



CIGNA MEDICAL COVERAGE POLICY

The following Coverage Policy applies to all plans administered by CIGNA Companies including plans administered by Great-West Healthcare, which is now a part of CIGNA.

Subject Minimally Invasive Total Hip Arthroplasty

Effective Date 11/15/2010
Next Review Date 11/15/2011
Coverage Policy Number 0217

Table of Contents

Coverage Policy	1
General Background	1
Coding/Billing Information	3
References	3
Policy History	7

Hyperlink to Related Coverage Policies

Computer-Assisted Surgical Navigation for Musculoskeletal Procedures, Including Spinal

Hip Surgery for Femoroacetabular Impingement (FAI) Syndrome

Total Hip Replacement with Metal-On-Metal and Ceramic-On-Ceramic Prostheses

INSTRUCTIONS FOR USE

Coverage Policies are intended to provide guidance in interpreting certain **standard** CIGNA HealthCare benefit plans as well as benefit plans formerly administered by Great-West Healthcare. Please note, the terms of a participant's particular benefit plan document [Group Service Agreement (GSA), Evidence of Coverage, Certificate of Coverage, Summary Plan Description (SPD) or similar plan document] may differ significantly from the standard benefit plans upon which these Coverage Policies are based. For example, a participant's benefit plan document may contain a specific exclusion related to a topic addressed in a Coverage Policy. In the event of a conflict, a participant's benefit plan document **always supercedes** the information in the Coverage Policies. In the absence of a controlling federal or state coverage mandate, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of 1) the terms of the applicable benefit plan document in effect on the date of service; 2) any applicable laws/regulations; 3) any relevant collateral source materials including Coverage Policies and; 4) the specific facts of the particular situation. Coverage Policies relate exclusively to the administration of health benefit plans. Coverage Policies are not recommendations for treatment and should never be used as treatment guidelines. Proprietary information of CIGNA. Copyright ©2010 CIGNA

Coverage Policy

CIGNA covers minimally invasive total hip arthroplasty as medically necessary as an alternative to conventional total hip replacement.

General Background

Total hip arthroplasty (THA), also known as total hip replacement (THR), is a surgical procedure in which diseased or fractured bones of the hip joint are replaced with an artificial joint. The goal of THA is to improve mobility by relieving pain and improving the function of the hip. The major indications for THA are chronic, medically refractory pain and/or disability of the hip joint related to osteoarthritis, rheumatoid arthritis, avascular necrosis, traumatic arthritis, or hip fractures.

Conventional THA involves incision lengths from 25–40 centimeters (cm), which allows for complete and continuous observation of the entire hip joint and surrounding structures. The disadvantages of such large incisions, including significant soft tissue disruption, pain and lengthy rehabilitation periods, (Wenz, et al., 2002; Berger, 2003) led to the development of minimally invasive approaches involving the use of smaller incisions. An incision length of ≤ 10 cm has generally been defined as a “mini-incision” (Ciminiello, et al., 2006; Klein, et al., 2005).

Minimally invasive THAs are performed using either a single-incision or a two-incision approach. The single-incision approach, similar to the standard THA approach, includes an anterolateral approach, anterior approach, straight lateral, or posterior/posterolateral approach (Waldman, 2003; Kennon, et al., 2003; Floren and Lester, 2006; d'Imporzano and Pierannunzii, 2006; Mow et al., 2005). The two-incision approach was developed primarily to avoid transection of muscles, ligaments and tendons, and typically begins with an anterior incision over and parallel to the femoral neck with a second incision posterolateral to the greater trochanter (d'Imporzano and Pierannunzii, 2006). The study populations for minimally invasive procedures have primarily included thinner, healthy individuals without comorbidities who required THA for primary disease (e.g., degenerative arthritis, avascular necrosis). The evidence in the published peer-reviewed literature supports the safety and efficacy of the single-incision minimally invasive approach. Although the evidence for the two-incision approach primarily involves small patient populations and short-term follow-ups, the approach has evolved into an accepted surgical alternative for this patient population.

U.S. Food and Drug Administration (FDA)

The U.S. Food and Drug Administration regulates instrumentation used in performing minimally invasive hip replacements. These Class II, 510(k) devices include the Minimally Invasive Solutions™ Osteotomy Guide (Zimmer, Warsaw, IN), Zimmer Ortho Guidance™ Systems-Hip Instruments (Zimmer, Warsaw, IN), and Guided Surgical Instruments (Smith & Nephew, Inc., Memphis, TN).

