


<b>MEDICAL POLICY</b>	<b>Hip: Total Joint Arthroplasty (All Lines of Business Except Medicare)</b>
<b>Effective Date: 6/1/2021</b>	Medical Policy Number: 130
 6/1/2021	Medical Policy Committee approved Date: 11/11;1/14; 8/14; 9/15; 5/16; 8/16; 10/17; 12/18; 12/19; 3/2020; 05/2021
Medical Officer	Date

**See Policy CPT/HCPCS CODE section below for any prior authorization requirements**

**SCOPE:**

Providence Health Plan, Providence Health Assurance, Providence Plan Partners, and Ayin Health Solutions as applicable (referred to individually as “Company” and collectively as “Companies”).

**APPLIES TO:**

All lines of business except Medicare

**BENEFIT APPLICATION**

Medicaid Members

*Oregon:* Services requested for Oregon Health Plan (OHP) members follow the OHP Prioritized List and Oregon Administrative Rules (OARs) as the primary resource for coverage determinations. Medical policy criteria below may be applied when there are no criteria available in the OARs and the OHP Prioritized List.

**DOCUMENTATION REQUIREMENTS**

The following information must be submitted in order to determine if medical necessity criteria are met:

- Indication for the requested surgery
- Clinical notes documenting that the individual has been evaluated at least once by the requesting surgeon before submitting a request for surgery.
- Clinical documentation of extent and response to conservative care, as applicable to the policy criteria, including outcomes of any procedural interventions, medication use and physical therapy notes
- Evaluation and documentation of the extent and specifics of one or more of the functional impairments or disabilities (see [Policy Guidelines](#))
- Copy of radiologist’s report(s) for diagnostic imaging (MRIs, CTs, etc.) completed within the past 12 months or at the time of onset of symptoms

## MEDICAL POLICY

## Hip: Total Joint Arthroplasty (All Lines of Business Except Medicare)

- Imaging must be performed and read by an independent radiologist
- If discrepancies should arise in the interpretation of the imaging, the radiologist report will supersede
- Documentation of any criteria-specific lab values or reports

### POLICY CRITERIA

#### Notes:

- Total hip arthroplasty performed with a robotic surgical system is considered **not medically necessary and not covered**.
  - This medical policy does not address hip resurfacing which may be considered medically necessary.
- I. Initial total hip arthroplasty may be considered **medically necessary and covered** when **any one or more** of the following criteria (A.-D.) are met:
- A. Patient has a diagnosis of osteoarthritis or posttraumatic arthritis of the hip **and all** of the following criteria (1.-3.) are met:
1. **Two or more** of the following criteria are met:
    - a. Pain increased with initiation of activity
    - b. Pain increased with weight bearing
    - c. Pain interferes with ADLs (activities of daily living, see [Policy Guidelines](#))
    - d. Pain with ROM (range of motion); **and**
  2. Patient has limited ROM **and** antalgic gait; **and**
  3. **Either** of the following criteria are met:
    - a. Imaging documents there is bone on bone contact **and** no active infection; **or**
    - b. Imaging documents arthritis **and both** of the following (i. and ii.) are met:
      - i. **Two or more** the following criteria are met:
        - Subchondral cysts
        - Subchondral sclerosis
        - Periarticular osteophytes
        - Joint subluxation
        - Joint space narrowing; **and**
      - ii. There is no active infection **and** symptoms persist after **all** of the following treatments have been attempted within the past year:
        - NSAIDs or acetaminophen ≥ 3 weeks; **and**
        - PT or home exercise ≥ 12 weeks; **and**
        - Activity modification ≥ 12 weeks
- B. Patient has a diagnosis of rheumatoid arthritis of the hip **and all** of the following criteria (1.-6.) are met:
1. **Two or more** of the following criteria are met:
    - a. Pain increased with initiation of activity
    - b. Pain increased with weight bearing

