Joint Replacement Surgery at Beth Israel Deaconess Medical Center

A guidebook to help our patients get the most from their joint replacement surgery

This guidebook made possible by the generosity of Mary Ann and Stanley Snider.
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Welcome to the Carl J. Shapiro Department of Orthopaedics at Beth Israel Deaconess Medical Center. We have prepared this manual to provide you and your family with essential information about undergoing joint replacement surgery. We hope that you will use it as a way to learn more about your treatment, and as a way to keep track of important aspects of your care.

You will soon have surgery to replace your arthritic hip or knee with artificial parts in order to reduce your pain and improve your function. Joint replacement surgery is elective – it is your choice. It is a very good operation to relieve pain.

Experience has shown that the best health outcomes are achieved when patients and families are active participants in their care. This means knowing what to expect at each phase of your procedure and working closely with members of your care team to achieve your goals.

This patient guidebook will help you and your family prepare for your joint replacement surgery. It describes what to expect before and during your hospital stay, the surgery itself, and your recovery. It has important information about what you must do to prepare for surgery and to achieve the best possible outcome during your recovery. Please read this entire guidebook soon. Bring it with you to any medical appointments and to the medical center on the day of your surgery.

Thank you for choosing the Carl J. Shapiro Department of Orthopaedics at Beth Israel Deaconess Medical Center for your care. We are committed to providing you with the very best treatment for your condition.
Understanding Joint Replacement Surgery

How a normal joint works

A joint is a place in the body where two or more bones come together. The various structures in and around the joint allow the bones to move and enable you to walk, reach, grasp, chew, and perform countless other activities. Normal joint function is needed to perform these everyday activities easily and without discomfort.

All healthy joints in the body, large and small, consist of bones covered by a smooth, pearl-white coating of cartilage – an elastic tissue that cushions the bones and allows pain-free motion. Moveable joints are lined with a thin, smooth lining called the synovium which produces a special fluid that lubricates the joint and reduces friction. Many structures are involved in smooth joint motion, including the muscles, nerves, tendons, and ligaments that surround the joint itself.

The bones in a joint can connect in several different ways, resulting in different types of joints. Your hip is a ball and socket joint. It connects your upper leg to your pelvis. The upper end of the thigh bone (femur) ends in a ball, which fits into a special groove or socket (acetabulum) in the pelvic bone. Ligaments and muscles surrounding the joint provide motion and stability.

Your knee is the hinge-like connection between the lower end of the thigh bone (femur) and the upper end of the shin bone (tibia). The kneecap (patella) slides within a groove on the end of the femur when the knee bends and straightens. Ligaments provide stability, and the long thigh muscles provide the knee with motion and strength.
Arthritis

Under normal, healthy circumstances, all of the parts of a joint work smoothly together to allow painless motion. But a number of things can go wrong with the joint and cause pain, stiffness, weakness, and loss of motion. Arthritis is a term we use to describe a diseased and painful joint.

In the early stages, arthritis pain is caused by inflammation or swelling of the joint structures. In later stages, the cartilage covering the joint bones is worn away and the underlying bone becomes exposed. The bones of the joint begin to rub together, causing friction and pain. There are several different types of arthritis.

Osteoarthritis (OA), or degenerative joint disease, is by far the most common form of arthritis. It is the result of the stresses and strains on the joint that occur over many years. It occurs most often in the weight-bearing joints of the hip, knee, ankle, and foot. The joint cartilage on the ends of the bones becomes damaged, pitted, and worn away, which prevents smooth, friction-free movement inside the joint. With osteoarthritis, you may have a painful, grinding feeling as the joint moves and the bone surfaces rub against each other. Pain, stiffness, swelling, and difficulty walking are common as the cartilage continues to wear away. In some cases, family history plays a role in the development of OA.

Rheumatoid arthritis (RA) is an inflammatory disease of the synovium – the tissue that lines the inside of the joints and produces a slippery fluid that keeps the joints lubricated. Unlike osteoarthritis, which is largely caused by stress and strain to the joint, rheumatoid arthritis is a disease that causes the joint’s synovium to become inflamed and thickened. This breaks down the surrounding cartilage, ligaments, and even bone. The joints become swollen, painful, stiff, and deformed. Because RA is a “systemic” disease (a disease that affects the whole body), some patients with RA have other problems not related to the joints.

Traumatic arthritis can develop in someone who has had a serious injury in or around a joint (ligament disruption, bone fracture, etc) at some point in the past. Trauma to the joint can eventually cause imbalances and premature destruction of cartilage similar to what occurs in osteoarthritis.
Avascular necrosis (AVN), or osteonecrosis, is a type of arthritis caused by a lack of blood supply to a joint. It may be related to an underlying medical condition, to drugs that have been needed to treat some other illness, or to lifestyle issues. This loss of blood supply causes the bone cells to die. The joint collapses into an irregular shape and the cartilage covering the bones breaks down.

**Joint replacement surgery and recovery**

Joint replacement surgery is a procedure that can restore joint mobility and function in patients with significant joint disease. It can enable patients with arthritis to move with renewed ease, freedom of motion, and comfort. During the procedure, the surgeon makes a limited incision to expose the damaged joint. Only the diseased portions of the bone and joint are removed and replaced with artificial parts that have been custom-sized for your joint. The parts are made of titanium or cobalt chrome metal, polyethylene, and/or ceramic. These materials provide the joint with a new, smooth surface for weight bearing. Your surgeon will leave as much of your natural joint in place as possible; only the diseased and damaged bone and cartilage surfaces will be removed (so this is really “resurfacing”). The artificial joint may be a complete (“total”) or a partial (“unicompartmental”) replacement of your joint, depending upon your specific requirements.

Total hip replacements have been performed since the 1960’s, and total knee replacements followed a few years later. Other joints can be replaced as well. Today these surgeries are quite common and very successful when performed by surgeons who specialize in these complex procedures.

**Risks and complications**

As with any operation, there are risks and complications associated with joint replacement surgery. However, these problems occur very infrequently. Here are some of the risks and complications that can occur. Please ask your surgeon for more detailed information that may apply to you.

Symptomatic blood clots in the legs (deep vein thrombosis) or the lungs (pulmonary embolus) – This can be a very serious problem but fortunately the occurrence is very low. Steps to prevent this complication are discussed in detail in other sections of this manual. If blood clots do occur, treatment may include changes in your activity and longer duration of blood-thinning medications such as Lovenox or Coumadin.
Infection – We take many steps to prevent this uncommon complication, including giving you antibiotics by vein and operating in special sterile rooms and using sterile surgical suits. However, if an infection does develop, it can be serious and may require removal of the new artificial joint with insertion of a temporary antibiotic spacer in the leg, followed a couple of months later with implantation of a new artificial joint. Deep infections occur in approximately 1% of patients having joint replacement surgery.

Damage to the nerves, blood vessels, or bones during surgery – In rare cases, nerves or blood vessels can be damaged. Sometimes, nerve damage is related to scar tissue from previous surgery. Fractures of the femur or tibia bone occur in less than 1% of patients, and are more common in revision surgery (surgery on a previously replaced joint).

Need for bone grafting – Sometimes, bone “grafts” from a bone bank are needed during surgery. Ask your surgeon for more information about bone grafting if you are having a revision joint replacement surgery.

Other complications may include problems with the incision or stiffness in the joint. As with any operation, there is a risk of serious problems or even death, but this risk is very low.

Anesthesia options
The most common types of anesthesia used for joint replacement surgery are described here. Typically we use some combination of anesthetics. An anesthesiologist meets with each patient before surgery to determine the types of anesthesia that are best.

General anesthesia is a complete, deep sleep state that involves the entire body. The medications are injected into an intravenous (IV) line and given as inhaled gas.

Regional anesthesia comes in many forms, and involves injecting a nerve-blocking medicine through a needle to keep certain parts of your body numb. Patients receiving regional anesthesia also receive sedatives through an IV. Here are some examples of regional anesthesia.

- **A femoral nerve block** is often performed for knee replacement surgery. It numbs the front portion of the leg.
- **A sciatic nerve block** numbs the back portion of the leg.
- **Epidural anesthesia or a spinal anesthesia** makes the body numb from the waist down. Patients receiving this type of anesthesia are not be able to move their legs until the medicine wears off or is discontinued. The medicine is introduced into the low back through a needle.

Local anesthesia is numbing medicine given by your surgeon directly into the area of the surgery at the time of the procedure.
Recovery from surgery
Most hip and knee replacement surgeries are very successful in relieving pain and improving motion, but the recuperation can be uncomfortable and requires considerable time and effort by the patient. For most patients, discomfort is controlled with medication. Recovery includes physical therapy, medications to relieve pain, incision care, and more. A comfortable return to daily living activities depends on your health and conditioning before the procedure, your age, your weight, your motivation for rehabilitation, and the type of joint replacement that you require. Typically, patients may need three to six months to achieve a full return of strength, energy, motion, and comfort.

Is joint replacement surgery right for you?
There are a number of factors to consider in deciding if joint replacement surgery is right for you. You should discuss these factors with your family, your primary care doctor, and your orthopaedic surgeon. This guidebook and other resources will give you valuable information, but it is unlikely that any single resource will answer all of your questions. Write down your questions for your surgeon so you don’t forget them. By working as a team with your providers, you will be better able to make the decision that is right for you.

Timing is an important consideration. Joint replacement is an elective procedure – you will never need a knee or hip replacement if you are willing to continue to live with the pain. We strongly encourage you to remain active just as long as you can on your own natural joints before having a joint replaced for the first time. While quite durable, artificial joints, along with your bone that supports them, do wear out and may fail over time.

On the other hand, unless you are now quite young for a joint replacement, waiting for years in the hope of some major advancement in surgical technique or changes in artificial joint design or durability may prove disappointing to you in the long run. Improvements in artificial joint technologies and surgical techniques occur steadily, but slowly. If your disability has not responded satisfactorily to your best conservative efforts, and you want to regain a life now that includes significantly less pain, then this may be a reasonable time to move forward with joint replacement surgery.

Factors to consider
There are a number of things you should consider when deciding about joint replacement. Some of these are:
- Is the time right for me?
- What benefits can I expect from the surgery?
- What will I need to do to protect a new joint?
- How long will the new joint last?
- What are the risks of surgery?
You may elect to have joint replacement surgery for these reasons:

✓ severe pain that limits your everyday activities including walking, climbing stairs, and getting out of chairs
✓ difficulty walking more than a few blocks without significant pain, and/or the need to use a cane, walker, or leg brace
✓ significant pain while resting or sleeping, either day or night
✓ deformity – a bowing of your knees or progressive shortening of the leg
✓ joint stiffness – inability to bend or straighten your hip or knee
✓ limitations of medication – failure to obtain relief from swelling and pain with rest and/or a variety of non-steroidal anti-inflammatory drugs (NSAIDs). These medications often are more effective in the earlier stages of arthritis, but they cannot influence the outcome of arthritis. The NSAIDs all have potentially serious side effects from prolonged usage.
✓ complications of medications – inability to tolerate potential complications of long term usage of NSAID medications (eg, stomach ulcers, heartburn, bleeding, dizziness, colitis, diverticulitis, kidney or liver disease, asthma, etc).
✓ failure of other therapies – failure to substantially improve after lesser joint surgeries (eg, arthroscopy, osteotomy) or with conservative (ie, non-surgical) treatments such as cortisone injections, physical therapy, weight loss, bracing, use of a cane, etc.

Activity guidelines

Permanent activity guidelines following joint replacement surgery

Approved
✓ walking
✓ climbing stairs
✓ moderate housework
✓ light or moderate hiking
✓ swimming
✓ moderate weight training
✓ riding a bicycle or a horse
✓ repetitive aerobic stair climbing
✓ bowling or golfing
✓ dancing
✓ doubles tennis
✓ cross-country skiing
✓ moderate alpine skiing

Not recommended
✗ singles tennis
✗ repetitive lifting of 50+ pounds

Should be strictly avoided
✗ jogging or running
✗ all sports that involve jumping
✗ basketball
✗ contact sports
✗ very heavy lifting
✗ high-impact aerobics
It is also very important for you to understand what you can and cannot expect from joint replacement surgery before deciding to proceed. In the end, more than 90% of individuals who undergo total joint replacement experience a dramatic reduction of pain and a significant improvement in the ability to perform common activities of daily living. A small portion of patients may have some amount of persistent discomfort.

