Now that you have decided to have knee replacement surgery, we want to help answer some questions that patients often have. Our goal is to provide you with information about what you can expect before, during, and after your stay with us.

This guidebook is divided into four sections to make it easy for you to find the information you need, no matter which stage of the process you are in. Many of these subjects will also be discussed in the joint education class or shared medical appointment you may attend before your surgery. Please bring this guidebook with you to your appointments and to the hospital on the day of your surgery to use as a reference tool and to make additional notes.

DEPARTMENT OF ORTHOPAEDICS
JOINT REPLACEMENT TEAM

Dartmouth-Hitchcock

On the front cover: Mike Perryman, 2007 knee replacement patient
Patient Tips
The following tips were provided by one of our joint replacement patients. You may find these suggestions useful as you are going through your preparation, surgery and recovery.

Go to a friend who has been through it, and listen to his or her experience.

It is important to do what your doctor says. This binder is very helpful to read over many times. Have the person who is going to help care for you read it too.

You should not have dental work less than two weeks before or six months after your surgery so arrange to have your cleaning done in advance.

Don’t put off the surgery for so long that your muscles start to atrophy.

Do as much targeted exercise as you can before the surgery. The stronger you are going in, the easier it is to recover.

Get someone to clean your house. Remove clutter.

Build your nest in advance. You will live in your nest for four weeks. What do you need?

Stock up on easy to prepare foods, to make cooking after surgery easier for you and your caretaker.

Read the warnings about certain foods and how they mix with medications in advance. For instance, if you are on Warfarin you can’t eat many of your healthy foods. (Look up vitamin K.)

Have a dedicated caregiver with you the first week. Consider asking a friend or loved one to help if you have a spouse or partner so that your spouse or partner can complete the long haul after that first week.

Make a chart to keep track of your medicine and exercise schedules.

Let your friends know. Their visits will mean so much.
You probably have many questions about how to prepare yourself for surgery. You may also want to know how to prepare your home for your return. The checklists in this section are designed to help guide you through this preparation process. For general information, you may also find our website helpful:

patients.d-h.org/ortho/knees
Health Questionnaire & myD-H

At various appointments, you will be asked to take a health questionnaire so that we can track your progress and keep your health records up to date. You will complete this set of questions using an electronic tablet which our reception staff will show you how to use.

If you like, you can complete this questionnaire online before your appointment. To do this, you will need to register for myD-H, a free online resource we offer our patients. This website allows you to email questions to your healthcare providers, request or reschedule appointments, and much more. To register, visit www.mydh.org.

You will need to register at least two weeks before your pre-surgery appointment to allow enough time to get your password set up.

If you do not have access to a computer with internet access, feel free to use one of the many computer terminals in the Health Education Center on Level 4 at DHMC. Staff members are available to assist you.

Your Pre-Surgery Appointment

Two to four weeks before the date of your surgery, you will have an appointment in Pre-Admission Testing. This department helps patients to complete the necessary medical testing and paperwork for hospital registration.

During the appointment, you will answer an anesthesia health quiz. This takes approximately 20-30 minutes to complete using an electronic tablet. This is a different survey from the health questionnaire that you will take at some of your other appointments, as mentioned on page 6. Your answers will provide your anesthesiologist with your specific health information that he or she will use to recommend the anesthesia for your surgery.

After completing your quiz, a nurse will meet with you to discuss any special needs you have. Depending on your medical history, you may have blood work drawn, a heart tracing (EKG), and/or a chest x-ray. Your surgeon will decide which tests are necessary.

Requiring donated blood is rare in most cases. If you have questions about this option, please discuss them with your surgeon.

Our Billing Policy

If you have questions about billing, insurance, financial assistance or charges for healthcare services, please contact Patient Financial Services at (800) 368-4783 or (603) 653-1047.

The staff in Patient Financial Services is also happy to help those patients who do not have insurance coverage.
Planning for After Your Surgery

Before surgery, you will be asked the following questions to help us determine if you will need special assistance following your surgery:

■ Do you live alone?
■ Do you need help with daily living? (ie: bathing, dressing, meals)
■ Do you have any concerns about going home after surgery?
■ Would you like to learn about facilities that provide care and rehabilitation before you go home? See the end of this section for more information on this topic.
■ Do you anticipate any difficulty in getting help from someone to get you home from the hospital?

If you answered “yes” to any of the questions, you may be referred to the Office of Care Management.

The Office of Care Management can help you:

■ answer questions about insurance coverage (including Medicare and Medicaid)
■ consider alternatives to going directly home (nursing facilities, rehabilitation centers)
■ cope with emotional stress
■ provide resources for lodging (or transportation) for family
■ coordinate discharge planning

Please refer to the blue booklet enclosed with this guidebook that describes the services offered by the Office of Care Management and the options available to you after you are discharged from the hospital.

Feel free to call the Office of Care Management at (603) 650-5789 and ask for the Orthopedic resource coordinator for assistance.

Prepare Your Body

This tip list can help your body get a healthy start before you head into the operating room:

■ eat healthy foods like fruits, vegetables, lean meats, and whole grains
■ get plenty of rest
■ quit smoking
■ reduce or stop drinking alcohol
■ start practicing the exercises you will do while you’re in the hospital to begin preparing your muscles (see Physical Therapy - section 3)
■ exercise as much as your body can tolerate to improve and/or maintain your muscle strength

We highly suggest that you get your flu shot and, if you are eligible, a pneumonia shot (pneumococcal). You should get these shots preferably two weeks before your surgery. Your family and caregivers should also be vaccinated.

IMPORTANT NOTE: If you happen to become ill within the weeks or days before your surgery, even if it is a simple cold, please contact us right away. We may need to reschedule your surgery until you are healthy again.

