Femoral Head Osteonecrosis

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Other Notices:

Guideline Information:

Specialty Area: Diseases & Disorders of the Musculoskeletal System (M00-M99)
CarePath Group: Hip
CarePath Name: Femoral Head Osteonecrosis (M87, M89
Type: [**X**] Adult (18+ yo) | [_] Pediatric (0-17yo)

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Care Path Clinical Discussion

Osteonecrosis of the hip occurs when the blood supply to the head of the femur becomes disrupted. This disruption can cause bone tissue death and subsequent femoral head collapse. Untreated osteonecrosis results in the collapse of the articular cartilage covering the hip bone, ultimately leading to the destruction of the hip joint as well as severe arthritis.[1,2]

In its early stages, osteonecrosis may be asymptomatic. However, the most common symptom is deep pain in the groin. Other symptoms include pain in the ipsilateral buttock, anterior thigh, or knee.

Although radiographs can be helpful, Magnetic resonance imaging (MRI) is an instrumental test for diagnosis as it can detect the early stages of osteonecrosis.[3] The crescent sign is pathognomonic of osteonecrosis & suggests early delamination of the cartilage, which is visualizable on MRI & radiographic imaging. Consider a differential diagnosis of transient osteoporosis when osteonecrosis is suspected. The symptoms of transient osteoporosis can be very similar to osteonecrosis. Symptoms can include the groin, buttock, and anterior thigh pain. Patients frequently present with a limp or antalgic gait. In most cases, symptoms resolve within 12 months of presentation and do not require surgical treatment.[3] An MRI can be a valuable test to differentiate between the two diagnoses.[2]

Nonsurgical management with osteonecrosis seems to have a limited role in treatment. Activity modification & physical therapy have not shown a significant clinical benefit. Bisphosphonates may delay or prevent the progression of disease but can be associated with adverse effects.[4] The usefulness of pharmacologic agents, such as anticoagulants, has not been established.

Surgical management of osteonecrosis of the hip is dependent on the disease severity. The Ficat Classification can be helpful to determine surgical treatment options.[5] Approximately 10% of total hip arthroplasty (THA) patients in the United States have an underlying diagnosis of osteonecrosis. Postoperative care such as physical therapy may be appropriate.

The information contained herein gives a general overview of the pathway of this specific diagnosis, beginning with initial presentation, recommended assessments, and treatment options as supported by the medical literature and existing guidelines. It should be noted that the care of patients can be complex. The information below is meant to support clinical decision making in adult patients. It is not necessarily applicable to every case, as the entire clinical picture (including comorbidities, history, etc.) should be considered.

Key Information

- ➢ Osteonecrosis is estimated to be diagnosed between 20,000 to 30,000 times annually in the United States.[6]
    - Alcohol-associated osteonecrosis is most common in men.[7]
    - Osteonecrosis with comorbidity of systemic lupus erythematosus is most common in women.
    - Patients in the age range of 30-60 are more affected.[2]
- ➢ Surgery treatment depends on the severity and location of the disease, which is determinable with MRI.
    - Core decompression (CD) is widely used to treat early-stage osteonecrosis. CD is a safe and effective treatment method with an overall success rate of 65% up to 54 months follow-up depending on the Ficat stage.[5] CD is recommended for pre-collapse osteonecrosis if the lesion is less than 30% of the femoral head volume.
    - Biologic augmentation of CD has shown promising results, but further study is needed.
    - Bone grafting may provide mechanical support of the osteonecrotic lesion, especially in post-collapse lesions with less than 2 mm of femoral head depression.
    - Vascularized bone grafting may preserve the femoral head, but harvest site morbidity can reach 20%.
    - Osteotomies are another surgical procedure that may prevent femoral head collapse. However, this surgery is technically challenging; surgeons must consider that converting to a total hip arthroplasty from a failed osteotomy may be complex.
    - Total hip arthroplasty may be required if the femoral head has collapsed or if the advanced imaging shows the presence of a sizeable osteonecrotic lesion in the pre-collapse stages that compromises the outcome of the head sparing procedures.