A total joint replacement won’t make you an athlete or allow you to do more than you could in the years before you started to develop arthritis. The goal is a return to comfortable and enjoyable activities of daily life.

Two additional factors are important in your decision. You need to understand what to do to protect your new joint and how your joint can be expected to function over time.

**Protecting a new joint**
Joint replacement can help you return to a fuller, more active life. But it is important that you not put unnecessary strain on your artificial joint or it could fail. High-impact activities, excessive body weight, and having a joint replaced at an early age are factors that will accelerate the normal wear of the artificial joint and surrounding bone and may cause it to loosen prematurely, becoming painful and unstable. The box on the previous page lists some representative activities that you will and will not be able to do following joint replacement.

**Joint function over time**
You may also want to talk with your surgeon about how long your new joint will function over time. With proper care, most joint replacements perform well for 15 – 20 years or more. On average, the failure rate (a problem with the joint that requires revision surgery) is about 1% per year during the first 20 years after surgery. That is, within 15 years after your surgery you will have about a 15% chance of needing revision surgery to your joint. Revision surgery to repair bone loss and to replace worn or loose parts may be much more difficult than initial joint replacement surgery, and the outcomes are less predictable. That is why it’s important for you to protect your artificial joint by following the instructions you are given.

While you are deciding about surgery or waiting for your surgical date, we recommend that you **remain as active as possible** – even if exercise causes some pain. Some people may try to “save” the joint by becoming very inactive. It’s important to understand that this will actually have an opposite effect. Being inactive can cause you to lose bone and muscle strength. It also puts you at risk for weight gain and other declines in general health and mental wellbeing. People with arthritis who push themselves to remain active with walking, cycling, and swimming do best. However, be sure to avoid running, jumping, and heavy lifting activities.
Planning for Your Surgery

Weeks to months before your operation

Once you have decided to move forward with joint replacement surgery, there are things you’ll need to do to prepare. Many of these preparations begin weeks before your surgery. Please be sure to read this section carefully and let us know if you have any questions.

Getting ready

✓ Get a dental checkup. Dental procedures, especially routine cleanings, often result in bleeding of your gums. This can allow bacteria in the mouth to enter the bloodstream. Normally this is not a problem as your body’s defenses fight off this bacteria in the blood. However, if you have a new artificial joint, it can become infected by bacteria that gets into your bloodstream in this manner. Although the incidence of infection after joint replacements is very low, this is a very serious situation when it does happen. To prevent this from occurring, you should have a thorough dental checkup and cleaning before your surgery. If your dentist recommends any additional procedures (filling cavities, removing teeth, etc), this all must be done before your surgery.

✓ Patients with certain medical problems (such as some types of heart or lung disease) should see the specialists managing their condition or their primary care physician to make sure surgery is safe for them. Ask your surgeon if this applies to you.

✓ See your urologist. If you have a history of urinary tract infections, or if you are a man with significant enlargement of the prostate, please see your urologist or primary care physician for treatment of your urological condition before your joint replacement surgery.

✓ Attend the BIDMC joint replacement class. We ask all of our patients who will have joint replacement surgery to attend a free, special class held at the medical center.
The class is taught by an interdisciplinary team that includes a nurse, physical therapist, and case manager. Our goal is to familiarize the patient and caregiver with the upcoming hospitalization and recovery period, and to encourage active participation in advance.

Topics of discussion include:

- review of post-operative exercises and use of crutches, walker
- review of medical insurance coverage
- pre-admission testing
- admission procedure
- surgical procedure
- hospital stay
- pain management
- post-operative rehabilitation options
- post-operative medications (pain medications and blood thinners)
- discharge planning
- home health agency services
- achieving early independence and return to normal activities
- equipment needs following surgery

Your surgical scheduler can help you register for a class at our hospital on a convenient date. A family member or other caregiver is strongly encouraged to attend with you. Please write down any questions that you have. Please bring this guidebook with you to the class.

☑ **Find out about your health insurance coverage.**

Before your surgery, be sure you understand the limits of both your inpatient and post-hospital medical insurance and rehabilitation coverage. No individual insurance program or combination – federal, state, or private – covers all types of care and expenses. You need to know your limits and your benefits so that you can make informed decisions about your care, both while in the hospital and afterwards during recovery.

**In the weeks before surgery:**

☑ Complete your dental and urological care.
☑ See your primary care doctor and/or specialists as advised by your surgeon.
☑ Attend the BIDMC joint replacement class.
☑ Find out about your health insurance coverage.
☑ Perform your exercises.
☑ Learn about blood donation.
☑ Control blood sugar (if you have diabetes).
☑ Stop smoking!
☑ Lose weight if needed.
☑ Prepare for your discharge from the hospital.
☑ Attend your pre-admission testing appointment.
Stay active and perform your pre-operative exercises. In the Rehabilitation Services chapter of this guide, there is information on exercises you can do to strengthen your legs in preparation for your surgery. Doing these exercises before your procedure will increase your strength, mobility, and confidence during your recuperation. You will greatly benefit from performing these exercises daily right up until the day of your surgery. As a general rule, stay as active as possible by walking, exercising, and stretching daily.

Make a blood donation for a possible transfusion. We make every effort to minimize loss of your blood from surgery. However, in some cases, patients do need blood transfusions to replace blood. When a transfusion is needed, the best option is to use your own blood that you have donated ahead of time (autologous blood donation). Depending on your health and the type of surgery you are having, your surgeon may ask you to donate blood before surgery and to take dietary supplement pills. If this is recommended for you, you will receive additional information about the blood donation procedure.

Other options for transfusion are also available. Sometimes, a friend or relative who has a blood type very close to yours can donate blood specifically for you. This is called “directed donation” and takes several weeks to arrange. This is due in part to the testing that is needed to make sure that the donor’s blood is a close match to your own. Talk to your surgeon for more information about this procedure.

In cases where autologous or directed donation are not available, patients are given blood transfusions from volunteer donors, which undergoes a very careful screening to reduce the risk of disease transmission.

Control your diabetes. If you have diabetes, it is especially important that you keep your blood sugar in good control in the months leading up to surgery. This will help reduce your risk for infection.

Lose weight if needed. Being overweight can impact your recovery and the life span of your new joint. Now is a great time to change your eating habits and shed those extra pounds.

Watch your weight and lose some pounds if needed.
Additional physical and mental preparation

To help you have a speedy recovery and to prevent problems after surgery, here are some additional things you can do to get yourself ready in the weeks leading up to your procedure.

Stop smoking. Please make every effort to stop completely. Help and advice are available at www.trytostop.org. Talk to your primary care doctor about medications that might be recommended to help you quit. Reducing the number of cigarettes per day is better than taking no action at all, but quitting completely is best.

Be informed about your surgery and recovery. Get smart about your surgery and you will be better prepared. Be sure that you and your family members read this entire guidebook well before the time of your surgery and recovery. Plenty of additional information is available online at various websites, or in videos and booklets.

Preparing for your discharge

Most patients wish to and can safely return directly to their homes three days after their joint replacement surgery. To help make your recovery as smooth as possible, planning should begin well before your surgery!

Preparing your home

When you return home, some activities will be more difficult for a while. The following information and suggestions will make your recuperation safer and easier.

- You will learn how to manage stairs before you are discharged. There should be no need to relocate your bed if it is on the second floor.
- Remove loose rugs, electrical cords, and other small items from areas where you will walk.
- Make sure there are night lights in the bedroom and bathroom.
- A stable chair with a firm back, arms, and a high seat will allow you to get up easily.
- Make a list of telephone numbers of helpful friends, family members, and your doctor. Place a copy by each phone. A cordless telephone or mobile phone will be useful during your recovery.
- Make sure any pets are out of the way so that they do not present a safety hazard while you are recovering.
- Check the path from your parking spot into the house. Make any needed repairs to walkways or porches so that your return home will go smoothly. Make sure banisters and railings (inside and outside) are safe and secure.
• Plan seating in rooms where you will be spending time. You’ll want a chair with some padding but one that isn’t too soft or too low. (For example, it might be difficult to get up from a soft sofa at first, especially if you’ll only have one armrest to use for support when standing.) Do not use a chair on wheels, even if it has brakes. Plan to have needed items within easy reach.

• Organize your bathroom so that you don’t have to move a lot while performing daily routines.

• You may want to prepare some meals in advance and freeze them for use after your surgery. Also, remember that you will not be able to bend over to reach inside low cabinets right after surgery. Put items you’ll need within easy reach before you go to the hospital.

• We don’t recommend that you buy special equipment, because you won’t know exactly what you’ll need until after surgery. However, if friends offer to loan you items such as crutches, a walker, a cane, a tub seat, or a raised toilet seat, feel free to accept. (If you borrow crutches, a walker, or a cane, bring these to the hospital so your physical therapist can make sure they fit you properly.)

• Lots of people stock up on books, movies, or project work to keep them busy during recovery. This is okay, but remember – you will be busy with exercising and building your endurance and may not have as much ‘free’ time as you think.

Arrange for help. You will need help with cooking, cleaning, shopping, other routine household tasks, and personal care during your first week or two at home. A relative, friend and/or home health agency person should be available to help you throughout this time period. Please make sure that you have prepared for this very important assistance well before your surgery date.

Important note on medicines!

Make sure we know about everything you are taking.

• In general, blood thinning anti-inflammatory medicines (Motrin, ibuprofen, Aleve, Advil, aspirin, Celebrex, etc.) should be stopped 5-10 days before surgery. However, please talk about this first with your surgeon or with any doctor who told you to take these medicines.

• If you think you will need it, please talk to your surgeon about replacement pain medicine in the week leading up to surgery. You may take acetaminophen (Tylenol—no more than 3,000 mg per day) for pain up until the time of your surgery.

• Do NOT attempt to stop or change prescription medicines or other medicines you take on the advice of a physician without talking to us or to the prescribing physician first.

• In general, vitamin E and any herbal supplements should be stopped one week before surgery, as they may cause blood thinning.
Plan where you will get your physical therapy once you are at home. If you haven’t had physical therapy recently, you may want to visit outpatient clinics near your home to choose one that is best for you.

Plan for transfer to extended care if needed. Although most patients go directly home after their surgery, in certain instances it may be necessary for you to go to an extended care facility (ECF) as an inpatient for a short time when you leave the hospital. Extended care facilities include skilled nursing facilities (SNF) and acute rehabilitation facilities (ARF). At these facilities, nurses and rehabilitation staff take active roles in planning your care in consultation with doctors. You may be advised to go to an ECF if you:

• live alone and do not have anyone to help you at home
• have other health conditions that require closer medical management
• are unable to perform certain functions after surgery (such as getting into and out of bed alone or using the toilet without help)

After your surgery, our nurses, doctors, case managers, and physical therapists will help to identify the best plans for your ongoing care. If you think it is likely that you will need to go to an ECF, please contact your insurance company before your surgery to find out what facilities and costs are covered. You and your family may want to visit these facilities before your surgery to see which ones might best meet your needs. However, please note that sometimes beds are not available at a particular facility on the day you are ready for discharge and another ECF may need to be chosen.
Your Pre-admission Testing Center Appointment

Soon after you decide to have joint replacement, your surgery scheduler will arrange an appointment at BIDMC’s Pre-admission Testing Center, located on the third floor of the Clinical Center on our west campus. The Clinical Center is on Deaconess Road, off of Brookline Avenue. You may park your car in the Pilgrim Garage on Crossover Street, which can be reached by either Pilgrim Road or Autumn Street. If you prefer, valet parking is available at the Clinical Center entrance. For directions to the hospital, please call 617-667-3000.

