

About Your Liver Surgery

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About Your Surgery

This guide will help you prepare for your liver surgery at Memorial Sloan Kettering Cancer Center (MSK), and help you understand what to expect during your recovery. Read through this guide at least once before your surgery and then use it as a reference in the days leading up to your surgery. Bring this guide with you every time you come to MSK, including the day of your surgery, so that you and your healthcare team can refer to it throughout your care.

There are several kinds of liver surgeries to treat cancer. One is called a liver resection, in which the part of the liver with the tumors is removed. Another is called liver ablation, which kills cancer cells by exposing them to very high temperatures or electric currents.

Your doctor will explain which type of surgery you will have. Some patients may have a combination of both a liver resection and a liver ablation.

About the Liver

Your liver is a large organ located on the right side of your body, just under your ribs. It's shaded in the figure *Your Liver*, below. Your liver has many vital functions, including:

- Storing and filtering blood
- Making bile, which helps with the breakdown of food (digestion), especially of protein and fat
- Changing sugar into a form your body can use for energy
- Helping your body get rid of waste products
- Making the substances that your blood needs to clot

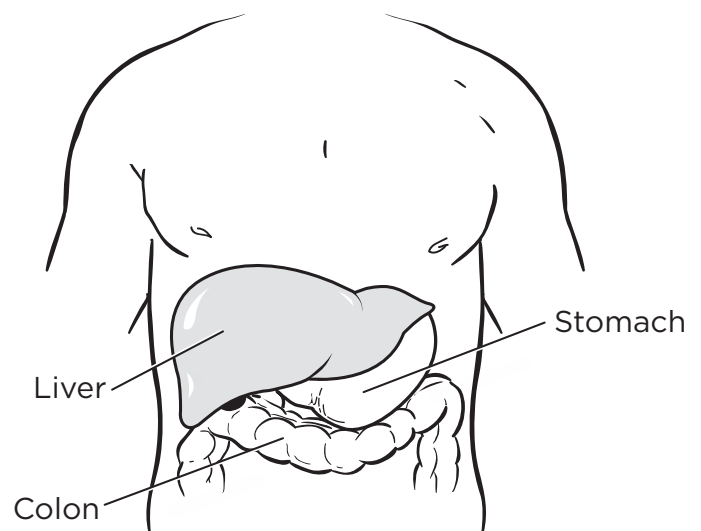
The healthy part of your liver that is left after surgery will grow larger to replace the part that was resected. It should return to its original size within a few weeks. However, it will take longer for your liver to be fully functional.

Liver Surgery

Your surgeon will make an incision(s) to see your liver clearly. He or she will decide the size of the incision and if a minimally invasive technique, (which makes very small incisions and uses cameras for guidance) is appropriate for you. Then, your surgeon will inspect your liver using an ultrasound to confirm the location and number of tumors in it.

If your surgeon is removing a tumor, he or she will also need to take out a small amount of healthy tissue around it. The amount of tissue that will be removed depends on the size and location of the tumor(s).

Your surgeon may decide that the best way to treat your tumor(s) is to ablate it. There are different methods used for liver ablation. Radio frequency ablation (RFA) and microwave ablation kill cancer cells by heating them. Irreversible electroporation is a new method of ablation which uses an electric current to kill cancer cells.



Liver ablation methods can be used individually, in combination with a liver resection, or in combination with one another. The exact treatment differs from patient to patient.

The length of your surgery will depend on how many tumors need to be treated. Most surgeries take between 2 and 4 hours but others may be longer. Your surgeon may close your incision with staples, stitches that dissolve and will not need to be removed, or glue.

Notes _____

The information in this section will help you prepare for your surgery. Read through this section when your surgery is scheduled and refer to it as your surgery date gets closer. It contains important information about what you need to do before your surgery. Write down any questions you have and be sure to ask your doctor or nurse.

Preparing for Your Surgery

You and your healthcare team will work together to prepare for your surgery.

About Drinking Alcohol

The amount of alcohol you drink can affect you during and after your surgery. It is important that you talk with your healthcare providers about your alcohol intake so that we can plan your care.

- Stopping alcohol suddenly can cause seizures, delirium, and death. If we know you are at risk for these complications, we can prescribe medication to help prevent them.
- If you use alcohol regularly, you may be at risk for other complications during and after surgery. These include bleeding, infections, heart problems, greater dependence on nursing care, and a longer hospital stay.

Here are things you can do to prevent problems before your surgery:

- Be honest with your healthcare provider about how much alcohol you drink.
- Try to stop drinking alcohol once your surgery is planned. If you develop a headache, nausea, increased anxiety, or cannot sleep after you stop drinking, tell your doctor right away. These are early signs of alcohol withdrawal and can be treated.
- Tell your healthcare provider if you cannot stop drinking.
- Ask us any questions you have about drinking and surgery. As always, all of your treatment information will be kept confidential.

About Smoking

People who smoke can have breathing problems when they have surgery. Stopping even for a few days before surgery can help. If you smoke, your nurse will refer you to our Tobacco Cessation Program. You can also reach the program at (212) 610-0507.

Help us keep you safe during your surgery by telling us if any of the following statements apply to you, even if you aren't sure.

- I take a blood thinner. Some examples are heparin, warfarin (Coumadin®), enoxaparin (Lovenox®), clopidogrel (Plavix®), and tinzaparin (Innohep®). There are others, so be sure your doctor knows all the medications you're taking.
- I take prescription medications.
- I take any over-the-counter medications, herbs, vitamins, minerals, or natural or home remedies.
- I have a pacemaker, automatic implantable cardioverter-defibrillator (AICD), or other heart device.
- I have sleep apnea.
- I have had a problem with anesthesia in the past.
- I have allergies, including to latex.
- I am not willing to receive a blood transfusion.
- I drink alcohol.
- I smoke.
- I use recreational drugs.

About Sleep Apnea

Sleep apnea is a common breathing disorder that causes a person to stop breathing for short periods while sleeping. The most common type is obstructive sleep apnea (OSA). This means that the airway becomes completely blocked during sleep, so no air can get through. OSA can cause serious problems when you have surgery. Please tell us if you have sleep apnea or if you think you might have it. If you use a breathing machine (CPAP) for sleep apnea, bring it with you the day of your surgery.

Within **30** Days of Your Surgery

Presurgical Testing (PST)

Before your surgery, you will have an appointment for presurgical testing (PST). The date, time, and location of your PST appointment will be printed on the appointment reminder from your surgeon's office.

You can eat and take your usual medications the day of your PST appointment. During your appointment, you will meet with a nurse practitioner who works closely with anesthesiology staff (doctors and specialized nurses who will be giving you medication to put you to sleep during your surgery). He or she will review your medical and surgical history with you. You will have tests, including an electrocardiogram (EKG) to check your heart rhythm, a chest x-ray, blood tests, and any other tests necessary to plan your care. Your nurse practitioner may also recommend you see other healthcare providers.

