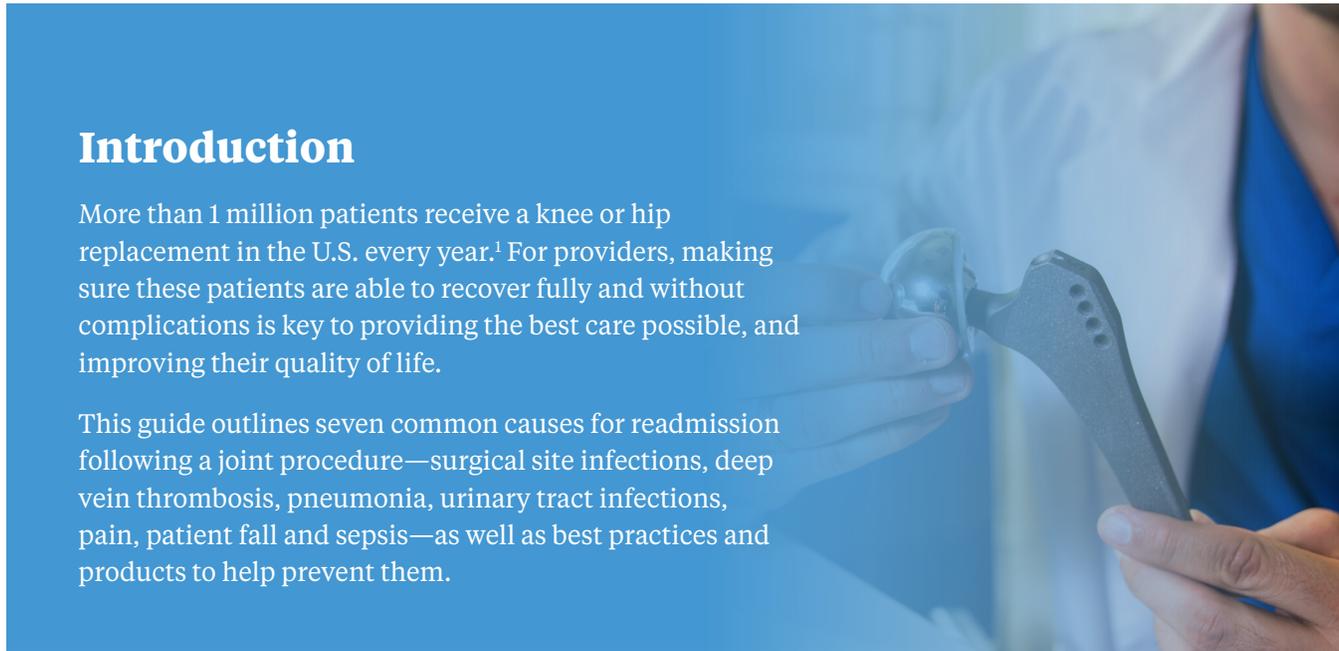


Joint Replacement Readmissions Resource Guide



Overview	Surgical Site Infections (SSIs)	Deep Vein Thrombosis (DVT)	Pneumonia
Urinary Tract Infection (UTI)	Pain Management	Fall Prevention	Sepsis
			Products



Introduction

More than 1 million patients receive a knee or hip replacement in the U.S. every year.¹ For providers, making sure these patients are able to recover fully and without complications is key to providing the best care possible, and improving their quality of life.

This guide outlines seven common causes for readmission following a joint procedure—surgical site infections, deep vein thrombosis, pneumonia, urinary tract infections, pain, patient fall and sepsis—as well as best practices and products to help prevent them.

Etiology of total joint replacement

A total joint replacement is a surgical procedure in which parts of an arthritic or damaged joint are removed and replaced with a metal, plastic or ceramic device called a prosthesis. The prosthesis is designed to replicate the movement of a normal, healthy joint.

Hip and knee replacements are the most commonly performed joint replacements, but replacement surgery can be performed on other joints, as well, including the ankle, wrist, shoulder and elbow.²

Reducing outpatient joint readmissions

- Under the Ambulatory Surgical Center Quality Reporting (ASCQR) Program, ASCs report quality of care data for standardized measures to receive their ASC annual payment rate.
- Most joint replacement procedures are paid with insurance bundles which include a 90-day post-operation period.
- An unplanned hospital visit seven days after an orthopedic procedure in a surgery center can negatively affect reimbursement.³



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The average rate of readmission 30 days after a hip or knee replacement is 4.2%⁵



More than 1M patients receive a knee or hip replacement every year in the U.S.¹

53% of total joint replacements will be done in outpatient settings by 2030⁴



Preoperative education and post-operative support can help reduce readmission rates by 1.6%¹

Modifiable risk factors to improve outcomes

Proper patient selection is key in improving quality and safety outcomes in an outpatient program. There are a number of modifiable risk factors that contribute to poor clinical outcomes following a total joint replacement. These are some key patient selection considerations:

- Obesity
- Diabetes
- Staphylococcus aureus colonization
- Smoking
- Family or patient history of deep vein thrombosis (DVT) or pulmonary embolism (PE)
- Venous thromboembolic disease
- Cardiovascular disease
- Neurocognitive, psychological and behavioral problems
- Physical deconditioning and comorbidities affecting ambulation
- Medications
- Living conditions
- Friends and family committed to helping with patient recovery¹

Complications of these risk factors

- Higher pain scores
- Higher incidence of urinary tract infection
- Higher rate of surgical site infections
- Increased incision-related and cardiopulmonary complications
- Cardiac events and stroke
- Increased risk of falls
- Patients with a length of stay greater than 24 hours in the ASC will require transfer to an acute care or rehab facility⁶



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Surgical site infections

Surgical site infection refers to infection of tissues surrounding an artificial joint implanted in the body. Infection is among the more common and expensive complications of joint replacement surgery, arising in 1% to 2% of patients, or as many as 9% in special situations.^{7,8,9} The associated morbidity and mortality are high, which is why it's important to minimize risk for infection.⁸

Pathogens may enter the joint either during surgery or later due to bacteria. If a patient does develop an infection, it typically happens within the first two months, and patients who develop surgical site infections are five times more likely to be readmitted to the hospital.^{8,10} Treatment often requires additional surgery and hospitalization, prolonged systemic antibiotic therapy and impaired mobility during treatment.