The goal of this appointment is to ensure that you are well prepared for surgery by having important tests and consultations completed at a single, convenient location. However, this is a lengthy process that may take up to four hours to complete.

At this appointment, you will meet with an anesthesiologist and/or anesthesia nurse practitioner who will examine you and will ask about your health history. You will receive important information about your surgery and will have the opportunity to ask any questions you may have. Arrangements will be made for you to have x-rays or any additional tests that might be recommended, such as an electrocardiogram (EKG). If you need to see additional specialists before your surgery (such as a cardiologist or pulmonologist), these visits will be arranged for another time. If you have been advised to donate some of your own blood prior to surgery, a separate appointment at a blood donor center will be made.

Also, during your pre-admission visit, you will be screened to see if certain strains of a bacteria called *Staphylococcus aureus* are present on your body. This is important information that is helpful in reducing infections in our surgical patients. During your
pre-admission visit, a nurse will place a Q-tip-like swab gently inside your nose and rub it against your nasal tissues. The swab is sent for culture in order to screen for the bacteria. You will be given more information about this screening during your pre-admission visit.

In order to have your surgery on the scheduled date, you must attend the pre-admission appointment. This is for your safety.

Please follow these guidelines to be sure you are ready for your pre-admission appointment:

- Read this entire guidebook and bring it with you to your appointment.
- Bring your medical insurance cards and review your coverage in advance.
- Review any instructions you were given by your doctor so that you can ask any questions that may arise.
- Make sure you have completed a Massachusetts Health Care Proxy form, which names someone to speak for you about your health care if your doctor determines you are unable to speak effectively for yourself. We ask all of our patients to complete this form. If you do not have a proxy form, you may obtain one at your pre-admission testing appointment.
- Complete the medication list included at the end of this section.

You will be told which medicines, if any, you need to stop before surgery. **Be sure you understand how to take and/or adjust your medicine before your operation.** Please ask about:

- **Blood-thinning** (anticoagulation) medication such as warfarin, Coumadin, Plavix, aspirin, Motrin, Aleve, etc.
- **Prednisone** or other steroids, methotrexate, Plaquenil, or other **immunosuppressant** medications
- **Medicine for diabetes** (insulin or oral diabetes medication)
- **Vitamin E and any herbal supplements** (eg, garlic, ginger, ginkgo, dong quai [angelica], ginseng, St. John’s wort). In general, these should be stopped one week before surgery.

Please complete the forms on the following pages before your appointment.
Pre-operative information
Please fill out this form and the "Medication Record" form before you come for your pre-admission testing visit. Please complete all sections even if you think we already have this information in your records. This is for your safety. Bring these forms – and this complete binder – to your pre-admission testing appointment.

NAME: ______________________________________    DATE OF BIRTH: _____________________

ALLERGIES
Please give us detailed information on any allergies you have to medications, latex, tapes, or foods.

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<th>Name of substance</th>
<th>What happened when you were exposed to it</th>
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HEALTH PROVIDERS
Please list health providers you are seeing (doctors, nurse practitioners, physician assistants, others). Be sure to include your primary care doctor.

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<th>Name</th>
<th>Address/phone number</th>
<th>Date of last visit (approximate)</th>
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MEDICAL TESTS AND PROCEDURES
Please list all your past surgeries. In addition, tell us about any medical tests or procedures you’ve had in the last year. Include x-rays, CT scans, MRIs, EKGs, blood tests, other. Please be sure we have copies of all test results from the past year.

<table>
<thead>
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<th>Date</th>
<th>Surgery or procedure</th>
<th>Hospital or office</th>
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Medication record

Use this form to record information about **everything** you take at home. This includes prescription medicine, non-prescription medicine, vitamins, herbs, and supplements. Record allergies in the box provided.

<table>
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<tr>
<th>Name of medicine (include prescription and non-prescription medicines, vitamins, herbs, and supplements)</th>
<th>Dose (for example, mgs.)</th>
<th>When you take it (give approximate times)</th>
<th>Why you take it</th>
<th>How long you have been taking it</th>
<th>Who prescribed it</th>
<th>Date and time of the last dose</th>
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Use additional sheet if needed.
As your day of surgery draws near, final preparations are important. Please follow these instructions carefully and be sure to ask us about anything you do not understand.

Final preparations

Medications
As noted in the previous section, certain medications need to be stopped for several days before your surgery. Please follow the guidelines you were given during your pre-admission visit regarding the use of prescription and non-prescription medicine in the days leading up to your surgery.

Remember to stop taking medicine such as aspirin, Motrin, ibuprofen, Aleve, Advil, or similar medications if you were instructed to do so during your pre-admission visit. You may continue to take Tylenol (acetaminophen, no more than 3,000 mg. per day) as needed for pain. If you are not sure what to do about medicines, please call our office.

Remember to stop taking Vitamin E and herbal supplements such as garlic, ginger, ginkgo, dong quai (angelica), ginseng, and St. John’s wort one week before surgery.

If you have diabetes, remember to keep your blood sugar in good control while you are waiting for surgery. Be sure you know whether you need to adjust your insulin or other diabetes medication on the night before and/or the day of surgery, when you will not be eating. Keep a close eye on your blood sugar during this time. If you are not sure what to do, please contact the doctor who prescribed your diabetes medicine for advice.
Activity, diet, and smoking

As noted previously, please stay active right up until the time of your surgery.

There are no special dietary restrictions until the night before surgery. On the night before your operation, you may not eat or drink anything after midnight.

If you smoke, you should stop before your joint replacement surgery to decrease the chance of lung problems, to reduce complications, and to speed your recovery. Smoking is not allowed at BIDMC, either in the building or anywhere on the grounds.

Confirm your surgery and your discharge plans

Please confirm your surgery time with your surgical scheduler by telephone on the last business day before the procedure.

Confirm your plans for discharge from the hospital. Make sure someone will be available to pick you up and that you have the help you will need at home.

Prepare your skin at the surgery site

You should not have any skin infections or irritations, especially at the location where a skin incision will be made. Your lower leg should not have noticeable swelling. If leg swelling or skin irritation occur, please contact your orthopaedic surgeon’s office right away as your surgery may need to be delayed. Also:

• Do not shave your legs for 48 hours prior to surgery.
• Do not apply lotions, oils, or makeup to your legs for 48 hours before surgery.

Antiseptic wash – It is important to reduce the skin’s natural bacteria count in the area of your surgery. The night before and the morning of surgery, lightly wash the surgical area with the antiseptic soap (chlorhexidine gluconate or CHG) that you will get at your pre-admission testing visit. If you have a known allergy to CHG, you may use another type of antibacterial soap.
The night before your surgery

Please shower, using CHG antiseptic wash to the area of surgery.

After midnight, do not eat or drink anything including chewing gum, candy, and water. You may brush your teeth or rinse your mouth, but do not swallow. This is for your safety. Food in the stomach can cause complications with your anesthesia.

The day of surgery

This section discusses what will happen on the day of your operation. In addition to this information, please be sure to review any information or instructions that you received during your pre-admission visit.

What to bring to the hospital

Space in the rooms is limited, so you should have only essential items. We recommend the following:

- this guidebook
- a short robe that opens up along the entire front – no pullover styles
- You may bring nonskid flat slippers and supportive, flat shoes closed at the heel and toe (sneakers are fine). However, your feet may be swollen and your shoes may not fit. The hospital provides slipper socks you can use, if needed.
- some leisure items such as books or magazines
- glasses for reading
- toiletries
- crutches (if you presently use them)
- health insurance and identification cards
- a list of all the medicines you take, including prescription medicines, non-prescription medicines, vitamins, herbs, and supplements; include the name of medicines, dosages, how frequently you take them, how long you’ve taken them, and who prescribes them (if prescribed)
- prepaid phone card for long distance calls (Calls outside of the 617 or 781 area code are very expensive if you go through the operator. The medical center cannot reduce these charges. Using a phone card eliminates the need for operator assistance.)
- other personal items that will help you relax and feel more at home
  - You may bring your cell phone or laptop if you wish. Understand that the hospital cannot be responsible for these items should they become lost or stolen. Wireless devices must be kept at least three feet from medical equipment, and items that need to be plugged in (including chargers) must be checked by your nurse before being used.
What NOT to bring to the hospital

- Please do not bring wallets, purses, jewelry, charge cards, checkbooks, large amounts of cash, personal papers, or any valuables. If you choose to bring these items, please understand that BIDMC cannot be responsible for personal property.
- Please do not bring your own medications.
- Hair dryers are not allowed.

Your pre-operative instructions

Remember to follow the instructions for the day of surgery given to you during your pre-admission visit. **Do not eat or drink anything after midnight.** If you were told to take medications on the morning of surgery, take them with a small sip of water. **If you have diabetes,** follow the advice you were given regarding any diabetes medicine you may be on; monitor your blood sugar carefully.

Arrival

Your surgery will be on the **east campus** of the Beth Israel Deaconess Medical Center at 330 Brookline Avenue. Enter through the main Feldberg lobby and follow the signs to the pre-operative holding area on the third floor of the Feldberg Building.

Pre-operative holding area

When you arrive in the holding area, you will have a brief wait before meeting a registered nurse who will take your temperature, pulse, and blood pressure. The nurse will have your chart with the results of your pre-surgery testing, and will make sure that you have followed all of the instructions given prior to your surgery. You will be asked about completing a Massachusetts Health Care Proxy, which is recommended for all hospital patients. Then you will change into a hospital gown. Dentures, contact lenses, and any jewelry you’ve chosen to bring need to be removed. All of these belongings will be stored and delivered to your hospital room.

Someone from your family, or a friend, may stay with you in the holding area while you meet your surgical team and wait for your surgery to begin. An anesthesiologist will place an intravenous (IV) line into a blood vessel of your arm. This IV is used to provide fluids and medications to you during and after surgery. You will meet other members of your surgical team, including nurses and resident doctors in surgery and anesthesia who work with your surgeon and anesthesiologist. Because BIDMC is a teaching hospital, students may be present as well.
You can expect the various members of your team to ask you similar questions several times about your medical history, medications, or allergies. This repetition is done on purpose for your safety. You may hear questions that might seem silly, such as, “What operation are you having?” or “Which leg are we operating on today?” Questions like this are important safety measures that all US hospitals now use to help reduce medical error. They are tools we use to verify information. They do not mean that your surgical team is not familiar with your case.

When it is time for your surgery to begin, your family and friends must leave the area. They may wait at the hospital or at home. Be sure your surgeon knows how to reach your family when your surgery has been completed.

**Your surgery**

A joint replacement operation usually takes approximately two hours. However, family members or friends should **not** be alarmed if your surgery takes longer. Surgery times can be prolonged for a variety of reasons in a busy operating room.

Many special precautions are taken to reduce the risk of complications such as infection. Antibiotics are given right before the procedure begins and are continued for 24 hours. Your surgical team may wear special sterile “space suits,” and the operating room itself is equipped with a special air flow system that helps reduce the spread of germs.

**The recovery room (PACU)**

You will wake up after surgery in the post-anesthesia care unit (PACU, or recovery room). You will stay in this area for about two to three hours, until you are awake, your heart rate and blood pressure are satisfactory, and your pain is under good control.

**Your family and friends will not be able to visit with you in the PACU. They must wait until you are in your hospital room.** Once your surgery has been completed, the surgeon will speak with your family members. If your family is at the hospital, a nurse can update your family of your progress from time to time and someone from the staff will let them know when you are being moved to your room. If your family members are not at the hospital, they should be sure to let us know how they can be reached.

While you are in the PACU, nurses and doctors will be closely monitoring your vital signs – blood pressure, heart rate, temperature, breathing pattern, and level of pain. You will be sleepy and may feel nauseated or light headed. You may have a sore throat or be hoarse.
from a tube that was used in your throat during surgery. You will have some discomfort, but your nurses in the PACU will help you control your pain so that it is well managed.