Your nurse practitioner will talk with you about which medications you should take the morning of your surgery. To help you remember, we've left space for you to write these medications down on page 11 of this guide. It is very helpful if you bring the following with you to your PST appointment:

- A list of all the medications you are taking, including patches and creams
- Results of any tests done outside of MSK, such as a cardiac stress test, echocardiogram, or carotid doppler study
- The name(s) and telephone number(s) of your doctor(s)

Health Care Proxy

If you haven't already completed a Health Care Proxy Form, we recommend you complete one now. A health care proxy is a legal document that identifies the person who will speak for you if you are unable to communicate for yourself. This person is known as your health care agent. If you are interested in completing a Health Care Proxy Form, talk with your nurse. If you have completed a Health Care Proxy Form or if you have any other advanced directive, bring it with you to your next appointment.

Breathing and Coughing Exercises

Practice taking deep breaths and coughing before your surgery. You will be given an incentive spirometer, either before or after your surgery, to help expand your lungs. For more information, please read *How to Use Your Incentive Spirometer*, which is located on page 33 in the "Resources" section of this guide. If you have any questions, ask your nurse or respiratory therapist.

Exercise

Try to do aerobic exercise every day, such as walking at least 1 mile, swimming, or biking. If it is cold outside, use stairs in your home or go to a mall or shopping market. Walking will help your body get into its best condition for your surgery and make your recovery faster and easier.

Eat a Healthy Diet

You should eat a well-balanced, healthy diet before your surgery. If you need help with your diet talk to your doctor or nurse about meeting with a dietitian.

10 Days Before Your Surgery

Review Your Medications

Stop taking medications that contain aspirin or vitamin E 10 days before your surgery or as directed by your doctor. If you take aspirin because you've had a problem with your heart or you've had a stroke, talk with your doctor before you stop taking it. He or she will tell you whether or not you should stop. If your cardiologist feels you need to remain on aspirin, liver surgery can be performed safely while you continue to take this medication. For information about medications containing aspirin, read *List of Common Medications Containing Aspirin and Other Nonsteroidal Anti-inflammatory Drugs (NSAIDs)*, which is located in the "Medications" section of this guide.

Purchase Hibiclens® Skin Cleanser

Hibiclens® is a skin cleanser that kills germs for 6 hours after using it. Showering with Hibiclens® before surgery will help reduce your risk of infection after surgery. Hibiclens® is available at your local pharmacy without a prescription.



Purchase Clear Liquids

Purchase clear liquids to drink the day before your surgery. For a list of clear liquids that you can drink, please see the table on page 10.

Purchase Supplies for Bowel Preparation, If Needed

If you need to do a bowel preparation before your surgery, your nurse will tell you how. Use the area below to check off and write in any supplies you'll need.

Magnesium citrate bowel preparation

- 1 (10-ounce) bottle of magnesium citrate

MiraLAX® bowel preparation

- 1 (5 mg) tablet of bisacodyl (Dulcolax®). These are usually sold as a box of 10 tablets.
- 1 (238 gram) bottle of polyethylene glycol (MiraLAX®)
- 1 (64-ounce) bottle of a clear liquid
- _____
- _____

7 Days Before Your Surgery

Medications

Stop taking nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (e.g., Advil®, Motrin®) or naproxen (e.g., Aleve®). These medications can cause bleeding. For more information, please read *List of Common Medications Containing Aspirin and Other Nonsteroidal Anti-inflammatory Drugs (NSAIDs)*, which is located in the “Medications” section of this guide.

Herbal Remedies

If you take a multivitamin, talk with your doctor or nurse about whether you should continue. Stop taking herbal remedies or supplements. For more information, please read *Herbal Remedies and Cancer Treatment*, which is located in the “Medications” section of this guide.

1 Day Before Your Surgery

Note the Time of Your Surgery

A clerk from the Admitting Office will call you after 2:00 pm the day before your surgery. He or she will tell you what time you should arrive at the hospital for your surgery. If you are scheduled for surgery on a Monday, you will be called on Friday. If you do not receive a call by 7:00 pm, please call (212) 639-5014.

Use this area to write in information when the clerk calls:

Date _____ Time _____

MSK Presurgical Center (PSC)
1275 York Avenue (between East 67th and East 68th Streets) New York, NY
B elevator to 6th floor
(212) 639-3642

Begin a Clear Liquid Diet

You will need to follow a clear liquid diet the day before your surgery. A clear liquid diet includes only liquids you can see through. Examples are listed in the table below. You cannot eat any solid foods while on a clear liquid diet.

Clear Liquid Diet

Food/Beverage	Drink	Do Not Drink
Soups	<ul style="list-style-type: none">• Clear broth or bouillon• Clear consommé• Packaged vegetable, chicken, or beef broth	Any products with any particles of dried food or seasoning
Sweets	<ul style="list-style-type: none">• Gelatin, such as Jello®• Flavored ices• Hard candies, such as Lifesavers®	All others
Beverages	<ul style="list-style-type: none">• Clear fruit juices, such as cranberry, grape, apple• Soda, such as 7-Up®, Sprite®, ginger ale, seltzer, Gatorade®• Black coffee• Tea	<ul style="list-style-type: none">• Juices with pulp• Nectars• Milk (or cream)• Alcoholic beverages

Start Bowel Preparation, If Needed

If your doctor or nurse told you that you needed to do a bowel preparation, you will need to start it 1 day before your surgery. For both the magnesium citrate and MiraLAX® bowel preparations, you will need to follow a clear liquid diet the day before your surgery. Examples of clear liquids are listed in the table above. Make sure to drink plenty of liquids other than water, coffee, and tea. Try to drink at least one 8-ounce glass every hour while you're awake.

Magnesium citrate bowel preparation

- At 2:00 pm on the day before your surgery, drink the magnesium citrate.

MiraLAX® bowel preparation

- On the morning before your surgery, mix all 238 grams of MiraLAX® with the 64 ounces of clear liquid until the MiraLAX® powder dissolves. Once the MiraLAX® is dissolved, you can put the mixture in the refrigerator, if you prefer.

Take your MiraLAX® bowel preparation

The MiraLAX® bowel preparation will cause frequent bowel movements, so be sure to be near a bathroom the evening before your surgery or procedure.

At 3:00 pm on the day before your surgery, take 1 bisacodyl tablet by mouth with a glass of water.

At 5:00 pm on the day before your surgery, start drinking the MiraLAX® bowel preparation.

Drink an 8-ounce glass of the mixture every 15 minutes until the container is empty.