Equipment Preparation

■ following your surgery, you will need equipment to help you move around in your home; it is helpful to check with friends or family to see if they have equipment such as a front-wheeled walker, crutches, a raised toilet seat (or three-in-one commode), and a tub bench that you can borrow during your recovery
■ depending upon your insurance provider’s policy for durable medical equipment, you may be responsible for purchasing all or some of your equipment; Medicare will usually only cover one (1) piece of equipment related to this procedure; if you have stairs at home, it may be most affordable to locate a pair of crutches before surgery; if you have any questions, please contact your insurance company ahead of time and talk with the resource specialist in orthopaedics for further assistance
Changes Inside Your Home

Since you will have limited mobility after surgery, there are many changes that can be made in your home ahead of time to make life easier. Many of these things should be planned well in advance of your surgery date.

Prepare Your Home

- if you don't have one, buy a cordless phone or cell phone
- gather a supply of empty plastic or canvas bags to hang on the front of your walker to help carry things
- wearing an apron with pockets can also help you carry items
- place frequently used kitchen items like glasses or a teapot in easily accessible places, such as a countertop or on the lowest shelf in an overhead cabinet
- buy or make individual meals that can be frozen and reheated easily
- alert family and friends who can help you with your everyday needs
- be sure that there is a clear path to the entrance of your home:
  - shovel snow from sidewalk/stairs
  - rake leaves
  - clean out the garage
- clear clutter from the floors of your home and remove small area rugs so you won’t trip and fall
- if you have pets who may be active and under foot, it is best to make arrangements for a friend or kennel to care for them the first few weeks after you return home because they could cause you to fall and injury your new knee(s)
What Should I Pack for the Hospital?

Our suggestions include:

■ flat, supportive, athletic or walking shoes so that you won’t slip
■ short night gown, loose pajamas, or baggy shorts to fit over dressings
■ loose clothing to be worn during therapy sessions
■ short, light-weight bathrobe
■ toiletries: such as a toothbrush, toothpaste and deodorant
■ eyeglasses instead of contacts - glasses are easier to take care of and are less likely to be lost
■ dentures - we can give you a storage container if you need one
■ a list of your daily medications, including the dosage and frequency, plus any medications that you stopped taking in preparation for the surgery
■ telephone numbers of people that you may want to call and your cell phone, if you have one
■ a small amount of money for newspapers, gift shop items, etc.; you may also want to bring your credit card or checkbook to pick up the prescriptions at the DHMC Pharmacy or your local pharmacy that you will need when you go home
■ a book, magazine, or other portable hobby
■ a “going home” outfit like a sweat suit or other clothing that is easy to put on and take off
■ this guidebook to use as a reference and to make note of special instructions or questions you may have during your stay

SPECIAL NOTE ABOUT SHAVING:
Please do not shave your surgical leg within seven days of surgery. Your surgeon will inspect your knee(s) the morning of your surgery and will carefully remove the hair around the surgical site. If there are breaks in your skin, your surgery may need to be rescheduled because you may be at risk of developing an infection.

Checklist for the Day/Night Before Surgery

■ enjoy a regular dinner
■ a nurse from the Same Day Program will call you on the day before surgery (or on Friday if your operation is on Monday) and will leave a message if you are not home regarding:
  □ when to stop having anything to eat or drink (usually midnight)
  □ which medications to take the morning before surgery
  □ what time you should plan to arrive at the hospital
■ you may brush your teeth and rinse out your mouth the morning before surgery
■ you will be given anti-bacterial soap packets called Hibiclens; you will need to wash with this special soap the night before your surgery and the morning of your surgery to help decrease the chance of infection; see the cleaning instructions at the back of this guidebook; if you did not receive the soap packet or if you misplaced it, you can use another anti-bacterial soap, such as Dial®
■ when you shower the night before and the day of your surgery, use a brush to scrub your nails
■ after your shower the night before surgery, put clean sheets on your bed and wear a clean set of pajamas
Prepare Your Shower

■ If your shower is also a bathtub, you will need a safety seat without arms (that sits in the tub or extends out over). If you have a shower stall, you can use a shower chair or the portable commode as a seat in the shower.

■ The seat should have feet with rubber tips to keep it from slipping.

■ The floor of your tub or shower should have a non-skid surface or a rubber mat.

■ Some patients find that a hand-held shower hose is helpful. Installing one is fairly easy and does not require a plumber.

■ The proper way to use a bench or seat in the shower will be shown to you at the time of your discharge from the hospital.

■ Place your soap, shampoo and other shower items in a spot that does not force you to bend or twist to reach them.

Adjust Your Toilet

■ If your toilet is not handicapped accessible, you may want to consider buying a raised toilet seat, toilet safety frame or a three-in-one commode to help raise the height of the toilet and make it easier to get on and off of.

■ Medical equipment such as the shower bench, raised toilet seat, and three-in-one commode are usually not covered by most insurance plans so ask family and friends if they have these items for you to borrow. Senior centers, churches and community centers are also good places to look for these items if you do not want to purchase them. They are also available at medical stores, drug stores and some big box stores. If necessary, our joint replacement team can order the equipment you need after your surgery and have it delivered to your home.

■ It may also be helpful to install some grab bars in your bathroom to make it easier to get up from the toilet or in and out of the shower.
Selecting a Rehabilitation or Skilled Nursing Facility

Most patients are able to go home directly after their surgery to begin their recovery. However, there may be occasions when your team recommends that you go to a rehabilitation or skilled nursing facility for an extra level of care and attention. If this is the case, our Care Management team will attempt to make arrangements with the facility of your choice during your hospital stay. Every effort will be made to get you into the facility of your choice, however, options and bed availability may be limited. Please understand that Medicare requires that patients take the first available bed in a rehabilitation or skilled nursing facility that meets their needs, otherwise Medicare may deny payment of your stay at the hospital.