Identifying risk factors, patients' health modification and proper incision care, and optimizing operative room environment can help minimize infection.



Surgical site infections

- #1 most common indication for revisions in total knee arthroplasty¹¹
- #3 most common indication for revision in total hip arthroplasty¹¹

\$1.62B+

Cost of knee and shoulder infections by 2030^{12,13}

Staphylococcus aureus, also known as MRSA, is the leading cause of SSIs

Infections arise in 1% to 2% of patients during the first year after hip or knee surgery¹⁴

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Pre-admission

Screening

Research suggests the risk of SSI increases up to nine times due to nasal colonization of Staphylococcus aureus, presenting a big challenge in surgical settings. 30% of people are already nasally colonized with S. aureus when they reach the OR.¹⁵

S. aureus, also known as MRSA, is the leading cause of SSIs, and yet surgical settings don't always include testing for this bacteria in their preoperative care. Nasal swab tests allow you to detect and identify MRSA for better prevention and control.

Screen patients for S. aureus and decolonize carriers with an intranasal topical antimicrobial.

Skin cleaning

Because skin is not sterile, the patient's skin must be as free of germs as possible before surgery. Provide patients with antiseptic or antibacterial soap and directions for proper washing prior to surgery. For best results, patients should bathe or shower with chlorhexidine gluconate (CHG) soap for at least three days before surgery.

Pre-admission instructions¹⁶

To make sure patients are prepared for their surgery, provide them with instructions similar to the ones below.



1 day before surgery

Shower or bathe with antiseptic soap. Do NOT shave area where surgery will take place. Apply CHG soap only from the neck down; other antiseptic soaps can be used as usual.



Morning of surgery

Shower or bathe with antiseptic soap. Do NOT shave area where surgery will take place. Apply CHG soap only from the neck down; other antiseptic soaps can be used as usual. Do NOT put on any lotions, perfumes, powders or deodorant.

Pre-op

Antibiotics

Prophylactic antibiotic administration should be initiated one hour before surgery. Oral antibiotics may be prescribed for 24 hours following the procedure.¹⁷ A report by the American Association of Hip and Knee Surgeons (AAHKS) states that infection rates are reduced by 4% with standardized prophylactic antibiotics.¹⁸

Skin prep

About 80% of skin flora occurs on the outside layers of the skin.¹¹ In fact, one square centimeter of skin can host as many as 10 million aerobic bacteria, a leading cause of healthcare-acquired infections.¹² Use a surgical scrub such as CHG or PVP for preoperative skin preparation, and a skin prep applicator to help reduce skin flora.

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Intra-op

Adhering to aseptic technique/practice

Follow established guidelines (e.g., HICPAC, APIC, AORN) to ensure basic aseptic techniques are adhered to uniformly.

Proper hand hygiene

Use surgical rubs or scrub solution for recommended duration with antimicrobial agents such as alcohol, iodophor or CHG. The CDC recommends 60-95% alcohol concentration in hand rubs.

Surgical attire

Wear appropriate attire including clean scrubs, hair covering, surgical masks, shoe covers and protective eyewear.

- Sterile gown and gloves are donned by staff within the sterile field.
- Gowns are rated according to their AAMI level, which indicates how a gown performs against a series of barrier performance criteria and ranges from 1 to 4, with level 4 providing the highest barrier to fluids and microorganisms.
- The highest barrier protection is in the primary “critical zones” of the gown, in the front and on the sleeves, where direct contact with blood, body fluids and other infectious material is likely to occur. Higher-level gowns have larger critical zones and the sleeves and seams are fully sealed, not sewn, to prevent fluid penetration.
- Level 3 gowns are used for a wide range of surgeries where the fluid risk is moderate, and level 4 gowns are best for high-fluid and lengthy procedures when the risk is higher.
- Surgeons may double glove to prevent perforations and protection from sharps.

Sterile field

Surgical drapes, gowns, instruments and equipment used in the sterile field must be sterile.

- The Association of periOperative Registered Nurses (AORN) guidelines state that the sterile field—including tables—should be covered if not being used immediately to reduce the risk for contamination.
- Policies and procedures are required for instrument cleaning, decontamination and sterilization.

Traffic patterns and control

Limit those entering the OR to necessary personnel, keeping doors closed and limiting movement during procedure.

Environmental disinfection

Surfaces, floors and equipment should be disinfected between each surgical procedure.¹⁹

Best practices during surgery

- Monitor and maintain glucose control in adult patients undergoing surgery to support incision healing
- Prevent hypothermia using warming devices during the surgical procedure to maintain patient temperature
- Use aseptic technique for catheter insertion
- Prep the surgical incision area with an appropriate antiseptic agent of alcohol and iodophor or CHG solution
- Use an antibiotic irrigation throughout the procedure and before closure of incision

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Diagnosis

Surgical site infections may occur in the incision or deep around the artificial implant. An infection may develop after the patient is discharged home and can even occur years after surgery.²⁰

Signs and symptoms of infection:

- Increased pain or stiffness in a previously well-functioning joint
- Swelling
- Warmth and redness around the incision
- Incision drainage
- Fevers, chills and night sweats
- Fatigue

Early diagnosis and proper treatment when infection is suspected increase the chances that the implants can be retained.