Although you might not remember much from this stage of your care, here is what you can expect to find when you awake in the PACU:

• IV tube(s) in your arm vein to provide you with fluids and medications
• a patient-controlled analgesia (PCA) push-button pump for you to give yourself pain medication (You will be shown how to use it.)
• a tube in your bladder to drain urine
• small tubes in your nostrils to provide oxygen
• a surgical drain (small tube) at your incision
• “boots” that inflate with air on both of your lower legs to help your blood circulate
• a small device on your finger that monitors your oxygen level

Total knee replacement patients may also have:

• an ice pack and ACE bandage on your knee to decrease the discomfort and swelling
• a continuous passive motion (CPM) machine that gently bends and straightens your knee
• a knee brace that keeps your knee straight when not in the CPM
Your Hospital Stay

This section provides important information about the first days of your recovery from surgery. You will see that it is very important for you to begin to move around quickly and to do as much for yourself as possible even in the early hours and days after your operation. Our staff members will be there to help you learn to do things on your own and to learn to use your new joint safely.

We encourage you to think about a family member or friend who can help you in this way once you are at home. This person can be like a “coach,” helping you practice your exercises and reminding you of other important aspects of recovery. Please invite your coach to come into the hospital as you begin your recovery to learn the important information he or she will need to help you out at home.

You will be taken to the orthopaedic floor after a few hours in the recovery area. The nurses on the unit will care for you and monitor your medical condition. They will orient you to the room and tell you how to reach them. They will frequently check your blood pressure, heart rate, and temperature, and assess your pain status. They will frequently encourage you to take deep breaths and cough to keep your lungs clear. The nurses may also ask you to roll from side to side to alternate the pressure on your backside. You may have visitors but you will likely still be sleepy and may be experiencing pain, light-headedness, or nausea. You may eat lightly if you are feeling up to it.

Here is some general information about what you can expect during this phase of your care. You will also receive a detailed “Welcome” packet in your hospital room after your surgery. Please be sure you and your family read this additional important information.
General routines

As a hospital inpatient, here are some of the activities you will encounter every day.

**Rounds** are when the surgeon and other staff members visit you to check your overall daily progress. At different times of the day, various other members of the medical team will also provide care at your bedside.

**Vital signs** will be assessed at various times of the day and night to ensure that you are responding well after surgery. This includes your temperature, blood pressure, heart rate, breathing patterns, and comfort level.

**Medications** will be provided by your nurse as ordered by your physician. In addition to the medications that you may regularly take at home, other medications such as antibiotics and pain relievers will be provided as capsules, tablets, or liquids. Some will be taken by mouth, others will be provided through your IV lines.

**Meals** are chosen by you from a menu. In the first day or two, liquids may be preferable to solid foods. Your nurse will explain the procedure on the unit for ordering your meals.

**Discharge planning** begins on the very first day after your joint replacement surgery. There are often many details that need to be taken care of in order to get you either to your home or to an extended care facility in a timely way.

**Routine tests** may include x-rays of your new artificial joint on the second post-op day, and early morning blood draws at your bedside.

**Deep breathing exercises** such as coughing and using a handheld device known as an incentive spirometer will keep your lungs clear and prevent pneumonia. We encourage you to do these exercises several times every hour while awake.

**Rehabilitation sessions** are very important after joint replacement surgery. Your physical therapists help you get safely into and out of your bed or chair, help you walk again, teach you about your post-operative exercise routine, and show you how to use your new joint properly. Please see the special section in this binder for more detailed information about your rehabilitation program.
Your care team

An entire team of health care providers are committed to working together to make you as safe and comfortable as possible and to make your hospital stay a success. Here are the providers you will see.

Attending orthopaedic surgeon – This is the surgeon who is primarily responsible for your surgery and care during your hospitalization. Your surgeon and/or other members of the surgery team will see you for daily examinations, to answer your questions, and to discuss your progress and any needed tests or procedures.

Registered nurses (RN) – Nurses will provide continuous care during every hour of your hospitalization. Your nurse will provide your medications and dressing changes and will make sure you are comfortable. S/he will work with other members of your team to coordinate other necessary tests and treatments. Patient care technicians (nursing assistants), working under the supervision of RNs, may help with some of your daily care. Your nurse will also answer your questions and concerns, provide information and educational materials, and help you get ready for discharge from the hospital.

It is important for you to keep your nurse informed about changes in your condition or your needs. Please be sure to report the following issues to the nurse, as well as any other issue that concerns you: pain, inability to urinate, excessive sleepiness, itchiness, bowel problems, vomiting or nausea, dizziness, or disturbing dreams or hallucinations (seeing or hearing things that aren’t there, which can be related to medications).

House officers, otherwise known as interns, residents and fellows – These are doctors in their first through sixth years of specialized medical and surgical training. They work under the supervision of the attending physicians.

Nurse practitioners (NP) and physician’s assistants (PA) – These are orthopaedic specialists with advanced medical / surgical training. They provide daily medical care on the hospital floors, in the operating rooms, and in the clinics.

Physical therapists (PT) – Physical therapy is a very important part of your recovery. A physical therapist will work with you daily to help ensure that you regain your strength and mobility safely, and to make sure that your new joint works properly.

Occupational therapists (OT) – Occupational therapists will work with some patients who have had joint replacement to help them regain independence and resume daily activities of living such as dressing and bathing.
Hospitalists or intensivists – These are hospital-based internal medicine physicians who may provide additional medical care at the request of the surgeon.

Primary care physician (PCP) – This is your regular medical doctor who will be kept informed as your recovery progresses and may help to coordinate your post-operative care.

Case managers – Case managers are registered nurses who specialize in helping patients and families make plans for continued recovery and care after discharge from the medical center.

Social workers – Social workers are available to help patients and families cope with the many issues that arise when illness or injury occurs. They can provide counseling to you and your family as well as links to needed resources in the community.

These are only some of the many people you may meet during your stay. For more information, please refer to the Welcome packet in your hospital room.

Getting comfortable: pain management

Discomfort after surgery is an expected and important signal. Adequate pain management is very important not only so that you are comfortable, but also so that you can participate fully in your physical therapy and other recovery activities.

Your nurses will check frequently to make sure that you are as comfortable as possible, and will often ask you to rate your pain on a scale from zero to ten. A “0” means you have no pain, whereas a “10” means the pain is the worst that you have experienced. It is unlikely that you can be pain-free soon after a surgery of this type. However, by using the pain scale, we can work with you to make sure your pain is tolerable. Our goal is to help you find a pain management plan that is best for you.

Should you experience severe pain, it is important to let us know. Patients often hesitate to report their pain and to take pain medication. This may be because of concerns about becoming addicted, appearing weak to others, or being a bother to hospital staff. Addiction is very rare when medications are taken for pain after surgery. Remember that each person’s pain is subjective and unique – your experience may be very different from that of a friend who may have had the same type of surgery. If your pain is not well managed, your recovery will take longer. You need to let us know how you are feeling and how much pain you are having.
It is most helpful to take your pain medications before the pain gets severe. You should feel comfortable asking your nurse for any type of pain medication. Patients often wait too long to ask for their pain medication. This makes it harder to get relief. **If possible, it is best to take your pain medications about 45 minutes before your physical therapy sessions.**

There are a number of different methods that can be used to help manage your pain. A combination of methods is often used, which changes as your recovery progresses. Your doctors and nurses will help you transition through these pain management plans.

**Pain management during the first 24 hours**

Here are techniques that may be used in the first 24 hours.

- **Patient-controlled analgesia (PCA)** is an automated medication pump that you control. It delivers a pre-set dose of strong pain medication (a narcotic such as morphine) into your intravenous (IV) line. The pump has safety devices that will not allow you to receive more than a certain amount of medicine. Please note that you (the patient) are the only one who should press the button on the PCA pump to deliver medication. You will use the PCA during the first 24 hours after surgery.

- **Regional anesthesia (epidural or spinal)** provides numbness from the waist to the toes both during knee or hip surgery and for a limited period afterwards. In some cases, regional anesthesia is used along with general anesthesia during your surgery. The nerve-blocking medication or narcotic is delivered through a needle or small catheter in the low back and is monitored by the anesthesiologist. Ask your surgeon if you will have regional anesthesia as part of your operation. Regional anesthesia can also be done after your operation is over.

- **Selective femoral nerve block** is an anesthetic supplied by needle to the upper leg to relieve pain around the knee.

- **Local anesthetic** is introduced around the incision in the operating room by your surgeon.

- **Intravenous (IV) medicine or an intramuscular injection (IM, or a “shot”)** can be given by your nurse if prescribed.
Pain management after the first 24 Hours

In general, pain medicine taken by mouth (oral pain medicine) is preferred after 24 hours. (Occasionally, some of the techniques used in the first 24 hours are used for a longer period or as a supplement to oral medication.) A variety of capsules, tablets, and liquid medications are taken by mouth. You must ask your nurse for pain pills or sleeping pills, as they will not automatically be given.

Narcotics (opioids) are a type of medicine commonly used in the first days to weeks after surgery. Examples are morphine (MS Contin), codeine, hydromorphone (Dilaudid), oxycodone (Percocet), hydrocodone (Vicodin), etc. These are indicated for moderate to severe pain. Unfortunately, they can also have side effects that include drowsiness, constipation, nausea, and itchiness. Addictions are usually not a problem when the medicine is used properly.

After you are home, you will gradually decrease your use of prescription pain medicine. (See the chapter, “Recovering at Home,” for more information on long-term pain management.)

Other ways to manage pain

While it is important to use pain medication, and we encourage you to do so, there are other things you can try that will help you manage your pain.

• Use relaxation techniques. Your pain is real, but how you experience the pain can be influenced by your state of mind. If you are tense and focused on your pain, it is likely to hurt more. Using relaxation techniques may help.
  1. Take slow, deep breaths.
  2. Focus on something other than your pain.
  3. Think about being in a place you find peaceful.
  4. Try to let the tension go out of all the muscles in your body.

• Take your mind off your pain by listening to music, watching TV, reading, or visiting with friends.

• Cold therapy will be recommended as a therapy for managing pain and swelling for most patients with knee replacements. You will be shown how to use a device (Cryo Cuff) that circulates ice water to the area of surgery.

• Change your position frequently to increase your comfort.

Remember – pain management is a key part of your care. You and your health care team will work together to manage your pain for a smoother recovery. As you recover, your need
Your inpatient stay: day-by-day recovery

In this section, we describe a typical recovery so you will have some idea of what to expect. Your experience may be different. In this binder, you will also find our “clinical pathway,” which is like a road map of your progress throughout your stay. The pathway outlines the important steps that occur at various stages of your recovery. Throughout your recovery, our staff will work closely with you to make sure you are comfortable and to keep you and your new joint safe.

First day after surgery (post-op day one)

• You will still have most of the intravenous lines and equipment noted on the day of surgery. This includes:
  – IV tube(s) in your arm vein to provide you with fluids and medications
  – a patient-controlled analgesia (PCA) push-button pump for you to give yourself pain medication (You will be shown how to use it.)
  – a tube in your bladder to drain urine
  – small tubes in your nostrils to provide oxygen
  – a surgical drain (small tube) at your incision; this will be removed on the first or second day after your surgery
  – “boots” that intermittently inflate with air on both of your lower legs to help your blood circulate

• For at least the first 24 hours, you will continue with the same methods of pain control that were started in the PACU. Usually, this includes a PCA pump. The PCA pump is usually stopped on the first or second post-operative day as you begin to use pain medicine by mouth.

• You will feel more awake and have more of an appetite. You’ll drink fluids today and will progress to solid food as you are ready.

