

About Your Ventriculoperitoneal (VP) Shunt Surgery

This guide will help you get ready for your surgery at Memorial Sloan Kettering (MSK). It will also help you understand what to expect during your recovery.

Read through this guide at least once before your surgery and 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. You and your healthcare team will refer to it throughout your care.

Your Care Team

Doctor: _____

Phone number: _____

Fax number: _____

Nurse: _____

Your Caregiver

It's important to choose a person to be your caregiver. They will learn about your surgery with you and help you care for yourself while you're recovering after surgery. Write down your caregiver's name below.

Caregiver: _____

Table of Contents

About Your Surgery	3
Before Your Surgery.....	5
Getting Ready for Your Surgery	6
Within 30 Days of Your Surgery	7
10 Days Before Your Surgery.....	8
7 Days Before Your Surgery.....	9
1 Day Before Your Surgery	9
The Night Before Your Surgery	10
The Morning of Your Surgery	10
After Your Surgery	15
In the Post-Anesthesia Care Unit (PACU)	16
In Your Hospital Room.....	16
At Home	18
Support Services	23
MSK Support Services	24
External Support Services.....	26
Educational Resources	29
Call! Don't Fall!	30
How to Use Your Incentive Spirometer	31
Information for Family and Friends for the Day of Surgery.....	34
What You Can Do to Avoid Falling	38

About Your Surgery

A VP shunt is used to drain extra cerebrospinal fluid (CSF) from your brain. CSF is the fluid that surrounds your brain and spinal cord. It's made in the ventricles (hollow spaces) inside your brain.

CSF protects your brain and spinal cord by acting as a cushion. However, when you have too much of it, it puts pressure on your brain and skull. Extra CSF fluid can be caused by different things, such as a brain tumor, or it can be present when you're born. This extra fluid also makes your ventricles grow bigger (see Figure 1). This is called hydrocephalus (hy-dro-ceph-a-lus).

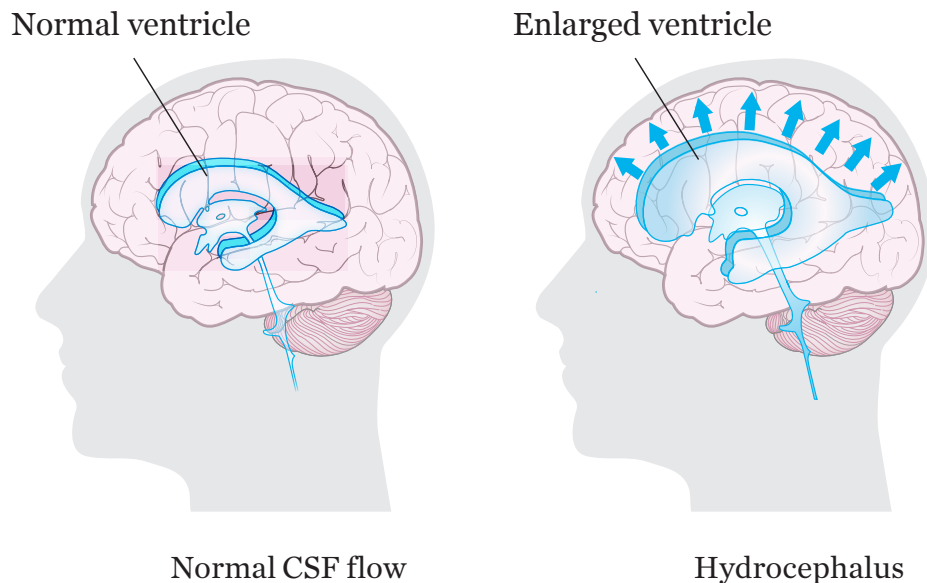


Figure 1: Brain without and with hydrocephalus

Hydrocephalus

The most common symptoms of hydrocephalus include:

- Headache
- Fatigue (feeling more tired or weak than usual), drowsiness (not able to stay awake or focus), or both
- Nausea (feeling like you're going to throw up) and vomiting (throwing up)
- Irritability (feeling angrier than usual)
- Problems with thinking and memory, such as confusion
- Trouble with balance and walking
- Not being able to control when you urinate (pee)

VP Shunt

To help drain the extra CSF from your brain, a VP shunt will be placed into your head. The VP shunt works by taking the fluid out of your brain and moving it into your abdomen (belly), where it's absorbed by your body. This lowers the pressure and swelling in your brain.

A VP shunt has 3 parts (see Figure 2):

- A one-way valve with a reservoir.
- A short catheter (thin, flexible tube)
- A long catheter

The valve controls the flow of CSF fluid. It's attached on one end to the short catheter so it can drain the fluid away from your brain. The short catheter can be placed in the front, back, or side of your head.

The reservoir collects a small amount of CSF which your doctor can use to sample your CSF for tests if needed.

The long catheter is attached to the other end of the valve. The long catheter is placed under your skin, behind your ear, down your neck, and into your abdomen (belly).

As the VP shunt drains extra CSF and lessens the pressure in your brain, it may ease some of your symptoms. Some symptoms will stop right after the VP shunt is inserted. Others will go away more slowly, sometimes over a few weeks.

The amount of fluid that's drained by your VP shunt depends on the shunt's settings. If you have a **nonprogrammable VP shunt**, your doctor will program the shunt's settings in advance and they can't be changed. If you have a **programmable VP shunt**, the settings can be changed by your doctor if needed.

Your doctor will decide which type of VP shunt is best for you.

VP Shunt Surgery

Your VP shunt surgery will take place in the operating room while you're asleep.

The surgery will take about 1 hour.

Once you're asleep, the doctor will shave off some hair near the area where they will make the incision (surgical cut) on your head. Your entire head won't be shaved.

Your doctor will make 3 small incisions: 1 in your head, 1 in your neck, and 1 in your abdomen. These incisions will help guide the catheter so it can be placed correctly. The doctor will close the incisions with stitches or staples.

You won't be able to see the catheter because it will be under your skin. However, you may be able to feel the shunt catheter along your neck.

Once all the parts of the shunt are connected, it will start draining the excess CSF as needed to reduce the pressure in your brain.