- Apply petroleum jelly (Vaseline®) or A & D® ointment to the skin around your anus after every bowel movement. This helps prevent irritation.
- Drink 4 to 6 glasses of clear liquids after you finish the MiraLAX®. You may continue to drink clear liquids until midnight, but it is not required.

Shower with Hibiclens®

The night before your surgery, shower using the Hibiclens® solution. To shower using the Hibiclens® solution, open the bottle and pour some solution into your hand or a washcloth. Rub gently over your entire body from the neck down and rinse. Do not use any other soap. Do not let the solution get into your eyes, ears, mouth, or genital area. Dry yourself off with a clean towel after your shower.

Sleep

Go to bed early and get a full night's sleep.



Do not eat or drink anything after midnight the night before your surgery. This includes water, hard candy, and gum.

Morning of Your Surgery

Shower with Hibiclens®

Shower using Hibiclens® from your neck down just before you leave for the hospital. Use the Hibiclens® the same way you did the night before. Do not use any other soap.

Take Your Medications

Your doctor or nurse practitioner may have told you to take certain medications the morning of your surgery. If so, list them below. Take only these medications with a small sip of water the morning of your surgery.

Medication	Dose	Doctor/Nurse
Medication	Dose	Doctor/Nurse
Medication	Dose	Doctor/Nurse



Do not eat or drink anything the morning of your surgery. This includes water, hard candy, and gum. Take any medication as instructed with a small sip of water.

Things to Remember

- Do not put on any lotions, creams, deodorants, makeup, powders, or perfumes.
- Do not wear any metal objects. Remove all jewelry, including body piercings. The equipment used during your surgery can cause burns if it touches metal.
- Leave valuables, such as credit cards, jewelry, or your checkbook at home.
- Before you are taken into the operating room, you will need to remove your hearing aids, dentures, prosthetic device(s), wig, and religious articles (such as a rosary).
- Wear something comfortable and loose-fitting.
- _____
- _____
- _____

What to Bring

- Your breathing machine for sleep apnea (such as your CPAP), if you have one.
- A portable music player, if you choose. However, someone will need to hold these items for you when you go into surgery.
- Your incentive spirometer, if you have one.
- If you usually wear contact lenses, wear your glasses instead. Remember to bring a case for them.
- Your Health Care Proxy Form, if you have completed one.
- Your cell phone and charger.
- Your toothbrush and toothpaste.
- Your denture cleaner, if you have one.
- This guide.
- _____
- _____
- _____

Parking When you Arrive

Parking at MSK is available in the garage on East 66th Street between York and First Avenues. To reach the garage, turn onto East 66th Street from York Avenue. The garage is located about a quarter of a block in from York Avenue, on the right-hand (north) side of the street. There is a pedestrian tunnel that you can walk through that connects the garage to the hospital. There are also other garages nearby: four on East 69th Street between First and Second Avenues, one on East 67th Street between York and First Avenues, and three on East 65th Street between First and Second Avenues. If you have questions about prices, call (212) 639-2338. Please note that parking costs are not included in your room charge.



P = Parking

M = Memorial Sloan Kettering

Once You're in the Hospital

You will be asked to state and spell your name and date of birth many times. This is for your safety. Patients with the same or similar names may be having surgery on the same day.

Tell your nurse about medications you've taken

A nurse will meet with you before your surgery. Tell him or her the dose of any medications (including patches and creams) you took after midnight and the time you took them.

Get dressed for your surgery

You will be given a hospital gown, robe, and nonskid socks.

Prepare for your surgery

Once your nurse has seen you, 1 or 2 visitors can keep you company as you wait for your surgery to begin. When it is time for your surgery, your visitor(s) will be shown to the waiting area. Your visitors should read *Information for Family and Friends for the Day of Surgery*, which is located on page 15 of this guide.

You will walk into the operating room or you can be taken in on a stretcher. A member of the operating room team will help you onto the operating bed. Compression boots will be placed on your lower legs. These gently inflate and deflate to help circulation in your legs.

Your anesthesiologist will place an intravenous (IV) line into a vein, usually in your arm or hand. The IV line will be used to give you fluids and anesthesia (medication to make you sleep) during your surgery.

Your anesthesiologist may also put an epidural catheter (thin, flexible tube) in your spine (back). This will be used to give you pain medication. The medication is delivered into your epidural space, which is the area just outside your spinal cord. It will give you pain relief with fewer side effects, such as nausea, vomiting, and sleepiness. This is similar to what is given to women when they have babies.

Once you are fully asleep, a breathing tube will be placed through your mouth and into your windpipe to help you breathe. You will also have a urinary catheter placed to drain urine from your bladder.

Once your surgery is finished, your incision will be closed with staples or with stitches that will absorb as you are healing. Steri-Strips™ (thin pieces of tape) will be placed directly on your incision and covered with a bandage. Your breathing tube is usually taken out while you are still in the operating room.

Notes _____



Information for Family and Friends for the Day of Surgery

This information explains to your family and friends what will happen on the day of surgery at Memorial Sloan Kettering Cancer Center (MSK).

Before the Surgery

Upon arrival to the hospital, the patient will be asked to provide contact information for the person who will be speaking to the surgeon after the surgery. If the patient is having an outpatient procedure, he or she will also be asked to provide contact information for the person who will be taking the patient home.

Once the patient is checked in, he or she will go to the Presurgical Center (PSC) to be examined before surgery. One person may come along, but others should wait in the concierge waiting area. If the patient wishes, other people may join him or her when the nurse has finished the examination.

When the operating room (OR) is ready, the surgical team will take the patient there. They will prepare the patient for surgery, which usually takes 30 to 90 minutes, then the surgery will begin.

Please remember the following:

- Do not bring food or drinks to the waiting area or the PSC. Patients are not allowed to eat or drink before their surgery or procedure.
- If the patient brought any valuables, such as a cell phone, iPod, iPad, etc., please keep it safe for them.
- Children under the age of 11 are not allowed to go into the PSC. They must wait in the main lobby on the 1st floor with a responsible adult.

During the Surgery

After the patient is taken to the OR, all visitors should go to the main lobby on the 1st floor.

- Food and drinks are available on the 1st floor in the cafeteria and in the gift shop. You can also bring your own food and eat it in the cafeteria.
- The coat-check room is at the bottom of the escalator on the ground level. It is open Monday through Friday from 11:00 am to 4:00 pm.
- Wireless Internet access is available in most areas of the hospital. You may also use the computers in the rooms off the main lobby.
- Please use the designated cell phone area to accept and make calls. It may be useful to bring your phone charger to the hospital. Please be courteous and mindful of others while using your cell phone.
- The Mary French Rockefeller Chapel, an interfaith chapel near the main lobby on the 1st floor, is open at all times for meditation and prayer.
- The Patient Recreation Pavilion is open daily from 9:00 am to 8:00 pm for patients and their visitors over the age of 11. Arts and crafts, a library, an outdoor terrace, and scheduled entertainment events are available in this area. To get there, take the M elevators to the 15th floor.

