may need to share a room in this area as well. On the General Unit, your care focuses on helping you get ready to go home. For example, you will be expected to do more of your daily care, learn about your medications, and work with the physiotherapist. The team will be working closely with you during this time.

After discharge, you will need to stay in the Halifax area for a period of time to learn about your medications, how to care for yourself at home, and get follow up care.

Common tests

Abdominal M.R.I. scan gives detailed pictures of the liver and surrounding organs from different angles without using X-rays. This test will tell if the blood vessels and bile ducts are open. This test will take 60-75 minutes.

Abdominal ultrasound/ultrasound with Doppler studies is a painless and quick test. Sound waves are used to make pictures of your liver and other organs. This test can also show if the bile ducts and the large blood vessels that flow to and from your liver are open.

Bone density is a special kind of X-ray that measures the thickness of your bones, usually at the hip and spine.

Bone scan is done regularly if you had a liver tumour at the time of your transplant. This test checks to see if cancer has spread to the bones. It is done by injecting a dye into a vein, then taking pictures of the bones.

Colonoscopy is a test with a special tube and camera that is passed through your rectum into your large bowel. This test checks for bowel disease, tumours, bleeding, internal hemorrhoids, and polyps. You will be put to sleep for this test.

CT scan is a computerized picture that shows the size and shape of the liver, other abdominal organs, the major blood vessels, and bile ducts.

Endoscopy/Gastroscopy uses a special tube or scope to look into your throat, stomach, and small bowel to find out if you have any enlarged blood vessels or ulcers. You will be put to sleep for this test.

ERCP (Endoscopic retrograde cholangiopancreatography) uses a special tube with a light and a camera to look at the bile ducts. The doctor will pass the tube through your mouth into the very first part of the small bowel. You will be put to sleep for this test.

Liver biopsy shows us how well your liver is working. A small piece of tissue is taken from the liver with a special needle. This procedure will not hurt your new liver. The sample will tell us if there is any rejection, infection, or if a medication is causing changes in your liver enzymes. If you have had hepatitis C, you will need regular biopsies to see if the hepatitis virus is active.

MRCP (Magnetic resonance cholangiopancreatography) uses magnetic rays to make pictures of the liver and bile ducts.

TIPS (Transjugular intrahepatic portosystemic shunt) is done to control the side effects of an increase in blood pressure in the blood vessels around the liver. A small valve or shunt is placed into a vein in the neck and from there it is passed into the liver. This will relieve the blood pressure in the vein that supplies blood to your liver. You will be put to sleep for the test and admitted to hospital for monitoring.

Common lab tests

Alanine transaminase (ALT) is an enzyme made in the liver that is released into the blood when the liver is not working properly.

Albumin is a protein made by the liver and released into the blood. An increase can show recovery from a serious illness. A decrease could mean kidney disease, liver cirrhosis, malnutrition, or that the body is not absorbing nutrients from food.

Alkaline phosphatase is an enzyme made in the liver and bone. An increase could mean inflammation in the bile ducts inside the liver.

Aspartate transaminase (AST) is an enzyme released into the blood when the liver is not working properly.

Bilirubin is a digestive enzyme made by the liver.

Cholesterol measures a fat-like substance in your blood that helps make hormones and builds cell walls. An increase could be a side effect of some anti-rejection medications.

Creatinine is a protein waste substance removed from the body by the kidneys. This measurement can show how well the kidneys are working. An increase could mean dehydration, kidney disease, or a possible side effect of some anti-rejection medications.

Glucose measures how well the body controls the use of sugar after a meal. An increase could mean that a person has diabetes.

Hemoglobin measures red blood cells that carry oxygen from the lungs. A decrease could be caused by bleeding or some anti-rejection medications.

INR (International Normalized Ratio) measures how well the liver can make the protein prothrombin, which is important for blood clotting. An increase could mean liver damage or that the person is taking anti-clotting medications.

Platelets stop bleeding by clumping and forming a clot. An increase could mean the blood is too thick and prone (more likely) to clot. A decrease could be caused by some antibiotics and anti-rejection medications.