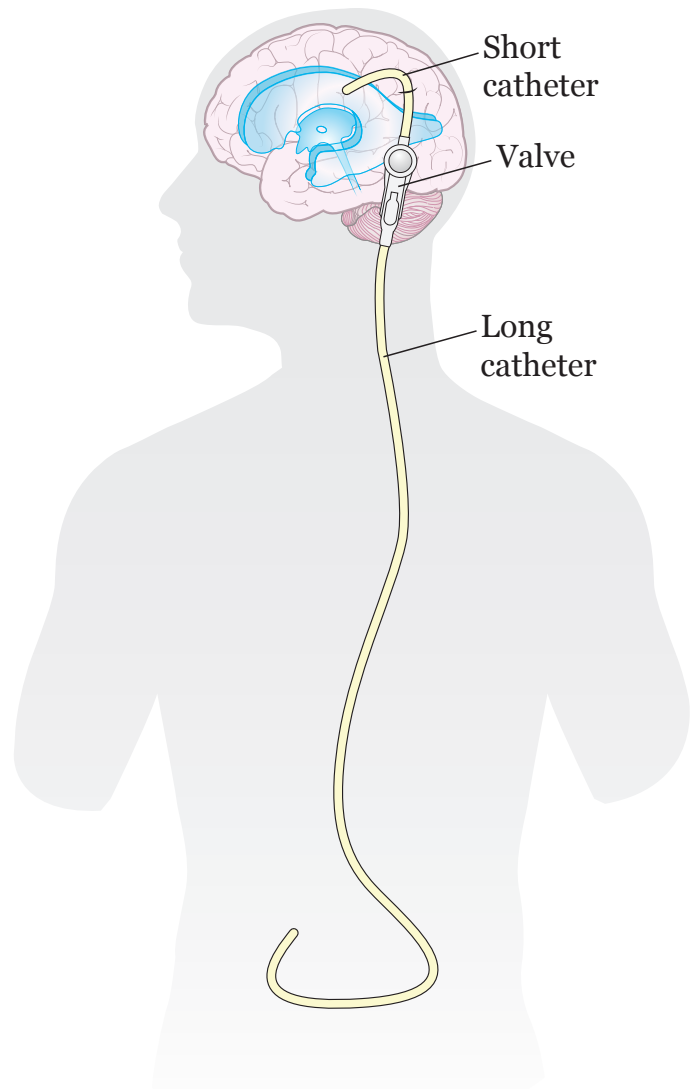


Figure 2: VP shunt

The information in this section will help you get ready for your surgery. Read through this section when your surgery is scheduled and refer to it as your surgery date gets closer. It has important information about what you need to do before your surgery.

Write down your questions and be sure to ask your doctor or nurse.

Notes _____

Getting Ready for Your Surgery

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

About Drinking Alcohol

The amount of alcohol you drink can affect you during and after your surgery. It's important to talk with your healthcare providers about how much alcohol you drink. This will help us plan your care.

- If you stop drinking alcohol suddenly, it can cause seizures, delirium, and death. If we know you're at risk for these complications, we can prescribe medications to help keep them from happening.
- If you drink alcohol regularly, you may be at risk for other complications during and after your surgery. These include bleeding, infections, heart problems, and a longer hospital stay.

Here are things you can do before your surgery to keep from having problems:

- Be honest with your healthcare providers about how much alcohol you drink.
- Try to stop drinking alcohol once your surgery is planned. If you develop a headache, nausea (feeling like you're going to throw up), increased anxiety, or can't sleep after you stop drinking, tell your healthcare provider right away. These are early signs of alcohol withdrawal and can be treated.
- Tell your healthcare provider if you can't stop drinking.
- Ask your healthcare provider questions about drinking and surgery. As always, all of your medical information will be kept confidential.

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 aspirin, heparin, warfarin (Coumadin®), clopidogrel (Plavix®), enoxaparin (Lovenox®), dabigatran (Pradaxa®), apixaban (Eliquis®), and rivaroxaban (Xarelto®). There are others, so be sure your healthcare provider knows all the medications you're taking.
- I take prescription medications (medications prescribed by a healthcare provider), including patches and creams.
- I take over-the-counter medications (medications I buy without a prescription), including patches and creams.
- I take dietary supplements, such as 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 (medication to make you sleep during surgery) in the past.
- I am allergic to certain medication(s) or materials, including latex.
- I am not willing to receive a blood transfusion.
- I drink alcohol.
- I smoke.
- I use recreational drugs.

About Smoking

If you smoke, you can have breathing problems when you have surgery. Stopping even for a few days before surgery can help. If you smoke, your nurse will refer you to our Tobacco Treatment Program. You can also reach the program by calling 212-610-0507.

About Sleep Apnea

Sleep apnea is a common breathing disorder that causes you to stop breathing for short periods of time while sleeping. The most common type is obstructive sleep apnea (OSA). With OSA, your airway becomes completely blocked during sleep. OSA can cause serious problems during and after surgery.

Please tell us if you have sleep apnea or if you think you might have it. If you use a breathing machine (such as a CPAP machine) 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 (NP) who works closely with anesthesiology staff (doctors and specialized nurses who will give you anesthesia during your surgery). Your NP 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 needed to plan your care. Your NP may also recommend that you see other healthcare providers.

Your NP will talk with you about which medications you should take the morning of your surgery.

It's very helpful to bring the following things to your PST appointment:

- A list of all the medications you're taking, including prescription and over-the-counter medications, 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 healthcare provider(s).

Identify Your Caregiver

Your caregiver plays an important role in your care. You and your caregiver will learn about your surgery from your doctor and nurse. After your surgery, your caregiver should be with you when you're given your discharge instructions so they're able to help you care for yourself at home. Your caregiver will also need to take you home after you're discharged from (leave) the hospital.

Complete a Health Care Proxy Form

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 can't communicate for yourself. The person you identify is called your health care agent. For more information about health care proxies and other advance directives, read the resource *Advance Care Planning*. You can find it online at www.mskcc.org/pe/advance_care_planning, or you can ask your nurse.

If you're interested in completing a Health Care Proxy form, talk with your nurse. If you have completed one already, or if you have any other advance directives, bring them to your next appointment.

Do Breathing and Coughing Exercises

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

Exercise

Try to do aerobic exercise every day. Examples of aerobic exercise include walking at least 1 mile (1.6 kilometers), swimming, or biking. If it's cold outside, use stairs in your home or go to a mall or shopping center. Exercising will help your body get into its best condition for your surgery and make your recovery faster and easier.

Follow a Healthy Diet

Follow a well-balanced, healthy diet before your surgery. If you need help with your diet, talk with your doctor or nurse about meeting with a clinical dietitian nutritionist.

Tell Us if You're Sick

If you develop any illness before your surgery, call the doctor who scheduled your surgery. This includes a fever, cold, sore throat, or the flu.

10 Days Before Your Surgery

Stop Taking Vitamin E

If you take vitamin E, stop taking it 10 days before your surgery. Vitamin E can cause bleeding. For more information, read *Common Medications Containing Aspirin and Other Nonsteroidal Anti-inflammatory Drugs (NSAIDs)* (www.mskcc.org/pe/common_meds).