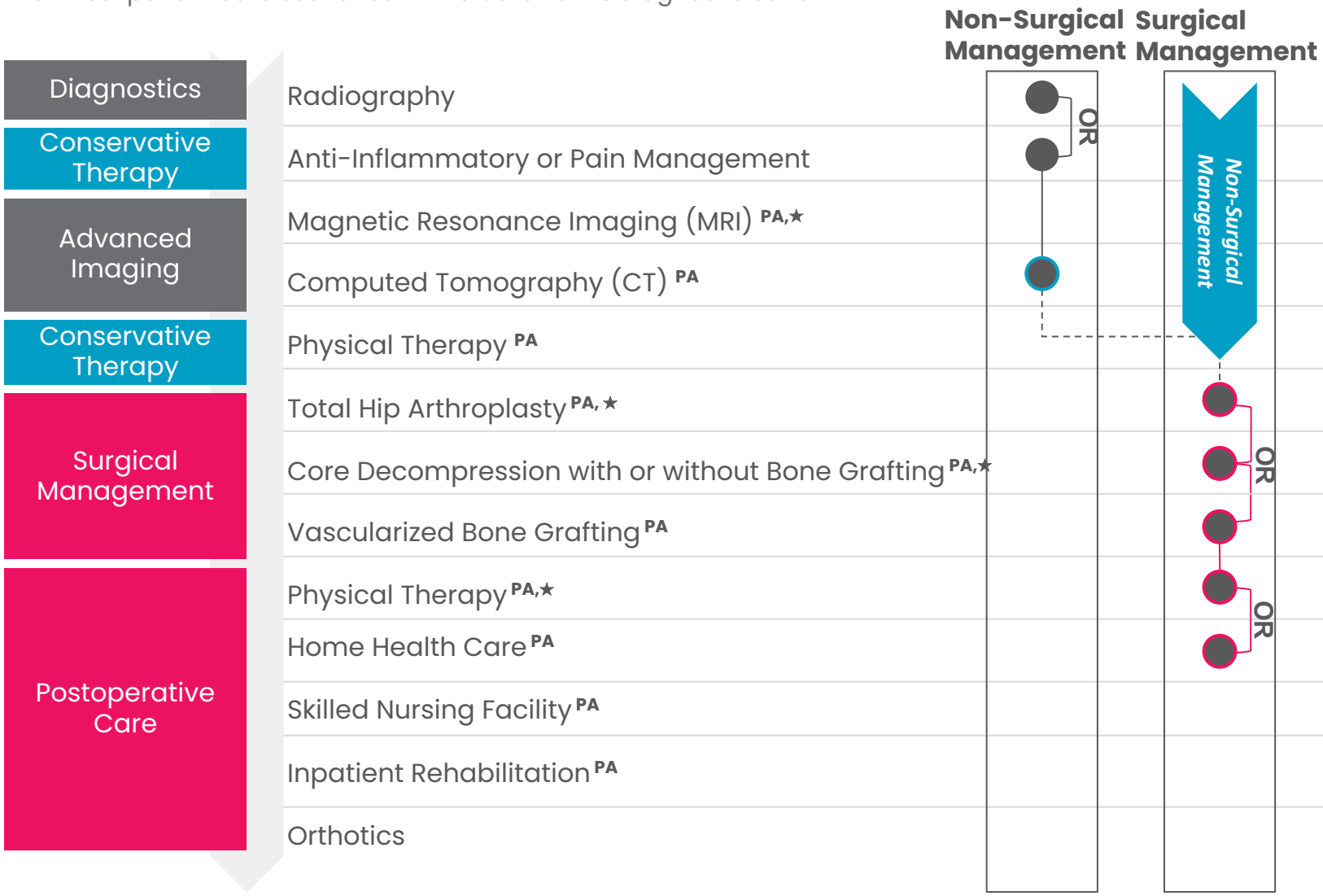
Definitions

- **Stinchfield test:** The test begins with a supine patient. The examiner asks the patient to extend their knee and the examiner resists active hip flexion greater than 30°. A positive test occurs when the patient feels pain associated with intraarticular hip pathology.
- **The Ficat Classification:** A helpful scale to determine surgical treatment options[8]:
    - Stage 1: Pre Radiographic, but the patient presents with pain in the groin.

- Stage 2: Clinical symptoms with radiographic density, diffuse, increased porosity, and cystic changes of the femoral head
- Stage 3: Clinical symptoms with radiographic disruption of the contour of the femoral head; "crescent sign."
- Stage 4: Clinical symptoms with complete femoral head collapse on radiographic imaging.

Femoral Head Osteonecrosis

What is a "Cohere Care Path"?
These Care Paths organize the services typically considered most clinically optimal and likely to be automatically approved. These service recommendations also include the suggested sequencing and quantity or frequency determined clinically appropriate and medically necessary for the management of most patient care scenarios in this Care Path's diagnostic cohort.



Key

PA = Service may require prior authorization
★ = Denotes preferred service
AND = Services completed concurrently
OR = Services generally mutually exclusive

= Non-surgical management prior authorization group of services
= Surgical management prior authorization group of services
= Subsequent service
= Management path moves to a different management path

Care Path Diagnostic Criteria

Disease Classification

Femoral Head Osteonecrosis

ICD-10 Codes Associated with Classification

ICD-10 Code	Code Description/Definition
M25.551	Pain in right hip
M25.552	Pain in left hip
M25.559	Pain in unspecified hip
M79.651	Pain in right thigh
M79.652	Pain in left thigh
M79.659	Pain in unspecified thigh
M87.05	Idiopathic aseptic necrosis of pelvis and femur
M87.050	Idiopathic aseptic necrosis of pelvis
M87.051	Idiopathic aseptic necrosis of right femur
M87.052	Idiopathic aseptic necrosis of left femur
M87.059	Idiopathic aseptic necrosis of unspecified femur
M87.150	Osteonecrosis due to drugs, pelvis
M87.151	Osteonecrosis due to drugs, right femur
M87.152	Osteonecrosis due to drugs, left femur
M87.159	Osteonecrosis due to drugs, unspecified femur
M87.250	Osteonecrosis due to previous trauma, pelvis
M87.251	Osteonecrosis due to previous trauma, right femur
M87.252	Osteonecrosis due to previous trauma, left femur
M87.256	Osteonecrosis due to previous trauma, unspecified femur
M87.350	Other secondary osteonecrosis, pelvis
M87.351	Other secondary osteonecrosis, right femur
M87.352	Other secondary osteonecrosis, left femur

M87.353	Other secondary osteonecrosis, unspecified femur
M87.85	Other osteonecrosis, pelvis and femur
M87.850	Other osteonecrosis, pelvis
M87.851	Other osteonecrosis, right femur
M87.852	Other osteonecrosis, left femur
M87.859	Other osteonecrosis, unspecified femur
M89.75	Major osseous defect, pelvic region and thigh
M89.751	Major osseous defect, right pelvic region and thigh
M89.752	Major osseous defect, left pelvic region and thigh
M89.759	Major osseous defect, unspecified pelvic region and thigh
M89.78	Major osseous defect, other site
M89.79	Major osseous defect, multiple sites