Tests ordered to determine infection include:

- X-ray imaging and bone scans
- Lab testing that measures inflammation in the body
- Drawing fluid from the joint to analyze the presence of bacteria

Classification of periprosthetic infections⁸

	0-2 months post-surgery	3-24 months post-surgery	Any time post-surgery
Type of infection	Early infection	Delayed (low-grade) infection	Late infection
Route of infection	Perioperative	Perioperative	Hematogenous (focus usually on lungs, skin, urinary tract, dental) or continuous spreading from elsewhere
Clinical symptoms	Local reddening, overheating, fever, pain, incision dehiscence, secretion	Persistent or new-onset pain, loosening, fistula formation	Acute or subacute
Most common pathogens	Staphylococcus aureus, streptococci, enterococci	Coagulase-negative staphylococci, Propionibacterium acnes	Staphylococcus aureus, Escherichia coli, streptococci

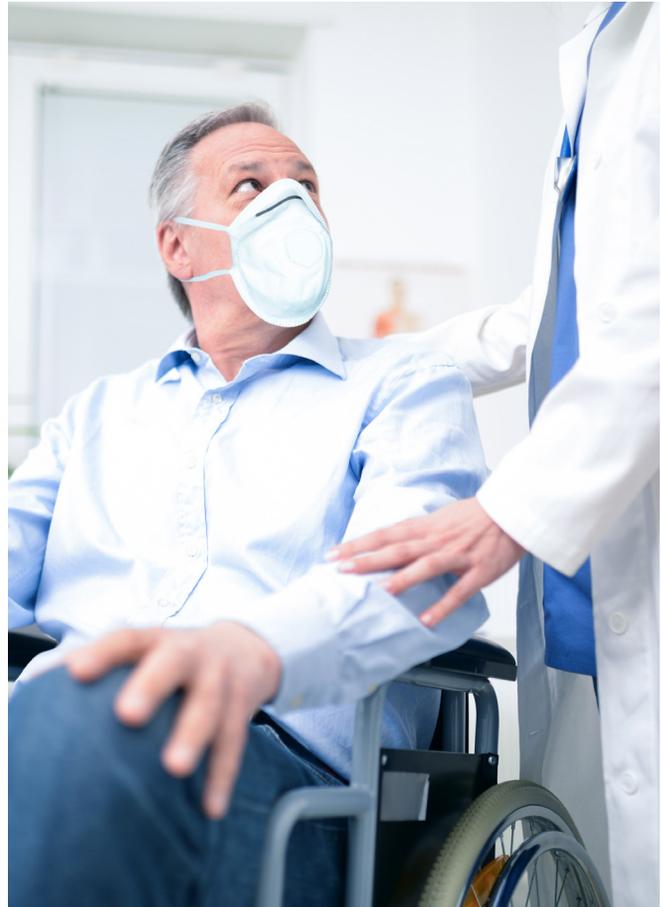
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Care and discharge

Post-operative data collection to monitor infections and postsurgical complications is a necessary component of a patient discharge and follow-up program.

Patient post-operative education and instruction include:

- Contact information to report any problems
- Surgeon discharge orders, including medications and when to resume daily activities and schedule physical therapy
- Infection prevention techniques (e.g., proper hand-washing for patients and caregivers)
- Signs and symptoms of infection and post-operative complications
- Instructions on how to apply antimicrobial incision care products to prevent microbial contaminant exposure of skin/soft tissue at the incision site
- Surgeon may prescribe post-operative antibiotics be continued for 24 hours post operation²¹



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Deep vein thrombosis (DVT)

What is deep vein thrombosis (DVT)?

A DVT is a blood clot that forms in the deep veins of the leg or arm. If the clot becomes large enough it may block the flow of blood in a vessel of the leg or arm.

What is pulmonary embolism (PE)?

PE is a complication of DVT. It is a blood clot that forms in the leg, pelvis or arm veins and travels through the heart, lodging in the lungs.

What is venous thromboembolism (VTE)?

VTE refers to both DVT and PE and is the formation in a blood vessel of a clot (thrombus) that breaks loose and is carried by the bloodstream to plug another vessel. The clot may plug a vessel in the lungs (pulmonary embolism), brain (stroke), gastrointestinal tract, kidneys or leg.

Why does the blood clot form?

Situations that increase risk for DVT include inactivity or a decrease in the level of activity following joint replacement surgery which slows the flow of blood in the veins and increases the potential of clot formation.

Other risks for a blood clot include inherited conditions, certain medications, vein disease, obesity, smoking, age or serious illness.



Prevention of DVT post-op

Prevention and treatment of blood clots after hip and knee replacement surgery are important parts of a patient's recovery. Joint replacement patients are at highest risk for developing a DVT two to 10 days after surgery, and remain at risk for approximately three months.