If you have had a knee replacement

• A device called a Cryo Cuff, which is similar to an ice pack, may be applied to your knee to reduce swelling and discomfort.
• Please do not place a pillow behind your knee. Let it lie flat on the bed. (It is okay to use a pillow under the knee if instructed to do so as part of a particular exercise. Remove the pillow when the exercise is done.) A towel roll or pillow behind your ankle / heel is helpful. You may have a splint for four to six hours daily to keep the knee straight.
• Your operative leg will be placed in a continuous passive motion (CPM) machine to increase your range of motion (ROM) during the day and evening shifts. A CPM for home may be arranged for one to two weeks.
• Use the CPM for six to eight hours per day, increasing the range of motion settings with the goal of achieving 90° of flexion when you leave the hospital on day three, and 110° by the end of the second week after your operation.

for pain medication will decrease. Talk with your doctor or nurse if you have questions or concerns about your pain management at any time during your recovery.
• You will be evaluated by a physical therapist who will help you begin to move your new joint and teach you how to get out of bed and walk.

• Most patients will learn how to give themselves injections of anticoagulant (blood-thinning) medication. If medication injections are prescribed for you, your nurse will teach you and/or a family member how to give the injection.

• Most patients get out of bed on post-op day one. You may feel dizzy or a bit nauseated the first time you sit up. Take it slowly and these feelings should pass. Don’t try to get up alone! But remember – activity helps prevent surgical complications AND is an important part of recovery following joint replacement surgery.

Second day after surgery (post-op day two)

• You should feel better today and be more in the mood for visitors.

• The main focus on post-op day two is getting you up and moving about. Your physical therapist (PT) will teach how to properly position your new joint while in bed or moving around. The therapist and nurses will help you get in and out of bed and help you move from chair to bed.

• You will be up and out of bed for all your meals. You will walk in the hallway using a walker or crutches with assistance. It will be okay to put weight on your operated leg. You will use a bedside toilet or walk to the bathroom with assistance.

• You will get rid of most of your tubes and lines today. The tube in your bladder will be taken out by your nurse. You should be able to urinate within 8 hours. (If you cannot, the tube in your bladder may be put back in.) Your IV fluids will be stopped.

• Your nurse will review instructions on using anticoagulant medicine with you and/or your family member.

• You should be able to eat and drink whatever you like.

• You will be taking pain pills by mouth, which will help as you begin to get more active.

• Patients who have had a total hip replacement may be seen by an occupational therapist (OT). If you are like most patients and will be going directly home, the OT will begin to teach you how to get dressed, bathe yourself, and how to transfer on and off a toilet.
Discharge planning list

Before you go home, make sure you understand the following aspects of your care:

☐ how to protect your new joint
☐ how to care for your incision
☐ how to recognize signs of infection
☐ how to manage your pain
☐ how to walk safely with crutches or walker
☐ when you may shower
☐ how and when to take your medicines, and what each medicine is for
☐ information about your anticoagulant medication, including any needed blood tests
☐ what equipment or devices you will need in your recovery
☐ when your next appointment with your surgeon is scheduled

• You will discuss your ability to return home with the medical team including a case manager.

• You may wear elastic stockings that help to reduce leg and ankle swelling.

• The nurse will continue to take regularly scheduled checks of blood pressure, heart rate, temperature, and your level of pain.

• Your surgical bandage will be changed today or tomorrow.

• You may have an x-ray of your new joint.

• For most patients, tomorrow (day three) is discharge day. Please make arrangements for someone to pick you up by 11 am. You will not be able to drive yourself home.

Third day after surgery (day of discharge from hospital)

• Most patients go home on the third day after surgery. To go home, you should have practiced and be able to:
  – walk independently with a walker or crutches
  – walk up and down stairs with crutches
  – get into and out of a chair and bed by yourself
  – use the bathroom by yourself
  – manage your pain
  – dress yourself
  – do your home exercise program
  – have help at home, if possible

• Your temperature should be normal before you leave the hospital.

• Your physical therapist will teach you how to use crutches and how to climb stairs.

• If you have seen an occupational therapist during your stay, this person may also see you on the day of discharge to make sure you know how to safely get dressed, shower or sponge bathe, and transfer on and off the toilet.
• Your nurse will review your medications to be taken at home, including your anti-coagulant, an important medicine that is discussed further in Chapter 8. Please make sure you understand what medicines to take (and not to take) when you get home. Review all of your medications with your doctor and nurse, including everything you were taking before your surgery. For each medicine, make sure you know the purpose, dose, side effects, and how frequently you should take it. You will continue to take pain pills by mouth. If you have any questions about your medicines, please ask.

• Your nurse will also tell you how to care for your incision and will explain any services that have been set up for you at home. It’s best if a family member or someone who will be helping you at home is also listening to your instructions in case you forget anything.

• Many other instructions will be reviewed according to the box on the previous page. You will find details on many of these instructions in Chapter 8 of this binder – Recovering at Home.

• Now is the time to ask your questions! Every question is important and it’s okay to ask a question more than once. Your surgeon, nurses, and therapists want to make sure you feel safe and secure when you leave for home.

**If you need inpatient rehabilitation**

If you will go to an inpatient rehabilitation center (extended care facility, or ECF) before returning home, you will probably leave in the morning. The medical team will prepare your paperwork and transport you to the rehabilitation facility by ambulance. About one in five joint replacement patients go to a rehabilitation facility. Sometimes, this is planned in advance because of special circumstances. In other cases, a patient’s recovery goes more slowly than usual and further support is needed. In the ECF, a team of doctors, nurses, and therapists works with you on your recovery. It’s important to take an active role in your therapy at the ECF so that you can return home as soon as possible. Most patients who go to an ECF stay there at least a week. When you go home following a stay at an ECF, be sure to schedule an appointment with your surgeon.
Leaving the medical center

If possible, try to arrange it so that your ride home will be in a vehicle with a lot of leg room so that you can stretch out your leg during the ride. Put the seat all the way back. Some patients find that sitting on a plastic trash bag makes it easier to slide in and out of the car in the early days of recovery. If your trip is more than two hours, plan one or more stops for walking and exercising your leg.

Please remember – you will be leaving the hospital while your recovery is in its early stages. Be assured that steady progress will occur. Some days you will feel that you have made great strides, while other days may be difficult for you. However, if you look at your progress week by week (rather than day by day), you should see steady improvement.
As you have learned, physical therapy is extremely important to your successful recovery from joint replacement surgery. Doing your physical therapy exercises as prescribed will help your new joint heal and function the way it should. For some patients, occupational therapy is also part of their recovery plan.

This section will give you additional information about these important aspects of your recovery.

Physical therapy

A comprehensive program of physical therapy (PT) is a critical part of your recovery from joint replacement surgery. While you are in the hospital, you will receive PT on a daily basis. In certain cases, you may receive more than one PT visit in a day.

Physical therapy begins the first day following your surgery. Your therapist will help you move your operated leg as soon as possible after your operation. Taking pain medication before your PT sessions can help with pain management. Remember, it is very important for you to regain muscle control and move your leg effectively so that you can get out of bed safely. Regaining motion early helps prevent stiffness in the joint and will help ensure that you have a successful recovery.

Your PT sessions will be 30-45 minutes long. During your sessions, your therapist will teach you:

- exercises to improve the flexibility of your joint and improve your muscle strength
- how to get into and out of a chair and bed
- how to walk with a walker and crutches on level surfaces and stairs
- how to best position your new joint when you are sitting, sleeping, and performing activities of daily living
Typical exercise routines following hip and knee replacement, as well as important instructions on positioning your new joint, are included in this chapter. Please be sure to ask any questions you may have about how to perform your exercises before you go home from the hospital.

**Walking and stair-climbing**

Your new joint is very strong, but the muscles are still weak and will be less able to support the weight of your body. For this reason, you will need to use an assistive device to walk for the first few weeks. You will begin walking with the use of a walker. You will be able to put as much weight as is comfortable on your operated leg. When using a walker, you first move the walker forward, then the operated leg, then the good leg.

You will start using crutches on your second or third day. Crutches allow you to walk with a more normal walking pattern than a walker and can also be used on stairs. The sequence is the same. You lead with the crutches, then the operated leg, then the good leg.

You will also learn to go up and down stairs – with a railing and without – before you leave the hospital. You will go up and down stairs one at a time. When going up stairs, the good leg goes first, followed by the operated leg, then the crutches. When going down, the crutches go first, followed by the operated leg, then the good leg. **Be sure to have someone help you with stairs at home until you feel secure doing stairs alone.**

We will encourage you to walk as naturally as possible. When you return home, regular walking outside of your home is encouraged. You will soon wean to one crutch or a cane and then to a point where you no longer require an assistive device. This can occur as early as two weeks after your surgery but most often occurs around four weeks following surgery. There is no need to hurry the process of getting off crutches. It is most important that you are walking with a symmetric, normal walking pattern. Your home PT or outpatient PT will help you to progress to this point.

When at home, you should be walking frequently – at least every two hours while awake. We also encourage you to walk outside with help (weather permitting) at least once a day. When walking, remember the following:

- Move your operated leg naturally. Your operated leg should move in balance with your other leg. That is, your goal is for the motion of the legs to be the same.
- Be sure to walk heel-to-toe. That is, put your heel on the ground first, then your foot, then your toes. (This is how you walk naturally.)

**Continuing your physical therapy**

Once you are at home, it is critically important that you continue with your physical therapy routines on your own every day. The first three to four weeks after surgery are the most crucial in terms of regaining excellent motion of your new joint.
**Occupational therapy**

If you are having a total hip replacement and are scheduled for discharge directly to home, you will see an occupational therapist (OT) two days after your surgery. Most patients who have knee replacement do not require occupational therapy unless they have had both of their knees replaced at once. If you are being transferred to a rehabilitation facility prior to returning home, your occupational therapy will begin at that facility.

If you see OT while at BIDMC, you will likely require only one visit from the occupational therapist. This visit will be 30 to 45 minutes in length. Your OT session will include:

- learning how to dress and bathe yourself while keeping your new joint in the proper position
- learning how to get on and off a toilet while keeping your new joint in the proper position
- determining whether you need any special equipment at home to help you dress

Patients with hip replacements are encouraged to bend the hip during activities of daily living. If you lack flexibility or strength to perform these essential activities at first, and there is no one to help you at home, the occupational therapist may recommend special equipment at home, such as a raised toilet seat, a long-handled shoe horn, or a sock aide. However, most patients do not need this special equipment.
Exercises and positioning following total HIP replacement

During the first three months after your hip replacement surgery, you must perform your exercises as instructed, continue with your walking program, and follow instructions regarding positioning your new joint.

Positioning your new hip joint

To protect your new joint while sitting, do not roll the knee on the operated side toward the middle of the body. (That is, no internal rotation.) Follow this precaution for at least three months. In addition, please follow these instructions. Please note that a gray shaded dot in the illustration indicates the operated hip.

When you are sitting

• DO sit with equal weight on both your hips. Imagine you are sitting on home plate on a baseball field. Position your knees at first base and third base (about six inches apart) with your feet together.

• When getting up and down from a seated position go straight up and straight down. Do not twist.

• Avoid very low seating positions and use a chair that has arms that you can use to get into a standing position.

• If you need to pick something up off the floor, reach between your legs.

• Here are two suggested techniques for putting on your shoes and socks.
When you are sitting:

- DON’T reach to the outside of your operated leg.
- DON’T cross your legs at the thighs.

When you are resting in bed

- While in the hospital, lie with the head of your bed flat at least three times a day for thirty minutes.
- Do not place a pillow under your operated leg while lying on your back.
- Once you are home, lie on your stomach three times a day for thirty minutes.

When you are sleeping

- It is safe to sleep on your operated hip if it is comfortable.
- It is safe to sleep on your stomach. Use a pillow between your legs as you roll on to your stomach.
- If you choose to sleep on the side of your unoperated hip, it is best to place a pillow between your legs. Make sure your knee from your operated side does not roll over onto the bed.
Exercises following HIP replacement surgery

Perform these exercises on your operated leg unless otherwise noted.