**MEDICAL POLICY**

**Hip: Total Joint Arthroplasty  
(All Lines of Business Except  
Medicare)**

- c. Pain interferes with ADLs (activities of daily living, see [Policy Guidelines](#))
- d. Pain with ROM (range of motion)
- e. Pain at night; **and**
- 2. Patient has limited ROM and antalgic gait; **and**
- 3. Imaging documents arthritis; **and**
- 4. **Two or more** of the following criteria are met:
  - a. Subchondral cysts
  - b. Marginal erosions
  - c. Periarticular osteopenia
  - d. Joint space narrowing
  - e. Joint subluxation; **and**
- 5. There is no active infection; **and**
- 6. Symptoms persist after **all** of the following treatments have been attempted within the past year:
  - a. Disease modifying antirheumatic drugs (DMARDs) ≥ 12 weeks; **and**
  - b. PT or home exercise ≥ 12 weeks; **and**
  - c. Activity modification ≥ 12 weeks
- C. Acute hip fracture and **any one** of the following criteria (1.-3.) are met:
  - 1. There is no active infection **and either** of the following criteria are met:
    - a. Comminuted or impacted acetabular fracture; **or**
    - b. Displaced femoral head or neck fracture.
  - 2. Intertrochanteric or subtrochanteric fracture and **both** of the following criteria (a. and b.) are met:
    - a. There is no active infection; **and**
    - b. The repair has failed or is not feasible.
  - 3. Imaging documents arthritis **and both** of the following criteria (a. and b.) are met:
    - a. There is no active infection; **and**
    - b. **Two or more** of the following criteria are met:
      - i. Subchondral cysts
      - ii. Subchondral sclerosis
      - iii. Marginal erosions
      - iv. Periarticular osteophytes
      - v. Periarticular osteopenia
      - vi. Joint subluxation
      - vii. Joint space narrowing
- D. There is no active infection and imaging documents any one of the following criteria:
  - 1. Nonunion or malunion, articular fracture of the hip; **or**
  - 2. Bone tumor involving the hip; **or**
  - 3. Avascular necrosis (osteonecrosis) of the femoral head and **one** of the following criteria are met:
    - a. Stage III **or** IV collapse of the femoral head is documented; **or**
    - b. Symptoms persist after all of the following conservative treatments have been attempted within the past year:

**MEDICAL POLICY**

**Hip: Total Joint Arthroplasty  
(All Lines of Business Except  
Medicare)**

- i. NSAIDs or acetaminophen  $\geq$  3 weeks; **and**
    - ii. PT or home exercise  $\geq$  12 weeks; **and**
    - iii. Activity modification  $\geq$  12 weeks.
- II. Hip arthroplasty removal and replacement may be considered **medically necessary and covered** when **any one** of the following criteria (A.-E.) are met:
  - A. Imaging documents a fractured hip prosthesis or cement **and** there is no active infection; **or**
  - B. There is a joint infection and any **one or more** of the following criteria (1.-5.) are met:
    1. Imaging documents the sinus tract is communicating with the prosthetic joint; **or**
    2. Prosthetic joint infection by positive synovial fluid **or** tissue culture **and both** of the following criteria (a. and b.) are met:
      - a. **Any one** of the following criteria (i.-iv.) are met:
        - i. Two cultures positive for same organism
        - ii. Culture positive for Staphylococcus aureus (S. aureus)
        - iii. Culture positive for gram negative organism
        - iv. Culture positive for enterococci
      - b. Joint infection onset within 4 weeks of total joint replacement **and either** of the following criteria (i. or ii.) are met:
        - i. Imaging documents loosening of prosthesis or cement; **or**
        - ii. There are continued symptoms or findings after **both** of the following treatments:
          - IV anti-infectives  $\geq$  4 weeks; **and**
          - Joint lavage and drainage
    3. Joint infection onset  $>$  4 weeks of total joint replacement **and either** of the following criteria are met:
      - a. There are no new joint symptoms and findings within the past 3 weeks; **or**
      - b. There are new joint symptoms and findings within the past 3 weeks and either of the following criteria are met:
        - i. Imaging documents loosening of prosthesis or cement; **or**
        - ii. There are continued symptoms or findings after **both** of the following treatments:
          - IV anti-infectives  $\geq$  4 weeks; **and**
          - Joint lavage and drainage
    4. Joint pain and **both** of the following criteria (a. and b.) are met:
      - a. **Two or more** of the following criteria are met:
        - i. Temperature  $>$  100.4 F (38.0 C)
        - ii. Synovial white blood count (WBC) or neutrophil percentage  $>$  normal
        - iii. ESR  $>$  30 mm/hr.
        - iv. C-reactive protein  $>$  normal; **and**
      - b. Joint infection onset within 4 weeks of total joint replacement **and either** of the following criteria are met:

**MEDICAL POLICY**

**Hip: Total Joint Arthroplasty  
(All Lines of Business Except  
Medicare)**

- i. Imaging documents loosening of prosthesis or cement ; **or**
    - ii. There are continued symptoms or findings after **both** of the following treatments:
      - IV anti-infectives  $\geq$  4 weeks; **and**
      - Joint lavage and drainage
  5. Erythema or drainage or swelling at joint by physical examination and **both** of the following criteria (a. and b.) are met:
    - a. **Two or more** of the following criteria are met:
      - i. Temperature  $>$  100.4 F (38.0 C)
      - ii. Synovial white blood count (WBC) or neutrophil percentage  $>$  normal
      - iii. ESR  $>$  30 mm/hr.
      - iv. C-reactive protein  $>$  normal
    - b. Joint infection onset within 4 weeks of total joint replacement **and either** of the following criteria are met:
      - i. Imaging documents loosening of prosthesis or cement ; **or**
      - ii. There are continued symptoms or findings after **both** of the following treatments:
        - IV anti-infectives  $\geq$  4 weeks; **and**
        - Joint lavage and drainage
  - C. There is no active infection and imaging documents any one of the following criteria:
    1. Malposition of acetabular or femoral component; **or**
    2. Recurrent dislocation; **or**
    3. Symptomatic loosening of prosthesis or cement.
  - D. Thigh pain  $\geq$  6 months with uncemented component and there is continued pain after **all** of the following treatments (1.-4.) have been tried within the last year:
    1. NSAIDS or acetaminophen  $\geq$  3 weeks; **and**
    2. PT or home exercises  $\geq$  12 weeks; **and**
    3. External joint support  $\geq$  12 weeks; **and**
    4. Activity modification  $\geq$  12 weeks.
  - E. Joint pain and suspected allergy to hip prosthesis when **all** of the following criteria are met:
    1. A documented comprehensive evaluation of has been performed; **and**
    2. Lab work has been performed to rule out infection; **and**
    3. Metal artifact reduction sequence magnetic resonance imaging (MARS MRI) to detect adverse local soft tissue reactions (ultrasound or CT when MRI contraindicated or MARS protocol not available); **and**
    4. No neurological symptoms, **or** neurological symptoms such as peripheral neuropathy, sensorineural hearing loss, visual impairment, paresthesias, tinnitus, and vertigo are present and a comprehensive neurological evaluation has been performed and has ruled out other causes.
- III. Hip arthroplasty is considered **not medically necessary and not covered** for all other indications when criteria I. or II. are not met.

<b>MEDICAL POLICY</b>	<b>Hip: Total Joint Arthroplasty (All Lines of Business Except Medicare)</b>
-----------------------	--

Link to [Policy Summary](#)

## POLICY GUIDELINES

### Definitions

*Activities of daily living:* The activities of daily living (ADLs) is a term used to describe essential skills that are required to independently care for oneself.<sup>1</sup> Examples may include, but are not limited to, the following:

- Ambulating
- Feeding
- Dressing
- Personal hygiene
- Transportation and shopping
- Meal preparation
- Housecleaning and home maintenance

## CPT CODES

All Lines of Business except Medicare	
Prior Authorization Required	
27130	Arthroplasty, acetabular and proximal femoral prosthetic replacement (total hip arthroplasty), with or without autograft or allograft
27132	Conversion of previous hip surgery to total hip arthroplasty, with or without autograft or allograft
27134	Revision of total hip arthroplasty; both components, with or without autograft or allograft
27137	Revision of total hip arthroplasty; acetabular component only, with or without autograft or allograft
27138	Revision of total hip arthroplasty; femoral component only, with or without allograft