Transportation to the facility will be decided by your healthcare team. Many patients are able to travel with a family member in their car. Others may need a wheelchair van or ambulance transportation. Medicare will cover non-emergency ambulance transportation if it is deemed medically necessary. If your ambulance trip is not covered by insurance, you may be asked to choose an option and sign an Advance Beneficiary Notice which will hold you responsible for payment. Medicare does not pay for wheelchair vans. Rest assured that your doctor and the Office of Care Management will assist you with transportation options when the time comes and will make you aware of the options available to you.

You should receive a packet in the mail from Care Management with rehabilitation, skilled nursing facilities, and visiting nurse associations. If you have questions about selecting a facility, please contact the Office of Care Management at (603) 650-5789 and ask for the Orthopedic resource coordinator for assistance.
What to Expect the Day of Surgery

1. At your assigned time, go to the Same Day Program on the 4th floor just above the Emergency Department. It is best to park at the parking garage. You will enter on Level 4. Same Day Surgery is directly ahead at the end of the hall.

2. Once there, you will be asked to remove:
   ■ all jewelry must be removed, including your wedding band
   ■ dentures or partial plates
   ■ contact lenses and eyeglasses
   ■ hair pieces
   ■ cosmetics and nail polish (it is best to remove these the night before)

3. You will be asked to put on a hospital gown.

4. A nurse will check your:
   ■ heart rate
   ■ blood pressure
   ■ temperature
   ■ breathing

5. A nurse will place an IV in your arm. This is usually removed 24 hours after surgery.

6. You may go over a permission form, or consent, with your surgeon if you did not do it already.

7. Your surgeon will mark the joint(s) you are having replaced with a green marker.

8. You will likely be given several medications to take to manage post-op pain. These may include Tylenol, an anti-inflammatory, and narcotic pain medication.

9. An anesthesiologist will meet with you to discuss your options:
   ■ general anesthesia: puts you to sleep completely
   ■ spinal anesthesia: medication injected into your back to make you numb from the waist down with the option of being completely awake or napping

10. After you decide on your type of anesthesia, a nurse may give you medication to help you relax and feel more comfortable.

11. You will then be taken to the operating room on a stretcher.
What to Expect After Surgery

The recovery room
After your surgery is done, you will be taken to the recovery room or Post-Anesthesia Care Unit, also known as the PACU. You may have a small tube, known as a drain, right next to your incision to remove extra blood or fluid. This is usually removed the morning after surgery.

As you are recovering from your anesthesia, your surgeon will talk with your family and friends to let them know that your surgery is over and how things went.

Avoiding blood clots
After you wake up from surgery, you will have some plastic sleeves on both of your legs. Every few minutes they will inflate with air, and you will feel a squeeze that starts at the ankle and works its way up. These sleeves (also known as Venodynes - see below) help pump blood back up from your legs to prevent blood clots. The amount of time these stay on will depend on your level of activity. Think of them as your own personal leg massagers!

Managing your pain
You will be asked what your pain level is on a scale of 0 to 10 (0 being no pain and 10 being the worst you can imagine). It is important that you know that we cannot take away all of your pain. We would like to keep you at a 2 or 3 on the pain level scale. Controlling your pain is a very important part of your recovery. Too much pain will keep you from being able to do your exercises and physical therapy. These are important for getting you back on your feet sooner.

Be sure to let your nurse know if:
your pain medications seem to wear off too quickly or if you start to feel nauseous. The sooner the team can help, the better you will feel. Please feel free to talk with your nurse about any other concerns you have.

Handheld breathing exercise device: you will be asked to use this every one to two hours while you’re in the hospital and when you first get home to prevent pneumonia

Venodynes: help pump blood back up from your legs to prevent blood clots
What is an anticoagulant?
Anticoagulants are often referred to as blood thinners, but that is not how they work. They do not cause the blood to be thinner (or more liquid). Anticoagulants prevent your blood from forming blood clots. Your surgeon may place you on one of the following anticoagulants and he/she will tell you how long you should use it:

- Aspirin
- Coumadin (also known as Warfarin)
- Lovenox
- Xarelto (also known as Rivaroxaban)

Why is it so important to prevent blood clots?
After surgery, or, more importantly, when you are less active, you are at risk of forming blood clots. Clots most often occur in the lower leg. Sometimes blood clots may also travel through the bloodstream from the legs to the lungs. This is dangerous, and could even be life-threatening. Therefore, prevention is very important.

It is important to keep your legs moving in order to prevent blood clots. This can be a challenge if you are planning to travel and have to deal with restricted space. Please see the list of travel tips at the back this guidebook for ideas on how to reduce your risk for developing a blood clot while traveling.

What is the difference between the anticoagulants?
- Coumadin is a pill taken orally (by mouth). If your surgeon chooses it for you, you will be given a prescription which you can have filled at the DHMC Pharmacy on Level 3 or at your local pharmacy. Before you are discharged from the hospital, you will be given a packet of instructions which will include specific information about taking Coumadin. Also within this guidebook is your Coumadin log sheet. Please have this along with a pencil by your phone. When your surgeon’s nurse (or your primary care provider) calls with your dosing (twice weekly after the visiting nurse draws your blood), you will be able to keep an accurate record to refer to. After you finish the medication (approximately one month from your surgery), you will switch to aspirin. You will take one adult-strength aspirin (325mg) in the morning and another at night until you see your surgeon for your first follow-up appointment, unless otherwise directed.