To prevent the occurrence of a blood clot, the surgeon will likely prescribe a combination of treatment approaches, including:

- An anticoagulant, or blood thinner, will be prescribed to reduce the body's ability to form blood clots. The anticoagulant may be given as an injection or in pill form. These include one of the following: aspirin, Lovenox® Injection, Xarelto®, Coumadin® or Eliquis®.
- Exercise/physical therapy will begin the day of or first day after surgery and continue for several months. The patient will work with a physical therapist to perform specific exercises designed to restore joint range of motion, strengthen the lower body and improve circulation.
- Compression stockings will be applied before surgery and pneumatic/sequential compression device (SCD) sleeves will be applied to the patient in preoperative and remain through post-operative and discharge.²²

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Patient education and instruction

Monitor potential side effects of blood thinners:

- Increased incision drainage
- Bleeding gums, nose bleeds or coughing up blood
- Blood in urine or bloody black tarry stool
- Vomiting blood or coffee grounds

Encourage patient to watch what they wear:

- Patient should continue to wear compression stockings post-surgery
- Portable SCDs may be prescribed to use at home
- Wear support hose for varicose veins
- Do not wear constrictive garments around the calves or groin areas

Avoid long periods of standing or sitting:

- Exercise by completing ankle pumps two hours during the day and change position often to promote blood flow
- Elevate legs when sitting for moderate periods of time and do not cross legs

Control weight and stay hydrated:

- Leg pressure will be reduced if weight is controlled
- Stay hydrated and drink at least six glasses of water daily

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DVT signs and symptoms

Patient needs to contact the physician if they experience any of the following signs or symptoms:

- Pain and swelling—usually in one leg or arm
- Pain or tenderness not caused by an injury, sharp/ sudden pain similar to a muscle cramp
- Skin that is warm to the touch
- Onset of pain that is gradual and increases with movement such as walking
- Change in skin color (blue, red or very pale)

Pulmonary embolism signs and symptoms

If the patient experiences any of these symptoms, call 911 for immediate medical attention:

- Sharp knife-like pain in the chest or back that worsens with a deep breath
- Difficulty breathing
- Frequent coughing and coughing up blood
- Sweating, sometimes dizziness or wheezing
- Feeling of apprehension and sudden collapse



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Pneumonia

- Pneumonia is a serious complication that occurs in 1 in 300 patients following a total joint procedure and can increase sepsis risk²³
- A study by the American College of Surgeons National Surgical Quality Improvement Program found that 4 in 5 patients who develop pneumonia are subsequently readmitted, and approximately 1 in 25 die²³

Risk factors

- Chronic obstructive pulmonary disease
- Diabetes mellitus
- Lower body mass index
- Hypertension
- Smoking
- General anesthesia

Post-anesthesia pneumonia prevention measures

- Encourage patient to cough and take deep breaths every two hours
 - Use incentive spirometry every two hours
 - Turn and reposition patient every two hours
 - Instruct patient to use incentive spirometer every two hours at home for one to two weeks post operation. This exercise continues to keep the lungs clear while recovering.
 - Early ambulation
 - Elevate head of bed
 - Ensure patient sits upright for meals
 - Aggressive incentive spirometry
 - Infection prevention
- [Read about preventing infections on page 4](#)



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Pneumonia self-management plan

Green Zone: In control	Yellow Zone: Caution	Red Zone: Medical alert!
<ul style="list-style-type: none"> ✓ I am breathing easily. ✓ I have no fever. ✓ I am not coughing, wheezing or experiencing chest tightness or shortness of breath. ✓ I am able to maintain my normal activity level. 	<ul style="list-style-type: none"> ✓ I have an increase or change in the color of my mucus (phlegm). ✓ I am coughing or wheezing more than usual. ✓ I become short of breath with activity. ✓ I have a fever of 100.5° F or greater oral or 99.5° or greater under the arm. ✓ I need more pillows or need to sleep sitting up. 	<ul style="list-style-type: none"> ✓ I am experiencing unrelieved shortness of breath. ✓ I have a change in the color of my skin, nails or lips to gray or blue. ✓ I have unrelieved chest pain. ✓ I experience an increased or irregular heartbeat.
<p>Green means I should:</p> <ul style="list-style-type: none"> ✓ Continue to take my medicine as ordered. ✓ Balance activity and rest periods. ✓ Drink plenty of water, unless ordered otherwise. ✓ Take a deep breath and cough two to three times every hour to open up my lungs. (Coughing helps to clear my airways.) 	<p>Yellow means I should:</p> <ul style="list-style-type: none"> ✓ Contact my physician, and share my symptoms. 	<p>Red means I <u>must</u>:</p> <ul style="list-style-type: none"> ✓ Call 911 or go to the emergency room immediately!

Source: Pneumonia Self-Management Plan, Quality Improvement Organizations, HSAG

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Urinary tract infection (UTI)

- Routine catheterization has been a protocol at many surgery centers to avoid post-operative urinary retention (POUR). Patients undergoing total joint replacements are at increased risk for POUR, which is associated with UTIs.²⁴
- According to the 2018 International Consensus on Orthopedic Infections, there is a recommendation that symptomatic UTI must be treated with appropriate antibiotics before proceeding with joint replacement surgery.²⁵
- Female patients undergoing total joint replacement experience UTIs more frequently at 5% to 36%.²⁵

Post-op UTI risk factors

- Suppressed immune system caused by diabetes and other diseases that impair the immune system.
- Symptomatic UTI is a possible risk factor for post joint infection and should be treated before surgery.
- Indwelling catheters are associated with colonization of bacteria.