## DESCRIPTION

A total hip replacement may also be termed total hip arthroplasty (THA). A THA is a surgical procedure that entails removal of the damaged bone and cartilage, and replacement with prosthetic components. The most common cause of hip pain that interferes with daily activities is primary in nature due to arthritis (osteoarthritis [OA], rheumatoid arthritis), though pain can also be a secondary outcome due to trauma or a differing disease process.<sup>2</sup> In OA, cartilage is degraded and causes remodelling of the underlying bone. The cascading effect is a response of chondrocytes in the articular cartilage and the

<b>MEDICAL POLICY</b>	<b>Hip: Total Joint Arthroplasty (All Lines of Business Except Medicare)</b>
-----------------------	--

inflammatory cells in the surrounding tissues. The most common joints affected by osteoarthritis are the small joints of the hands and feet, and the hip and knee joint.

Typically, a THA is indicated for those with a deteriorated joint for whom conservative management has failed, and persistent, debilitating pain causes a significant reduction in the activities of daily living (ADLs). The goals of a THA is to reduce pain and restore function to improve overall quality of life. A number of contraindications to THA exist, including but not limited to: active infection, preexisting significant medical problems, skeletal immaturity, quadriplegia, and permanent or irreversible muscle weakness in the absence of pain. Over 370,000 THAs are performed in the United States each year.

**REVIEW OF EVIDENCE**

A review of the ECRI, Hayes, Cochrane, and PubMed databases was conducted regarding total hip arthroplasty as a treatment for refractory hip pain due to arthritis of any type or hip fracture. Across multitudes of publications beyond a twenty-year publication period, THA has been shown to demonstrate excellent clinical and functional results.<sup>2-4</sup> Conservative management prior to THA surgery is ubiquitously recommended unless contraindicated.<sup>5-10</sup> The culmination of the literature demonstrates that rigorous patient-selection and pre-operative planning/evaluation supports increased improved overall health outcomes.<sup>11-13</sup> As such, these policy criteria are primarily based on evidence-based clinical practice guidelines, with a subset of topics included in this review section.

Robotic-Assisted Surgery System

In 2020, ECRI published an updated a clinical evidence assessment regarding the use of the Mako robotic arm-assisted surgery system for total hip arthroplasty.<sup>14</sup> The available evidence includes nonrandomized studies that may suggest more accurate and reproducible implant positioning, though superiority using Mako to perform THA over conventional THA approaches has not been demonstrated. The evidence is limited by retrospective design, single-center focus, and lack of randomization and blinding.

**CLINICAL PRACTICE GUIDELINES**

American Academy of Orthopaedic Surgeons (AAOS)

In 2019, the AAOS published an evidence-based clinical practice guideline for diagnosis and prevention of periprosthetic joint infections (PJIs) in adult knee and hip replacement patients.<sup>15</sup> Amongst the 25 recommendations included, the AAOS made the following four recommendations regarding pre-operative risk factors:

**Risk Factors for Periprosthetic Joint Infection (PJI)**

1. Moderate strength evidence supports that obesity is associated with increased risk of PJI.  
(Strength of Recommendation: Moderate ★★★)

<b>MEDICAL POLICY</b>	<b>Hip: Total Joint Arthroplasty (All Lines of Business Except Medicare)</b>
-----------------------	--

2. Limited strength evidence supports that patients in which one or more of the following criteria are present are at an increased risk of PJI after hip and knee arthroplasty:
  - Cardiac disease (arrhythmia, coronary artery disease [CAD], congestive heart failure, other)
  - Immunocompromised status (other than HIV), including transplant, cancer
  - Peripheral vascular disease
  - Inflammatory arthritis
  - Prior joint infection
  - Renal disease
  - Liver disease (hepatitis, cirrhosis, other)
  - Mental health disorders (including depression)
  - Alcohol use
  - Anemia
  - Tobacco use
  - Malnutrition
  - Diabetes
  - Uncontrolled diabetes