Buy Hibiclens® Skin Cleanser, if Needed

If instructed by your doctor, buy Hibiclens Skin Cleanser. Hibiclens is a skin cleanser that kills germs for 24 hours after you use it (see figure). Showering with Hibiclens before your surgery will help lower your risk of infection after surgery. You can buy Hibiclens at your local pharmacy without a prescription.



Hibiclens skin cleanser

7 Days Before Your Surgery

Stop Taking Certain Medications

If you take aspirin, ask your doctor if you should stop taking it. Aspirin and medications that contain aspirin can cause bleeding. You should also stop taking nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (Advil®, Motrin®) and naproxen (Aleve®). These medications should be stopped at least 7 days before your surgery. For more information, read *Common Medications Containing Aspirin and Other Nonsteroidal Anti-inflammatory Drugs (NSAIDs)* (www.mskcc.org/pe/common_meds).

Stop Taking Herbal Remedies and Other Dietary Supplements

Stop taking herbal remedies and other dietary supplements 7 days before your surgery. If you take a multivitamin, ask your doctor or nurse if you should keep taking it. For more information, read *Herbal Remedies and Cancer Treatment*, located in the “Educational Resources” section of this guide.

Watch a Virtual Tour

This video will give you an idea of what to expect when you come to Memorial Hospital (MSK’s main hospital) on the day of your surgery.

[▶ www.mskcc.org/pe/day_your_surgery](http://www.mskcc.org/pe/day_your_surgery)

1 Day Before Your Surgery

Note the Time of Your Surgery

A staff member from the Admitting Office will call you after 2:00 PM the day before your surgery. If your surgery is scheduled for a Monday, they will call you on the Friday before. If you don’t get a call by 7:00 PM, please call 212-639-5014.

The staff member will tell you what time to arrive at the hospital for your surgery. Use the area to the right to write down your surgery date and scheduled arrival time.

The staff member will also tell you where to go. This will be the following location:

Presurgical Center (PSC) on the 6th floor
1275 York Avenue (between East 67th and East 68th Streets)
New York, NY 10065
B elevator to 6th floor

The Night Before Your Surgery

Shower with Hibiclens, if Needed

If instructed by your doctor, shower with Hibiclens the night before your surgery. Wash behind your ears, neck, and abdomen. Don't put it on your head or face. For instructions on showering with Hibiclens, read the resource [How to Shower Using Hibiclens \(https://www.mskcc.org/cancer-care/patient-education/showering-hibiclens\)](https://www.mskcc.org/cancer-care/patient-education/showering-hibiclens). After showering, don't put any products in your hair such as hair spray or hair gel.

Sleep

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



Do not eat or drink after midnight.

The Morning of Your Surgery

Take Your Medications

If your doctor or NP told you to take certain medications the morning of your surgery, take only those medications with a sip of water. Depending on what medications you take and the surgery you're having, this may be all, some, or none of your usual morning medications.

Shower

If you didn't shower the night before with Hibiclens, shower and wash your hair with baby shampoo the morning of your surgery. Don't use conditioner or any other hair products such as hair spray or hair gel. After showering, don't put on any lotion, cream, deodorant, makeup, powder, perfume, or cologne.

Things to Remember

- Wear something comfortable and loose-fitting.
- If you wear contact lenses, wear your glasses instead. Wearing contact lenses during surgery can damage your eyes.
- Don't wear any metal objects. Remove all jewelry, including body piercings. The equipment used during your surgery can cause burns if it touches metal.
- Don't put on any lotion, cream, deodorant, makeup, powder, perfume, or cologne.
- Leave valuable items (such as credit cards, jewelry, and your checkbook) at home.

- Before you're taken into the operating room, you will need to remove your hearing aids, dentures, prosthetic device(s), wig, and religious articles.

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What to Bring

- Your breathing machine for sleep apnea (such as your CPAP machine), if you have one.
- Your portable music player, if you choose. However, someone will need to hold it for you when you go into surgery.
- Your incentive spirometer, if you have one.
- Your Health Care Proxy form and other advance directives, if you have completed them.
- Your cell phone and charger.
- Only the money you may want for small purchases (such as a newspaper).
- A case for your personal items (such as eyeglasses, hearing aid(s), dentures, prosthetic device(s), wig, and religious articles), if you have one.
- This guide. Your healthcare team will use this guide to teach you how to care for yourself after your surgery.
- _____
- _____
- _____

Where to Park

MSK's parking garage is located on East 66th Street between York and First Avenues. If you have questions about prices, call 212-639-2338.

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's a tunnel that you can walk through that connects the garage to the hospital.

There are also other garages located on East 69th Street between First and Second Avenues, East 67th Street between York and First Avenues, and East 65th Street between First and Second Avenues.



P = Parking

M = Memorial Sloan Kettering

Once You're in the Hospital

When you get to the hospital, take the B elevator to the 6th floor and check in at the desk in the PSC waiting room.

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

Get Dressed for Surgery

When it's time to change for surgery, you will get a hospital gown, robe, and nonskid socks to wear.

Meet With Your Nurse

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

Your nurse may place an intravenous (IV) line into one of your veins, usually in your arm or hand. If your nurse doesn't place the IV, your anesthesiologist will do it later once you're in the operating room.

Meet With Your Anesthesiologist

Your anesthesiologist will:

- Review your medical history with you.
- Ask you if you've had any problems with anesthesia in the past, including nausea or pain.
- Talk with you about your comfort and safety during your surgery.
- Talk with you about the kind of anesthesia you will have.
- Answer your questions about your anesthesia.

Your doctor or anesthesiologist may also talk with you about placing an epidural catheter (thin, flexible tube) in your spine (back). An epidural catheter is another way to give you pain medication after your surgery.

Get Ready for Your Surgery

Once your nurse has seen you, 1 or 2 visitors can keep you company as you wait for your surgery to start. When it's time for your surgery, your visitor(s) will be taken to the waiting area. Your visitors should read *Information for Family and Friends for the Day of Surgery*, located in the "Educational Resources" section of this guide.

You will either walk into the operating room or 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 blood flow in your legs.

Once you're comfortable, your anesthesiologist will give you anesthesia through your IV line and you will fall asleep. You will also get fluids through your IV line during and after your surgery.

During Your Surgery

After you're 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 (Foley®) catheter placed to drain urine from your bladder.

Once your surgery is finished, your incision will be closed with staples or sutures (stitches). You may also have Steri-Strips™ (thin pieces of surgical tape) or Dermabond® (surgical glue) over your incisions. Your incisions may be covered with a bandage. Your breathing tube is usually taken out while you're still in the operating room.