A clinical nurse specialist (CNS) will make rounds in the main lobby about every 2 hours to:

- Give you information about the patient
- Prepare you for your meeting with the surgeon
- Prepare you for visiting the patient in the Post-Anesthesia Care Unit (PACU)



You can contact the CNS between his or her regular visits in the lobby.

- From inside the hospital, use a hospital courtesy phone. Dial 2000 and ask for beeper 9000. Please be patient; this can take up to 2 minutes.
- From outside of the hospital, call (212) 639-2000. Ask for beeper 9000.
- You may also ask the information desk staff to contact the CNS for you.

After the Surgery

When the patient's surgery is done, we will call you to come back to the concierge desk. Please take the B elevator to the 6th floor and check in at the concierge desk. The concierge staff will bring you to a private consultation room to speak with the surgeon.

After you have met with the surgeon, you should return to the concierge desk and tell them that you have finished your consultation.

After surgery, the patient will be taken to the PACU. It can take up to 90 minutes before the patient is ready to have visitors. You can use this time to take a walk or just relax in the waiting area until the patient is ready to see you.

Once the patient is ready for visitors, a nurse will take you to the PACU. Please remember that a limited number of visitors can go into the PACU. This is to keep the area quiet and avoid crowding.

While visiting in the PACU

- Silence your cell phone.
- Apply hand sanitizer before entering.
- Keep noise to a minimum. All patients in the room need to rest.
- Do not wander away from the patient's bedside. It's important to respect each patient's right to privacy.
- Do not bring food or flowers into the PACU.
- Limit the time of your visit so that the patient can rest and recover.
- You may be asked to leave if there is an emergency, x-rays need to be done nearby, or patient care is being interrupted.

The nurse will update you on the patient's condition. He or she will also explain the plan of care for the patient, such as whether the patient is staying overnight and when he or she will be moved to an inpatient room. You should feel assured that you can leave the hospital after your visit. We will give you a card with the PACU phone number. Please appoint one person to call for updates.



The information in this section will tell you what to expect after your surgery, both during your hospital stay and after you leave the hospital. You will learn how to safely recover from your surgery. Write down any questions you have and be sure to ask your doctor or nurse.

After Your Surgery

When you wake up after your surgery, you will be in the Post Anesthesia Care Unit (PACU).

You will receive oxygen through a thin tube that rests below your nose called a nasal cannula. A nurse will be monitoring your body temperature, pulse, blood pressure, and oxygen levels.

You may have a urinary catheter (Foley[®]) in your bladder to monitor the amount of urine you are making. You will also have compression boots on your lower legs to help your circulation.

You may have a pain pump called a patient-controlled analgesia (PCA) device. For more information, please read *Patient-Controlled Analgesia (PCA)*, which is located in the “Resources” section of this guide. If you do not have an epidural catheter, your pain medication will be given through an IV line.

Your visitors can see you briefly in the PACU, usually within 90 minutes after you arrive there. A member of the nursing staff will explain the guidelines to them.

Depending on the type of surgery you had, you may stay in the PACU overnight. After your stay in the PACU, you will be taken to your hospital room. Soon after you arrive in your room, you will be helped out of bed and into a chair. Your nurse will tell you how to recover from your surgery. Below are examples of ways you can help yourself recover safely.

- You will be encouraged to walk with the help of your nurse or physical therapist. We will give you medication to relieve pain. Walking helps reduce the risk for blood clots and pneumonia. It also helps to stimulate your bowels so they begin working again.
- You will not be allowed to eat for the first day or two. Then, you will be given clear liquids. After that, your diet will progress to a regular diet as tolerated. As soon as you are eating and showing no signs of complications, you will be ready to go home.
- Use your incentive spirometer. This will help your lungs expand, which prevents pneumonia. For more information, please read *How to Use Your Incentive Spirometer*, which is located in the “Resources” section of this guide.
- Continue to perform your breathing and coughing exercises every 1 to 2 hours while you are awake. Your nurse will teach you to splint your incision. This will reduce the movement of your stomach muscles and decrease pain while you do the coughing exercises.

Commonly Asked Questions: During Your Hospital Stay

The following section covers common questions patients ask after having liver surgery. Speak with your doctor or nurse if you have any additional questions or if any of this information is unclear.

Will I have pain after my surgery?

Yes, you will have pain after your surgery, especially in the first few days. Your doctor and nurse will ask you about your pain often. You will be given medication to manage your pain as needed. If your pain is not relieved, please tell your doctor or nurse. It is important to control your pain so you can cough, breathe deeply, use your incentive spirometer, and get out of bed and walk.

Why is it important to walk?

Walking will help prevent blood clots in your legs. It also decreases your risk of having other complications such as pneumonia.

Will I be able to eat?

You will not be allowed to eat for the first day or 2 following the surgery. Then you will be on a clear liquid diet. After that, your diet will progress to a regular diet as tolerated.

Eating a balanced diet high in protein will help you heal after surgery. Your diet should include a healthy protein source at each meal, as well as fruits, vegetables, and whole grains. For more tips on increasing the amount of calories and protein in your diet, ask your nurse for the resource *Eating Well During and After Your Cancer Treatment*. If you have questions about your diet, ask to see a dietitian.

How long will I be in the hospital?

Most patients are in the hospital for 5 to 7 days after having a liver resection or ablation but this will depend on the exact surgery that is done.

Commonly Asked Questions: After You Leave the Hospital

Will I have pain when I am home?

The length of time each patient has pain or discomfort varies. You may still have some pain when you go home and will probably be taking pain medication. Follow the guidelines below.

- Call your doctor if the medication prescribed for you doesn't relieve your pain.
- Take your medications as directed and as needed.
- Do not drive or drink alcohol while you are taking prescription pain medication.
- As your incision heals, you will have less pain and need less pain medication. A mild pain reliever such as acetaminophen (Tylenol®) or ibuprofen (Advil®) will relieve aches and discomfort. However, large quantities of acetaminophen may be harmful to your liver. Do not take more acetaminophen than the amount directed on the bottle or as instructed by your doctor or nurse.
- Pain medication should help you as you resume your normal activities. Take enough medication to do your exercises comfortably. Pain medication is most effective 30 to 45 minutes after taking it.
- Keep track of when you take your pain medication. Taking it when your pain first begins is more effective than waiting for the pain to get worse.

Can I shower?

Yes, taking a warm shower is relaxing and can help decrease muscle aches. Use soap when you shower and gently wash your incision. Pat the areas dry with a towel after showering, and leave your incision uncovered (unless there is drainage). Call your doctor if you see any redness or drainage from your incision.