- Lovenox is given by injection. There are many reasons why your surgeon may prefer this anti-coagulant for you. Feel free to ask your surgeon about this. We know that most patients are not familiar with giving themselves injections, so you will be taught the proper technique in the hospital. Your nurse will make sure that you are able to give yourself the medication before you are discharged.

- Rivaroxaban is a pill taken orally. If your surgeon chooses it for you, you will be given a prescription which you can have filled at the DHMC Pharmacy on Level 3 or at your local pharmacy. It is important that you take this medication every day at about the same time. Do not skip doses and do not stop it unless directed by your surgeon. Occasionally, your surgeon might have you on two of these medications for a period of time; they will explain why and how long you need to be on them.

- Your prescription medications may look similar; make sure you keep your medications separate.
Q. When can I eat?
A. Most patients do not feel hungry right away. Usually by the evening after surgery, they are ready to try solid food. Nausea may occur, but it is usually temporary. It is important to let your nurse know if you feel nauseated because there is medication that can help you with this.

Q. What happens on the days following surgery?
A. If you have a bladder catheter it will usually be removed a few days after surgery. You may feel a slight burning sensation for one to two seconds when it is removed. Your doctor will change your bandages on the second or third day after surgery. Your incision may have staples or stitches. Your doctor will let you know when and where to have them removed. Usually, they are taken out 10-14 days after your surgery by your visiting nurse.

Q. When do I start physical therapy?
A. You may see a physical therapist the evening after surgery, but this depends on when you get back to your room after surgery. You will start by sitting on the edge of the bed. Usually, by the next day, you will be up and walking. Your physical therapist will decide what you will do with your time together. Remember that pain control is very important. Your nurse will give you pain medicine about 30 minutes before your physical therapy sessions start so that you can do as many exercises as possible. Pain should not hold you back.

Very important: You should not attempt to get out of bed until your physical therapist or surgeon gives you the OK.

Q. When can I leave?
A. Patients are usually ready to go home one to two days after surgery. You will be discharged from the hospital if you:
  • Can walk with an assistive device
  • Have practiced walking on stairs with a physical therapist
  • Can do you physical therapy exercises independently
  • Have the necessary adaptive equipment

You will get to go home when:
  • your physical therapist feels that you are safely moving around and you are able to get in and out of bed
  • you can get to the bathroom or a bedside toilet by yourself
  • you can keep solid food down
  • your dressing is intact
  • your vital signs are normal
  • you can control your pain with oral medications
  • your lab work is acceptable to your physicians
  • you are passing gas or have a bowel movement

Some patients may require discharge to a rehabilitation center or a skilled nursing facility. The majority of patients are discharged to home:
  • If you no longer need care in the hospital following surgery but your care team feels you are not ready to go home, you will be discharged to rehabilitation facility or skilled nursing facility. Before discharge you will meet with a Clinical Resource Coordinator (also referred to as Discharge Planner); he or she will take care of the referrals and any other paperwork that the facility might need.

Remember that the facility you are sent to will depend on bed availability; see page 11 for more details.

Q. What is a discharge summary?
A. When you are discharged from the hospital, you will receive a copy of your individual discharge summary. Please read this entire document, it contains important home instructions from your surgeon. If you have questions call our Orthopedic Clinic at (603) 650-5133 and our staff can assist you.
In this section you will find our recommendations for exercises and everyday activities around your home. We hope that by following our guidelines your healing process will go faster and there will be less chance of injuring your new knee(s).

patients.d-h.org/ortho/knees
Physical Therapy During Your Hospital Stay

Physical Therapy

The physical therapy team will work with you following your joint replacement to:

■ improve the range of motion and strength in your knee
■ restore your ability to walk and function in the home
■ help plan for a safe discharge from the hospital

Physical Therapy Goals

■ Your physical therapist will work with you to set goals based on your specific home setup and resources available to you at home.

■ Goals will include getting in and out of bed, getting in and out of a chair, walking, knowing your exercises, knowing positioning techniques, and how to get up and down stairs if necessary at home.

Exercises

■ The exercises recommended by your physical therapist are important to your overall recovery and functional abilities.

■ Beginning the exercises immediately after surgery and doing them daily will lead to a greater range of motion in your new joint and the best possible function during activities.

■ Practicing the exercises or at least becoming familiar with them before surgery is helpful for many.

■ Practicing “chair push ups” regularly before surgery is helpful. A “chair push up” is pushing with both arms from the armrests to raise yourself up from the seat surface, keeping your feet on the floor.

Walking

■ Many patients use a front wheeled walker right after surgery. Using crutches is another option.

■ Using a front wheeled walker allows you to walk naturally without the added coordination necessary to use crutches. You may progress to crutches over time with ongoing help from a physical therapist.

■ Your physical therapist will instruct you in using crutches if you are safely able to do so.

Stairs

■ Follow the rule, “Up with the good, down with the bad,” meaning step up with the non-operative (“good”) leg first, step down with the operative (“bad”) leg first.

■ There are various techniques and sequences for negotiating stairs, all of which involve doing only one step at a time. Your physical therapist will teach you the safest method depending on your home setup and assistance available to you.

Positioning Techniques

■ To help you straighten your knee fully, place a pillow under your heel while you are resting in bed or reclined in a chair. The effects of gravity will gradually allow you to straighten your leg naturally.

■ Never rest your leg with a pillow under the knee. This may feel comfortable but will lead to tightness at the back of your knee and limit your ability to straighten it all the way.

■ While sitting throughout the day, alternate between sitting upright with your knee bent and reclining with your leg out straight.

Pain Management

■ Some pain is normal and expected with performing your exercises. Your physical therapist will try to see you when your pain is best under control.