- While you are in the hospital, do 5-10 repetitions of each exercise each hour when you are awake.
- Once you are home, choose six exercises.
- Do two sets of 15 repetitions of each exercise.
- Repeat this two more times each day using a different six exercises.
- Each exercise should be performed at least once each day.

*Please note that a gray dot in the illustration indicates the operated hip.*

A. Lying on your back

1. Ankle pumps
   - With your leg resting on a surface, pump your ankle forward and back.

2. Buttocks squeezes
   - Squeeze your buttocks together.
   - Hold for 5 seconds.

3. Thigh roll
   - Roll your kneecap inward, then back to the center. Do not lift your buttock off the bed.
4. Thomas stretch

- Lie flat in bed.
- Pull your unoperated leg up towards your chest while pushing your operated leg into the bed.
- You should feel a stretch in the front of your operated hip.
- Hold for 5 seconds.

5. Leg slide

- Slide your leg out to the side.
- Do not lift your leg out of bed.

6. Foot raises

- Place a towel roll or pillow under your knee.
- Raise your foot so that your knee is fully straight.
- Hold for 5 seconds.

7. Knee-to-chest

- While lying down, bring your knee up towards your chest and out sideways.
- Use a towel for assistance as needed.
B. Sitting in a chair

1. Knee to chest
   • While sitting, bring your knee up and out.
   • Use a towel or your hands for assistance as needed.
   • Keep your back straight. Do not lean back.

2. Knee spreads
   • Sit in a chair so that your thighs are parallel to the ground. Your feet should be together and positioned flat on the floor.
   • Place your hands on the inside of your knees.
   • Push your knees apart, keeping your feet together.
   • Hold for 5 seconds.

3. Chest to knee
   • Position yourself as in the “knee spreads” exercise above.
   • With your knees spread apart and your feet together, bend forward at your hips.
   • Reach towards the floor with your arms between your legs.
4. Tailor sitting

- Position yourself as in the “chest to knee” exercise on previous page.
- Grab the pant leg or sock of your operated leg.
- Bring the foot of your operated leg towards the knee of your unoperated leg.

5. Foot raises

- Raise your foot so that your knee is fully straight.
- Hold for 5 seconds.

C. Standing with crutches or chair support

1. Knee to chest

- Stand with your back straight.
- Bring your knee up towards your chest.

2. Leg lift to side

- Stand with your back straight.
- Keeping your knee straight, bring your leg out to the side.
3. Leg lift behind

- Stand with your back straight
- Keeping your knee straight, bring your leg behind you.
- Do not bend it forward.

D. Lying on your stomach

1. Leg lift

- Lie fully flat on your stomach.
- Keep your knee straight and lift your thigh up into the air.
- Keep your pelvis flat.

2. Leg lift on all fours

- Position yourself as in the leg lift exercise above.
- Place your hands near your chest, as if to do a push up.
- Push yourself onto your hands and knees.
- Keep your back straight while lifting your leg into the air.
Exercises and positioning following total KNEE replacement

As you recover from your knee replacement surgery, you must perform your exercises as instructed, continue with your walking program, and follow instructions regarding positioning your new joint.

Also, if you have access to a stationary bicycle, please include this in your exercise program, as instructed by your physical therapist. This can be very helpful in regaining the bend in your knee.

Please note that a gray dot in the illustration indicates the operated knee.

Positioning your new knee joint

- When resting in bed or sleeping, don’t put a pillow under your operated knee, unless you have been instructed to do so in order to perform a particular exercise. This can lead to an inability to straighten your knee and affect the way you walk.

- While sitting, your knee should be either elevated and straight (with your leg on a footstool) or bent at a right angle (with your foot resting on the floor). Do not sit for long periods of time with your knee in a slightly bent position. Repeatedly moving your knee from a straight to a bent position is very helpful.

- Avoid very low seating positions and use a chair that has arms that you can use to get into a standing position.

- If you are having trouble straightening your knee, and/or if you tend to sleep in a “fetal” (curled) position, you may need to wear a temporary knee splint at night to keep your knee straight. Talk to your therapist for more information.

- Three times a day, lie on a flat and firm surface with your leg stretched out flat. Put a towel roll under your heel. Stay in this position for 30 minutes.
Exercises following KNEE replacement surgery

- While you are in the hospital, do 5-10 repetitions of each exercise each hour while you are awake. Even if you are unable to move your leg, continue to attempt to perform the exercise. You may also use your family members or friends to assist.
- Once you are home, do 2 sets of 15 repetitions of each exercise, 3 times a day.

1. Ankle pumps

- With your leg lying on a surface, pump your ankle forward and back.

2. Knee pushes

- Push the back of your knee down into the bed and tighten your thigh muscle.
- Hold for 5 seconds.

3. Straight leg raise

- Bend your unoperated knee to protect your back.
- Perform a ‘knee push’ as above.
- Holding your thigh muscle tight and your knee straight, slowly lift your leg up, then down.
4. Heel slides

- Slide your heel towards your buttocks.
- Bend your knee as much as you can.
- Hold for 5 seconds.

5. Foot raises in bed

- Place a towel roll or pillow under your knee.
- Raise your foot so that your knee is fully straight. Hold for 5 seconds.

Note: Performing this exercise is the only time you should place a roll behind your knee.

6. Foot raises in a chair

- Raise your foot so that your knee is fully straight.
- Hold for 5 seconds.
7. Heel slides / lunges

- Sit back in a chair so that your thighs are parallel to the ground.
- Slide your heel back towards the chair (1). Use your hands, or your unoperated leg, to help bend your knee as much as possible.
- Keeping your foot on the floor, move your buttocks forward in the chair, further bending the knee (2).
- Hold 5 seconds.

8. Knee bend on stomach

- Lie on your stomach.
- Bend your knee. Use your unoperated leg to assist.
Recovering at Home

This section provides important information on recovering at home following your joint replacement surgery. Please be sure to also read the section on physical therapy for more detailed information on recovery and the care of your new joint.

Activity

Staying as active as you can (while following any restrictions you’ve been given on how to use your new joint) is a very important part of your recovery. Although you may feel tired, this is not a time to recover by staying in bed! Feeling tired is a normal part of recovering from any surgery. If you need more rest than usual, that’s okay. But try to balance periods of rest with periods of activity, gradually increasing your activity each day. Building up your activity slowly but steadily is the best way to boost your energy level and take proper care of your new joint.

In the case of joint replacement surgery, being tired may also be related to blood loss that occurred during your operation. To keep your energy up, be sure to eat a variety of foods – especially those that are high in iron like red meat, certain beans, fortified breakfast cereals, or dried fruit. A multivitamin with iron may be prescribed. Drink plenty of fluids to stay hydrated.

For specific information on how to move your new joint, please refer to the Rehabilitation Services section of this manual. Additional, more general information on activity is reviewed in this chapter.
**Danger Signs**

Please call your surgeon’s office right away (day or night) if there are signs of infection at your incision, which may include:

- areas of the incision are opening (or small openings are getting bigger)
- an increase in drainage
- drainage that is thick or that smells bad
- redness that is spreading beyond the line where the staples were in your skin
- an increase in tenderness or pain around the incision especially with motion of the new joint
- an increase in swelling around the incision
- fever

**Driving** – In general, do not drive an automatic transmission vehicle for at least four weeks if you’ve had left leg surgery or six weeks if your surgery was on the right. (It will be longer before you can drive a car or truck with standard transmission.) You should be walking confidently with a cane or with no support before you begin driving. You must have good leg strength and be able to respond immediately in an emergency – not hesitating because of pain or weakness in the leg. **You may not drive while you are still taking narcotic pain medication.** For specific guidelines about when you may resume driving, please speak to your surgeon at your follow-up appointment.

**Walking** – Your surgeon and therapist will tell you when you should switch from a walker or crutches to a cane, and when it’s okay to walk without support. Remember, patients progress at very different rates. Some patients walk with just a cane after two weeks, others need more time. Doing what is safe for you is what is most important. Please ask your surgeon or therapist for guidance if you are unsure how to proceed.

**Sitting** – For the first month after a hip or knee replacement, do not sit for more than two hours in a row. If you do, you may develop swelling in your legs. Frequent walks are important.

**Lifting** – Do not lift anything that weighs more than 15 pounds in the first month following your surgery.

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**If you’ve had a hip replacement**

Don’t forget your hip precautions no matter what activity you are doing. Follow these precautions for three months following surgery.

- When sitting, do not roll the knee on the operated side toward the middle of the body.
- Avoid very low seating positions and use a chair that has arms that you can use to get into a standing position.
- When getting into or out of a seat or a bed, keep your knees apart with your feet slightly apart.
- Avoid rolling (rotating) your knees and feet inward to reach down to your feet; always reach between your knees and not to the outside.
- Keep a pillow between your knees when sleeping on the unoperated side.
- An elevated toilet seat is sometimes needed.
- Be sure to read the Rehabilitation Services chapter for more information on how you may or may not move your hip.
**Kneeling** – You may kneel following a hip or knee replacement after six to eight weeks.

**Showering and bathing** – In general, you may shower when your incision is completely dry and there are no open areas – usually within the first week after surgery. Please do not take a tub bath for at least a month. Talk to your surgeon about when you may bathe in the tub.

**Sexual Activity** – You may resume sexual activity when you feel comfortable, unless your surgeon has instructed otherwise. If you’ve had a hip replacement, please be sure to follow the “hip precautions” positions for a full three months.

**Swimming, hot tubs, etc** – Please do not swim or use a hot tub for at least four weeks after your operation. Ask your surgeon when you may resume these activities. When you do, avoid extremely hot water as it can increase swelling.

**Exercise in addition to physical therapy** – If you are planning to return to the gym or to another form of regular exercise (in addition to your physical therapy), please discuss this with your surgeon and therapist and follow their advice about resuming these activities.

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Don’t do heavy housework (vacuuming, lifting) for at least one month. Light housework such as doing dishes or preparing meals is okay once you feel up to it. Talk to your surgeon and therapist about when to resume other household activities.

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### Permanent activity guidelines following joint replacement surgery

#### Approved

- ✓ walking
- ✓ climbing stairs
- ✓ moderate housework
- ✓ light or moderate hiking
- ✓ swimming
- ✓ moderate weight training
- ✓ riding a bicycle or a horse
- ✓ repetitive aerobic stair climbing
- ✓ bowling or golfing
- ✓ dancing
- ✓ doubles tennis
- ✓ cross country skiing
- ✓ moderate alpine skiing

#### Not recommended

- ✗ singles tennis
- ✗ repetitive lifting of 50+ pounds

#### Should be strictly avoided

- ✗ jogging or running
- ✗ all sports that involve jumping
- ✗ basketball
- ✗ contact sports
- ✗ very heavy lifting
- ✗ high impact aerobics
Returning to work – Returning to work is different for everyone and depends in part on the kind of job you have. If your job requires a lot of walking, standing, and physical labor, you could be out of work for two months. Someone who has a desk job and can park close to the office may be able to return in about one month, or possibly sooner on a part-time basis. Please speak to your surgeon and therapist about what is best for you.

Travel – Avoid long-distance travel for about six weeks after surgery. There is an increased risk of developing a blood clot if you are immobile for long periods during this time frame. When you do travel, stretch your legs or walk every hour while awake. If you must travel long distance in the first six weeks after surgery, it is very important that you contact your surgeon for specific advice regarding blood clot prevention.

Incision care

You and/or your caregiver should look carefully at your entire incision every day for the first three weeks or so after surgery. The skin edges may appear red or irritated due to skin staples or underlying sutures. When you first get home, there may be a little drainage coming from the incision. There may be small areas along the incision where the skin edges have not yet completely closed. You may see a small stitch coming out of your incision. This is normal and should not concern you.