Presentation and Etiology

Causes and Risk Factors

Risk factors include excessive alcohol consumption, corticosteroid therapy, and the use of immunosuppressant medication.[2,3] Additional risk factors include trauma or injury to the hip, coagulation disorders, hemoglobinopathies (e.g., sickle cell disease), dysbaric phenomena, autoimmune diseases (e.g., systemic lupus erythematosus, Crohn's disease), storage disease (e.g., Gaucher's disease), smoking, and hyperlipidemia.[1,2] Other risk factors include the following medical conditions: Caisson's disease, myeloproliferative disorders, arterial embolism, thrombosis, and vasculitis.[1]

Clinical Presentation[1]

- Pain in the hip, buttocks, groin, knee, or thigh
- Difficulty standing, putting weight on the affected hip, or moving

Typical Physical Exam Findings

- Limited passive range of motion
- Painful range of motion
- Pain with straight leg raise against resistance

Typical Diagnostic Findings

MRI is considered the benchmark as it can detect the early stages of osteonecrosis and assist in staging osteonecrosis. Although radiography may help diagnose, MRI imaging will show cystic and sclerotic changes in the femoral head.[3]

Care Path Services & Medical Necessity Criteria

Conservative Therapy

Service: Physical Therapy

General Guidelines

- **Units, Frequency, & Duration:** There is insufficient evidence available to support recommendations regarding timing, duration, and frequency of conservative treatment.
- **Criteria for Subsequent Requests:** The patient should be progressing towards goals in the physical therapy plan without fully obtaining all goals.[9]
- **Recommended Clinical Approach:** The first line of treatment should be land-based. If land-based is not working, patients can try aquatic exercises. Physical therapy, including land-based or aquatic exercise and strengthening, is recommended for all patients with osteonecrosis of the femoral head.
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Physical therapy** is considered appropriate if **ALL** of the following are **TRUE**:

- ◆ The patient has **ANY** positive findings from:
  - Clinical presentation
  - Typical physical exam findings

Non-Indications

None.

Site of Service Criteria

Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
97010	Application of hot or cold packs
97012	Application of mechanical traction
97014	Application of electrical stimulation
97016	Application of vasopneumatic devices
97018	Application of paraffin bath
97022	Application of whirlpool
97024	Application of diathermy
97026	Application of infrared modality
97028	Application of ultraviolet modality
97032	Application of manual electrical stimulation
97033	Application of iontophoresis
97034	Application of contrast baths
97035	Application of ultrasound modality
97036	Application of Hubbard tank
97039	Modality service
97110*	Therapeutic exercises to develop strength and endurance, range of motion and flexibility
97112	Neuromuscular reeducation of movement, balance, coordination, kinesthetic sense, posture, and proprioception for sitting and standing activities
97113	Aquatic therapy with therapeutic exercises
97116	Gait training including stair climbing
97124	Massage including effleurage and petrissage; Massage including effleurage and tapotement; Massage including effleurage, petrissage and tapotement; Massage

	including petrissage and tapotement
97139	Therapeutic procedure
97140	Manual therapy techniques
97150	Group therapeutic procedures
97164	Physical therapy re-evaluation of established plan of care, high complexity, typical time with patient 20 minutes; Physical therapy re-evaluation of established plan of care, high complexity, typical time with patient and family 20 minutes; Physical therapy re-evaluation of established plan of care, high complexity, typical time with patient's family 20 minutes
97530	Direct therapeutic activities with use of dynamic activities to improve functional performance, each 15 minutes
97535	Home management training, direct one-on-one contact, each 15 minutes; Self-care management training, direct one-on-one contact, each 15 minutes
97537	Community reintegration training, direct one-on-one contact, each 15 minutes; Work reintegration training, direct one-on-one contact, each 15 minutes
97542	Wheelchair management, each 15 minutes
97545	Work conditioning, initial 2 hours; Work hardening, initial 2 hours
97546	Work conditioning, each additional hour; Work hardening, each additional hour
97750	Physical performance measurement with written report, each 15 minutes; Physical performance test with written report, each 15 minutes
97755	Assistive technology assessment with written report, direct one-on-one contact, each 15 minutes

97760	Initial orthotic management and training with assessment and fitting of lower extremities and trunk, each 15 minutes; Initial orthotic management and training with assessment and fitting of lower extremities, each 15 minutes; Initial orthotic management and training with assessment and fitting of lower extremity and trunk, each 15 minutes; Initial orthotic management and training with assessment and fitting of lower extremity, each 15 minutes; Initial orthotic management and training with assessment and fitting of trunk, each 15 minutes; Initial orthotic management and training with assessment and fitting of upper and lower extremities and trunk, each 15 minutes
97761	Initial prosthetic training of lower extremities, each 15 minutes; Initial prosthetic training of lower extremity, each 15 minutes Initial prosthetic training of upper and lower extremities, each 15 minutes; Initial prosthetic training of upper extremities, each 15 minutes; Initial prosthetic training of upper extremity, each 15 minutes
97763	Subsequent orthotic management and training of lower extremities and trunk, each 15 minutes Subsequent orthotic management and training of lower extremity and trunk, each 15 minutes Subsequent orthotic management and training of lower extremity, each 15 minutes Subsequent orthotic management and training of upper and lower extremities and trunk, each 15 minutes Subsequent orthotic management and training of upper extremities and trunk, each 15 minutes Subsequent orthotic management and training of upper extremities, each 15 minutes Subsequent orthotic management and training of upper extremity and trunk, each 15 minutes Subsequent orthotic management and training of upper extremity, each 15 minutes Subsequent orthotic management of lower extremities and