Signs and symptoms of UTI

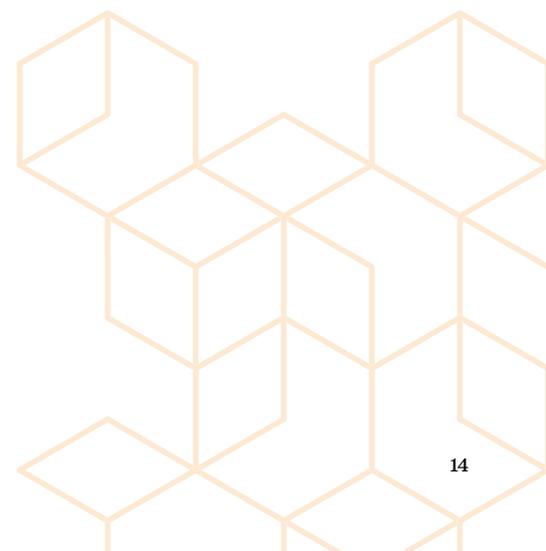
1. Moderate or high fever
2. Pressure in the lower stomach
3. Cloudy urine
4. Painful, frequent, burning urination
5. Chills, fever, nausea, vomiting (signs of kidney infection)
6. Pyuria (pus in urine)

Surgical procedures

- An indwelling catheter may or may not be inserted before a total joint procedure.
- Use aseptic protocol if Foley catheter is indicated before procedure.
- Post-operative Foley catheter will be removed before patient discharge.
- Patients are typically released within 24 hours and are usually required to void before going home.

UTI prevention measures for patients

- Drink plenty of fluids, including cranberry juice. There is scientific evidence that chemicals in cranberries prevent some bacteria from causing a UTI.
- Clean hands often to avoid the spread of germs.
- Empty bladder frequently and completely to avoid buildup of toxins in the bladder.



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Pain management

- Post-operative pain results from inflammation caused by tissue trauma such as surgical incision, dissection or direct nerve injury from nerve transection or compression.²⁶
- Patient expectations regarding pain should be managed with effective communication about level of pain following procedure.
- An anesthesia program for patients undergoing an outpatient total joint replacement provides positive outcomes including:²⁸
 - Controlling pain
 - Minimizing adverse reactions to anesthesia like nausea and vomiting
 - Rapid mobility after surgery
- Inadequate pain control and completing the surgical procedure late in the day may be associated with preventing same-day discharge.

Pain control regimens after a total joint replacement include:

- Oral or parenteral anesthesia.
- Intravenous patient-controlled analgesia (PCA).
- Nerve blocks and periarticular injections (PAIs).
- Continuous epidural or intra-articular analgesia.
- Cold therapy, which has also proven to be beneficial in the early post-operative period.²⁷



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Types of pain management

Effective pain management after a joint replacement can be achieved with a multipronged approach. Various types of analgesia include epidural or spinal, periarticular and intra-articular injection, and regional nerve blocks administered preoperatively or during surgery. Using these methods along with intravenous patient-controlled analgesia, oral narcotics and anti-inflammatories post-op provides positive outcomes to minimizing pain, creating early mobility and allowing same-day discharge.

Periarticular injection (PAI)

Local infiltration analgesia or periarticular (around the joint) drug injection is a new alternative regional analgesic that involves administering analgesics into the surrounding tissue in the operative site. This method usually consists of local anesthetics such as ropivacaine, bupivacaine (Marcaine®, Sensorcaine®), bupivacaine liposome (Exparel®), levobupivacaine (Chirocaine) and/or corticosteroids, opioids, epinephrine, nonsteroidal anti-inflammatory drugs and dilution with normal saline.

PAI has been reported to be effective in controlling immediate post-operative pain, minimizing side effects, supporting patient rehabilitation, allowing earlier discharge and improving outcomes.

Intra-articular injection

As an alternative to periarticular administration of analgesics, intra-articular (into the joint) delivery of anesthetics is also an option for analgesic infiltration. Whether it is given intra- or periarticularly, an intra-articular continuous infusion of ropivacaine specifically has been shown to be effective in reducing post-operative pain and opioid requirements.

Nerve blocks (regional anesthesia)

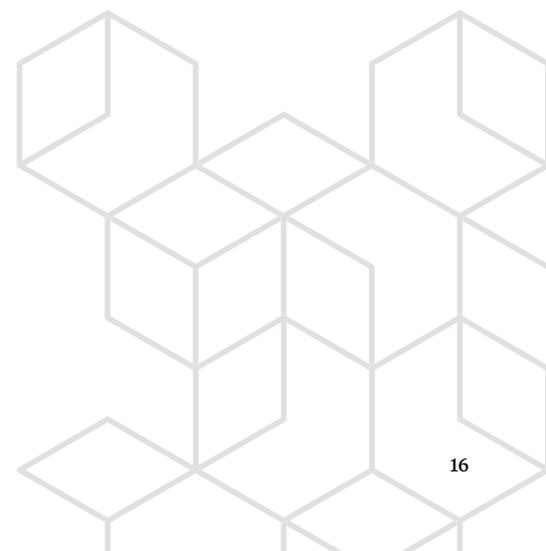
Regional anesthesia techniques are another method to deliver intraoperative analgesia and minimize post-operative pain. Patients should be monitored for impairment of motor function, risk of falls and neurological complications.

Epidural analgesia

When combined with other analgesia, epidural/spinal anesthesia has been shown to promote early rehabilitation, reduce the length of stay, reduce nausea and the risk of pneumonia and decrease the risk of deep vein thrombosis following a total joint replacement.^{27,28,29,30,31}

Bupivacaine liposome infiltration

Bupivacaine liposome is a long-lasting nonopioid analgesic that is indicated for single-dose infiltration in adults to produce postsurgical local analgesia and as an interscalene brachial plexus nerve block to produce postsurgical regional analgesia.



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Fall prevention

One in five falls happen in the first six months post-operation.³² Most occur due to slipping or tripping in the home, or while using the bathroom. Complications of falls during the six-month follow-up period include limitation in knee range of motion, severe knee joint pain, poor muscle strength and poor balance.