When you look at your incision in the first week at home, you should see less drainage and less redness day by day. The skin edges along the entire incision line should be together. You may gently wash away dried material from around the incision using a moistened washcloth or Q-tip. Pat the incision dry – do not rub. Each day, cover the incision with a new sterile bandage. Change the bandage once each day until it remains dry for a full 24 hours. This could take up to a week. Once you do not see any drainage, you may leave the incision uncovered. Do not use any ointments, lotions, or creams on the healing incision for four weeks.
Once your incision has been dry for 24 hours and does not have any open areas, you may shower. This is usually one week or less following surgery. You may gently clean your incision in the shower with only your hand, some mild soap, and warm water.

When your skin staples are removed, small adhesive tapes (“steri-strips”) may be applied. You may shower with the steri-strips in place. Pat the steri-strips and the incision dry. The steri-strips should begin to fall off in about one week.

**Pain management**

As you learned in the hospital, managing pain is critically important because it allows you to participate fully in your physical therapy program and other aspects of your recovery.

Every patient has different needs for pain medication after surgery. In the first days at home, you should continue to use your narcotic pain medicine as needed to make sure you are able to move around and exercise comfortably. You may want to use a stool softener such as Colace (docusate) and drink plenty of fluids while you are taking narcotics because they can cause constipation. If you’ve had a knee replacement, applying ice to the knee after you exercise may help control discomfort.

As the days pass, you will need less pain medicine. Patients gradually stop taking narcotics and change to acetaminophen (Tylenol) within a couple of weeks, then steadily decrease their use of acetaminophen until they no longer need pain medicine. **Please note, never take more than the recommended dose** of acetaminophen (Tylenol) as it can harm the liver.

All patients – Aspirin and NSAIDs (the non-steroidal anti-inflammatory drugs) affect blood clotting. This can affect the way your anticoagulant medicine (Lovenox or Coumadin) works. Please talk with your doctor about when you may resume taking aspirin and NSAIDs after your surgery.
Nutrition

You will want to give your body the fuel it needs to heal so that your recovery proceeds as smoothly as possible. It is especially important to ensure that you have adequate amounts of iron and protein as you recover from joint surgery.

Getting enough iron – Food sources of iron are noted in the chart. In addition, your surgeon may ask you to take an iron supplement. If an iron supplement has been prescribed for you, taking it with a glass of orange juice can improve absorption. For best results, take it one hour before or two hours after a meal. However, if the medicine upsets your stomach, you may take it with food. Be aware that iron supplements will change the color of your bowel movements; they will have a tarry appearance.

Getting enough protein – During your recovery, increase your portions of meat, poultry, fish, beans, peas, legumes, lentils, peanut butter, eggs, and nuts. Try adding protein sources such as shredded cheese, hard-cooked eggs, or diced meat to sauces, soups, or casseroles. Special high-protein products are also available at your drug store or grocery.

Anticoagulation medicine (blood thinners)

While artificial joint replacement is most often very successful, as in all surgeries there are certain risks. Blood clots are a known complication that can occur in the first month or two as a result of the combination of surgery and post-operative inactivity. Blood clots can produce chronic pain and swelling in your leg (deep venous thrombus, or DVT), or they can also produce a life threatening clot in your lung (pulmonary embolus, or PE).

Very soon after your surgery (or, in some cases, the day before your surgery), you will be placed on some type of anticoagulation medicine to help prevent a blood clot from developing. The medicines include Lovenox (enoxaparin), Coumadin (warfarin), aspirin, and other medicines. You will need to be on some combination of anticoagulation medications for six weeks or more following your joint replacement surgery.

Lovenox (enoxaparin) is the anticoagulant most often used after joint replacement surgery. This is given as an injection. While you are in the hospital, the nurses will give you this medicine by injection and will teach you and/or a family member how to inject it once you leave the hospital.
are at home. You will be receiving this injection one or two times daily for at least two or three weeks and possibly longer. You will view a brief video in your hospital room which describes how to guard against blood clots. Your nurse will give you additional important information on Lovenox. Please be sure to ask any questions you may have. Some patients cannot take Lovenox, especially patients with kidney problems.

Coumadin (warfarin) is an oral anticoagulant (a pill) that is often used when longer term treatment may be needed, or in patients with additional medical conditions. Coumadin therapy is very effective. However, patients on Coumadin must have frequent blood tests to check their blood clotting, and they must have their dose adjusted frequently (for example, twice a week) depending on the results of each test. If you will be taking Coumadin, our surgeon’s office will give you more information about getting your blood tests and talking with someone about your dose adjustments. Proper adjustment of your Coumadin dose is a team effort between you, a home care nurse, and your orthopaedic surgeon’s office. Please be sure you understand how your Coumadin dose adjustments will work before you leave the hospital. If you will be taking Coumadin, your nurse will give you additional important information about this medicine. Please be sure to ask any questions you may have.

You may be switched to coated aspirin as an anticoagulant several weeks after surgery, unless you have an allergy to aspirin.

Other medications

Please follow the instructions for medications that you were given in the hospital. If you forgot to ask about when to go back to medicines you may have been on before your surgery, please call your surgeon’s office. Please ask any questions you may have about medication.

Protecting your joint from infection

It is very uncommon (about 1% of cases) for a new artificial joint to become infected around the time of surgery. However, at any time in the future, a bacterial infection from some other part of your body could travel within your blood and spread to your new joint, causing it to become infected. By following a few simple precautions, you can markedly decrease the chance of a bacterial infection spreading to your joint. (Please note – viral infections such as a cold or flu do not pose a threat to your joint.) There are two main areas of precautions you need to take for the rest of your life – prevention of bacterial infection, and rapid treatment of any infection that does develop.
**Preventing bacterial infection**

Bacteria can get into the blood during certain medical or surgical procedures, and during routine as well as other types of dental care. Normally, these bacteria are of little concern as your body’s defenses fight them off. However, under certain conditions, these circulating bacteria can pose a threat of infection to your artificial joint.

You will need to take antibiotics when visiting the dentist for at least the first two years following joint replacement surgery. You may need to take this precaution for a longer period, and you may need antibiotics before other medical procedures as well. **Talk to your surgeon or primary care doctor about antibiotic treatment before medical, surgical, or dental procedures, including routine dental cleanings.** Your specific antibiotic treatment depends in part on the type of procedure you are having and your own health history. In order to be sure that you get any antibiotic treatment you might need, **you must inform any doctor, surgeon, nurse, or dentist who cares for you that you have an artificial joint.**

See your dentist regularly for routine **preventive** dental care and take antibiotics as instructed. (But please wait three months after your surgery before having your first routine dental appointment.) Be certain to inform your dentist and dental hygienist that you have had joint replacement surgery. Keeping your mouth healthy by regular brushing and flossing may help prevent bacteria from entering your bloodstream. However, if you are not accustomed to daily flossing, now is not the time to begin a rigorous flossing program. Speak to your dentist and your doctor for advice.

**Treating bacterial infection**

Let your doctor know as soon as any sign of a bacterial infection appears. Here are common infections that can develop:

**Urinary tract infections.** Signs of a urinary tract infection can include frequent or painful, burning urination; pain in your lower back near your kidneys or lower pelvic region; cloudy, foul-smelling urine; and sweats/chills or fever. If you have these symptoms, **immediately** contact your primary care doctor.

**Skin infections.** Please take special care of any injury to the skin to reduce the chance of infection. Wash the area with soap and water and apply a bandage. Be especially careful with puncture wounds. If the area develops drainage, painful swelling, or spreading redness, seek medical care immediately.

**Dental infections.** Any pain, swelling, or drainage from around your teeth or gums needs immediate care from your dentist.
Complications of surgery

Most patients do extremely well after their surgery and have no complications at all. However, there is always the small possibility that you might have a problem. Here are the signs you should watch for. Call your surgeon’s office if these occur, or call 911 in an emergency.

Possible infection

- temperature greater than 100.5 degrees
- sweats or chills
- problems with the incision such as spreading redness or separating edges
- increased swelling or drainage
- significant increase in pain, especially with motion
- urinating more than usual, painful urination, or foul-smelling urine

Anticoagulation concerns

Watch for signs of clotting or bleeding, including:

- swelling and/or cramping pain in either calf or leg that does not decrease when your legs are elevated for a few hours. (It is expected that you will have some leg swelling after hip or knee replacement surgery. This swelling should decrease after you have been lying down or elevating your legs.)
- increased calf pain when your ankle is moved up or down
- bleeding from the incision
- a cut that continues to bleed, or excessive bruising
- blood in your urine or bowel movement (Blood in bowel movement may look black.
  Note: for patients taking iron supplements, it will be expected for you to have black, tarry bowel movements as a result of taking iron.)
- bloody vomiting (may look like “coffee grounds”)
- sudden weakness or numbness of your arm, face, or leg
- sudden inability to see clearly, or difficulty with speech
- sudden, very severe headache
- nosebleed
- bleeding from gums when brushing your teeth (if this is a new symptom)
- bruising for unknown reasons
- pain, discomfort, or swelling in any area, especially after an injury

Don’t wait!

Get help right away if problems occur.

Call your surgeon’s office for advice. Someone is on call 24 hours a day, seven days a week.

If you have heart or lung problems such as chest pain, shortness of breath, or rapid heart beat, or for any other emergency, call 911.

Complications may develop long after your surgery. Always report problems right away.
Other issues

- nausea and vomiting
- rash
- falling  (Please call us if you fall.)

*If you’ve had a hip replacement.* If you have sudden sharp hip pain, hear a popping sound, and are unable to walk, you may have dislocated your new hip joint. This is very uncommon. Call 911 to be taken to the hospital emergency department to be evaluated. The emergency department will notify your surgeon.

**Follow-up**

A series of appointments with your surgeon and a nurse practitioner will be scheduled so that we can monitor your progress and the health of your new joint.

Your **first appointment** will be approximately two weeks after discharge from the hospital. We recommend that you bring a family member or other support person with you to this visit. This person can help you remember any questions you want to ask the surgeon and can also listen to any instructions you are given in case you forget anything once you are at home.

During this appointment, the surgeon and nurse will be focusing on:
- incision care and skin staple removal
- pain management
- progress in physical therapy and daily activities
- function and range of motion of your new joint
- safe use of walker, crutches, or cane
- anticoagulation
- antibiotic coverage for dental or other procedures

You will have another appointment in about two months, and again at one year and two years following surgery. After that, we would like to see you about once every three years for x-rays and an examination of your joint. These appointments are important – whether or not you are having problems with your joint – so that we can follow your general progress and prevent future problems.
Please be sure to read through this entire guidebook where you will find more detail on many of these questions. Here is basic information on some of the most frequently asked items.

The artificial joint

What is the prosthesis made of, and how heavy is it? Your new joint is made of metal alloys (titanium, cobalt chrome) with either a polyethylene plastic, metal, or a ceramic bearing surface. These parts weigh about a pound, give or take a couple of ounces, depending upon component size.

Will the artificial joint set off metal detector security alarms? Yes, especially in areas where the security technology is more sensitive (i.e., larger airports). There is no danger to you or to your new joint from any of this surveillance technology. If you need to pass through a security device at an airport or public building, inform the security officer that you have a metal joint implant. You will be screened separately. A letter from your doctor saying you have an implant is not needed; the letter will not change the way you are screened or treated at the airport or other security checkpoints.

How long will my replacement joint last? Joint replacements tend to function very well for many years—fifteen or twenty is an often quoted answer. Inappropriate activity levels (such as running or jumping) as well as obesity are important causes of premature artificial joint failure. In general, you have an approximately 1% risk of requiring revision joint surgery for each year after your surgery. For example, after 15 years you have an 85% likelihood that your artificial joint will be functioning just fine, and only a 15% probability that it will be causing you problems or require additional surgery. Please see Chapter 8 for recommended activity restrictions in order to have your new joint last as long as possible.

Why does my knee click? If you have had a knee replacement, you may sometimes hear a clicking sound when you move your leg or tighten your muscles. This can happen when the pieces of the new joint move a certain way. It does not mean something is wrong. The clicking should not cause pain.
The hospital stay

**What time will my surgery be?** A day or two before the procedure, you will be notified by the surgery scheduler of the time to report to the hospital for your surgery.