■ Use of the cooling system you may receive, use of ice packs, or elevation of your leg can help to reduce pain and prevent swelling.

In this binder, we have provided you with a physical therapy protocol grid that you can share with the physical therapist you’ll work with after you leave the hospital. Plus, there are instructions about the five exercises you need to do while you’re in the hospital and the exercises you need to do after you are discharged.

Occupational Therapy

Based on your clinical needs following surgery, an occupational therapist may see you to make recommendations for your discharge, including:

■ instructing you in the use of adaptive equipment for bathing and dressing
■ instructing you to complete household tasks easily and safely
■ teaching you safe techniques for moving around the bathroom
**Guidelines:**
- Acute hospitalization D/C when medically stable
- SNF for special circumstances
- Continue physical therapy in outpatient or with home health services

**ROM Expectations:**
- Acute Setting: <-15° to 80°
- Week 1: -10 to 85°
- Week 2: -5° to 90°
- Week 3-5: 0-5° to 100°
- Week 6-8: 0° to 120°-130°

**Assistive Device Guideline:**
- Progress safely and to limit gait deviation
- Walker for weeks 0-5
- Cane for weeks 4-8
- No device as early as week 5

**Modalities:**
- Ice: 20 minutes, 3-4x/day
- Electrical stimulation for muscle strengthening

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**Standing (at walker or counter):**
- Heel raises
- Mini squats
- Hamstring curls
- Hip abduction, adduction
- Hip extension, flexion
- Weight shifting
- Scar massage
- Patella mobility

**Closed chain:**
- Heel raises
- Mini squats
- Wall slides/leg press
- Hamstring curls
- Hip abduction, adduction
- Hip extension, flexion
- Step up, down, lateral
- Lunge
- Single limb stance progression
- Aquatic therapy

*All stretches should be held for 30 seconds*
1. **Ankle pumps**
   Lie down or recline and move your foot up and down through full range.

2. **Quadriceps set**
   Lie down or recline with a small towel roll under your ankle. Actively straighten your knee. Try to push the back of your knee toward the bed. Hold for three seconds then relax.

3. **Short arc knee extension**
   Lie down or recline and prop your knee on a rolled pillow or bolster. Actively straighten your knee as much as you can by raising your foot, but not your thigh. Hold for three seconds then return to start position.

4. **Sitting knee bending**
   Sit at the edge of a chair or bed and bend your knee as far as you can by sliding your foot on the floor. Hold for three seconds then return to start position.

5. **Sitting knee straightening**
   Sit on a chair or bed with your thigh supported and actively straighten the knee as much as you can to raise your foot off the floor. Hold for three seconds then return to start position.
Sitting knee flex
Sit on the edge of a bed or in a chair. Slide your foot back on the floor and bend your knee as far as you can. Hold your foot in that position and then gently and slowly, scoot your body forward. Perform 1 set of 3 repetitions, 3 times a day. Hold the exercise for 30 seconds.

Hamstring stretch
Sit with a straight back and your healing leg in a straight position. Lean forward from your hips, keeping your back straight, until you feel a stretch in the back of your leg. Perform 1 set of 3 repetitions, 3 times a day. Hold the exercise for 30 seconds.

Calf stretch with towel
Sit with a straight back with your healing knee straight. Loop a towel around the ball of your foot. Gently pull on the towel with your arms, keeping the knee straight. Perform 1 set of 3 repetitions, 3 times a day. Hold the exercise for 30 seconds.

Standing calf stretch
Stand facing the wall with your hands on the wall. Step forward with your uninvolved leg, leaning hip toward wall. Keep your healing leg straight with heel on the floor. Perform 1 set of 3 repetitions, 3 times a day. Hold the exercise for 30 seconds.

These are the exercises you should do once your home-based or outpatient physical therapist says you are ready to move on to more advanced exercises.
**Straight leg raise**
Lie on your back and straighten your healing leg and bend your other knee. With the foot of your healing leg in neutral, complete a quadriceps set (see exercise on previous page) and then raise your leg 12” up from the table or bed.
Perform 1 set of 15-20 repetitions, 3 times a day.
Hold the exercise for 2-3 seconds.

**Hip abduction**
Lie on your side with your healing leg on top. Bend the other leg to a 90 degree angle for support. Keeping your foot in a neutral position, raise your healing leg.
Perform 1 set of 15-20 repetitions, 3 times a day.
Hold the exercise for 2-3 seconds.

**Kicking hip backward**
Lie on your stomach, keeping your healing leg straight.
Lift this leg upward.
Perform 1 set of 10-15 repetitions, 3 times a day.

**Bridging**
Lie on your back with your knees bent. Lift your buttocks off the bed. Return to the start position. Be sure to maintain a neutral spine – do not curve your back or tip your hips.
Perform 1 set of 10-15 repetitions, 3 times a day.
Hold the exercise for 30 seconds.

**Heel slides**
Lie on your back with your healing leg straight and bend your other knee. Slowly slide your heel (of the healing leg) up to a bent position, as far as you can go. Then slowly slide your heel back to the starting position.
Perform 1 set of 15-20 repetitions, 3 times a day.
Knee Replacement:

Exercise Program
With Your Outpatient Physical Therapist

**Leg curls**
Standing at your kitchen counter or in front of a sturdy chair for balance. Bend the healing leg backward at the knee. Return to starting position. Perform 1 set of 10-15 repetitions, 3 times a day.

**Standing hip abduction**
Standing at your kitchen counter or in front of a sturdy chair for balance. Slowly kick your healing leg out to the side. Perform 1 set of 10-15 repetitions, 3 times a day.