Literature Review

Single-incision approach: The safety and effectiveness of the single-incision approach is supported by meta-analysis, systematic reviews, randomized controlled trials, nonrandomized prospective comparative studies, and case series (Yang, et al., 2010; Cheng, et al., 2009; Mazoochian, et al., 2009; deVerteuil, et al., 2008; Vicente, et al., 2008; Mahmood, et al., 2007; Bennett, et al., 2006; Ciminiello, et al., 2006; Floren and Lester, 2006; Jerosch, et al., 2006; Szendroi, et al., 2006; Chimento, et al., 2005; Mow, et al., 2005; Ogonda, et al., 2005; Swanson, 2005; de Beer et al., 2004; Hartzband, 2004; Howell, 2004; Wenz, et al., 2002).

Two-incision Approach: Studies in the form of systematic reviews, randomized controlled trials, nonrandomized prospective comparative studies, and case series involving small patient populations (n=42–166) and less than three-year follow-ups have evaluated the two-incision minimally invasive THA (Krych et al. 2009; Meneghini et al. 2009; Yoon, et al., 2009; Chen, et al., 2008; deVerteuil, et al., 2008; Kolisek et al., 2008; Pagnano, et al., 2008; Berger, et al., 2003). When compared to conventional THA or the one-incision minimally invasive approach, overall the two-incision patients experienced a shorter duration of use of postoperative pain medication, faster progression to crutch walking and ambulation, and a shorter hospital length-of-stay. Some studies reported similar or better Harris Hip, Western Ontario, and McMaster Universities Osteoarthritis (WOMAC) Index scores. However, longer operative times and more blood loss were reported with the dual incision approach. The rate of complications varied among the studies.

Professional Societies/Organizations

The American Association of Hip and Knee Surgeons' (AAHKS) (2008) advisory statement on minimally invasive surgery advises surgeons to critically evaluate these emerging techniques. The AAHKS stated that additional scientific evidence and evaluation is needed before minimally invasive techniques are widely used in clinical practice.

A 2006 guidance document by the National Institute for Health and Clinical Excellence (NICE) (United Kingdom) stated that current evidence supports the safety and efficacy of a single mini-incision hip replacement. NICE defines mini-incision as "one small opening 10 cm or less". The joint replacements used in a mini-incision are the same as those used for a standard hip replacement. The NICE (2005) interventional procedure guidance on the two-incision minimally invasive surgery for total hip replacement concluded that current evidence "does not appear adequate for this procedure to be used without special arrangements for consent and for audit or research".

Summary

Evidence in the published peer-reviewed literature supports the safety and effectiveness of the single-incision minimally invasive total hip arthroplasty (THA) as an alternative to conventional THA. Although the data is limited, the two-incision minimally invasive approach has become an accepted surgical intervention for this patient population.

Coding/Billing Information

Note: This list of codes may not be all-inclusive.

Covered when medically necessary (single-incision):

CPT®* Codes	Description
27130	Arthroplasty, acetabular and proximal femoral prosthetic replacement (total hip arthroplasty), with or without autograft or allograft

ICD-9-CM Diagnosis Codes	Description
170.7	Malignant neoplasm of bone and articular cartilage; long bones of lower limb
213.7	Benign neoplasm of bone and articular cartilage; long bone of lower limb
714.0	Rheumatoid arthritis
714.30- 714.33	Juvenile chronic polyarthritis
715.15	Osteoarthritis, localized, primary, generalized, pelvic region and thigh
715.25	Osteoarthritis, localized, secondary, generalized, pelvic region and thigh
715.35	Osteoarthritis, localized, not specified whether primary or secondary, generalized, pelvic region and thigh
715.95	Osteoarthritis, unspecified whether generalized or localized, pelvic region and thigh
716.15	Traumatic arthropathy; pelvic region and thigh
716.55	Unspecified polyarthropathy or polyarthritis; pelvic region and thigh
716.65	Unspecified monoarthritis; pelvic region and thigh
716.85	Other specified arthropathy; pelvic region and thigh
716.95	Arthropathy, unspecified; pelvic region and thigh
719.45	Hip/pelvic region pain
731.0	Osteitis deformans without mention of bone tumor
732.1	Juvenile osteochondrosis for hip and pelvis
733.14	Pathologic fracture of neck of femur
733.40- 733.43	Aseptic necrosis of bone
733.81	Malunion of fracture
733.82	Nonunion of fracture
754.30	Congenital dislocation of hip, unilateral
755.63	Other congenital deformity of hip (joint)
820.00- 820.09	Closed transcervical fracture of neck of femur
	Multiple/varied

*Current Procedural Terminology (CPT®) ©2010 American Medical Association: Chicago, IL.