Do not take tub baths until you discuss it with your doctor at the first appointment after your surgery.

Is it normal not to feel hungry after surgery?

It is common to have a decreased appetite after surgery. Try eating several smaller meals that have each of the food groups (i.e., fruits/vegetables, meat/chicken/fish, breads/grains, dairy products). This will help you heal faster.

In addition to not being hungry, you may also not be able to taste things the way you did before your surgery. This will improve with time.

How can I prevent constipation?

Your usual bowel pattern will change after surgery. You may have trouble passing stool (feces). This is a common side effect of pain medication. Please review the material your nurse gave you about fiber and constipation.

To avoid constipation, take a stool softener such as docusate sodium (Colace®) 3 times a day and 2 tablets of senna (a laxative) at bedtime. Continue taking the stool softener and laxative until you are no longer taking pain medication. Drink plenty of liquids. If you feel bloated avoid foods that can cause gas, such as beans, broccoli, onions, cabbage, and cauliflower.

Can I drink alcohol after surgery?

Alcohol is cleared out of the body through the liver. **Do not drink alcohol until you check with your doctor or nurse.**

How do I care for my incision?

The location of your incision will depend on the type of surgery you had. It is normal to have numbness of the skin below the incision because some of the nerves were cut; this sensation will lessen over time.

- By the time you are ready to leave the hospital, your surgical incision will have begun to heal.
- You and your caregiver should look at your incision with your nurse before you leave the hospital so you know what it looks like.
- If any liquid is draining from your incision, you should write down the amount and color. Call your doctor's office and speak with the nurse about any drainage from your incision.

Change your bandages at least once a day and more often if they become wet with drainage. When there is no longer any drainage coming from your incision, they can be left uncovered.

If you go home with Steri-Strips™ on your incision, they will loosen and fall off by themselves. If they haven't fallen off within 10 days, you may remove them.

If you go home with glue over your sutures (stitches), it will also loosen and peel off, similarly to the Steri-Strips™.

Is it normal to feel tired after surgery?

Feeling tired (fatigue) is the most common complaint after liver resection or ablation. It is an expected side effect. You may need a nap during the day, but try to stay out of bed as much as possible. That will help you sleep at night. It usually takes 6 to 8 weeks until your energy level returns to normal.

Can I resume my activities?

It is important for you to resume your activities after surgery. Spread them out over the course of the day. You can do light household tasks. Try washing dishes, preparing light meals, and other activities as you are able.

You may experience swelling in both of your lower legs following surgery. This will get better with time. If you feel that the swelling is getting worse while you are home and is interfering with your activities please call your doctor and let him or her know.

You may return to your usual sexual activity as soon as your incision are well healed and you can do so without pain or fatigue.

Your body is an excellent guide for telling you when you have done too much. When you increase your activity, monitor your body's reaction. You may find that you have more energy in the morning or the afternoon. Plan your activities for times of the day when you have more energy.

When is it safe for me to drive?

You may resume driving 3 weeks after surgery as long as you are not taking pain medication that may make you drowsy.

When can I return to work?

The time it takes to return to work depends on the type of work you do, the type of surgery you had, and how fast your body heals.

What exercises can I do?

Exercise will help you gain strength and feel better. Walking and stair climbing are excellent forms of exercise. Gradually increase the distance you walk. Climb stairs slowly, resting or stopping as needed. Ask your doctor or nurse before starting more strenuous exercises.

When can I lift heavy objects?

Check with your doctor before you do any heavy lifting. Normally, you should not lift anything heavier than 5 pounds for at least 6 weeks. Ask your doctor how long you should avoid heavy lifting.

How can I cope with my feelings?

After surgery for a serious illness, you may have new and upsetting feelings. Many patients say they felt weepy, sad, worried, nervous, irritable, and angry at one time or another. You may find that you cannot control some of these feelings. If this happens, it's a good idea to seek emotional support.

The first step in coping is to talk about how you feel. Family and friends can help. Your nurse, doctor, and social worker can reassure, support, and guide you. It is always a good idea to let these professionals know how you, your family, and your friends are feeling emotionally. Many resources are available to patients and their families. Whether you are in the hospital or at home, the nurses, doctors, and social workers are here to help you and your family and friends handle the emotional aspects of your illness.

When is my first appointment after my surgery?

Your first appointment after surgery will be in 1 to 3 weeks after you leave the hospital. Your nurse will give you instructions on how to make this appointment, including the phone number to call.

During this appointment, your doctor will discuss the pathology results with you in detail.



Call your doctor if you have:

- **A temperature of 101° F (38.3° C) or higher**
- **Pain that does not get better with your medications**
- **Redness, swelling, or drainage from your incision that is foul smelling or pus-like**
- **No bowel movement for 3 days or longer**
- **Nausea or vomiting**
- **Jaundice (yellow skin or eyes)**
- **Diarrhea**
- **Constipation that does not get better in 2 to 3 days**
- **Any new symptom or physical change**
- **Any questions or concerns**

After 5:00 pm, during the weekend, and on holidays, call (212) 639-2000. Ask to speak to the doctor on call for your surgeon.

The information in this section contains important information about what medications, herbal remedies, and other dietary supplements you will need to stop taking before your surgery. Read through this section before your surgery so that you are prepared. Write down any questions you have and be sure to ask your doctor or nurse.

List of Common Medications Containing Aspirin and Other Nonsteroidal Anti-inflammatory Drugs (NSAIDs)

This information will help you identify medications that contain aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs). It's important to stop these medications before many cancer treatments.

Medications such as aspirin and other NSAIDs, vitamin E, and COX-2 inhibitors can increase your risk of bleeding during cancer treatment. These medications affect your platelets, which are blood cells that clot to prevent bleeding. If you take aspirin or other NSAIDs, vitamin E, or a COX-2 inhibitor such as celecoxib (Celebrex[®]), tell your doctor or nurse. He or she will tell you if you need to stop taking these medications before your treatment. You will also find instructions in the information about the treatment you're having.