**Standing hip flexion**
Standing at your kitchen counter or in front of a sturdy chair for balance. March your healing knee up as high as possible, bending your knee. Perform 1 set of 10-15 repetitions, 3 times a day.

**Standing heel raises**
Standing at your kitchen counter or in front of a sturdy chair for balance. Raise up on your toes and return to start position. Perform 1 set of 10-15 repetitions, 3 times a day.

**Standing hip extension**
Standing at your kitchen counter or in front of a sturdy chair for balance. Keeping your knee straight, slowly kick your leg back. Do not arch your back. Perform 1 set of 10-15 repetitions, 3 times a day.

**Wall slides**
Lean on a wall, feet approximately 12 inches from the wall, shoulder distance apart and about 6-8 inches away from wall. Bend both knees, keeping your back against the wall. Lower yourself slowly to about 45 degrees (1/3 of the way down). Return to standing slowly. Perform 1 set of 10-15 repetitions, 3 times a day.

**Step ups**
Stand with the healing leg on a step. Shift your weight over the knee and step up slowly. Step back down leaving your healing leg on the step. Perform 1 set of 10-15 repetitions, 3 times a day.
**Exercise Program**

**Knee Replacement:**

**Lateral step ups**
Stand sideways next to a step. Step up with healing leg. Step back down leading with the uninvolved leg. Perform 1 set of 10-15 repetitions, 3 times a day.

**Single leg stance**
Standing near your kitchen counter or in front of a sturdy chair for balance. Lift your unaffected leg and stand only on you healing leg, keeping you knee straight. Hold your balance for up to 20 seconds. Perform 1 set of 5, 3 times a day.

**Step downs**
Stand on step with both feet. Step down slowly with the uninvolved leg first. Step back leading with the uninvolved leg. Perform 1 set of 10-15 repetitions, 3 times a day.

**Lunges**
**Lunges**
Stand. Step forward with your healing leg. Bend both your knees while keeping your body upright. Push back up to the starting position. Perform 1 set of 10-15 repetitions, 3 times a day.
Now that your surgery is done, your focus should be on healing. If you follow the recommendations listed in this section, you will help ensure that your new knee(s) will last for the rest of your life.

patients.d-h.org/ortho/knees
The First Four to Six Weeks

When you first get home

- Continue to use your walker and crutches as instructed.
- Continue your set of exercises that you did in the hospital (see Physical Therapy section 3).
- Physical therapy will be arranged for you; this may be in-home services or may be outpatient physical therapy.
- DO NOT swim, use hot tubs, or take tub baths until your surgeon gives you the go-ahead.
- DO NOT USE ointments, lotions, oils or vitamin preparations on your incision until after your first follow-up appointment.
- Apply an ice pack to your knee dressing(s) for a minimum of twenty minutes, twice daily to decrease pain and swelling.
- Be sure to take your pain medication with food to avoid nausea.
- To help your wound heal faster, continue your healthy eating habits, give up smoking (if you haven’t already), and, if you are diabetic, maintain control of your blood glucose level.
- Do not allow pets to share the space where you are sleeping and resting; they can infect your incision.
- To reduce the chance of getting an infection, make sure you and your caregiver wash your hands thoroughly when:
  - they are visibly soiled
  - before and after care of your incision
  - before eating
  - after going to the bathroom
  - after handling or caring for pets

How to use the shower

- You can shower but remember your activity limitations and always have a chair available for balance and protection. DO NOT submerge the dressing/incision.
- Do not let water run over the operative dressing. If it becomes wet lightly pat the dressing dry. DO NOT submerge the incision.
- If you have staples/sutures, always cover them with a waterproof dressing or plastic bag when showering until they are removed. After staples/sutures are removed, you can let water run gently over the incision.

Using the toilet

- Carefully lower yourself onto the seat using the support of your walker or toilet seat frame.
- The safest way to clean yourself after a bowel movement is to stand and lean forward slightly onto your walker for balance while reaching around to wipe.
- Keep your legs shoulder-width apart to keep your balance steady.

Your pain medications

- You will discuss and review all prescribed medications with your discharge team. Below are commonly prescribed pain medications:
  - Oxycodone/Hydrocodone
  - Dilaudid/Hydromorphone
  - Gabapentin
  - Tylenol
- Your surgeon may have you take non-steroidal anti-inflammatory medication (NSAIDs); however, do not take it if it is not prescribed for you until you discuss it with your surgeon at your first follow-up visit.

PLEASE NOTE:
You should not take these medications unless your physician says it is OK. The medications you are prescribed should not cause narcotic addiction since you will only be using them for a brief time to relieve genuine surgical pain. However, if you have concerns about addiction, please discuss this with either your surgeon or your primary care physician.
Many patients find that taking narcotic medications as directed helps to maintain their pain control. Be sure to always take your pain medication with food to help avoid nausea.

Be aware that pain medications often do cause constipation. Drink plenty of fluids, eat lots of fruits, vegetables, and foods high in fiber (whole grains, cereals, etc.) to avoid constipation. Also, take your stool softeners as directed in the discharge summary sheet you will receive before leaving the hospital.

Refilling your pain medication
It is very important to call the clinic four to five days before you will run out of your medicine(s). Calling ahead is necessary because prescriptions for narcotic pain medications must be mailed to you or your pharmacy. By law, they cannot be called in to the pharmacy.