*(Strength of Recommendation: Limited ★★)*
  
3. In the absence of reliable evidence, it is the opinion of this work group that in the case that one or more of the following conditions are present, the practitioner should carefully consider the risk before proceeding with surgery:
  - Active infection (strongly caution against proceeding with surgery given the risks)
  - Anticoagulation status, active thromboprophylaxis (proceed only after careful consideration of the risks)
  - Autoimmune disease (proceed only after careful consideration of the risks)
  - HIV status (proceed only after careful consideration of the control and risks)
  - Institutionalized patients (proceed only after careful consideration of the risks)
  - Prior bariatric surgery (proceed only after careful consideration of the risks)

*(Strength of Recommendation: Consensus ★)*
  
4. In the absence of reliable evidence, it is the opinion of this work group that the following conditions have an unclear effect on risk of PJI:
  - Age (conflicting evidence)
  - Dementia (insufficient evidence due to imprecise confidence intervals)
  - Poor dental status (inadequate evidence for a recommendation)
  - Asymptomatic bacteriuria (conflicting evidence)

*(Strength of Recommendation: Consensus ★)*

In 2017, the AAOS published a clinical practice guideline for the management of hip osteoarthritis based on the available evidence and an expert consensus panel.<sup>16</sup> Moderate evidence (evidence from two or more studies with consistent findings or evidence from a single high quality study) supported the AAOS recommendations regarding employing risk assessment tools to predict adverse outcomes for those considering total hip arthroplasty, and specific risk factors including but not limited to obesity and



<b>MEDICAL POLICY</b>	<b>Hip: Total Joint Arthroplasty (All Lines of Business Except Medicare)</b>
-----------------------	--

increased age. Strong evidence supported improved function and reduced pain for patients undergoing physical therapy as a conservative therapy and NSAID use.

In 2012, the AAOS published an Information Statement regarding metal-on-metal (MoM) hip arthroplasty.<sup>17</sup> The authors stated that of the 1,000,000 MoM implants performed worldwide since 1996, the failure rate of MoM bearings has been reported as 2-3 fold higher than contemporary THA with non-MoM bearings. The authors proposed a systematic risk stratification recommendation, for multiple modes of failure including adverse local tissue reactions, based on the available evidence at the time. Each risk strata (low, high, and moderate) included a comprehensive workup to include radiographs, infection work-up, metal ion level test, cross-sectional imaging (MARS MRI; ultrasound or CT when MRI contraindicated or MARS protocol not available), and serial monitoring of at least 6 months or greater.

American College of Rheumatology (ACR) | American Association of Hip and Knee Surgeons (AAHKS)

In 2017, Goodman et al. published an evidence-based guideline as a collaboration between the ACR and AAHKS, specific to the perioperative management of antirheumatic drug therapy for adults with rheumatoid arthritis (RA), spondyloarthritis (SpA) including ankylosing spondylitis and psoriatic arthritis, juvenile idiopathic arthritis (JIA), or systemic lupus erythematosus (SLE) undergoing elective total hip (THA) or total knee arthroplasty (TKA).<sup>18</sup> Due to an increased risk for periprosthetic joint infection in these patient populations, the expert panel evaluated the literature and made recommendations for medication use following THA. All seven recommendations were reported to be conditional and based on low- or moderate-quality evidence, given the paucity of high-quality data.

**POLICY SUMMARY**

Initial Total Hip Arthroplasty

There is enough research to show that initial total hip arthroplasty (THA) may improve overall health outcomes for those with a diagnosis of certain conditions of the hip (i.e., osteoarthritis, posttraumatic arthritis, rheumatoid arthritis, acute fracture, nonunion or malunion, articular fracture, bone tumor, or osteonecrosis) when specific criteria are met. Clinical practice guidelines based on research recommend THA for patients who meet selection criteria that are in alignment with policy criteria. Therefore, initial total hip arthroplasty may be considered medically necessary and covered for those with a diagnosis of osteoarthritis, posttraumatic arthritis, rheumatoid arthritis, acute fracture, nonunion or malunion, articular fracture, bone tumor, or osteonecrosis when policy criteria are met. Based on research and clinical practice guidelines that are based on research, initial total hip arthroplasty is considered not medically necessary and not covered when policy criteria are not met.