References

1. American Academy of Orthopaedic Surgeons (AAOS). Minimally invasive hip replacement. Aug, 2007. Accessed Oct 13, 2010. Available at URL address: <http://orthoinfo.aaos.org/topic.cfm?topic=a00404>

2. American Association of Hip and Knee Surgeons (AAHKS). Minimally invasive and small incision joint replacement surgery: what surgeons should consider. Jan 2008. Accessed Oct 13, 2010. Available at URL address: www.aahks.org/member/resources/MIS_Surgeons.pdf
3. Bal BS, Haltom D, Aleto T, Barrett M. Early complications of primary total hip replacement performed with a two-incision minimally invasive technique. *Surgical technique. J Bone Joint Surg Am.* 2006 Sep;88 Suppl 1 Pt 2:221-33.
4. Bennett D, Ogonda L, Elliott D, Humphreys L, Beverland DE. Comparison of gait kinematics in patients receiving minimally invasive and traditional hip replacement surgery: a prospective blinded study. *Gait Posture.* 2006 Apr;23(3):374-82.
5. Berger RA. Total hip arthroplasty using the minimally invasive two-incision approach. *Clin Orthop.* 2003;417:232-41.
6. Chen DW, Hu CC, Chang YH, Yang WE, Lee MS. Comparison of Clinical Outcome in Primary Total Hip Arthroplasty by Conventional Anterolateral Transgluteal or 2-Incision Approach A Retrospective, Case-Controlled Investigation With 2-Year Follow-Up. *J Arthroplasty.* 2008 Aug 1.
7. Cheng T, Feng JG, Liu T, Zhang XL. Minimally invasive total hip arthroplasty: a systematic review. *Int Orthop.* 2009 Mar 11.
8. Chimento GF, Pavone V, Sharrock N, Kahn B, Cahill J, Sculco TP. Minimally invasive total hip arthroplasty: a prospective randomized study. *J Arthroplasty.* 2005 Feb;20(2):139-44.
9. Ciminiello M, Parvizi J, Sharkey PF, Eslampour A, Rothman RH. Total hip arthroplasty: is small incision better? *J Arthroplasty.* 2006 Jun;21(4):484-8.
10. Coyle D, Coyle K, Vale L, de Verteuil R, Imamura M, Glazener C, Zhu S. Minimally Invasive Arthroplasty in Management of Hip Arthritic Disease: Systematic Review and Economic Evaluation [Technology Report 102]. Ottawa: Canadian Agency for Drugs and Technologies in Health; 2008.
11. de Beer J, Petruccelli D, Zalzal P, Winemaker MJ. Single-incision, minimally invasive total hip arthroplasty: length doesn't matter. *J Arthroplasty.* 2004 Dec;19(8):945-50.
12. de Verteuil R, Imamura M, Zhu S, Glazener C, Fraser C, Munro N, Hutchison J, Grant A, Coyle D, Coyle K, Vale L. A systematic review of the clinical effectiveness and cost-effectiveness and economic modelling of minimal incision total hip replacement approaches in the management of arthritic disease of the hip. *Health Technol Assess.* 2008 Jun;12(26):iii-iv, ix-223.
13. d'Imporzano M, Pierannunzii L. Minimally invasive total hip replacement. *J Orthopaed Traumatol* 2006 Feb;(7):42-50.
14. Floren M, Lester DK. Durability of implant fixation after less-invasive total hip arthroplasty. *J Arthroplasty.* 2006 Sep;21(6):783-90.
15. Goldstein WM, Branson JJ, Berland KA, Gordon AC. Minimal-incision total hip arthroplasty. *J Bone Joint Surg Am.* 2003;85-A(Suppl 4):33-8.
16. Hartzband MA. Posterolateral minimal incision for total hip replacement: technique and early results. *Orthop Clin North Am.* 2004 Apr;35(2):119-29.
17. Higuchi F, Gotoh M, Yamaguchi N, Suzuki R, Kunou Y, Ooishi K, Nagata K. Minimally invasive uncemented total hip arthroplasty through an anterolateral approach with a shorter skin incision. *J Orthop Sci.* 2003;8(6):812-7.
18. Howell JR, Masri BA, Duncan CP. Minimally invasive versus standard incision anterolateral hip replacement: a comparative study. *Orthop Clin North Am.* 2004 Apr;35(2):153-62.