Your first follow-up appointment
Your first check-up will happen four to six weeks after your surgery. The exact time and date of your appointment will be noted on your discharge summary sheet. This appointment will include X-rays and a clinical questionnaire.
When to Call

We urge you to contact us if you:

■ Experience any unusual calf pain, redness, or swelling.
■ Have a fever (temperature above 100.3) lasting longer than 24 hours. Note that mid temperature elevations are normal in the afternoons and evenings.
■ Experience increasing redness, swelling, warmth, unpleasant odor or milky liquid coming from the wound.
■ Experience increasing knee pain either with walking or at rest.
■ Have a sudden shortness of breath or chest pain.
■ Have trouble re-establishing normal bowel habits despite use of stool softeners and increased fluids.
■ Have other symptoms you are concerned about.
■ If you were discharged from the hospital to a rehabilitation or skilled nursing facility, please call our office to advise of your discharge.

Six Weeks and On

How you will feel after the first six to eight weeks

It is not uncommon to feel frustrated even at six to eight weeks after surgery. You might think you are going a bit stir-crazy. You will get better. Healing takes time, so be patient with yourself.

It is normal to experience an emotional slump about three weeks after surgery. It is difficult to be confined to your house when you’ve been used to being on the go when you like. This slump will pass. Feel free to the orthopedic department at (603) 650-5133 for support - a little reassurance may be just what you need.

Many patients find that they still become tired very easily or are tired most of the time. Some patients find this is true for even longer than that (up to several months after surgery). These feelings are a normal part of your body’s recovery from surgery and the healing that you have to do. Over time, as you are able to move more and have less pain, you may find that you are more tired instead of less. Allow time for an afternoon nap even when you have never needed one before.

Resuming regular exercise

Discuss regular exercise with your surgeon before doing anything other than walking or your physical therapy. Doing too much activity too

For chest pain, shortness of breath or other emergency please call 911.
soon can cause damage to your new joint(s) that you may not feel right away. However, use your operative leg as normally as possible, within the weight-bearing limit your doctor gives you. Try to fully extend your knee as often as possible.

**Weight-bearing restrictions**
Some surgeons will restrict the amount of weight you put on your operated leg for a period of time after your surgery. Please refer to your discharge summary for your personal surgeon’s advice. It is important that you follow your doctor’s and physical therapist’s instructions. After looking at the x-rays at your first follow-up appointment, your surgeon may adjust the restrictions. The majority of knee replacement patients are allowed weight-bearing as tolerated (WBAT) with an assistive device such as a walker or crutches. Follow the instructions of your surgeon. Your specific weight-bearing precautions are in effect until your first post-operative appointment in four to six weeks.

**Driving**
Narcotics and unreliable muscles may impair your ability to drive safely. You should not drive until you are off of these medications.

**Knee precautions**
Follow the individual knee precautions that are given to you when you are discharged. It is important to follow these instructions to avoid damage of your new joint(s). In particular:
- do not squat like a baseball catcher
- do not jump off or over things
- do not sit on your heels (haunches)

**Long-term precautions**
- Tell all of your current and future doctors about your surgery—they need to know.
- You may need antibiotics prior to dental work for the rest of your life, please discuss these recommendations with your surgeon. This may help to reduce the risk of developing an infection in your artificial joint. Your primary care physician or dentist can provide you with the prescription before dental appointments. It is preferred that you do not have any elective dental surgery or dental cleanings two weeks before your surgery and six months after your surgery. Always be sure to tell your dentist that you have an artificial joint and have taken the necessary antibiotics. See a list of guidelines in the back of this guidebook that you can share with your primary care provider or dentist.
- It is normal for some patients to feel a dull ache when the weather changes or if they spend time out in the cold.

**Walking with a limp**
A limp is normal and is usually due to muscle weakness. Follow your exercise program and you will improve over time. Understand that your progress will be gradual. To even out their walk, some patients find that using a cane on the non-operative side can be helpful. It is very important that you do not favor your operated leg.

Please remember that it takes many months to fully heal, so try to be patient. You will continue to see improvements even after 12 to 18 months.

**Follow-up visits**
Our team will schedule regular follow-up visits each time you come to see us. These appointments may be with your surgeon, one of our physician assistants, or our nurse practitioner. These associate providers know your medical history and individual situation as well as your surgeon, so please feel confident that they will provide you with excellent care.

You can expect to come back for follow-up visits at these intervals. These visits may or may not be accompanied by an x-ray:

**Post-Surgery**
- 4 - 6 weeks
- 3 month
- 1 year
- 2 year

**Ongoing Care**
- After the second year, follow up every five years for life

It is important to attend the ongoing care appointments to be sure your joint replacement is performing properly. By conducting a regular physical exam and a review of x-rays, your care team can identify any problems that may be developing even though you may not have any physical symptoms.
Meet the DHMC **JOINT REPLACEMENT TEAM**

Marcus Coe, MD

Kevin Dwyer, MD

David Jevsevar, MD  
Department Chair, Orthopaedics

Franklin Lynch Jr., MD

Wayne Moschetti, MD, MS  
Chief of Adult Reconstructive Surgery

Alexander Orem, MD

Michael Sparks, MD  
Section Chief, Orthopaedics
JOINT REPLACEMENT TEAM  Contact Information

For any questions or concerns following your surgery please call (603) 650-5133 to speak with one of our Orthopedic Nurses.

After hours, weekend, and holidays, for urgent issues please call (603) 650-5000 and ask for the orthopaedic resident on call.

If this is an emergency, please call 911.
Washing Instructions

Please read the following directions prior to showering before your surgery.

You will receive Hibiclens® anti-bacterial soap from our clinic at one of the office visits prior to your surgery. Please use this soap to complete the following steps to wash carefully before your surgery.