Given the projected rise in elective orthopedic procedures, it is important to better understand fall patterns in this population. Patients who have elective orthopedic procedures are unique, as they are healthy enough for a major surgical procedure, unlike many frail elderly or hospitalized medical patients. The risk of injury resulting from falls in this elective surgery population is relatively low. However, early falls post-operation can result in very serious injuries.

Up to 8% of falls result in moderate to severe injury.³³

A fall prevention plan is important to avoid readmissions and serious complications following a procedure. Periprosthetic injury can occur after a fall, requiring reconstructive surgery.

These risk factors and conditions can increase the likelihood of a fall and require special attention:

- Post-op pain
- Medications
- Balance control
- Previous surgery
- Prior falls
- Living alone
- Older patients

Patient home assessment

- Move loose cords
- Remove loose throw rugs
- Move other loose items from floors such as magazines, blankets, books, etc.
- Rearrange furniture to accommodate walker or crutches
- Assess if there are broken or uneven steps
- Make sure there is adequate lighting
- Install grab bars in bathroom
- Put non-slip mats in shower
- Place frequently used items within reach



8%

of falls result in moderate to severe injury³³

1 in 5
falls happen in the first six months post-operation³²



Almost half of first falls involve using the bathroom³³

Readmission rates for falls following TKA average 4% at 30 days and 8% at 90 days³⁴

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Pre-op prevention

A fall during the first few weeks after surgery can damage a new hip, knee or shoulder and may result in a need for further surgery; however, falls are avoidable risks and can be reduced with preoperative education.

A multi-component fall prevention program can reduce the risk for falls by as much as 30%.³⁵

Providing patients with guidance and education on what to expect before, during and after their operation, assessing their home environment and providing a walker or crutches are all necessary steps to prevent falls and reduce readmission rates.

You can also encourage continued exercise prior to surgery to improve strength and promote better outcomes. Following surgery, patients often experience pain and reduced balance control, which may predispose them to greater fall risk. Make sure patients are aware prior to surgery of their [pain management](#) options.

Key principles for fall prevention

To prevent falls, consider developing a risk assessment for patients that includes a home evaluation and modification, medication review and a post-operative physical therapy and exercise program. Determine who in your organization will help conduct the assessment and provide patient education.

Assessment or Intervention	What It Involves
Preop patient history of falls and prior surgery/replacement	<ul style="list-style-type: none"> • Ask patient if they have had a previous or revision joint replacement, and if so, when. • Ask about previous fall history and recovery.
Review patient medications, current pain medications, and post-op pain management	<ul style="list-style-type: none"> • Is the patient currently using a medication, including: tranquilizers, sedatives and over-the-counter drugs? • Help patients understand what level of pain to expect following the operation and discuss pain management options. • Monitor pain, dizziness, shortness of breath or unsteadiness prior to discharge
Review equipment needs following surgery	Discuss DME equipment that will be needed following surgery. Encourage purchasing prior to surgery or for purchase at discharge (e.g., crutches, walker, cane, hand rails, reachers or elevated toilet seat).
Identify caregivers and support needed	Ask if patient lives alone. Designate a caregiver to provide support until they have improved their balance, flexibility and strength, or determine if a home health agency is needed.
Address home safety, and how to reduce fall hazards in the home	Review home hazards including removal of loose cords, throw rugs, and uneven surfaces. Installation of grab bars, non-slip mats in shower, and adequate lighting are recommended to reduce potential hazards.
Review post-op rehabilitation and physical therapy prior to discharge	Review post-op physical therapy expectations following surgery—patient will begin exercise using a walker and will be evaluated before discharge. Provide post-op instruction related to type of exercises and orders on PT schedule.

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Sepsis

Sepsis is a rare but very serious complication of total joint arthroplasty, occurring in 1 in 300 patients.³⁶ Sepsis is the body’s intense response to an infection, and can be life-threatening. It’s usually a secondary complication of a [surgical site infection](#), [pneumonia](#) or [urinary tract infection](#). When germs get into a person’s body, they can cause an infection. If that infection isn’t stopped, it can cause sepsis.³⁷

Preventing infections and practicing good hand hygiene can help reduce sepsis. If sepsis is suspected, treatment must be timely.

Prevention

Vaccination

Prevent respiratory infections and keep vaccinations up to date. Staying vaccinated against flu, pneumonia, shingles and other infections can reduce the risk of sepsis.



Time is of the essence



- Time to treatment is critical as mortality can increase when treatment is delayed
- Early identification and treatment are the keys to improved outcomes and reduced costs

Education

Educate patients on general signs of infection related to:

- [Post-op skin incision infection](#)
- [Pneumonia](#)
- [UTI](#)



Infection prevention



- Practice good hand hygiene
- Provide antibiotics pre- and post-op
- Use sterile technique
- Ensure pre-op nasal screening and skin cleaning with antiseptic agent
- Provide antimicrobial incision care dressings

Antimicrobial stewardship

- Studies indicate 30%-50% of antibiotics prescribed in hospitals are unnecessary or inappropriate
- Improving prescribing practices may help reduce rates of antibiotic resistance and improve patient outcomes while reducing costs



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Products to prevent readmission



Log in to [SupplyManager](#) to order products

Surgical Site Infection (SSI) Prevention / Pre-Op Screening

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
PDI	X12048	Profend® Impregnated Nasal Swabstick 10% PVP Decolonization
3M	192401	Skin and Nasal Antiseptic 5% Strength Povidone-iodine 4 mL Bottle
BD	441916	Automated Molecular Platform BD MAX™ CLIA Moderate Complexity
Cepheid	GXI-1-L	Diagnostic System GeneXpert® I