Potassium is an electrolyte in the body. It is needed to change carbohydrates into energy, build protein, and help the heart muscle and nerves work.

Sodium measures the balance between electrolytes (salts) and water in the body. An increase or decrease in the level of sodium could mean kidney problems.

White blood cell count (WBC) measures the cells that fight off infection. An increase could mean you have an infection, inflammation, or tissue destruction. Anti-rejection medications can raise or lower your WBC.

Possible complications

Short term complications

Complications are common after a transplant. Sometimes, the road after transplant is not smooth. Members of the transplant team will do their best to lower your chances of having problems and will treat them quickly if they happen.

Bleeding

Bleeding may happen during or shortly after surgery. If needed, blood, plasma, and/or platelets will be given. A patient rarely needs to return to the Operating Room to have the bleeding stopped.

Wound infections

Signs:

- Fever
- Redness, swelling, tenderness, a change in the type of pain, or change in the type of drainage around the site of your wound or tube

Treatment:

Tell your doctor or nurse right away if you have any of the above signs. You must be checked and treated quickly.

Bile leak

Bile can leak outside of the bile ducts into the abdomen.

Signs:

- Fever
- Feeling sick to your stomach
- Pain over the liver area

Treatment:

Tell your doctor, nurse, or Clinic nurse immediately if you have any of these signs. You must be checked and treated quickly.

Biliary stenosis or stricture

This is a narrowing of the bile ducts. Your liver enzymes would become elevated.

Sign:

Skin and eyes are yellow.

Treatment:

You must be checked and treated quickly. A tube may be inserted (put in) or surgery may be needed if the bile ducts are blocked.

Rejection

Your immune system protects you from “foreign invaders” such as bacteria (a type of germ). A rejection episode is when your body sees your new liver as a threat to you and starts to fight against it. Most rejection episodes happen within the first few weeks after surgery and are common. This does not mean that the organ will be lost. Rejection can be treated or controlled by making changes to your anti-rejection medications. The sooner a rejection episode is found, the sooner it can be stopped. Rejection may range from mild to severe. You may need a liver biopsy at any time after your transplant, as this is the only true way to find out if a rejection episode is happening. **You will always be at risk for rejection.**

You must learn these signs of rejection:

- Flu-like symptoms
 - › Fever (greater than 38 Celsius)
 - › Feeling tired
 - › Loss of appetite
 - › Nausea (sick stomach) and/or throwing up
- Abdominal pain or pain over your liver area
- Dark coloured urine (pee)
- Light coloured stool (bowel movement)
- Yellow colour of the skin and/or eyes

Prevention:

- Tell your family doctor right away if you have any symptoms of rejection.
- Take all of your medications as ordered.
- Attend all Clinic visits as scheduled.
- Have all your blood work checked as instructed.

Infections

The anti-rejection medications that you need to prevent the rejection of your new liver lower your ability to fight an infection. This makes you at higher risk of getting infections.

Some of the common infections are:

CMV (Cytomegalovirus)

This is a common virus. Most adults who have been exposed to this virus do not get CMV disease. A healthy immune system will keep the CMV virus quiet. The virus can become active if a person's ability to fight infection is lowered. It happens more often in a patient who is classified as CMV negative and if his/her donor was positive. This can happen long after your transplant, but the highest risk of infection is the first 3 months after transplant.

Signs of CMV infection are:

- Fever
- Feeling tired
- Aching joints
- Headaches

Prevention and/or treatment:

If you are at high risk for getting a CMV infection, you may be treated with an intravenous or oral medication while you are in the hospital. You will need to continue on some type of treatment after you are discharged from the hospital for some time. This medication helps to prevent you from getting a CMV infection. Even if you are not at high risk, we will check your blood regularly for signs of CMV infection. If you pick up this virus, then the doctors will prescribe medication to treat it.

Herpes simplex

Herpes simplex is a viral infection that causes painful cold sores or blisters around the mouth or sex organs.

Signs of herpes simplex:

- Feeling weak
- Fever
- Painful cold sores or blisters around the mouth or sex organs

Treatment:

You will be treated with an antiviral medication if needed.

Candida (yeast)

Candida is commonly called yeast.