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97799	Unlisted physical medicine/rehabilitation service or procedure
420	Physical Therapy
421	Physical Therapy: Visit Charge
422	Physical Therapy: Hourly Charge
423	Physical Therapy: Group Rate
424	Physical Therapy: Evaluation/Re-evaluation
429	Physical Therapy: Other Physical Therapy
97163	Evaluation of physical therapy, typically 45 minutes
97161	Evaluation of physical therapy, typically 20 minutes
97162	Evaluation of physical therapy, typically 30 minutes
97168	Re-evaluation of occupational therapy established plan of care, typically 30 minutes
97165	Evaluation of occupational therapy, typically 30 minutes
97166	Evaluation of occupational therapy, typically 45 minutes
97167	Evaluation of occupational therapy established plan of care, typically 60 minutes
G0151	Hhcp-serv of pt,ea 15 min

*Default codes for suggested services

Diagnostics

Service: Radiography

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** Radiography is indicated in the initial evaluation of hip pain and suspected osteonecrosis.[10]
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Radiography** is considered appropriate if **ALL** of the following are **TRUE**[10]:

- ◆ The patient has **ANY** positive findings from:
  - Clinical presentation
  - Typical physical exam findings

Non-Indications

None.

Site of Service Criteria

Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
73501	Unilateral x-ray of hip with pelvis, single view; Unilateral x-ray of hip, single view
73502	Unilateral x-ray of hip with pelvis, 2-3 views; Unilateral x-ray of hip, 2-3 views
73503	Bilateral x-rays of hip, minimum of 4 views; Unilateral x-rays of hip with pelvis, minimum of 4 views
73521	Bilateral x-rays of hips and pelvis, 2 views; Bilateral x-rays of hips, 2 views

73522	Bilateral x-rays of hips and pelvis, 3 views; Bilateral x-rays of hips and pelvis, 4 views; Bilateral x-rays of hips, 3 views; Bilateral x-rays of hips, 4 views
73523	Bilateral x-rays of hips with pelvis, minimum of 5 views; Bilateral x-rays of hips, minimum of 5 views

Advanced Imaging

Service: Magnetic Resonance Imaging (MRI)

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** MRI is considered the benchmark for diagnosing and staging osteonecrosis.
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **MRI** is considered appropriate if **ALL** of the following are **TRUE**:
- ◆ The patient has **ANY** positive findings from:
  - Clinical presentation
  - Typical physical exam findings
- ◆ Radiography shows **ALL** of the following[10]:
  - The radiograph suggested osteonecrosis.
  - The radiograph lacked evidence of advanced degenerative arthritis.

Non-Indications

➔ **MRI** may not be appropriate if **ANY** of the following is **TRUE**[11]:
- ◆ Non-compatible implanted devices
- ◆ Metallic intraocular foreign bodies
- ◆ Claustrophobia

Site of Service Criteria

Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
72195	Magnetic resonance imaging (MRI) of pelvis without contrast material
73718	Magnetic resonance imaging (MRI) of thigh between hip and knee without contrast material

73721	MRI of lower extremity
73722	MRI scan of leg joint with contrast
73723	MRI scan of leg joint with and without contrast
73719	MRI scan of leg with contrast
73720	MRI scan of leg with and without contrast
72196	Magnetic resonance imaging (MRI) of pelvis with contrast material
72197	Magnetic resonance imaging (MRI) of pelvis with and without contrast material

Service: Computed Tomography (CT)

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** The practitioner may utilize computed tomography (CT) to assess bone loss in grade 4 osteonecrosis.[12]
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **CT** is considered appropriate if **ANY** of the following is **TRUE**[10,12]:

- ◆ The patient has **ANY** positive findings from:
  - Clinical presentation
  - Typical physical exam findings
- ◆ Grade 4 osteonecrosis.
- ◆ MRI is nonindicated.

Non-Indications

None.

Site of Service Criteria

Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
73700	CT of lower extremity
73701	CT of lower extremity with contrast
73702	CT of lower extremity with and without contrast
72192	CT of pelvis
72193	CT of pelvis with contrast
72194	CT of pelvis with and without contrast

Surgical Management

Service: Core Decompression with or without Bone Grafting

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** Core decompression has encouraging results when performed in the early stages of femoral head osteonecrosis (i.e., at a pre-collapsed stage) in small lesions.[2] Bone grafting may provide mechanical support of the osteonecrotic lesion. Core decompression has limited efficacy in patients over the age of 50.
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Core decompression** may be considered appropriate if **ALL** of the following are **TRUE**:
- ◆ The patient has **ANY** positive findings from:
  - Clinical presentation
  - Typical physical exam findings
- ◆ Advanced imaging shows **ALL** of the following[2]:
  - Early osteonecrosis
  - No collapse of the femoral head
  - No advanced degenerative arthritis

Non-Indications

➔ **Core decompression** may not be appropriate if **ANY** of the following is **TRUE**[2]:
- ◆ Advanced imaging shows advanced stages of osteonecrosis.
- ◆ The patient is over the age of 50.