Surgical Site Infection (SSI) Prevention / Pre-Op Skin Bathing

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
Sage	9705	Surgical Scrub Wipe, 2 Count, Soft Pk, 2% Strength, CHG
McKesson	16-CHG4	Antiseptic Skin Cleanser, 4 oz Flip-Top Bottle, 4% Strength, CHG / Isopropyl Alcohol
Mölnlycke	57504	Hibiclens® Surgical Scrub, 4 oz Bottle, 4% Strength, CHG

Surgical Site Infection (SSI) Prevention / Pre-Op Antibiotic Prophylaxis

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
B. Braun	3105-11	Cefazolin® Sodium/Dextrose, Isotonic 2 Gram / 50 mL IV Injection Piggyback Container, Duplex 50 mL
Apotex	60505614904	Ceftriaxone Sodium 2 Gram Injection Single-Use Vial
B. Braun	S8004-5264	IV Solution Sodium Chloride, 0.9% Preservative-Free 100 mL in 150 mL
B. Braun	V1921	Secondary IV Med Set, Spin Lock Connector DEHP-Free

Surgical Site Infection (SSI) Prevention / Pre-Op Surgical Scrub

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
GOJO	1907-02	Purell® Surgical Scrub 1,200 mL Dispenser Refill Bottle, 70% Strength Ethyl Alcohol/ Isopropyl Alcohol
GOJO	7810-01	Purell® Surgical Scrub Dispenser CS8 White Abs Plastic Touch-Free 1,200 cc Wall Mount
3M	9200	Avagard™ Surgical Scrub 16 oz Dispenser Refill Bottle 1% / 61% Strength CHG / Ethyl Alcohol
BD	371073	E-Z Scrub™ Impregnated Scrub Brush 4% CHG w/ Nail Cleaner

Surgical Site Infection (SSI) Prevention / Pre-Op Skin Prep

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
BD	930400	ChloraPrep™ Prep Solution Clear 3 mL Applicator 2% / 70% CHG / Isopropyl Alcohol Sterile
BD	930815	ChloraPrep™ Prep Solution Hi-Lite w/ Orange Tint 26 mL Applicator 2% / 70% CHG / Isopropyl Alcohol Sterile
3M	8630	DuraPrep™ Prep Solution 26 mL Applicator, 0.7% / 74% Strength Iodine Povacrylex/ Isopropyl Alcohol
McKesson	037	Surgical Scrub 16 oz Flip-Top Bottle, 7.5% Strength Povidone Iodine
McKesson	039	Prep Solution 4 oz Flip-Top Bottle, 10% Strength Povidone Iodine
McKesson	16-CHG8	Antiseptic Skin Cleanser 8 oz Flip-Top Bottle, 4% Strength CHG / Isopropyl Alcohol

Overview	Surgical Site Infections (SSIs)	Deep Vein Thrombosis (DVT)	Pneumonia
Urinary Tract Infection (UTI)	Pain Management	Fall Prevention	Sepsis
			Products

Surgical Site Infection (SSI) Prevention / Intra-Op Antibiotic Irrigation

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
B. Braun	R5200-01	Sodium Chloride Irrigation Solution 0.9% Preservative-Free 1,000 mL Bottle
Pfizer	9023301	Bacitracin, VI PDR 50,000 U
AuroMedics Pharmaceuticals	55150023410	Polymyxin B Sulfate 500,000 Units Parenteral Preservative-Free

Surgical Site Infection (SSI) Prevention / Post-Op Infection Prevention

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
ConvaTec	412011	AQUACEL® Silver Dressing AG Surgical 3-1/2" x 10" Rectangle, Sterile
ConvaTec	412012	AQUACEL® Silver Dressing AG Surgical 3-1/2" x 14" Rectangle, Sterile
ConvaTec	412010	AQUACEL® Silver Dressing AG Surgical 3-1/2" x 6" Rectangle, Sterile
Mölnlycke	498450	Mepilex® Silver Foam Dressing Border Post-Op AG 4" x 10" Rectangle, Sterile
Mölnlycke	498600	Mepilex® Silver Foam Dressing Border Post-Op AG 4" x 12" Rectangle, Sterile

Deep Vein Thrombosis (DVT) Prevention

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
McKesson	84-03	Anti-Embolism Stocking Knee High, Large / Reg White Inspection Toe
McKesson	84-04	Anti-Embolism Stocking Knee High, X-Large / Reg White Inspection Toe
DonJoy	3050	VenaFlow® DVT Compression Therapy Cuff Elite Calf, X-Large
DonJoy	3042	VenaFlow® DVT Compression Therapy Cuff Elite Calf, One Size Fits Most
DonJoy	3007-PL	VenaFlow® Tube Assembly Regular, 5.5', Positive Lock Connector
DonJoy	30B-S	VenaFlow® Infusion Pump Elite

Pneumonia Prevention

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
Vyair Medical	001901A	AirLife® Spirometer 4 L Manual Single Patient Use
Teleflex	8884719009	Voldyne® 5,000 Incentive Spirometer Adult

Urinary Tract Infection (UTI) Prevention

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
DermaRite Industries	962612	Oral Supplement UTIheal™ Cranberry Flavor, Ready-To-Use 1 oz Container Bottle

Pain Management

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
Pacira Pharmaceuticals Inc.	65250026609	Exparel™ Bupivacaine Liposome, Preservative-Free 1.3%, 13.3 mg / mL Infiltration Injection Single-Use Vial 20 mL
Hospira	409427602	Xylocaine® Lidocaine HCL 1%, 10 mg / mL Infiltration and Nerve Block Injection Multi-Dose Vial 50 mL
Hospira	409317803	Xylocaine® Lidocaine HCL / Epinephrine 1% – 1:100,000 Infiltration and Nerve Block Injection Multi-Dose Vial 50 mL
Hospira	409427702	Xylocaine® Lidocaine HCL 2%, 20 mg / mL Infiltration and Nerve Block Injection Multi-Dose Vial 50 mL