Notes _____

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 your questions and be sure to ask your doctor or nurse.

Notes _____

In the Post-Anesthesia Care Unit (PACU)

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

A nurse will be monitoring your body temperature, pulse, blood pressure, and oxygen levels. You may be getting oxygen through a thin tube that rests below your nose or a mask that covers your nose and mouth. You will also have compression boots on your lower legs.

Pain Medication

While you're in the PACU, your pain will be managed with medications.

Visitors

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.

Moving to Your Hospital Room

Once you recover from the anesthesia, you will be taken to your hospital room. The length of time you will stay in the PACU may also depend on when your hospital bed is ready for you.

In Your Hospital Room

The length of time you're in the hospital after your surgery depends on your recovery. Most people stay in the hospital for 1 to 2 days.

When you're taken to your hospital room, you will meet one of the nurses who will care for you while you're in the hospital. While you're in the hospital, your nurses will teach you how to care for yourself while you're recovering from your surgery.

For the first few days after your surgery, your nurses will do simple tests to make sure your brain is working well. They will do things such as:

- Ask you questions such as where you are and what time of day it is.
- Ask you to move your arms and legs.
- Shine a small light into your eyes to check the response of your pupils.

Read the resource *Call! Don't Fall!* to learn about what you can do to stay safe and keep from falling while you're in the hospital, located in the "Education Resources" section of this guide.

Managing Your Pain

You may have a mild headache or feel discomfort around your incision for the first few days after your surgery.

At first, you will get pain medication in your IV line. Once you're able to eat normal food, you will get oral pain medication (medication you swallow).

Your doctor and nurse will ask you about your pain often and give you medication as needed. If your pain isn't relieved, tell your doctor or nurse. It's important to control your pain so you can use your incentive spirometer and move around. Controlling your pain will help you recover better.

You will be given a prescription for pain medication before you leave the hospital. Talk with your doctor or nurse about possible side effects and when you should start switching to over-the-counter pain medications.

Moving Around and Walking

Moving around and walking will help lower your risk for blood clots and pneumonia. It will also help stimulate your bowels so you start passing gas and having bowel movements (pooping) again. Your nurse, physical therapist, or occupational therapist will help you move around, if needed.

Exercising Your Lungs

It's important to exercise your lungs so they expand fully. This helps prevent pneumonia.

- Use your incentive spirometer 10 times every hour you're awake. For more information, read *How to Use Your Incentive Spirometer*, located in the "Educational Resources" section of this guide.
- Do coughing and deep breathing exercises. A member of your care team will teach you how to do these exercises.

Eating and Drinking

You will be given ice chips to eat after your surgery. You will start with a liquid diet and then you can start eating your normal foods again, as tolerated.

If you have questions about your diet, ask to see a clinical dietitian nutritionist.

Imaging Scan

To make sure your shunt is in the right place, you may have a computed tomography (CT) scan (imaging scan) of your head 1 to 2 days after your surgery. Your nurse will give you more information about the scan before it's done.

Caring for Your Incision

You will have bandages over your incision. Your doctor will take them off 1 to 2 days after your surgery. After that, you can leave them uncovered. Don't get your incision wet, and don't put any lotions, creams or powders on it for 5 days after your surgery.

Planning for Your Discharge

A physical therapist will work with you before you leave the hospital and help decide if you need help at home, such as special medical equipment or a home care nurse. If needed, your case manager will work with you to arrange for home care visits after you're discharged from the hospital.

A caregiver should help you at home for a few days after your surgery while you recover.

Leaving the Hospital

By the time you're ready to leave the hospital, your incision will have started to heal. Before you leave the hospital, look at your incision with your nurse and caregiver. Knowing what your incision looks like will help you notice any changes later.

On the day of your discharge, you should plan to leave the hospital around 11:00 am. Before you leave, your doctor will write your discharge order and prescriptions. You will also get written discharge instructions. Your nurse will review these instructions with you before you leave.

If your ride isn't at the hospital when you're ready to be discharged, you may be able to wait in the Patient Transition Lounge. A member of your healthcare team will give you more information.

At Home

Read the resource *What You Can Do to Avoid Falling* to learn about what you can do to stay safe and keep from falling at home and during your appointments at MSK, located in the "Educational Resources" section of this guide.

Your first appointment after your surgery will be 7 to 10 days after your surgery. Call your doctor's office to schedule your appointment.

Managing Your Pain

People have pain or discomfort for different lengths of time. You may still have some pain when you go home and will probably be taking pain medication. Some people have soreness, tightness, or muscle aches around their incision for 6 months or longer. This doesn't mean that something is wrong.

Follow the guidelines below to help manage your pain at home.

- Take your medications as directed and as needed.
- Call your doctor if the medication prescribed for you doesn't ease your pain.
- Don't drive or drink alcohol while you're taking prescription pain medication.
- As your incision heals, you will have less pain and need less pain medication. An over-the-counter pain reliever such as acetaminophen (Tylenol®) or ibuprofen (Advil®) will ease aches and discomfort.
 - Follow your doctor or nurse's instructions for stopping your prescription pain medication.
 - Don't take more acetaminophen than the amount directed on the bottle or as instructed by your doctor or nurse. Taking too much acetaminophen can harm your liver.
- Pain medication should help you resume your normal activities. Take enough medication to do your exercises comfortably. However, it's normal for your pain to increase a little as you start to be more active.
- Keep track of when you take your pain medication. It works best 30 to 45 minutes after you take it. Taking it when your pain first begins is better than waiting for the pain to get worse.

Pain medication may cause constipation (having fewer bowel movements than what's normal for you).

Caring for Your Incisions

- Check your incisions daily for any signs of infection, including redness, swelling, or drainage.
- Keep your incisions clean and dry for 5 days after your surgery. Don't shower for 5 days after your surgery. Avoid baths, hot tubs, and swimming pools until your doctor tells you it's okay.
- Don't use a hair dryer, creams, ointment, or hair products on your incisions until they're completely healed. This takes about 6 weeks.

It's normal for the skin below your incisions to feel numb. This happens because some of your nerves were cut during your surgery. The numbness will go away over time.

Call your doctor's office if:

- The skin around your incisions is very red.
- The skin around your incisions is getting more red.
- You see drainage that looks like pus (thick and milky).

If you go home with staples or stitches in your incisions, your doctor will take them out during your first appointment after surgery. This is usually 7 to 10 days after your surgery.

Showering

Do not shower for 5 days after your surgery. You may take a sponge bath during this time, but don't get your incision wet. Don't use dry shampoo, creams or lotions near your incisions.

After 5 days, take a shower every day to clean your incision. If you have staples in your incision, it's okay to get them wet.