Site of Service Criteria

Inpatient or outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
20933	Partial hemicortical intercalary allograft of bone
26992	Incision of bone cortex of pelvis; Incision of bone cortex of pelvis and hip joint; Incision of bone cortex of hip joint for bone abscess; Incision of bone cortex of hip joint for osteomyelitis; Incision of bone cortex of pelvis for bone abscess; Incision of bone cortex of pelvis for osteomyelitis; Incision of bone cortex of hip joint; Incision of bone cortex of pelvis and hip joint for bone abscess; Incision of bone cortex of pelvis and hip joint for osteomyelitis
27071	Deep craterization of wing of ilium; Deep partial excision of wing of ilium; Intramuscular craterization of wing of ilium; Subfascial craterization of wing of ilium; Deep craterization of greater trochanter of femur; Deep craterization of symphysis pubis; Deep partial excision of greater trochanter of femur; Deep partial excision of symphysis pubis; Intramuscular craterization of great trochanter of femur; Intramuscular craterization of symphysis pubis; Subfascial craterization of great trochanter of femur; Subfascial craterization of symphysis pubis
27170	Bone grafting
27299	Unlisted procedure on hip joint; Unlisted procedure on pelvis
S2325	Hip core decompression

Service: Vascularized Bone Grafting

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** Vascularized fibular bone grafting can significantly improve survival of pre-collapse hips compared to non-vascularized fibula grafting (86% versus 30% at 7 years postoperatively).[2] Others include greater trochanter and muscle pedicled bone grafts.
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Vascularized bone grafting** is considered appropriate if **ALL** of the following are **TRUE**[2]:

- ◆ The patient has **ANY** positive findings from:
  - Clinical presentation list
  - Typical physical exam findings list
- ◆ Advanced imaging shows **ALL** of the following:
  - Early osteonecrosis
  - No advanced degenerative arthritis
  - No collapse of the femoral head **OR** less than 2 mm of collapse.

Non-Indications

➔ **Vascularized bone grafting** is considered not appropriate if **ANY** of the following is **TRUE**[2]:

- ◆ Advanced imaging shows advanced stages of osteonecrosis.

Site of Service Criteria

Inpatient or outpatient

Additional Supporting Evidence

None.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition

20955	Bone graft from fibula with microvascular anastomosis

Service: Total Hip Arthroplasty (THA)

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** Total hip arthroplasty is an appropriate treatment for femoral head osteonecrosis.[2,13]
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Total hip arthroplasty** is considered appropriate if **ALL** of the following are **TRUE**:

- ◆ The patient has **1 or more** positive findings from:
  - Clinical presentation list
  - Typical physical exam findings list
- ◆ Advanced imaging shows **ANY** of the following[10,13]:
  - Femoral head collapse
  - Osteonecrosis in the pre-collapse stage when femoral head-sparing procedures are not indicated.[2]
  - Advanced degenerative arthritic changes
- ◆ The patient's activities of daily living (ADLs) are limited.
- ◆ The patient had more than 3 months of non-surgical management.

Non-Indications

➔ **Total hip arthroplasty** is not considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Skeletal immaturity
- ◆ Active infection
- ◆ Quadriplegia

Site of Service Criteria

Inpatient or outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition

27130	Replacement of thigh bone and hip joint prosthesis
27132	Conversion of previous replacement of thigh bone and hip joint prosthesis
27236	Open treatment of broken thigh bone with insertion of hardware or prosthetic replacement

Service: Revision of prior arthroplasty

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** If a patient had a joint arthroplasty and presents with pain due to loosening, failure of the prosthesis, instability, or infection, revision surgery may be indicated.[13]
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Revision of prior arthroplasty** is considered appropriate if **ALL** of the following are **TRUE**[13]**:**

- ◆ The patient has **ANY** of the following findings:
  - Pain
  - Infection
  - Instability
  - Loosening of the prosthesis
  - Failure of the prosthesis
  - Periprosthetic fracture
- ◆ The patient has **ANY** of the following advanced imaging or radiography findings:
  - Loosening of the prosthesis
  - Failure of the prosthesis

Non-Indications

None.

Site of Service Criteria

Inpatient or outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
27134	Revision of thigh bone and hip joint prosthesis
27137	Revision of hip joint prosthesis
27138	Revision of femoral component of total hip arthroplasty; Revision of femoral component of total hip arthroplasty with allograft

26990	Drainage of abscess or blood accumulation in pelvis or hip joint
26991	Incision of infected fluid filled sac (bursa) of pelvis or hip joint
27030	Incision of hip joint with drainage
27250	Treatment of hip dislocation

Surgical Risk Factors

Patient Medical Risk Stratification

Patient Risk Score	Patient Characteristic	Min Range	Max Range	Guidance
1- Very Low Risk	No known medical problems			
2- Low Risk	Hypertension		180/110 mm Hg	
2- Low Risk	Asthma	peak flow >80% of predicted or personal best value		
2- Low Risk	Prior history of alcohol abuse			Screen for liver disease and malnutrition
2- Low Risk	Prior history of tobacco use			
3- Intermediate Risk	Asthma	peak flow <80% of predicted or personal best value		
3- Intermediate Risk	Active alcohol abuse			
3- Intermediate Risk	Age	65	75	
3- Intermediate Risk	History of treated, stable coronary artery disease (CAD)			
3- Intermediate Risk	Stable atrial fibrillation			
3- Intermediate Risk	Diabetes mellitus	HbA1C >7%		
3- Intermediate Risk	Morbid obesity	BMI 30	BMI 40	
3- Intermediate Risk	Anemia	hemoglobin <11 (females), <12 (males)		Workup to identify etiology
3- Intermediate Risk	HIV	CD4 <200 cells/mm3		Get clearance from HIV specialist