The following common medications contain aspirin:

Alka Seltzer [®]	Heartline [®]
Anacin [®]	Headrin [®]
Arthritis Pain Formula	Isollyl [®]
Arthritis Foundation Pain Reliever [®]	Lanorinal [®]
ASA Enseals [®]	Lortab [®] ASA Tablets
ASA Suppositories [®]	Magnaprin [®]
Ascriptin [®] and Ascriptin A/D [®]	Marnal [®]
Aspergum [®]	Micrainin [®]
Asprimox [®]	Momentum [®]
Axotal [®]	Norgesic Forte [®] (most formulations)
Azdone [®]	Norwich [®] Aspirin
Bayer [®] (most formulations)	PAC [®] Analgesic Tablets
BC [®] Powder and Cold Formulations	Orphengesic [®]
Bufferin [®] (most formulations)	Painaid [®]
Buffets II [®]	Panasal [®]
Buffex [®]	Percodan [®] Tablets
Cama [®] Arthritis Pain Reliever	Persistin [®]
COPE [®]	Robaxisal [®] Tablets
Dasin [®]	Roxiprin [®]
Easprin [®]	Saleto [®]
Ecotrin (most formulations)	Salocol [®]
Empirin [®] Aspirin (most formulations)	Sodol [®]
Epromate [®]	Soma [®] Compound Tablets
Equagesic Tablets	Soma [®] Compound with Codeine Tablets
Equazine [®]	St. Joseph [®] Adult Chewable Aspirin
Excedrin [®] Extra-Strength Analgesic Tablets and Caplets	Supac [®]
Excedrin [®] Migraine	Synalgos [®] -DC Capsules
Fiorgen [®]	Tenol-Plus [®]
Fiorinal [®] (most formulations)	Trigesic [®]
Fiortal [®]	Talwin [®] Compound
Gelpirin [®]	Vanquish [®] Analgesic Caplets
Genprin [®]	Wesprin [®] Buffered
Gensan [®]	Zee-Seltzer [®]
	ZORprin [®]

The following common medications are NSAIDs that do not contain aspirin:

Advil®	Diclofenac	Meclofenamate	Orudis®
Advil Migraine®	Etodolac®	Mefenamic Acid	Oxaprozin
Aleve®	Feldene®	Meloxicam	PediaCare Fever®
Anaprox DS®	Fenoprofen	Menadol®	Piroxicam
Ansaid®	Flurbiprofen	Midol®	Ponstel®
Arthrotec®	Genpril®	Mobic®	Relafen®
Bayer® Select Pain Relief Formula Caplets	Ibuprofen	Motrin®	Saleto 200®
Celebrex®	Indomethacin	Nabumetone	Sulindac
Children's Motrin®	Indocin®	Nalfon®	Toradol®
Clinoril®	Ketoprofen	Naproxen	Voltaren®
Daypro®	Ketorolac	Naprosyn®	
	Lodine®	Nuprin®	

Most multivitamins contain vitamin E, so if you take a multivitamin be sure to check the label. The following products contain vitamin E:

Amino-Opt-E	Aquavit	E-400 IU	E complex-600
Aquasol E	D'alpha E	E-1000 IU Softgels	Vita-Plus E

Acetaminophen (Tylenol®) is generally safe to take during your cancer treatment. It doesn't affect platelets, so it will not increase your chance of bleeding. The following common medications contain acetaminophen; those in bold require a prescription:

Acephen®	Naldegescic®
Aceta® with Codeine	Norco®
Acetaminophen with Codeine	Panadol®
Aspirin-Free Anacin®	Percocet®
Arthritis Pain Formula® Aspirin-Free	Repan
Darvocet-N 100®	Roxicet®
Datril®	Talacen®
Di-Gesic®	Tempra®
Esgic®	Tylenol®
Excedrin P.M.®	Tylenol® with Codeine No. 3
Fiorcet®	Vanquish®
Lorcet®	Vicodin®
Lortab®	Wygesic®
	Zydone®



Read the labels on all your medications.

Acetaminophen (Tylenol®) is a very common ingredient found in over-the-counter and prescription medications. It's often an ingredient in pain relievers, fever reducers, sleep aids, and cough, cold, and allergy medications. The full name acetaminophen is not always written out, so look for these common abbreviations, especially on prescription pain relievers: APAP, AC, Acetaminoph, Acetaminop, Acetamin, and Acetam.

Acetaminophen is safe when used as directed, but there is a limit to how much you can take in one day. It's possible to take too much acetaminophen without knowing because it's in so many different medications. Taking more acetaminophen than directed can lead to liver damage. You should never take more than 3,250 mg of acetaminophen in one day.

Herbal Remedies and Cancer Treatment

One week before you have surgery or start chemotherapy or radiation therapy, you must stop taking any herbal or botanical home remedies or other dietary supplements because they can:

- Interact with other drugs
- Increase or lower blood pressure
- Thin the blood and increase the risk of bleeding
- Make radiation therapy less effective
- Lower the effects of medications that suppress the immune system
- Increase the effects of sedation or anesthesia

Below are examples of common herbs and a description of their effects.

Echinacea

- Can cause an allergic reaction such as a rash or difficulty breathing
- Can lower the effect of drugs used to suppress the immune system

Garlic

- Can lower blood pressure, fat, and cholesterol levels
- Can prevent platelets (the blood cells that help stop bleeding) from sticking together, which increases the risk of bleeding

Gingko (also known as ginkgo biloba)

- Can change how platelets function, which can increase the risk of bleeding

Ginseng

- Can act as a stimulant, which can decrease the effects of anesthesia or sedation
- Can interfere with platelet function, which can increase the risk of bleeding
- Can lower blood glucose (sugar) level

Turmeric

- Can reduce the antitumor action of chemotherapy drugs

St. John's Wort

- Can interact with medications given during surgery
- Can make the skin more sensitive to laser treatment

Valerian

- Can have a sedative effect, which can increase the effects of anesthesia or sedation

Herbal formulas

- Many herbal formulas contain different herbs. We don't know their side effects. You must also stop taking these products 1 week before and during treatment

For more information about herbs and botanicals, visit: <http://www.mskcc.org/aboutherbs>.
You can also download the Memorial Sloan Kettering About Herbs app from the App Store at:
<https://itunes.apple.com/us/app/about-herbs/id554267162?mt=8>

This information does not cover all possible side effects. Please share any questions or concerns with your doctor or nurse.



Notes

This section contains a list of MSK support services, as well as the resources that were referred to throughout this guide. These resources will help you prepare for your surgery and recover safely. Write down any questions you have and be sure to ask your doctor or nurse.

MSK Support Services

The following are MSK resources that you may find helpful.

Admitting

(212) 639-5014

Call the Admitting office to discuss private room or luxury suite options. If you want to change your room choice after your Presurgical Testing visit, call (212) 639-7873 or 7874.

Anesthesia

(212) 639-6840

Call with questions about anesthesia, the medications used to make you sleepy for your surgery.

Blood Donor Room

(212) 639-7643

If you are interested in donating blood or platelets, call for more information.

Bobst International Center

(888) 675-7722

MSK welcomes patients from around the world. If you are an international patient, call the International Center for help coordinating your care.

Chaplaincy Service

(212) 639-5982

Spiritual and religious resources provide comfort and strength for many patients. The chaplains at MSK are available to help you access those resources. They can provide spiritual support for anyone. If you have a specific religious need, please call the number above. The interfaith chapel is located near the main lobby of 1275 York Avenue. It is open 24 hours a day. If there is an emergency, please call the hospital operator and ask for the chaplain on call.