19. Inaba Y, Dorr LD, Wan Z, Sirianni L, Boutary M. Operative and patient care techniques for posterior mini-incision total hip arthroplasty. *Clin Orthop Relat Res.* 2005 Dec;441:104-14.
20. Jerosch J, Theising C, Fadel ME. Antero-lateral minimal invasive (ALMI) approach for total hip arthroplasty technique and early results. *Arch Orthop Trauma Surg.* 2006 Apr;126(3):164-73.
21. Kennon RE, Keggi JM, Wetmore RS, Zatorski LE, Huo MH, Keggi KJ. Total hip arthroplasty through a minimally invasive anterior surgical approach. *J Bone Joint Surg Am.* 2003;85-A(Suppl 4):39-48.
22. Klein GR, Parvizi J, Sharkey PF, Rothman RH, Hozack WJ. Minimally invasive total hip arthroplasty: internet claims made by members of the Hip Society. *Clin Orthop Relat Res.* 2005 Dec;441:68-70.
23. Kolisek FR, Seyler TM, Ulrich SD, Marker DR, Jessup NM, Mont MA. A Comparison of the Minimally Invasive Dual-Incision versus Posterolateral Approach in Total Hip Arthroplasty. *Surg Technol Int.* 2008;17:253-8.
24. Krych AJ, Pagnano MW, Wood KC, Meneghini RM, Kaufmann K. No Benefit of the Two-incision THA over Mini-posterior THA: A Pilot Study of Strength and Gait. *Clin Orthop Relat Res.* 2010 Feb;468(2):565-70. Epub 2009 Mar 28.
25. Kuzyk PR, Guy P, Kreder HJ, Zdero R, McKee MD, Schemitsch EH. Minimally invasive hip fracture surgery: are outcomes better? *J Orthop Trauma.* 2009 Jul;23(6):447-53.
26. Lawlor M, Humphreys P, Morrow E, Ogonda L, Bennett D, Elliott D, Beverland D. Comparison of early postoperative functional levels following total hip replacement using minimally invasive versus standard incisions. A prospective randomized blinded trial. *Clin Rehabil.* 2005 Aug;19(5):465-74.
27. Mahmood A, Zafar MS, Majid I, Maffulli N, Thompson J. Minimally invasive hip arthroplasty: a quantitative review of the literature. *Br Med Bull.* 2007;84:37-48.
28. Matta JM, Shahrdar C, Ferguson T. Single-incision anterior approach for total hip arthroplasty on an orthopaedic table. *Clin Orthop Relat Res.* 2005 Dec;441:115-24.
29. Mazoochian F, Weber P, Schramm S, Utzschneider S, Fottner A, Jansson V. Minimally invasive total hip arthroplasty: a randomized controlled prospective trial. *Arch Orthop Trauma Surg.* 2009 Dec;129(12):1633-9. Epub 2009 May 8.
30. Meneghini RM, Smits SA. Early discharge and recovery with three minimally invasive total hip arthroplasty approaches: a preliminary study. *Clin Orthop Relat Res.* 2009 Jun;467(6):1431-7.
31. Mow CS, Woolson ST, Ngarmukos SG, Park EH, Lorenz HP. Comparison of scars from total hip replacements done with a standard or a mini-incision. *Clin Orthop Relat Res.* 2005 Dec;441:80-5.
32. National Institute for Health and Clinical Excellence (NICE). Minimally invasive total hip replacement - overview. May 24, 2010. Accessed Oct 13, 2010. Available at URL address: <http://guidance.nice.org.uk/IPG112>
33. National Institute for Health and Clinical Excellence (NICE). Overview of minimally invasive two-incision surgery for total hip replacement. IPG112. Feb 2005. Accessed Oct 13, 2010. Available at URL address: <http://guidance.nice.org.uk/IPG112>
34. National Institute for Health and Clinical Excellence (NICE). Single mini-incision surgery for total hip replacement. IPG152. Jan 25, 2006. Accessed Oct 13, 2010. Available at URL address: <http://www.nice.org.uk/Guidance/IPG152>