Use mild shampoo, such as baby shampoo and soap during your shower.

After you shower, pat the area dry with a clean towel and leave your incision uncovered. Don't put any creams, lotions, or powders on your incision.

Physical Activity and Exercise

When you leave the hospital, your incision will look like it's healed on the outside, but it won't be healed on the inside. For the first 4 to 6 weeks after your surgery:

- Don't lift anything heavier than 10 pounds (about 4.5 kilograms).
- Don't do any strenuous activities (such as jogging and tennis).
- Don't play any contact sports (such as football).

Doing aerobic exercise, such as walking and stair climbing, will help you gain strength and feel better. Walk at least 2 to 3 times a day for 20 to 30 minutes. You can walk outside or indoors at your local mall or shopping center.

It's normal to have less energy than usual after your surgery. Recovery time is different for each person. Increase your activities each day as much as you can. Always balance activity periods with rest periods. Rest is an important part of your recovery.

Driving

Ask your doctor when you can drive. Most people can start driving again 4 to 6 weeks after surgery. Don't drive while you're taking pain medication that may make you drowsy. You can ride in a car as a passenger at any time after you leave the hospital.

Going Back to Work

Talk with your doctor or nurse about your job and when it may be safe for you to start working again. If your job involves lots of movement or heavy lifting, you may need to stay out a little longer than if you sit at a desk.

Traveling

You can travel by bus, train or car. Don't travel on an airplane until your doctor says it's okay.

When traveling a long distance, don't sit for long periods of time. Stop every 2 hours and walk around. This will help keep blood clots from forming in your legs.

Managing Your Feelings

After surgery for a serious illness, you may have new and upsetting feelings. Many people say they felt weepy, sad, worried, nervous, irritable, and angry at one time or another. You may find that you can't 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's always a good idea to let these professionals know how you, your family, and your friends are feeling emotionally. Many resources are available to you and your family. Whether you're 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.

Using MyMSK

MyMSK (my.mskcc.org) is your MSK patient portal account. You can use MyMSK to send and receive messages from your healthcare team, view your test results, see your appointment dates and times, and more.

If you don't already have a MyMSK account, you can sign up by going to my.mskcc.org. For more information about signing up for a MyMSK account, watch our video *How to Enroll in the Patient Portal: MyMSK* at www.mskcc.org/pe/enroll_mymsk. You can also contact the MyMSK Help Desk by emailing mymsk@mskcc.org or calling 800-248-0593.

Going back to your normal activities

You can go back to doing your normal activities when your doctor tells you it's okay. If you plan to exercise, ask your doctor if it's safe.

You will then have regular visits with your neurologist, neurosurgeon, or both. They will check on the function of your VP shunt over time.

Safety Precautions for Your VP Shunt

Precautions with magnets

The pressure setting of some VP shunts may accidentally change if you get too close to a magnet. This depends on the VP shunt model.

Ask your doctor if you need to take precautions (safety measures) when coming into contact with magnets. Be sure to follow the VP shunt manufacturer's guidelines for magnet precautions specific for your type of shunt. Your doctor will go over these guidelines with you.

Here are some general rules for many programmable shunts:

- Keep all products with magnets at least 2 inches away from the valve implant site (your head).
- Don't use magnetic therapy pads and pillows.

Precautions with magnetic resonance imaging (MRI)

If you need to have magnetic resonance imaging (MRI), you must tell your MRI technologist that you have a VP shunt **before you have the test**. Your technologist will need to know the model of your shunt and its setting.

Your nurse will give you a wallet card with this information. Carry it with you at all times. You can show your technologist the wallet card.

Depending on the type of VP shunt you have, the magnet in the MRI machine may change your shunt's pressure setting. **In this case, after your MRI, the pressure setting will need to be checked and may need to be reprogrammed by your doctor or nurse practitioner.** In some cases, you may need to have x-rays to find out if the pressure setting has changed.

Some types of VP shunts aren't affected by MRI. Ask your doctor or nurse if your shunt will need to be reprogrammed after an MRI. No matter what type of VP shunt you have, you won't need to take any precautions if you're having a computed tomography (CT) scan, positron emission tomography (PET) scan, or an x-ray.

If your VP shunt type needs to be reprogrammed after an MRI, you must schedule an appointment with your doctor or nurse to reprogram your VP shunt after your MRI. Your shunt should be reprogrammed within 4 hours after your MRI.

Precautions for abdominal surgery

If you ever need to have abdominal surgery, you must tell your doctor so that precautions can be taken. Tell your doctor if you have peritonitis (a condition in which the tissue that covers your abdomen is inflamed) or diverticulitis (a condition in which small, bulging pouches develop in the intestines or colon) and you need emergency surgery or antibiotics.

MedicAlert® jewelry

You should always wear a MedicAlert® bracelet or necklace that says you have hydrocephalus and a VP shunt. If you're ever very sick or hurt and need medical help, MedicAlert jewelry will let emergency service workers know about your VP shunt.

You can purchase this type of bracelet or necklace at most drug stores. For more information, visit the MedicAlert® website at: www.medicalert.org.



Contact your doctor or nurse if:

Call your doctor or nurse if you have any of the following signs and symptoms that your VP shunt isn't working properly:

- Vomiting with little or no nausea
- A constant headache that won't go away
- Problems with your vision (eyesight) (blurry vision, double vision, or loss of vision)
- Irritability
- Fatigue
- Loss of coordination or balance
- Swelling, redness, or both, of the skin that runs along the shunt path
- Difficulty waking up or staying awake

Call your doctor or nurse if you have signs and symptoms of a VP shunt infection.

A VP shunt infection can happen when bacteria infect the tissue around your VP shunt. When the tissue is infected, it can cause your VP shunt to stop working properly and increase pressure in your brain.

The signs and symptoms of a VP shunt infection include:

- A fever of 100.4° F (38° C) or higher
- Redness, swelling, or both, of the skin that runs along the shunt path
- Pain around the shunt or around the shunt catheter from the head to the abdomen

These warning signs can happen quickly. If any of these symptoms develop, call your doctor or nurse immediately.

On Monday through Friday from 9:00 AM to 5:00 PM, contact your doctor's office.

After 5:00 PM, during the weekend, and on holidays, call 212-639-2000 and ask to speak to the doctor on call for your doctor.

This section contains a list of support services that may help you get ready for your surgery and recover safely.

Write down your questions and be sure to ask your doctor or nurse.

Notes _____

MSK Support Services

Admitting Office

212-639-5014

Call 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 212-639-7874.

Anesthesia

212-639-6840

Call if you have questions about anesthesia.

Blood Donor Room

212-639-7643

Call for more information if you're interested in donating blood or platelets.