3- Intermediate Risk	Rheumatologic disease			Preoperative consultation with rheumatologist re: perioperative medication management
3- Intermediate Risk	Peripheral vascular disease or history of peripheral vascular bypass	ankle-brachial pressure index (ABPI) <0.9		Preoperative consultation with vascular surgeon
3- Intermediate Risk	History of venous thromboembolism (VTE)			
3- Intermediate Risk	Well-controlled obstructive sleep apnea			
3- Intermediate Risk	Malnutrition	transferrin <200 mg/dL albumin <3.5 g/dL prealbumin <22.5 mg/dL total lymphocyte count <1200-1500 cell/mm3 BMI <18		Preoperative consultation with nutritionist
3- Intermediate Risk	Active tobacco Use			Enroll patient in smoking cessation program
4- High Risk	Diabetes mellitus with complications	HbA1c >8%		
4- High Risk	Age	76	85	
4- High Risk	Oxygen dependent pulmonary disease			
4- High Risk	Sickle cell anemia			
4- High Risk	Obesity	BMI 40		
4- High Risk	Cirrhosis, history of hepatic decompensation or variceal bleeding			

4- High Risk	Impaired cognition; dementia			
4- High Risk	Compensated CHF			
4- High Risk	Cerebrovascular disease			
4- High Risk	Uncontrolled or suspected obstructive sleep apnea (OSA)			
4- High Risk	Renal insufficiency	serum creatinine >1.5 mg/dL or creatinine clearance <100 mL/min		
4- High Risk	Opioid dependence			
4- High Risk	End Stage Liver Disease			
4- High Risk	Uncontrolled Seizure Disorder			
4- High Risk	History of Malignant Hyperthermia			
5- Very High Risk	Cardiovascular: unstable angina, recent myocardial infarction (60 days), uncontrolled atrial fibrillation or other high-grade abnormal rhythm, severe valvular disease, decompensated heart failure			
5- Very High Risk	Primary pulmonary hypertension			Preoperative consultation with pulmonologist warranted
5- Very High Risk	Cirrhosis or severe liver disease, history of hepatic decompensation or variceal bleeding			
5- Very High Risk	Severe frailty, dependence for ADLs, or history of 3 or more falls in last 6 mos			
5- Very High Risk	Obesity		BMI >50	
5- Very High Risk	Age		>85	

5- Very High Risk	History of VTE with CI to anticoagulation, failure of anticoagulation, cessation of anticoagulation therapy secondary to bleeding			Preoperative consultation with hematologist or internist
5- Very High Risk	Renal failure requiring dialysis			
5- Very High Risk	Immunosuppression			
5- Very High Risk	Chronic Pain			

Post-Acute Care

Service: Physical Therapy

General Guidelines

- **Units, Frequency, & Duration:** There is insufficient evidence available to support recommendations regarding timing, duration, and frequency of postoperative physical therapy treatment.
- **Criteria for Subsequent Requests:** The patient should be progressing towards goals in the physical therapy plan without fully obtaining all goals.
- **Recommended Clinical Approach:** The first line of treatment should be land-based. If land-based is not working, patients can try aquatic exercises. Physical therapy, including land-based or aquatic exercise and strengthening, is recommended for all patients with symptomatic femoral head osteonecrosis.
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Physical therapy** is considered appropriate if **ALL** of the following are **TRUE**[9]:

- ◆ The patient underwent surgery for femoral head osteonecrosis.

Non-Indications

None.

Site of Service Criteria

Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
97010	Application of hot or cold packs
97012	Application of mechanical traction
97014	Application of electrical stimulation
97016	Application of vasopneumatic devices

97018	Application of paraffin bath
97022	Application of whirlpool
97024	Application of diathermy
97026	Application of infrared modality
97028	Application of ultraviolet modality
97032	Application of manual electrical stimulation
97033	Application of iontophoresis
97034	Application of contrast baths
97035	Application of ultrasound modality
97036	Application of Hubbard tank
97039	Modality service
97110*	Therapeutic exercises to develop strength and endurance, range of motion and flexibility
97112	Neuromuscular reeducation of movement, balance, coordination, kinesthetic sense, posture, and proprioception for sitting and standing activities
97113	Aquatic therapy with therapeutic exercises
97116	Gait training including stair climbing
97124	Massage including effleurage and petrissage; Massage including effleurage and tapotement; Massage including effleurage, petrissage and tapotement; Massage including petrissage and tapotement
97139	Therapeutic procedure
97140	Manual therapy techniques
97150	Group therapeutic procedures
97164	Physical therapy re-evaluation of established plan of care, high complexity, typical time with patient 20 minutes; Physical therapy re-evaluation of established plan of care, high complexity, typical time with patient and family 20

	minutes; Physical therapy re-evaluation of established plan of care, high complexity, typical time with patient's family 20 minutes
97530	Direct therapeutic activities with use of dynamic activities to improve functional performance, each 15 minutes
97535	Home management training, direct one-on-one contact, each 15 minutes; Self-care management training, direct one-on-one contact, each 15 minutes
97537	Community reintegration training, direct one-on-one contact, each 15 minutes; Work reintegration training, direct one-on-one contact, each 15 minutes
97542	Wheelchair management, each 15 minutes
97545	Work conditioning, initial 2 hours; Work hardening, initial 2 hours
97546	Work conditioning, each additional hour; Work hardening, each additional hour
97750	Physical performance measurement with written report, each 15 minutes; Physical performance test with written report, each 15 minutes
97755	Assistive technology assessment with written report, direct one-on-one contact, each 15 minutes
97760	Initial orthotic management and training with assessment and fitting of lower extremities and trunk, each 15 minutes; Initial orthotic management and training with assessment and fitting of lower extremities, each 15 minutes; Initial orthotic management and training with assessment and fitting of lower extremity and trunk, each 15 minutes; Initial orthotic management and training with assessment and fitting of lower extremity, each 15 minutes; Initial orthotic management and training with assessment and fitting of trunk, each 15 minutes; Initial orthotic management and training with assessment and fitting of upper and lower extremities and trunk, each 15 minutes