Please note:

- Do not apply the soap to your head, face, eyes, inside the nose or ears or in the genital area.
- For external use only. Do not use on open wounds.
- Stop using if redness or irritation develops.
- Do not drink the soap. If swallowed, call Poison Control right away: 1-800-222-1222.
- After showering, do not put lotion, cream or powder on your body.
- Be sure to wear clean pajamas after your shower on the evening before your surgery. Also, be sure you are sleeping in clean sheets that night.
- Do not shave the day before or day of your surgery.

Step 1: Wet your entire body.

Step 2: Use half of the bottle of Hibiclens soap to scrub your entire body from your neck to your feet, avoiding your genitals. Be sure to scrub extra at the spot on your body where you will be having surgery. Also scrub under your fingernails and toenails.

Step 3: Rinse all of the soap off of your body.

On the morning of your surgery:

Repeat steps 1-3 once more using the remaining half a bottle of Hibiclens soap. Be sure to rinse all of the soap off of your body.
Directions for Nasal Mupirocin 2%

Beginning five (5) days before your scheduled surgery, apply to both nostrils **twice daily** as follows:

1. Wash hands thoroughly.

2. Apply the medication to finger tip (a dab of medication approximately the size of a large pea).

3. Apply inside nostril by gently massaging until absorbed.

4. Repeat in other nostril.

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Travel Tips to Prevent Blood Clots

When you travel, don’t let cramped conditions put you at risk of forming a blood clot. Keep your body moving, even when traveling, and avoid dehydration by drinking plenty of water (at least 8oz an hour).

General Tips for Air Travel:
- Try to keep your feet elevated by using the leg rest at the highest elevation. Rest your feet on your carry-on luggage if necessary.
- If you have the opportunity to move around the cabin, walk to the restroom and back.
- Walk for 30 minutes before boarding the plane.

Seated Exercises:
- **Ankle circles**: Lift your feet off the floor and twirl your feet as if you’re drawing circles with your toes. Continue this for 15 seconds then reverse direction. Repeat.
- **Foot pumps**: Keep your heels on the floor and lift the front of your feet toward you as high as possible, keeping the balls of your feet on the floor. Continue for 30 seconds and repeat as often as you like.
- **Knee lifts**: Keeping your legs bent, lift your knee up to your chest. Bring knee back to normal position and repeat with your other leg. Repeat 20-30 times for each leg.
- **Shoulder roll**: Lift your shoulders upward, then pull them backwards, downward, and forward in a gentle circular motion. Continue for 30 seconds. Reverse direction.
- **Arm curl**: Start with arms on chair rests, bent at a 90 degree angle. Raise one hand up to your chest and back down. Alternate hands and continue for 30 seconds. Repeat.

Seated Stretches:
- **Knee to chest**: With both hands clasped around your right knee, bend forward slightly and pull your knee to your chest. Hold the stretch for 15 seconds, then slowly let your knee down. Repeat the same stretch with your left knee. Perform 10 stretches.
- **Forward flex**: Keep both feet on the floor and slowly bend forward, reaching for your ankles. Hold the stretch for 15 seconds and slowly return to normal seated position.
- **Overhead stretch**: Raise both hands straight up over your head. Use one hand to grab the wrist of the opposite hand and gently pull to one side. Hold the stretch for 15 seconds, and repeat with the other arm.
- **Shoulder stretch**: Bring your right hand over your left shoulder. Then place your left hand behind your right elbow and gently pull your elbow toward your body. Hold stretch for 15 seconds and repeat with the other arm.
- **Neck roll**: Relax your neck and shoulders. Drop your right ear to your right shoulder and gently roll your head forward and to the other side, holding each position about 5 seconds. Repeat 5 times.
Preventative Antibiotics for Dental Procedures

In August of 2016 the American Academy of Orthopaedic Surgeons (AAOS) approved new criteria to specify when it may be appropriate to consider antibiotic use prior to dental procedures. Recommendations are now based on each individual patient and the following information:

- the type of dental procedure to be performed;
- your current health status and health issues;
- if you have a history of infection; and,
- timing since joint replacement procedure.

From this information we are able to make a recommendation on whether or not it is appropriate for you to use antibiotics prior to a planned dental procedure.

Your implant and infection

If you have an orthopaedic implant (such as a joint replacement) please understand:

- A potential complication of these implants is bacterial infections, which occurs in 1-3% of patients. These infections require more surgery as well as the use of antibiotics for an extended period of time. Most infections occur around within one year of your surgery, but they can also occur much later.
- Infections that happen long after your surgery (beyond one year) are thought to be caused by the spread of bacteria from the bloodstream to the implant. Unfortunately, there is no clear scientific evidence to support this theory. We know that many patients with orthopaedic implants frequently have bacteria in their blood that do not spread to their implants.

Infections and dental procedures

Dental procedures have long been considered a potential cause of implant infections, even after the initial orthopaedic post-operative period. The reason for this is that dental procedures can introduce bacteria from the mouth into the bloodstream. Please keep in mind, however, that eating and performing regular oral hygiene at home may also introduce oral bacteria into the blood. Here are important points to consider:

- Traditionally, antibiotics have been provided prior to dental procedures in patients with orthopaedic implants to minimize the bacteria that gets into the blood.
- The best evidence we currently have does not show that using antibiotics before dental procedures can reduce the risk of infections of orthopaedic implants.
- The routine use of antibiotics has potential side effects such as increased bacterial resistance, allergic reactions and diarrhea.

Summary of Guidelines

- No dental work for a minimum of two weeks prior to surgery.
- No elective dental work (including cleanings) for six months after surgery. If urgent dental work is required within six months please contact our office as we will prescribe antibiotics during this time.
- Recommendations for use of antibiotics prior to dental work is patient specific and based on the AAOS Appropriate Use Criteria; please speak with our orthopaedic team for your specific recommendation.

For more information visit: http://tinyurl.com/orthodental