Hip Arthroplasty Removal and Replacement

There is enough research to show that total hip arthroplasty (THA) removal and replacement may improve overall health outcomes for those who meet specific selection criteria. Clinical practice guidelines based on research recommend THA removal and replacement for patient populations that

<b>MEDICAL POLICY</b>	<b>Hip: Total Joint Arthroplasty (All Lines of Business Except Medicare)</b>
-----------------------	--

are consistent with policy criteria. Therefore, total hip arthroplasty removal and replacement may be considered medically necessary and covered for those who meet policy criteria. Based on research and clinical practice guidelines that are based on research, removal and replacement of total hip arthroplasty is considered not medically necessary and not covered when policy criteria are not met.

## **INSTRUCTIONS FOR USE**

Company Medical Policies serve as guidance for the administration of plan benefits. Medical policies do not constitute medical advice nor a guarantee of coverage. Company Medical Policies are reviewed annually and are based upon published, peer-reviewed scientific evidence and evidence-based clinical practice guidelines that are available as of the last policy update. The Companies reserve the right to determine the application of Medical Policies and make revisions to Medical Policies at any time. Providers will be given at least 60-days notice of policy changes that are restrictive in nature.

The scope and availability of all plan benefits are determined in accordance with the applicable coverage agreement. Any conflict or variance between the terms of the coverage agreement and Company Medical Policy will be resolved in favor of the coverage agreement.

## **REGULATORY STATUS**

### Mental Health Parity Statement

Coverage decisions are made on the basis of individualized determinations of medical necessity and the experimental or investigational character of the treatment in the individual case. In cases where medical necessity is not established by policy for specific treatment modalities, evidence not previously considered regarding the efficacy of the modality that is presented shall be given consideration to determine if the policy represents current standards of care.

## **MEDICAL POLICY CROSS REFERENCES**

- Hip Total Joint Arthroplasty (Medicare Only)
- Joint Resurfacing

## **REFERENCES**

1. Edemekong PF BD, Sukumaran S, et al.,. Activities of Daily Living (ADLs). <https://www.ncbi.nlm.nih.gov/books/NBK470404/>. Published 2020. Accessed 03/31/2021.
2. UpToDate. Total hip arthroplasty. Erens, et al. Literature review current through: Mar 2021. | This topic last updated: Jan 31, 2020. <https://www.uptodate.com/contents/total-hip-arthroplasty>. Accessed 03/31/2021.