97761	Initial prosthetic training of lower extremities, each 15 minutes; Initial prosthetic training of lower extremity, each 15 minutes Initial prosthetic training of upper and lower extremities, each 15 minutes; Initial prosthetic training of upper extremities, each 15 minutes; Initial prosthetic training of upper extremity, each 15 minutes
97763	Subsequent orthotic management and training of lower extremities and trunk, each 15 minutes Subsequent orthotic management and training of lower extremity and trunk, each 15 minutes Subsequent orthotic management and training of lower extremity, each 15 minutes Subsequent orthotic management and training of upper and lower extremities and trunk, each 15 minutes Subsequent orthotic management and training of upper extremities and trunk, each 15 minutes Subsequent orthotic management and training of upper extremities, each 15 minutes Subsequent orthotic management and training of upper extremity and trunk, each 15 minutes Subsequent orthotic management and training of upper extremity, each 15 minutes Subsequent orthotic management of lower extremities and trunk, each 15 minutes Subsequent orthotic management of lower extremity and trunk, each 15 minutes Subsequent orthotic management of lower extremity, each 15 minutes Subsequent orthotic management of upper and lower extremities and trunk, each 15 minutes Subsequent orthotic management of upper extremities and trunk, each 15 minutes Subsequent orthotic management of upper extremities, each 15 minutes Subsequent orthotic management of upper extremity and

	trunk, each 15 minutes Subsequent orthotic management of upper extremity, each 15 minutes Subsequent orthotic training of lower extremity, each 15 minutes Subsequent orthotic training of upper and lower extremities and trunk, each 15 minutes Subsequent orthotic training of upper extremities and trunk, each 15 minutes Subsequent orthotic training of upper extremities, each 15 minutes Subsequent orthotic training of upper extremity and trunk, each 15 minutes Subsequent orthotic training of upper extremity, each 15 minutes Subsequent prosthetic management and training of lower extremities and trunk, each 15 minutes Subsequent prosthetic management and training of lower extremity and trunk, each 15 minutes Subsequent prosthetic management and training of lower extremity, each 15 minutes Subsequent prosthetic management and training of upper and lower extremities and trunk, each 15 minutes Subsequent prosthetic management and training of upper extremities and trunk, each 15 minutes Subsequent prosthetic management and training of upper extremities, each 15 minutes Subsequent prosthetic management and training of upper extremity and trunk, each 15 minutes Subsequent prosthetic management and training of upper extremity, each 15 minutes Subsequent prosthetic management of lower extremities and trunk, each 15 minutes Subsequent prosthetic management of lower extremity and trunk, each 15 minutes Subsequent prosthetic management of lower extremity, each 15 minutes Subsequent prosthetic management of upper and lower

	extremities and trunk, each 15 minutes Subsequent prosthetic management of upper extremities and trunk, each 15 minutes Subsequent prosthetic management of upper extremities, each 15 minutes Subsequent prosthetic management of upper extremity and trunk, each 15 minutes Subsequent prosthetic management of upper extremity, each 15 minutes Subsequent prosthetic training of lower extremity, each 15 minutes Subsequent prosthetic training of upper and lower extremities and trunk, each 15 minutes Subsequent prosthetic training of upper extremities and trunk, each 15 minutes Subsequent prosthetic training of upper extremities, each 15 minutes Subsequent prosthetic training of upper extremity and trunk, each 15 minutes Subsequent prosthetic training of upper extremity, each 15 minutes Subsequent orthotic management and training of lower extremities, each 15 minutes Subsequent orthotic management of lower extremities, each 15 minutes Subsequent orthotic training of lower extremities and trunk, each 15 minutes Subsequent orthotic training of lower extremities, each 15 minutes Subsequent orthotic training of lower extremity and trunk, each 15 minutes Subsequent prosthetic management and training of lower extremities, each 15 minutes Subsequent prosthetic management of lower extremities, each 15 minutes Subsequent prosthetic training of lower extremities and trunk, each 15 minutes Subsequent prosthetic training of lower extremities, each 15

	minutes Subsequent prosthetic training of lower extremity and trunk, each 15 minutes
97799	Unlisted physical medicine/rehabilitation service or procedure
420	Physical Therapy
421	Physical Therapy: Visit Charge
422	Physical Therapy: Hourly Charge
423	Physical Therapy: Group Rate
424	Physical Therapy: Evaluation/Re-evaluation
429	Physical Therapy: Other Physical Therapy
97163	Evaluation of physical therapy, typically 45 minutes
97161	Evaluation of physical therapy, typically 20 minutes
97162	Evaluation of physical therapy, typically 30 minutes
97168	Re-evaluation of occupational therapy established plan of care, typically 30 minutes
97165	Evaluation of occupational therapy, typically 30 minutes
97166	Evaluation of occupational therapy, typically 45 minutes
97167	Evaluation of occupational therapy established plan of care, typically 60 minutes
G0151	Hhcp-serv of pt,ea 15 min

*Default codes for suggested services

Service: Home Health Care

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** May be recommended for postoperative care if outpatient treatment is not appropriate.
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Home health care** may be appropriate if **ALL** of the following are **TRUE**:
- ◆ The patient lives with those that are unable to care for the patient postoperatively.
- ◆ The patient underwent surgery for femoral head osteonecrosis.

Non-Indications

None.