**How long will I be in the hospital?** Three days following surgery is typical.

**How long is the surgery?** Approximately two hours.

**When will I get out of bed?** You will get out of bed the first day after surgery and take your first steps with your new joint.

**What time do I need to leave the hospital?** We strive to have patients leave the hospital by 11:00 am on the day of discharge.

**Do I go directly home after my hospital stay?** Yes, most patients are able and willing to go directly to their own home, or to a family member’s home, after three days in the hospital. However, you may need to transfer from the hospital to an extended care facility (ECF) for additional inpatient rehabilitation if you live alone, cannot safely accomplish activities, are aged, or have other health issues that require additional medical management. Your insurance coverage may also be a consideration.

Incision and leg care

**How long is the incision?** This varies considerably depending upon the type of surgery that you have, your body shape and size, your level of muscle development, whether or not you are obese, and other factors.

**The skin around my incision feels numb. Is this normal?** During your surgery, small nerves that lead to the skin are divided. This can lead to a numb or “fuzzy” feeling around the incision. This feeling should lessen over time.

**When may I stop using incision bandages?** Sterile gauze dressings should be changed daily until the incision is completely dry of any drainage – usually less than one week.

**Should I use ice packs?** You may use cold packs for the first few weeks after surgery to reduce discomfort and swelling. Please DO NOT get the incision or its dressing wet until there has been no drainage for 24 hours – usually after the first week. Use a water-tight ice pack and use a towel or some other barrier between the ice pack and your skin. Ice packs should not be placed directly on the skin.

**When may I shower?** The incision should be closed and dry before you may get it wet.
This takes up to a week. Until then, please take sponge baths. Your surgeon may allow you to shower earlier by keeping the incision dry with a plastic covering.

**When may I take a tub bath or swim?** Your surgeon will let you know when you may resume these activities. It is usually at least four weeks after surgery. Avoid hot water temperatures, which will cause the leg to swell.

**If I have skin staples or sutures, when are they removed?** These are usually removed within two weeks of your surgery.

**A stitch is sticking out from my incision. What should I do?** You may see a small stitch or knot coming from your incision. This is from a line of dissolvable stitches that is put under the skin to reduce scarring. The stitch will dissolve over the first six weeks as your wound heals. You may see redness or a little drainage coming from your incision. This is usually normal and should decrease each day. If the redness or drainage get worse instead of better, inform your surgeon’s office. For more information, please see detailed information on incision care that appears in the “Recovering at Home” section of this guidebook.

**When will the leg swelling go away?** Your feet and ankles may be swollen for at least a month or more after your surgery, due to decreased activity levels and temporary changes in the blood circulation. Patients with pre-existing heart or blood vessel conditions may have swelling longer. Talk to your surgeon about any concerns you have regarding swelling.

**Why is my leg discolored?** You may see discoloration that looks like a bruise in your leg. This is from bleeding that occurs as part of your procedure. It will slowly disappear as your recovery progresses.

### Medications

**How long will I need pain medications?** Most patients need some kind of pain medicine for two to three months. Narcotic tablets are typically used for the first two or three weeks, or less. After that, non-prescription pain medicine is used. You will be told what non-prescription pain medicine(s) you may take. Pain medicines that have an anti-inflammatory effect (such as Motrin, Aleve, ibuprofen, others) should not be taken by patients who have had a hip replacement for at least six weeks after surgery. Some pain relievers should not be taken while you are on anticoagulant medicine. Please follow your doctor’s advice about what pain relievers to take once you have stopped your prescription medicine.

**What type and for how long will I be on blood thinners (anticoagulation medication)?** Please refer to Chapter 8 in this guidebook for more information on anticoagulant therapy. Most patients will be on Lovenox (injections) or on Coumadin (pills) for three to six weeks.
after surgery. Aspirin is often recommended after these medications are stopped, unless you have an allergy. The recommendations vary considerably depending upon your medical history, your risk for developing blood clots, and your procedure. Your surgeon will decide the best course, and it is extremely important that these guidelines are followed closely.

**When may I stop taking daily iron supplements?** We often recommend that patients take iron supplements daily to help rebuild the blood supply. Please ask your doctor if this applies to you and, if so, when you may stop the supplements.

**When should I stop taking stool softeners?** You should continue to take these medications until you have stopped taking iron and narcotic medications, which can be very constipating. Take plenty of fluids and increase your dietary fiber with fruit and vegetables.

## Rehabilitation

**How important is physical therapy (PT) after joint replacement?** Physical therapy starts on the first day after your procedure. PT is **extremely important** to achieve an excellent outcome after your surgery. Your therapists keep your surgeon updated with your progress. Your physical therapy will continue for two to three months. At first, therapists treat you at your home two or three times weekly. As you get more mobile, you will then begin to travel to outpatient therapy. By about four weeks after surgery, you will begin to feel stronger and have more motion through your new joint, enabling you to walk longer and faster.

**When do I begin to walk and climb stairs?** You will begin to walk on the day after your surgery with a walker or crutches, putting as much weight on the leg as you can tolerate. You will start to go up and down stairs with crutches on the second or third day after the surgery.

**How much weight may I put on my leg?** We generally encourage you to bear just as much weight as you can comfortably tolerate as soon after surgery as possible. In some instances, your surgeon and therapist may restrict your weight-bearing for a while and will give you specific instructions that you must follow.

**How long will I use a walker, crutches, or cane?** This varies by your ability to walk safely and comfortably, and the transition will be determined by your physical therapist and surgeon. It might be two weeks, two months, or something in between. It is important that you pay close attention to the advice you are given, as too rapid a transition away from a walker, crutches, or cane can occasionally cause problems with how you walk.

**What are the exercises that I should do – and when?** Your therapists will provide a series
of exercise sets as you progress. Please see Chapter 7 of this guidebook for exercises recommended early after the surgery. Focus most on regaining motion during the first six weeks; after that, focus more on strengthening your leg and using weights. Stationary bicycling and swimming are fine exercises for most patients, but do not swim until cleared by your surgeon. Your surgeon and therapist will advise you on exercises that are right for you.

**How long does it take to recover?** This varies considerably from patient to patient, depending upon your age, medical condition, procedure type, and other factors. Some may need a walker or crutches for a month or more, while others can use just a cane within a few weeks. Your physical therapist and surgeon will guide your progress.

### Questions about total knee replacement

**How do I get the knee to bend more, and how should I use the continuous passive motion (CPM) machine?** The CPM is helpful during the first two weeks or so after surgery to bend (flex) the knee. Continue to advance the CPM settings daily until you can achieve 90° (usually within one week) and eventually 110°. Using the CPM four to six hours per day, divided in a few sessions, seems to be best. Please remember: It is not how long you are in the CPM that is important, but rather that you really push yourself to bend the knee further each day. When seated in a chair, use the unoperated leg to pull back the ankle of the leg that has had surgery, which will help the knee to bend further.

**What is the best way to get the knee out completely straight?** Avoid the temptation to place a pillow behind your knee for the first six weeks after surgery. Although this may feel more comfortable, it will make it more difficult to get the knee out straight (extended). Instead, it is always advisable that you place a rolled towel behind your ankle and press down on your leg when in bed. If you have trouble getting your knee completely straight, your therapist may provide a knee immobilizer for you to use four to six hours per day.

**What is the importance of knee range of motion (ROM) after surgery?** Motion of your knee after surgery is related to your motion prior to surgery, your perseverance during physical therapy, and other factors. *The more motion that you achieve early, the better. Working through the early post-surgery discomfort and stiffness is essential.* Most patients achieve at least 90° of flexion and full extension within one week. Motion continues to improve up to a year after surgery, but is generally much easier to achieve during the first two months than later. Ease in stair climbing and exiting chairs requires more than 100° of flexion. Flexion of 110° or more is preferable, and 125° or more is excellent.
Questions about hip replacement

Could my leg lengths be different after the surgery? Yes, although many efforts are made during the operation to keep your legs even. An arthritic joint often has the effect of shortening the leg gradually over time. So, having an artificial hip replacement will restore the new length and correct a deformity which may seem like a length difference. Also, a new joint replacement may “settle in” a little as you begin to put full weight on the leg. Or, there may be a small but real length difference intended by your surgeon to stabilize the new hip joint. Usually the body adapts easily, but occasionally a shoe lift may be prescribed as treatment a few months after surgery.

How do I prevent my new hip from dislocating? The artificial femoral head (“ball”) can come out of its socket due to improper twisting and turning. This occurs in only about 2% of hip replacements. If it does happen, it would probably occur within the first four months after surgery before the soft tissues surrounding the joint have healed sufficiently. To protect your new joint, please follow the positioning instructions given in Chapter 7 of this guidebook.

Are there any positions to avoid when sleeping? You may sleep on either side, front or back. Place a pillow between your knees for the first month or two while sleeping on the unoperated hip or when rolling onto your stomach.

Returning to normal activities

When may I drive? It is advisable that you do not drive for at least four to six weeks, and certainly not if you are still taking narcotic pain medication. You need to have regained good strength and motion of your leg before you can begin to drive safely. Check with your surgeon about when you may resume driving.

When may I go back to work? On average, people with jobs that involve mostly sitting can return at one month, while those that involve standing, walking, or more physical activities may need two or three months to return. Sometimes, patients return on a reduced workday schedule or part time. If you need your surgeon’s office to complete paperwork for your employer, be sure to give us the paperwork well in advance. It takes about 10-12 days for this paperwork to be returned to you.

When may I travel long distances? Because prolonged sitting may place you at risk for developing a blood clot in your leg after surgery, we recommend that you not travel long distances for six weeks. When you do travel, be sure to stretch your legs or walk every hour, while awake.
When may I kneel? After six to eight weeks it is fine to try, as there is no harm to the replaced hip or knee joint. Kneeling may be an important activity for you to regain, so keep trying and the discomfort will lessen.

When may I resume sex? You may resume sexual activity as comfort allows. If you have had a total hip replacement, you will need to be very cautious for a full three months, paying close attention to the position restrictions that your therapists have discussed with you.

Activity restrictions

What are my limitations? As you recover, you will gradually add back many activities and there will be very few limitations. Please see the restricted activities listing which is in Chapter 8 of this guidebook. Total joint replacement patients must abide by these lifelong restrictions if they are to have a satisfactory, long-lasting outcome.

Other questions

How often will I have follow-up with my surgeon and staff after I leave the hospital? Usually you will be seen approximately two weeks after discharge from the hospital, then again in about two months. After that, you’ll return at one year and two years, then at longer intervals.

Why should I tell my dentist that I have had a joint replacement? You must tell your dentist and any other health care provider you see that you have had a joint replacement. This is important to help prevent infection of your new joint. You need to take antibiotics when visiting the dentist for the first two years after your surgery, and you may need antibiotics before certain other medical procedures. Please speak to your surgeon for more information on this important part of your care. Make sure you understand how these precautions apply to you. Additional information can be found in Chapter 8 of this guidebook.

When may I drink alcohol? It is okay to resume when you have stopped taking narcotics and can walk steadily.

When will I feel like myself again? It is not uncommon for some patients to feel quite short of energy and sleep, or even depressed, after joint replacement surgery. As discomfort subsides, as your activity levels and strength and endurance increase, and as you become independent again, these feelings should pass. If they do not, be sure to let your doctor know.
Why is it so important that I not become overweight, or that I lose weight if I am already overweight? Excess weight can lead to loosening of the bone around your artificial joint which will cause premature failure. While walking, every pound of body weight has a multiplying effect of increasing the forces across your leg joints by about a factor of three.

Will I be pain-free, and when? Most total joint replacements achieve a remarkable reduction in pain, and many patients are pain-free. A small percentage may have some lingering aches or pains. Artificial hips typically become comfortable well before artificial knees because the mechanics of these joints are very different (ball and socket versus a hinge-type action). Your activity levels, body weight, and conditioning are important factors.