Overview	Surgical Site Infections (SSIs)	Deep Vein Thrombosis (DVT)	Pneumonia
Urinary Tract Infection (UTI)	Pain Management	Fall Prevention	Sepsis
			Products

Pain Management (continued)

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
Endo Laboratories	63481062870	Percocet® Oxycodone HCL / Acetaminophen 7.5–325 mg Tab Bottle 100 Tabs
McKesson	60-941-01	Ibuprofen, Tab 200 mg
McKesson	24805	Ibuprofen, Tab 200 mg UD
McKesson	60-201-01	Acetaminophen Tab 500 mg
DonJoy	11-0494	Iceman® Cryotherapy Cooler Portable 8 qt Capacity
DonJoy	710298	Iceman® Cold Therapy Wrap, Knee Standard 10-17/20" x 11-17/50" Cloth, Reusable
DonJoy	11-1423	Iceman® Cryotherapy Cooler w/ Pad, General Purpose, 8 qt, 10-17/20" x 11-17/50" Plastic, Reusable
DonJoy	1500	ColPac® Cold Pack General Purpose, Standard 11" x 14" Vinyl, Reusable
McKesson	59-610R	Hot/Cold Large Reusable Pack, 6-3/4" x 10-1/2"
McKesson	16-9703	Instant Cold Pack General Purpose 6" x 9", Disposable

Fall Prevention

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
McKesson	146-10210-4	Folding Walker, Adjustable Height, Aluminum Frame, 350 lbs. Weight Capacity, 32-39" Height
McKesson	146-10301F-4	Small Base Quad Cane, Steel, 30-39" Height
McKesson	169-5223	Exercise Resistance Band, Green, 50 yds, Medium Resistance
McKesson	169-5224	Exercise Resistance Band, Blue, 50 yds, Heavy Resistance
McKesson	146-RTL13082	Suction-Cup Grab Bar, White / Yellow Plastic
McKesson	146-RTL12027RA	Raised Toilet Seat, 5" Height, White, 300 lb. Cap
Fabrication Enterprises	86-0070	FabLife™ ADL Hip / Knee Equipment Kit, Standard Reacher – 26" Length / Shoehorn – 18" Length

Physical Therapy & Soft Goods

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
Fabrication Enterprises	15-4202	Training Stair, 1 Side Compact w/ Platform 30"W
McKesson	MCK596T09-3	Manual Recliner, w/ Casters Nat 300 lb. Cap
McKesson	MCK650T45-TS73	Recliner, Transport Manual Colonial Blu 300 lb. Cap
McKesson	155-79-96012	Knee Immobilizer, Univ 12"
McKesson	155-79-96014	Knee Immobilizer, Univ 14"
McKesson	155-79-96016	Knee Immobilizer, Univ 16"
McKesson	155-79-81237	Shoe, Post-Op Sq Toe Lg
McKesson	155-79-81235	Shoe, Post-Op Sq Toe Med
McKesson	155-79-81233	Shoe, Post-Op Sq Toe Sm
McKesson	155-79-81238	Shoe, Post-Op Sq Toe Xlg
McKesson	155-79-95527	Walker Boot, Low Top Air Lg
McKesson	155-79-95525	Walker Boot, Low Top Air Med
McKesson	155-79-95523	Walker Boot, Low Top Air Sm
McKesson	155-79-95528	Walker Boot, Low Top Air Xlg

Overview	Surgical Site Infections (SSIs)	Deep Vein Thrombosis (DVT)		Pneumonia
Urinary Tract Infection (UTI)	Pain Management	Fall Prevention	Sepsis	Products

Physical Therapy & Soft Goods (continued)

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
McKesson	155-79-95507	Walker Boot, Low Top Non-Air Lg
McKesson	155-79-95505	Walker Boot, Low Top Non-Air Med
McKesson	155-79-95503	Walker Boot, Low Top Non-Air Sm
McKesson	155-79-95508	Walker Boot, Low Top Non-Air Xlg
McKesson	155-79-95517	Walker Boot, Standard Air Lg
McKesson	155-79-95515	Walker Boot, Standard Air Med
McKesson	155-79-95513	Walker Boot, Standard Air Sm
McKesson	155-79-95518	Walker Boot, Standard Air Xlg
McKesson	155-79-95497	Walker Boot, Standard Non-Air Lg
McKesson	155-79-95495	Walker Boot, Standard Non-Air Med
McKesson	155-79-95493	Walker Boot, Standard Non-Air Sm
McKesson	155-79-95498	Walker Boot, Standard Non-Air Xlg

Orthopedic-Related Supplements

MANUFACTURER	CATALOG #	ITEM DESCRIPTION
McKesson	748-06-GCP	Calcium, Tab 600 mg with Vit D 400 IU
McKesson	723983	Calcium, Tab 600 mg with Vit D 400 IU (60/EA)
McKesson	1043399	Glucosamine-Chondroitin, Cap 500 mg/400 mg (60/BT 12BT/CS)
US Nutrition	1138319	Turmeric, Cap 500 mg (90/BT)
DermaRite Industries	PRO1000	Proheal, Supplements Sugar-Free Cherry 30 oz (6/CS)

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A decorative graphic in the top left corner consisting of a cluster of light blue hexagons of varying sizes, some overlapping, creating a geometric pattern. **McKesson Medical-Surgical**

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