Counseling Services

(646) 888-0100

Many people find counseling helpful. We provide counseling for individuals, couples, families, and groups, as well as medications to help if you feel anxious or depressed.

Integrative Medicine Service

(646) 888-0800 (outpatient)

(646) 888-0888 (inpatient)

Integrative Medicine Service offers patients many services to complement traditional medical care, including music therapy, mind/body therapies, dance and movement therapy, yoga, and touch therapy.

Patient-to-Patient Support Program

(212) 639-5007

You may find it comforting to speak with a cancer survivor or caregiver who has been through a similar treatment. Through our Patient-to-Patient Support Program, we are able to offer you a chance to speak with former patients and caregivers.

Patient Financial Services

(212) 639-8242

Call Patient Financial Services with any questions regarding preauthorization with your insurance company. This is also called preapproval. Patient Financial Services can also help you with your billing or other insurance questions.

(646) 497-9176

Call the number above for general information about your insurance coverage. Remember, you must call your insurance company for preauthorization.

Patient Representatives

(212) 639-7202

Call the Patient Representatives office if you have any questions about the Health Care Proxy Form or if you have any concerns about your care.

Perioperative Clinical Nurse Specialist

(212) 639-5935

If you have any questions about MSK releasing any information while you are having surgery, call the clinical nurse specialist.

Private Nursing Options

(212) 639-6892

Patients may request private nurses or companions. For more information, call the Private Duty Nursing Office.

Resources for Life After Cancer (RLAC) Program

(646) 888-4740

At MSK, care doesn't end after active treatment. The RLAC Program is for patients and their families who have finished treatment. This program has many services, including seminars, workshops, support groups, counseling on life after treatment, and help with insurance and employment issues.

Social Work

(212) 639-7020

Social workers help patients, family, and friends deal with issues that are common for cancer patients. They provide counseling on getting used to a serious illness, advice on how to communicate with family, friends, and young children, and help with employment issues.

Tobacco Cessation Program

(212) 610-0507

If you want to quit smoking, MSK has specialists who can help. Call for more information.

Important Telephone Numbers

The following are resources outside of MSK that you may find helpful:

American Cancer Society

www.cancer.org

National Cancer Institute

www.cancer.gov

For additional online information, visit LIBGUIDES on MSK's library website at <http://library.mskcc.org> or the Liver Cancer section of MSKCC.org. You can also contact the library reference staff at (212) 639-7439 for help.

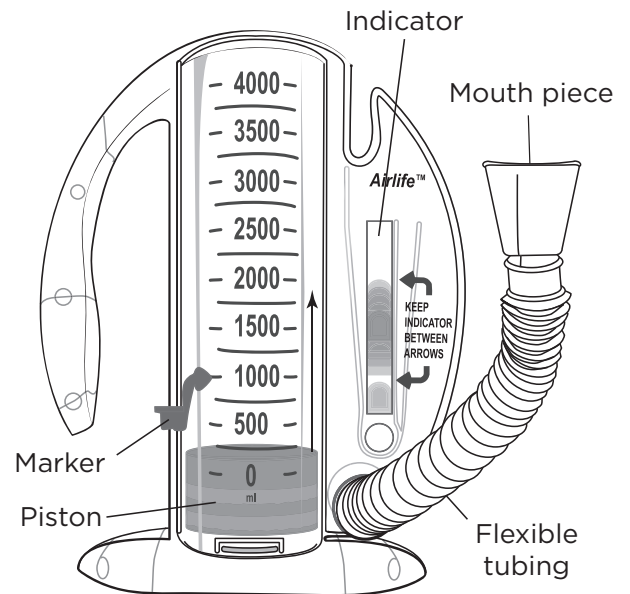
How to Use Your Incentive Spirometer

An incentive spirometer will help you expand your lungs by encouraging you to breathe more deeply and fully. Using your incentive spirometer along with deep breathing and coughing exercises will help prevent complications such as pneumonia.



A video demonstrating how to use your incentive spirometer can be found on MSK's website at: <http://www.mskcc.org/videos/how-use-your-incentive-spirometer>.

The first time you use it, you will need to take the flexible tubing with the mouthpiece out of the bag. Expand the tubing and connect it to the outlet on the right side of the base (see figure). The mouthpiece will be attached to the other end of the tubing.



- 1 Sit upright in a chair or in bed. Hold the incentive spirometer upright at eye level.
- 2 Breathe out (exhale) once slowly. Put the mouthpiece in your mouth and close your lips tightly around it.
- 3 Take a slow, deep breath in through your mouth. As you take a deep breath, you will see the piston rise on the left side of the device. While the piston rises, the indicator on the right should move upwards. It should stay in between the 2 arrows (see figure). If the indicator does not stay between the arrows, you are breathing either too fast or too slowly.
- 4 Try to get the piston as high as you can, while keeping the indicator between the arrows.
- 5 When you get it as high as you can, try to keep it at that level for as long as possible.
- 6 Exhale normally, allowing the piston to fall all the way back to the bottom. Rest for a few seconds. Take 10 to 12 breaths every hour with your incentive spirometer while you are awake. Try to get the piston to the same level with each breath.
- 7 After each set of breaths, cough 3 times. This will help loosen or clear any secretions in your lungs.

Special Points

- If you feel dizzy at any time, stop and rest. Try again at a later time.
- Hug or hold a pillow to help splint your incision if you had surgery on your chest or abdomen. This will help decrease pain at your incision.
- Breathe through your mouth. If you breathe through your nose the incentive spirometer will not work properly. You can plug your nose if you have trouble.
- Keep the incentive spirometer clean by covering the mouthpiece when it is not in use.



Patient-Controlled Analgesia (PCA)

Patient-controlled analgesia helps you control your pain by administering your pain medicine. It is often called “PCA”. PCA uses a computerized pump to deliver pain medicine into a vein (intravenous, or IV) or epidural space (in your spine). Whether you have an IV PCA or epidural PCA depends on what you and your doctor decided was right for you. When you have pain, you simply press the button attached to the pump. The pump will deliver a safe dose that your doctor has prescribed. Only you should push the PCA button. Family and friends should never push the button.