Bobst International Center

888-675-7722

MSK welcomes patients from around the world. If you're an international patient, call for help arranging your care.

Chaplaincy Service

212-639-5982

At MSK, our chaplains are available to listen, help support family members, pray, contact community clergy or faith groups, or simply be a comforting companion and a spiritual presence. Anyone can request spiritual support, regardless of formal religious affiliation. The interfaith chapel is located near Memorial Hospital's main lobby and is open 24 hours a day. If you have an emergency, please call the hospital operator and ask for the chaplain on call.

Counseling Center

646-888-0200

Many people find that counseling helps them. We provide counseling for individuals, couples, families, and groups, as well as medications to help if you feel anxious or depressed. To make an appointment, ask your healthcare provider for a referral or call the number above.

Food Pantry Program

646-888-8055

The food pantry program provides food to people in need during their cancer treatment. For more information, talk with your healthcare provider or call the number above.

Integrative Medicine Service

646-888-0800

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.

Look Good Feel Better Program

www.lookgoodfeelbetter.org

800-395-LOOK (800-395-5665)

This program offers workshops to learn things you can do to help you feel better about your appearance. For more information or to sign up for a workshop, call the number above or visit the program's website.

MSK Library

library.mskcc.org

212-639-7439

You can visit our library website or speak with the library reference staff to find more information about your specific cancer type. You can also visit LibGuides on MSK's library website at libguides.mskcc.org.

Patient and Caregiver 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 and Caregiver Support Program, you're able to speak with former patients and caregivers. These conversations may take place in person, over the phone, or through email.

Patient Billing

646-227-3378

Call if you have questions about preauthorization with your insurance company. This is also called preapproval.

Patient Representative Office

212-639-7202

Call if you have questions about the Health Care Proxy form or if you have concerns about your care.

Perioperative Nurse Liaison

212-639-5935

Call if you have questions about MSK releasing any information while you're having surgery.

Private Duty Nursing Office

212-639-6892

You may request private nurses or companions. Call for more information.

Resources for Life After Cancer (RLAC) Program

646-888-8106

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.

Sexual Health Programs

Cancer and cancer treatments can have an impact on your sexual health. MSK's Sexual Health Programs can help you take action and address sexual health issues before, during, or after your treatment.

- Our Female Sexual Medicine and Women's Health Program helps women who are dealing with cancer-related sexual health challenges, including premature menopause and fertility issues. For more information, or to make an appointment, call 646-888-5076.
- Our Male Sexual and Reproductive Medicine Program helps men who are dealing with cancer-related sexual health challenges, including erectile dysfunction. For more information, or to make an appointment, call 646-888-6024.

Social Work

212-639-7020

Social workers help patients, family, and friends deal with issues that are common for people with cancer. They provide individual counseling and support groups throughout the course of treatment and can help you communicate with children and other family members. Our social workers can also help refer you to community agencies and programs, as well as financial resources if you're eligible.

Tobacco Treatment Program

212-610-0507

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

For more online information, visit the “Cancer Types” section of www.mskcc.org.

External Support Services

Access-A-Ride

web.mta.info/nyct/paratran/guide.htm

877-337-2017

In New York City, the MTA offers a shared ride, door-to-door service for people with disabilities who aren't able to take the public bus or subway.

Air Charity Network

www.aircharitynetwork.org

877-621-7177

Provides travel to treatment centers.

American Cancer Society (ACS)

www.cancer.org

800-ACS-2345 (800-227-2345)

Offers a variety of information and services, including Hope Lodge, a free place for patients and caregivers to stay during cancer treatment.

Cancer and Careers

www.cancerandcareers.org

A resource for education, tools, and events for employees with cancer.

CancerCare

www.cancercare.org

800-813-4673

275 Seventh Avenue (Between West 25th & 26th Streets)

New York, NY 10001

Provides counseling, support groups, educational workshops, publications, and financial assistance.

Cancer Support Community

www.cancersupportcommunity.org

Provides support and education to people affected by cancer.

Caregiver Action Network

www.caregiveraction.org

800-896-3650

Provides education and support for those who care for loved ones with a chronic illness or disability.

Corporate Angel Network

www.corpangelnetwork.org

866-328-1313

Offers free travel to treatment across the country using empty seats on corporate jets.

Gilda's Club

www.gildasclubnyc.org

212-647-9700

A place where men, women, and children living with cancer find social and emotional support through networking, workshops, lectures, and social activities.

Good Days

www.mygooddays.org

877-968-7233

Offers financial assistance to pay for copayments during treatment. Patients must have medical insurance, meet the income criteria, and be prescribed medication that is part of the Good Days formulary.

Healthwell Foundation

www.healthwellfoundation.org

800-675-8416

Provides financial assistance to cover copayments, health care premiums, and deductibles for certain medications and therapies.

Joe's House

www.joeshouse.org

877-563-7468

Provides a list of places to stay near treatment centers for people with cancer and their families.

LGBT Cancer Project

www.lgbtcancer.org

Provides support and advocacy for the LGBT community, including online support groups and a database of LGBT-friendly clinical trials.

LIVESTRONG Fertility

www.livestrong.org/we-can-help/fertility-services

855-744-7777

Provides reproductive information and support to cancer patients and survivors whose medical treatments have risks associated with infertility.

National Cancer Institute

www.cancer.gov

800-4-CANCER (800-422-6237)

National Cancer Legal Services Network

www.nclsn.org

Free cancer legal advocacy program.

National LGBT Cancer Network

www.cancer-network.org

Provides education, training, and advocacy for LGBT cancer survivors and those at risk.

Needy Meds

www.needymeds.org

Lists Patient Assistance Programs for brand and generic name medications.

NyRx

www.nyrxplan.com

Provides prescription benefits to eligible employees and retirees of public sector employers in New York State.

Partnership for Prescription Assistance

www.pparx.org

888-477-2669

Helps qualifying patients without prescription drug coverage get free or low-cost medications.

Patient Access Network Foundation

www.panfoundation.org

866-316-7263

Provides assistance with copayments for patients with insurance.

Patient Advocate Foundation

www.patientadvocate.org

800-532-5274

Provides access to care, financial assistance, insurance assistance, job retention assistance, and access to the national underinsured resource directory.

RxHope

www.rxhope.com

877-267-0517

Provides assistance to help people get medications that they have trouble affording.

This section contains the educational resources that were referred to throughout this guide. These resources will help you get ready for your surgery and recover safely after surgery.

Write down your questions and be sure to ask your doctor or nurse.

Notes _____

Call! Don't Fall!

This information describes what you can do to keep from falling and stay safe while you're in the hospital. Being in the hospital can make you weak. Follow these guidelines to avoid falling.