Site of Service Criteria

Home

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
99509	Home visit for assistance with activities of daily living and personal care
99600	Unlisted home visit procedure; Unlisted home visit service
99334	Level 1 rest home visit for evaluation and management of established patient with minor and/or self-limited problem, including problem-focused interval history and physical examination, and straightforward medical decision-making, typical time with patient, family, and/or caregiver 15 minutes
G0129	Partial hosp prog service
G0283	Elec stim other than wound

Service: Inpatient Rehabilitation

General Guidelines

- **Units, Frequency, & Duration:** Postoperative rehabilitation is recommended to begin as soon as possible for all patients. No guidelines are available for the specific duration, timing, or frequency of inpatient rehabilitation. Inpatient rehabilitation is rarely required following routine surgery.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** There are no firmly established criteria for discharge appropriateness. Discharge depends upon medical stability, pain control, home situation, and if PT/OT goals were met. Some patients may require non-home discharge after surgery depending upon their age, comorbidities, and functional needs.
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Post-acute inpatient rehabilitation** is considered appropriate if **ALL** of the following are **TRUE**[9]:

- ◆ The patient has **ANY** of the following:
  - A neurologic deficit occurs postoperatively.
  - There are postoperative complications.
  - The patient has multiple medical comorbidities.
  - The patient requires maximum assistance for mobility.
  - The patient is a potentially unsafe discharge to home.
- ◆ The patient underwent surgery for femoral head osteonecrosis.

Non-Indications

None.

Site of Service Criteria

Inpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
97799	Physical medicine service

Service: Skilled Nursing Facility

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** May be indicated for postoperative care in cases where the surgery occurred at an inpatient hospital, and outpatient physical therapy or home health care are not indicated.
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Skilled nursing facility** is considered appropriate if **ALL** of the following are **TRUE**:

- ◆ The patient has **ANY** of the following:
  - A neurologic deficit occurs postoperatively.
  - There are postoperative complications.
  - The patient has multiple medical comorbidities.
  - The patient requires maximum assistance for mobility.
  - The patient is a potentially unsafe discharge to home.
- ◆ The patient underwent surgery for femoral head osteonecrosis.

Non-Indications

None.

Applicable CMS Medicare NCDs & LCDs

None.

Site of Service Criteria

Nursing Facility.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
99304	Level 1 initial nursing facility care for evaluation and management of patient with problem of low severity, including comprehensive history and physical examination, and medical decision-making of low complexity, typical time 25 minutes; Level 1 initial nursing

	facility care for evaluation and management of patient with problem of low severity, including detailed history and physical examination, and straightforward medical decision-making, typical time 25 minutes
99305	Level 2 initial nursing facility care for evaluation and management of patient with problem of moderate severity, including comprehensive history and physical examination, and medical decision-making of moderate complexity, typical time 35 minutes
99306	Level 3 initial nursing facility care for evaluation and management of patient with problem of high severity, including comprehensive history and physical examination, and medical decision-making of high complexity typical time 45 minutes
99307	Level 1 subsequent nursing facility care for evaluation and management of patient, including problem-focused interval history and physical examination, and straightforward medical decision-making, typical time 10 minutes; Level 1 subsequent nursing facility care for evaluation and management of patient, including problem-focused interval history and physical examination, typical time 10 minutes; Level 1 subsequent nursing facility care for evaluation and management of patient, including problem-focused interval history and straightforward medical decision-making, typical time 10 minutes; Level 1 subsequent nursing facility care for evaluation and management of patient, including problem-focused physical examination and straightforward medical decision-making, typical time 10 minutes
99308	Level 2 subsequent nursing facility care for evaluation and management of patient, including expanded problem-focused interval history and medical decision-making of low complexity, typical time 15 minutes; Level 2 subsequent nursing facility care for evaluation and management of patient, including expanded problem-focused interval history and physical examination, and medical decision-making of low complexity, typical time 15 minutes; Level 2 subsequent nursing facility care for evaluation and management of patient, including expanded problem-focused interval

	history and physical examination, typical time 15 minutes; Level 2 subsequent nursing facility care for evaluation and management of patient, including expanded problem-focused physical examination and medical decision-making of low complexity, typical time 15 minutes
99309	Level 3 subsequent nursing facility care for evaluation and management of patient, including detailed interval history and medical decision-making of moderate complexity, typical time 25 minutes; Level 3 subsequent nursing facility care for evaluation and management of patient, including detailed interval history and physical examination, and medical decision-making of moderate complexity. typical time 25 minutes; Level 3 subsequent nursing facility care for evaluation and management of patient, including detailed interval history and physical examination, typical time 25 minutes; Level 3 subsequent nursing facility care for evaluation and management of patient, including detailed physical examination and medical decision-making of moderate complexity, typical time 25 minutes
99310	Level 4 subsequent nursing facility care for evaluation and management of patient, including comprehensive interval history and medical decision-making of high complexity, typical time 35 minutes; Level 4 subsequent nursing facility care for evaluation and management of patient, including comprehensive interval history and physical examination, and medical decision-making of high complexity, typical time 35 minutes; Level 4 subsequent nursing facility care for evaluation and management of patient, including comprehensive interval history and physical examination, typical time 35 minutes; Level 4 subsequent nursing facility care for evaluation and management of patient, including comprehensive physical examination and medical decision-making of high complexity, typical time 35 minutes
99315	Nursing facility discharge day management, 30 minutes or less
99316	Nursing facility day management, more than 30 minutes
G0128	Corf skilled nursing service

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Clinical Guideline Revision History/Information

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Review History	
Wednesday, October 20th 2021 (V.2)	Reviewing Physician: Dr. Akilesh Sastry Approving Physician: Dr. Brian Covino
December 29, 2022 (V.3)	Reviewing Physician: Dr. Akilesh Sastry Approving Physician: Dr. Traci Granston