How It Is Given:

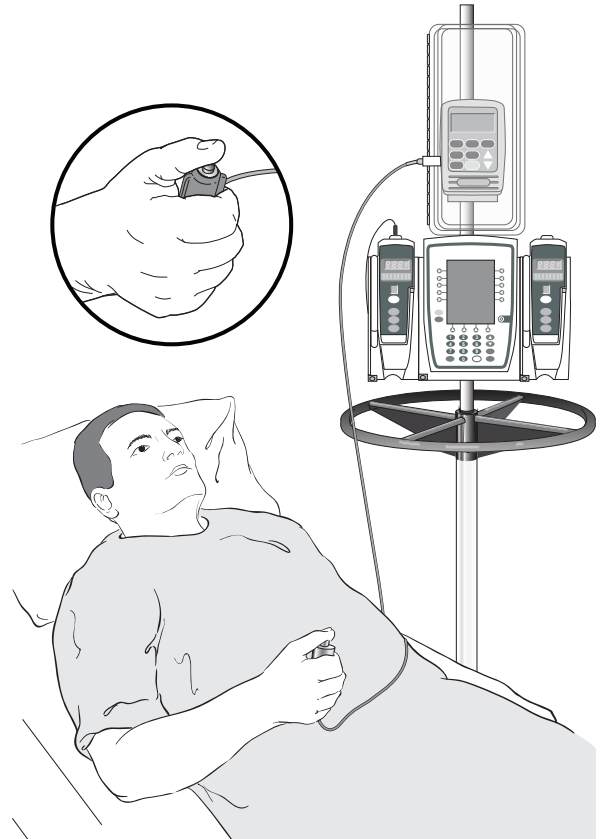
The pump can be programmed to deliver your medicine in 2 ways:

- As needed – You get the medicine only when you press the button. It will not allow you to get more medicine than prescribed. The pump is set to allow only a certain number of doses per hour.
- Continuous – You get the medicine at a constant rate all the time. This can be combined with the as needed mode. That allows you to take extra doses safely if you are having pain.

Possible Side Effects:

Pain medication delivered by the PCA pump can have the following side effects. Tell your doctor or nurse if you have any of these or any other problems:

- Constipation
- Nausea, vomiting
- Dry mouth
- Itching
- Changes in vision, such as seeing things that are not there
- Drowsiness, dizziness, or confusion
- Weakness, numbness, or tingling in your arms or legs
- Difficulty urinating



Special Instructions:

PCA is not right for everyone.

- Patients who are confused or cannot follow these instructions should not use PCA.
- If you have been told you have sleep apnea, tell your doctor. This may affect the way we prescribe your PCA.
- If you have weakness in your hands and may have trouble pushing the PCA button, talk with your doctor or nurse.

When using PCA, tell your doctor or nurse if:

- The medicine is not controlling your pain.
- Your pain changes. For example, tell them if:
 - It gets worse
 - You feel it in a new place
 - It feels different than before



Preventing Falls: What You Can Do

This information describes how you can prevent falls while you are in the hospital and at home.

Are You at Risk for Falls?

Anyone can fall, but some things make people more likely. Some risk factors for falls include:

- If you have fallen before
- Having a fear of falling
- Feeling weak, tired, or forgetful
- Having numbness or tingling in the legs or feet
- Having difficulty walking, or unsteady walking
- Having poor vision
- Feeling dizzy, lightheaded, or disoriented
- Using a walker or cane
- Having depression or anxiety
- Taking certain medications, such as
 - Laxatives
 - Water pills (diuretics)
 - Sleeping pills
 - Medications to prevent seizures
 - Some antidepressants
 - Pain medications
 - Fluids into a vein (called IV or intravenous fluids)
 - Any medication that makes you feel sleepy

How to Prevent Falls While You Are Visiting MSK

- Bring someone with you who can help you get around.
- Ask a member of MSK staff, such as a Security Guard, for a wheelchair to use while you are at MSK.
- Have someone help you while you're in the dressing room or bathroom. Ask at the reception desk for help if there is no one with you.
- When getting up from a lying position, always sit at the side of the bed or exam table for a few minutes before you stand up.
- If you feel dizzy or weak, let someone know you need help. Many of the bathrooms have call bells that you can use to call for help.

How to Prevent Falls While You Are Hospitalized

Even though you may be able to safely walk by yourself at home, in the hospital you may be getting treatment or medication that can affect your ability to safely walk by yourself. That's why we assess patients for their risk of falling throughout their hospitalization. Please follow the tips below to stay safe.

- Before you go to sleep, make sure that your nightlight is on. You can ask your nurse to turn it on, if needed. Keep all of your personal items (e.g., eyeglasses, water, book) within reach.
- If you feel dizzy or weak, call for help before getting out of bed.
- Before you get out of bed, sit at the side of your bed for a few minutes.
- Wear laced or closed-toe shoes or slippers with non-skid soles. Non-skid socks are available to all patients while in the hospital; ask your nurse if you need a pair. Non-skid socks can be purchased at the gift shop.
- Use the grab bars in the bathroom and railings in the hallways.
- Have your nurse take you to the bathroom whenever he or she is in your room and especially before bedtime. This is so you won't have to get up in the middle of the night to use the bathroom.

Patients at higher risk for falling have additional steps to take in order to stay safe while in the hospital. These steps will be explained to you and your caregivers by your nursing staff as part of our Fall Prevention Program, including

- Calling for assistance every time you need to get out of bed.
- Avoid bending over. If you drop something, call for help.
- Avoid leaning on furniture with wheels for support, such as your bedside table, overbed table, and IV pole.
- Calling right away if you see any spills that need to be wiped up. Every time we mop the floor a yellow sign will be posted to tell you that the floor is wet.
- Always wearing your glasses or hearing aid when you're out of bed.
- Making sure we've done all we can to keep you safe, such as
 - Raising your bedrails
 - Keeping a clear path for you to get to the bathroom



CALL! DON'T FALL!
Fall Prevention Program

How to Prevent Falls While You Are at Home

- Set up your furniture so that you can walk around without anything blocking your way.
- Use a nightlight or keep a flashlight close to you at night.
- Remove throw rugs or other loose items from your floor. If you have an area rug covering a slippery floor, make sure the rug does not have any loose or fringed edges.
- If your bathroom is not close to your bedroom (or where you spend most of your time during the day), get a commode. Place it near you so you do not have to walk to the bathroom.

- Install grab bars and handrails next to your toilet and inside your shower. Never use towel racks to pull yourself up because they are not strong enough to hold your weight.
- Apply anti-slip stickers to the floor of your tub or shower.
- Buy a shower chair and a hand-held shower head so you can sit while taking a shower.
- When getting up from a lying position, always sit at the side of the bed or couch for a few minutes before you stand.
- Arrange items in your kitchen and bathroom cabinets at shoulder height so that you don't have to bend too high or low.

If you are concerned about your risk for falling, please speak with your doctor or nurse.

Additional Resource

For more information about how to prevent falls at home, contact the Centers for Disease Control and Prevention (CDC) for the booklet, *Check for Safety: A Home Fall Prevention Checklist for Older Adults*. Copies are available in English and Spanish at <http://www.cdc.gov/ncipc/pub-res/toolkit/CheckListForSafety.htm> or by calling 1-800-CDC-INFO (1-800-232-4636).