- Call for help every time you need to get out of bed or up from a chair.
- Don't go to the bathroom alone.
- Don't bend over. If you drop something, call for help.
- Don't lean on furniture that has wheels, such as your bedside table, over-bed table, or IV pole.
- Wear safe, supportive shoes. Examples include shoes with laces and slippers with nonskid soles. Don't wear shoes or slippers with an open back.
- Call for help right away if you see any spills on the floor.
- Use the grab bars in the bathroom and railings in the hallways.
- If you have glasses or hearing aid(s), wear them when you're awake.
- Let us know what you will need near you. Help us make sure we have:
 - Placed your call button where you can reach it
 - Placed items you may need (such as your phone, books, or glasses) where you can reach them
 - Turned on a night light before it gets dark
 - Raised the top bedrail to keep you safe
 - Removed any clutter from around your bedside and chairside



**Call!
Don't Fall!**

How to Use Your Incentive Spirometer

This information will help you learn how to use your incentive spirometer.

About Your Incentive Spirometer

An incentive spirometer is a device that will expand your lungs by helping you to breathe more deeply and fully. The parts of your incentive spirometer are labeled in Figure 1.

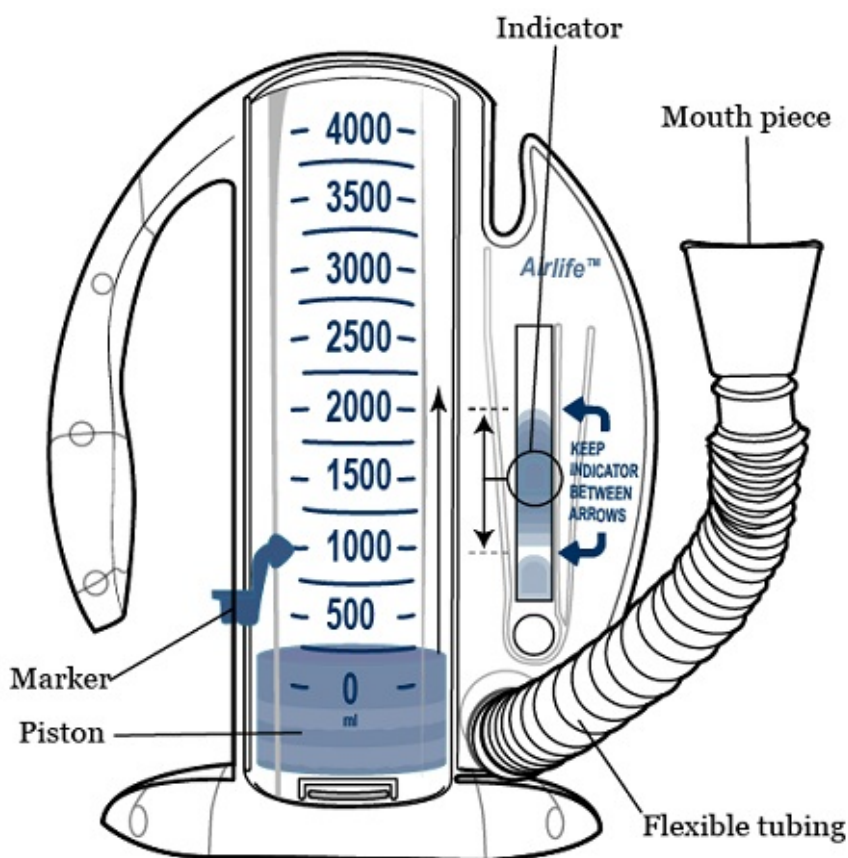


Figure 1. Incentive Spirometer

Use your incentive spirometer after your surgery and do your deep breathing and coughing exercises. This will help keep your lungs active throughout your

recovery and prevent complications such as pneumonia.

How To Use Your Incentive Spirometer

Here is a video demonstrating how to use your incentive spirometer:



Please visit www.mskcc.org/pe/incentive_spirometer_video to watch this video.

Setting up your incentive spirometer

The first time you use your incentive spirometer, you will need to take the flexible tubing with the mouthpiece out of the bag. Stretch out the tubing and connect it to the outlet on the right side of the base (see Figure 1). The mouthpiece will be attached to the other end of the tubing.

Using your incentive spirometer

When you're using your incentive spirometer, make sure to breathe through your mouth. If you breathe through your nose, the incentive spirometer won't work properly. You can hold your nose if you have trouble.

If you feel dizzy at any time, stop and rest. Try again at a later time.

To use your incentive spirometer, follow the steps below.

1. Sit upright in a chair or in bed. Hold the incentive spirometer at eye level.
 - o If you had surgery on your chest or abdomen (belly), hug or hold a pillow to help splint or brace your incision (surgical cut) while you're using the incentive spirometer. This will help decrease pain at your incision.
2. Put the mouthpiece in your mouth and close your lips tightly around it. Slowly breathe out (exhale) completely.
3. Breathe in (inhale) slowly through your mouth as deeply as you can. As you take the breath, you will see the piston rise inside the large column. While the piston rises, the indicator on the right should move upwards. It should stay in between the 2 arrows (see Figure 1).
4. Try to get the piston as high as you can, while keeping the indicator between the arrows.

- If the indicator doesn't stay between the arrows, you're breathing either too fast or too slow.
5. When you get it as high as you can, hold your breath for 10 seconds, or as long as possible. While you're holding your breath, the piston will slowly fall to the base of the spirometer.
 6. Once the piston reaches the bottom of the spirometer, breathe out slowly through your mouth. Rest for a few seconds.
 7. Repeat 10 times. Try to get the piston to the same level with each breath.
 8. After each set of 10 breaths, try to cough, holding a pillow over your incision, as needed. Coughing will help loosen or clear any mucus in your lungs.
 9. Put the marker at the level the piston reached on your incentive spirometer. This will be your goal next time.

Repeat these steps every hour that you're awake.

Cover the mouthpiece of the incentive spirometer when you aren't using it.

If you have any questions, contact a member of your healthcare team

Information for Family and Friends for the Day of Surgery

This information explains what to expect on the day your friend or family member is having surgery at Memorial Sloan Kettering's (MSK) main hospital.

Before the Surgery

After arriving at the hospital, the patient will be asked to provide contact information for the person who will be meeting with the surgeon after the surgery. This is the same person who will get updates from the nurse liaison during the surgery. If the patient is having an outpatient procedure, they will also be asked to provide contact information for the person who will be taking them home.

Once the patient is checked in, they will go to the Presurgical Center (PSC) to be examined before surgery. Sometimes, they may need to wait before they are admitted to the PSC.