35. O'Brien DA, Rorabeck CH. The mini-incision direct lateral approach in primary total hip arthroplasty. *Clin Orthop Relat Res.* 2005 Dec;441:99-103.
36. Ogonda L, Wilson R, Archbold P, Lawlor M, Humphreys P, O'Brien S, Beverland D. A minimal-incision technique in total hip arthroplasty does not improve early postoperative outcomes. A prospective, randomized, controlled trial. *J Bone Joint Surg Am.* 2005 Apr;87(4):701-10.
37. Pagnano MW, Leone J, Lewallen DG, Hanssen AD. Two-incision THA had modest outcomes and some substantial complications. *Clin Orthop Relat Res.* 2005 Dec;441:86-90.
38. Pagnano MW, Trousdale RT, Meneghini RM, Hanssen AD. Slower recovery after two-incision than mini-posterior-incision total hip arthroplasty. A randomized clinical trial. *J Bone Joint Surg Am.* 2008 May;90(5):1000-6.
39. Shah A, Buscove B. Hip and pelvis. Sec A, Ch 21. In: DeLee: DeLee and Drez's Orthopaedic Sports Medicine, 3rd ed. Saunders, St. Louis. 2009.
40. Swanson TV. Early results of 1000 consecutive, posterior, single-incision minimally invasive surgery total hip arthroplasties. *J Arthroplasty.* 2005 Oct;20(7 Suppl 3):26-32.
41. Szendroi M, Sztrinkai G, Vass R, Kiss J. The impact of minimally invasive total hip arthroplasty on the standard procedure. *Int Orthop.* 2006 Jun;30(3):167-71.
42. Teet JS, Skinner HB, Khoury L. The effect of the "mini" incision in total hip arthroplasty on component position. *J Arthroplasty.* 2006 Jun;21(4):503-7.
43. Vicente JR, Croci AT, Camargo OP. Blood loss in the minimally invasive posterior approach to total hip arthroplasty: a comparative study. *Clinics (Sao Paulo).* 2008 Jun;63(3):351-6.
44. Waldman BJ. Advancements in minimally invasive total hip arthroplasty. *Orthopedics.* 2003;26(8 Suppl 1):S833-6.
45. Wenz JF, Gurkan I, Jibodh SR. Mini-incision total hip arthroplasty: a comparative assessment of perioperative outcomes. *Orthopedics.* 2002;25(10):1031-43.
46. Williams SL, Bachison C, Michelson JD, Manner PA. Component position in 2-incision minimally invasive total hip arthroplasty compared to standard total hip arthroplasty. *J Arthroplasty.* 2008 Feb;23(2):197-202.
47. Woolson ST, Mow CS, Syquia JF, Lannin JV, Schurman DJ. Comparison of primary total hip replacements performed with a standard incision or a mini-incision. *J Bone Joint Surg Am.* 2004;86-A(7):1353-8.
48. Yang C, Zhu Q, Han Y, Zhu J, Wang H, Cong R, Zhang D. Minimally-invasive total hip arthroplasty will improve early postoperative outcomes: a prospective, randomized, controlled trial. *Ir J Med Sci.* 2010 Jun;179(2):285-90.
49. Yoon TR, Park KS, Song EK, Seon JK, Seo HY. New two-incision minimally invasive total hip arthroplasty: comparison with the one-incision method. *J Orthop Sci.* 2009 Mar;14(2):155-60.

Policy History

Pre-Merger Organizations	Last Review Date	Policy Number	Title
CIGNA HealthCare	11/15/2006	0217	Minimally Invasive Total Hip Arthroplasty

“CIGNA” and the “Tree of Life” logo are registered service marks of CIGNA Intellectual Property, Inc., licensed for use by CIGNA Corporation and its operating subsidiaries. All products and services are provided exclusively by such operating subsidiaries and not by CIGNA Corporation. Such operating subsidiaries include Connecticut General Life Insurance Company, CIGNA Behavioral Health, Inc., Intracorp, and HMO or service company subsidiaries of CIGNA Health Corporation and CIGNA Dental Health, Inc. In Arizona, HMO plans are offered by CIGNA HealthCare of Arizona, Inc. In California, HMO plans are offered by CIGNA HealthCare of California, Inc. and Great-West Healthcare of California, Inc. In Connecticut, HMO plans are offered by CIGNA HealthCare of Connecticut, Inc. In North Carolina, HMO plans are offered by CIGNA HealthCare of North Carolina, Inc. In Virginia, HMO plans are offered by CIGNA HealthCare Mid-Atlantic, Inc. All other medical plans in these states are insured or administered by Connecticut General Life Insurance Company.

Connecticut General Life Insurance Company has acquired the business of Great-West Healthcare from Great-West Life & Annuity Insurance Company (GWLA). Certain products continue to be provided by GWLA (Life, Accident and Disability, and Excess Loss). GWLA is not licensed to do business in New York. In New York, these products are sold by GWLA's subsidiary, First Great-West Life & Annuity Insurance Company, White Plains, N.Y.