Signs:

- Mouth:
 - › White patchy lesions (sores)
 - › White film on tongue
 - › A hard time swallowing
- Sex organs:
 - › Pain
 - › Redness and/or itching
 - › Yellow or white discharge

Prevention and/or treatment:

- Mouth—a liquid antibiotic called Nystatin® is taken by mouth 4 times a day, until you leave the hospital.
- Sex organs—a cream can be helpful.

PCP (pneumocystis pneumonia)

This type of pneumonia happens in people who have their immune system lowered.

Signs:

- Fever
- Dry cough
- Shortness of breath

Prevention and/or treatment:

You may be treated with a medication called Sulphatrim (Septra®) to help prevent you from getting this type of pneumonia.

Kidney problems

The kidneys may be damaged during or right after surgery, causing less urine to be made. This is usually only a short-term problem that may take care of itself or it may need treatment.

Diabetes

In the short term, some of the anti-rejection medications can increase the level of sugar in your blood. Diabetes can also be a long-term complication.

Signs:

- Increased thirst
- Passing urine often
- Feeling tired
- Drowsiness
- Blurred vision
- Muscle cramps
- Poor healing of wounds

Prevention and/or treatment:

Healthy eating and exercise may prevent diabetes from developing. You should lose weight if you are above your ideal body weight.

Treatment for diabetes would start with changes in your diet and if needed, pills or insulin to lower your blood sugar.

Primary graft nonfunction (acute liver failure)

Sometimes, the new liver does not start to work right away. **This is rare.** Another liver transplant would be needed if this were to happen.

Long term complications

Osteoporosis

Osteoporosis makes the bones weak and thin. Some of the medications needed after a transplant, such as Prednisone, may place you at greater risk for this problem. Exercises, such as walking, decrease the risk of osteoporosis.

It is important to have enough calcium in your diet, 1200-1500 mg every day. Milk and milk products are good sources of calcium. We may suggest vitamin D, 800 IU daily and calcium pills such as TUMS®. You should never take more calcium than the amount recommended by your doctor.

Diabetes

This can be a short term or long term complication of transplant. Some anti-rejection medications increase your blood sugar levels. This is more likely to happen if you have ever had high blood sugars before your transplant.

Diabetes can affect many parts of your body. It is important to keep your blood sugars under good control. See diabetes symptoms and prevention items listed under short-term complications on the previous pages.

High blood pressure

This is a very common problem after transplant. It can be caused by the anti-rejection medications, but may also have other causes.

If left untreated, high blood pressure can damage your heart, blood vessels, and even your new transplant.

A healthier lifestyle may help control your blood pressure. Watching your weight, not eating salty foods, exercising, and not smoking are all things that might help you to lower your blood pressure.

You might also need medications to control your blood pressure. The pill that works well for one person may not be the best one for another. Your doctor will adjust and change these pills and the doses to find the best treatment for you. All blood pressure pills can have side effects. Always let your doctor know if your blood pressure pills are giving you any side effects. **Never stop or change blood pressure pills on your own.**

High cholesterol

Cholesterol has many useful roles in our body but too much cholesterol can clog arteries.

Anti-rejection medications can increase your cholesterol levels. If your cholesterol was elevated before surgery, it may be even higher after surgery.

Eating foods low in cholesterol or saturated fat, losing weight and exercising may control this problem. Medication may be needed.

You may be reluctant to take any more medications, but it is vital that your cholesterol be as normal as possible. Your chances of having a stroke or heart attack will go up if your cholesterol is elevated for a long period of time.

Cancer

Liver cancer is more common in people with cirrhosis of the liver. After transplant, this risk is reduced. However, medications needed to prevent rejection may increase the overall risk of cancer. People who have had previous cancers are at greater risk and need to have regular check-ups.

If you have any questions, please ask.

We are here to help you.

Looking for more health information?

Contact your local public library for books, videos, magazines, and other resources.
For more information go to <http://library.novascotia.ca>

*Capital Health promotes a smoke-free, vape-free, and scent-free environment.
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Capital Health, Nova Scotia
www.cdha.nshealth.ca

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