In the PSC, the nurse will do an exam. One person can come along to the PSC, but other visitors should wait in the waiting area. If the patient wants, other visitors may join them when the nurse has finished the exam.

When the operating room (OR) is ready, a member of the surgical team will come to escort the patient into the OR. They will prepare the patient for surgery, which can take 15 to 90 minutes. Then, the surgery will begin.

Please remember the following:

- **Do not bring food or drinks to the waiting area.** Patients are not allowed to eat or drink before their surgery or procedure
- Our patients are at high risk for infection. Please do not visit if you have any cold or flu symptoms (fever, sneezing, sniffles, or a cough). We may ask you

to wear a mask if there are any concerns about your health.

- If the patient brought any valuables, such as a cell phone, iPod, or iPad, please keep them safe for them during surgery.
- Sometimes, surgeries may be delayed. We make every effort to tell you when this happens.

During the Surgery

After the patient is taken to the OR, please wait in the main lobby on the 1st floor, where you will be updated by the nurse liaison. While you're waiting, here are some things you can do:

- Food and drinks are available in the cafeteria and gift shop. You can also bring your own food and eat it in the cafeteria.
- The coat-check room is located at the bottom of the escalator on the ground level. It's open Monday through Friday from 11:00 am to 4:00 pm.
- Wireless Internet access is available in most areas of the hospital. The wifi network name is MSK_guest. You can also use the computers in the room off the main lobby.
- Please be courteous and mindful of others while using your cell phone. Use the designated area to accept and make calls on your cell phone. It may be useful to bring your phone charger to the hospital.
- The Mary French Rockefeller All Faith Chapel is an interfaith chapel located in room M106 near the main lobby on the 1st floor. It's 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. Children are allowed in the pavilion as long as they are supervised by an adult. The pavilion has arts and crafts, a library, an outdoor terrace, and scheduled entertainment events. To get to the pavilion, take the M elevators to the 15th floor.

Surgery updates

A nurse liaison will keep you updated on the progress of surgery. They will:

- Give you information about the patient.

- Prepare you for your meeting with the surgeon.
- Arrange for you to visit the patient in the Post Anesthesia Care Unit (PACU).

To contact the nurse liaison:

- From inside the hospital, use a hospital courtesy phone. Dial 2000 and ask for beeper 9000. Please be patient, as this can take up to 2 minutes.
- From outside of the hospital, call 212-639-2000. Ask for beeper 9000.
- Ask the information desk staff to contact the nurse liaison for you.

After the Surgery

Meeting with the surgeon

When the patient's surgery is completed, we will call you and ask you to return to the concierge desk to tell you where to go to meet with the surgeon.

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

Visiting the patient in the PACU

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.

When the patient is able to have visitors, a staff member will take you to the PACU for one brief visit. No one is allowed to stay overnight with the patient in the PACU, except for caregivers of pediatric patients.

Please follow these guidelines before your visit:

- Silence your cell phone.
- Apply an alcohol-based hand sanitizer (such as Purell®) before entering. There are hand sanitizer stations located throughout the hospital.
- Do not bring food or flowers into the PACU.

Please remember that only a limited number of visitors can go into the PACU. This is to keep the area quiet and allow the patients to rest and receive care.

While visiting in the PACU

- Speak quietly.
- Respect other patients' privacy by staying at the bedside of your friend or family member.
- If any PACU patient needs special nursing attention, we may ask you to leave or to delay your visit.

The nurse will update you with the plan of care for the patient, such as whether the patient is staying overnight and when they will be moved to an inpatient room. If the patient is staying overnight, you may visit them again in the PACU. If the patient is going home the same day, a caregiver must take them home.

After your visit, a staff member will escort you back from the PACU.

We will give you a card with the PACU phone number. Please choose one person to call for updates.

What You Can Do to Avoid Falling

This information describes what you can do to keep from falling when you come for your appointments at Memorial Sloan Kettering (MSK). It also describes how you can keep from falling while you're at home.

Things That Can Make You Fall

Anyone can fall, but some things make you more likely to fall. You're at higher risk for falling if you:

- Are 60 years old or older
- Have fallen before
- Are afraid of falling
- Feel weak, tired, or forgetful
- Have numbness or tingling in your legs or feet
- Have trouble walking or are unsteady
- Don't see well
- Feel dizzy, lightheaded, or confused
- Use a walker or cane
- Have depression or anxiety
- Take certain medications, such as:
 - Laxatives (pills to cause a bowel movement)
 - Diuretics (water pills)
 - Sleeping pills
 - Medications to prevent seizures

- Some medications for depression
- Pain medications
- Intravenous (IV) fluids (fluids into your vein)
- Any medication that makes you feel sleepy

How to Avoid Falling During Your MSK Appointments

- Come to your appointment with someone who can help you get around.
- If you use an assistive device such as a wheelchair or cane, bring it to your appointment.
- Wear safe, supportive shoes. Examples include shoes that have a low heel height, a thin, firm midsole, a slip-resistant sole, and laces or Velcro® to close the shoe. Don't wear shoes with an open back.
- Ask a member of our staff, such as a security guard or person at the front desk, for help while you're at MSK. They can also bring you a wheelchair to use during your appointment.
- Have someone help you while you're in the dressing room or bathroom. If you don't have anyone with you, tell the person at the reception desk. They will find a nurse to help you.
- Use the grab bars while you're in the bathroom.
- When getting up after you're lying down, sit at the side of the bed or exam table before you stand up.
- If you feel dizzy or weak, tell someone. If you're in a bathroom, look for a call bell that you can use to call for help.

How to Avoid Falling 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 rugs and other loose items from your floor. If you have a rug

covering a slippery floor, make sure the rug doesn't have any loose or fringed edges.

- If your bathroom isn't close to your bedroom (or wherever you spend most of your time during the day), get a commode. Place it nearby so you don't have to walk to the bathroom.
- Put grab bars and handrails next to your toilet and inside your shower. Never use towel racks to pull yourself up. They aren't 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 after you're lying down, sit for a few minutes before you stand up.
- Place items in your kitchen and bathroom cabinets at shoulder height so you don't have to reach too high or bend too low.

If you're concerned about your risk for falling, talk with your doctor or nurse.

Additional Resources

For more information about how to keep from falling at home, read the Centers for Disease Control and Prevention (CDC) booklet *Check for Safety: A Home Fall Prevention Checklist for Older Adults*. It's available in English and Spanish on www.cdc.gov or by calling 800-CDC-INFO (800-232-4636).

For more information about choosing safe shoes, read our resource **How to Choose Safe Shoes to Prevent Falling** (https://www.mskcc.org/pe/safe_shoes).