**MEDICAL POLICY****Hip: Total Joint Arthroplasty  
(All Lines of Business Except  
Medicare)**

3. Jolles BM, Bogoch ER. Posterior versus lateral surgical approach for total hip arthroplasty in adults with osteoarthritis. *Cochrane Database Syst Rev*. 2006(3):CD003828. <https://www.ncbi.nlm.nih.gov/pubmed/16856020>
4. Smith TO, Jepson P, Beswick A, et al. Assistive devices, hip precautions, environmental modifications and training to prevent dislocation and improve function after hip arthroplasty. *Cochrane Database Syst Rev*. 2016;7:CD010815. <https://www.ncbi.nlm.nih.gov/pubmed/27374001>
5. Nelson AE, Allen KD, Golightly YM, Goode AP, Jordan JM. A systematic review of recommendations and guidelines for the management of osteoarthritis: The chronic osteoarthritis management initiative of the U.S. bone and joint initiative. *Semin Arthritis Rheum*. 2014;43(6):701-712. <https://www.ncbi.nlm.nih.gov/pubmed/24387819>
6. Goyal N, Chen AF, Padgett SE, et al. Otto Aufranc Award: A Multicenter, Randomized Study of Outpatient versus Inpatient Total Hip Arthroplasty. *Clin Orthop Relat Res*. 2017;475(2):364-372. <https://www.ncbi.nlm.nih.gov/pubmed/27287858>
7. Kim YH, Kim JS, Park JW, Joo JH. Contemporary total hip arthroplasty with and without cement in patients with osteonecrosis of the femoral head: a concise follow-up, at an average of seventeen years, of a previous report. *J Bone Joint Surg Am*. 2011;93(19):1806-1810. <https://www.ncbi.nlm.nih.gov/pubmed/22005866>
8. Ackerman IN, Bennell KL, Osborne RH. Decline in Health-Related Quality of Life reported by more than half of those waiting for joint replacement surgery: a prospective cohort study. *BMC Musculoskelet Disord*. 2011;12:108. <https://www.ncbi.nlm.nih.gov/pubmed/21605398>
9. Veenhof C, Bijlsma JW, van den Ende CH, van Dijk GM, Pisters MF, Dekker J. Psychometric evaluation of osteoarthritis questionnaires: a systematic review of the literature. *Arthritis Rheum*. 2006;55(3):480-492. <https://www.ncbi.nlm.nih.gov/pubmed/16739188>
10. Khan RJ, Carey Smith RL, Alakeson R, Fick DP, Wood D. Operative and non-operative treatment options for dislocation of the hip following total hip arthroplasty. *Cochrane Database Syst Rev*. 2006(4):CD005320. <https://www.ncbi.nlm.nih.gov/pubmed/17054252>
11. Kort NP, Bemelmans YFL, van der Kuy PHM, Jansen J, Schotanus MGM. Patient selection criteria for outpatient joint arthroplasty. *Knee Surg Sports Traumatol Arthrosc*. 2017;25(9):2668-2675. <https://www.ncbi.nlm.nih.gov/pubmed/27106923>
12. Pollock M, Somerville L, Firth A, Lanting B. Outpatient Total Hip Arthroplasty, Total Knee Arthroplasty, and Unicompartmental Knee Arthroplasty: A Systematic Review of the Literature. *JBJS Rev*. 2016;4(12). <https://www.ncbi.nlm.nih.gov/pubmed/28060788>
13. Courtney PM, Boniello AJ, Berger RA. Complications Following Outpatient Total Joint Arthroplasty: An Analysis of a National Database. *J Arthroplasty*. 2017;32(5):1426-1430. <https://www.ncbi.nlm.nih.gov/pubmed/28034481>
14. ECRI | Clinical Evidence Assessment | Mako Robotic Arm-Assisted Surgery System (Stryker Corp.) For Total Hip Arthroplasty. Oct 2020. <https://www.ecri.org/components/ProductBriefs/Pages/23147.aspx>. Accessed 04/06/2021.
15. Tubb CC, Polkowksi GG, Krause B. Diagnosis and Prevention of Periprosthetic Joint Infections. *J Am Acad Orthop Surg*. 2020. <https://www.ncbi.nlm.nih.gov/pubmed/31972719>
16. American Academy of Orthopaedic Surgeons (AAOS). Management of Osteoarthritis of the Hip Evidence-Based Clinical Practice Guideline. 3.13.17. [https://www.aaos.org/globalassets/quality-and-practice-resources/osteoarthritis-of-the-hip/oa-hip-cpg\\_6-11-19.pdf](https://www.aaos.org/globalassets/quality-and-practice-resources/osteoarthritis-of-the-hip/oa-hip-cpg_6-11-19.pdf). Accessed 2/3/2020.

<b>MEDICAL POLICY</b>	<b>Hip: Total Joint Arthroplasty (All Lines of Business Except Medicare)</b>
-----------------------	--

17. American Academy of Orthopaedic Surgeons, American Association of Orthopaedic Surgeons. 2012. Information Statement. Current Concerns with Metal-on-Metal Hip Arthroplasty. <https://www.aaos.org/globalassets/about/bylaws-library/information-statements/1035-current-concerns-with-metal-on-metal-hip-arthroplasty.pdf>. Accessed 04/15/2021.

18. Goodman SM, Springer B, Guyatt G, et al. 2017 American College of Rheumatology/American Association of Hip and Knee Surgeons Guideline for the Perioperative Management of Antirheumatic Medication in Patients With Rheumatic Diseases Undergoing Elective Total Hip or Total Knee Arthroplasty. *J Arthroplasty*. 2017;32(9):2628-2638. <https://www.ncbi.nlm.nih.gov/pubmed/28629905>