

## HEALTH EVIDENCE REVIEW COMMISSION (HERC)

### COVERAGE GUIDANCE: HIP RESURFACING

DATE: 08/09/2012

#### HERC COVERAGE GUIDANCE

Hip resurfacing should be a covered service for patients who are likely to outlive a traditional prosthesis and who would otherwise require a total hip replacement, and should only be done by surgeons with specific training in this technique.

The following criteria should be required:

- Diagnosis of osteoarthritis or inflammatory arthritis;
- Individual has failed nonsurgical management; and
- The device is FDA approved.

Patients who are candidates for hip resurfacing must not have FDA contraindications including:

- Patients with active or suspected infection in or around the hip joint, or sepsis
- Patients who are skeletally immature
- Patients with any vascular insufficiency, muscular atrophy, or neuromuscular disease severe enough to compromise implant stability or postoperative recovery
- Patients with bone stock inadequate to support the device, including severe osteopenia or a family history of severe osteoporosis or osteopenia
- Patients with osteonecrosis or avascular necrosis with >50% involvement of the femoral head
- Patients with multiple cysts of the femoral head
- Females of childbearing age
- Patients with known moderate-to-severe renal insufficiency
- Patients who are immunosuppressed with diseases such as AIDS or persons receiving high doses of corticosteroids
- Patients who are severely overweight
- Patients with known or suspected metal sensitivity

## RATIONALE FOR GUIDANCE DEVELOPMENT

The HERC selects topics for guideline development or technology assessment based on the following principles:

- Represents a significant burden of disease
- Represents important uncertainty with regard to efficacy or harms
- Represents important variation or controversy in clinical care
- Represents high costs, significant economic impact
- Topic is of high public interest

Coverage guidance development follows to translate the evidence review to a policy decision. In addition to an evidence-based guideline developed by the Evidence-based Guideline Subcommittee and a health technology assessment developed by the Health Technology Assessment Subcommittee, coverage guidance may utilize an existing evidence report produced in the last 5 years by the Agency for Healthcare Research and Quality, the Medicaid Evidence-based Decisions Project or the Washington Health Technology Assessment Program.

## EVIDENCE SOURCE

Washington State Health Care Authority Health Technology Assessment Program. (2009). *HTA final report: Hip resurfacing*. Olympia, WA: Health Technology Assessment Program. Retrieved from [http://www.hta.hca.wa.gov/documents/hip\\_final\\_report\\_102309.pdf](http://www.hta.hca.wa.gov/documents/hip_final_report_102309.pdf)

The summary of evidence in this document is derived directly from this evidence source, and portions are extracted verbatim.

## SUMMARY OF EVIDENCE

### **Clinical Background**

Total hip arthroplasty is a well-established and effective treatment for severe degenerative diseases of the hip that has historically been performed in older, relatively inactive patients between 60 and 80 years of age. Over the past decade, however, total hip arthroplasty has become increasingly common in patients under 65 years of age. As the growth of joint replacement continues in younger patients, the demand for total hip arthroplasty among patients under 65 years is expected to exceed 50% of all total hip arthroplasties by 2011, up from 44% in 2005. Younger patients receiving hip replacement often have more active life styles than those who are older, causing concern about the longevity of the implant. Evidence suggests that higher rates of implant failure occur as the age of patients receiving the implant gets younger.

Total hip resurfacing is proposed as a bone-conserving alternative to the conventional total hip arthroplasty for young and active patients after optimal medical therapy fails. In contrast to total hip arthroplasty, total hip resurfacing preserves the femoral head and neck, which may facilitate future revision surgery should it be necessary, and additionally, enable the patient to take advantage of newer technology or treatments in the future. Furthermore, hip resurfacing was designed to more closely mimic normal joint biomechanics and load transfer, and may be associated with a lower morbidity rate at the time of revision surgery. There are currently two devices for total hip resurfacing that are FDA approved, as well as a variety of devices that have not been approved.

## **Evidence Review**

### *Efficacy/Effectiveness*

There is moderate evidence from three small randomized controlled trials that total hip resurfacing is similar to total hip arthroplasty with respect to short-term (1 year) functional, quality of life and activity outcomes. There is low evidence from studies directly comparing total hip resurfacing with total hip arthroplasty to suggest that short-term (<5 years) patient-reported outcomes, clinician-based outcomes, and pain are similar comparing total hip resurfacing and total hip arthroplasty. Activity scores tend to be slightly higher (better) in total hip resurfacing patients. There is very low evidence from one cohort study to suggest that at an average of 5.9 years follow-up, patients treated with total hip resurfacing may have better quality of life and activity outcome scores, but similar functional scores, compared with those treated with total hip arthroplasty.

### *Safety*

Revision: There is moderate evidence that short term revision rates are slightly higher in patients treated with total hip resurfacing compared with those treated with total hip arthroplasty. The difference in 3-year revision rates between total hip resurfacing and total hip arthroplasty in 3 registry studies range from 0.6% to 2.5% in favor of total hip arthroplasty. The difference in 1-year revision rates in one RCT is 0.9% in favor of total hip arthroplasty. The difference in short-term revision rates between total hip resurfacing and total hip arthroplasty in eight cohort studies varied: 4 favored total hip arthroplasty, 2 favored total hip resurfacing and 2 reported equal rates. There is low evidence from one large registry study that 7-year revision rates are higher in patients receiving total hip resurfacing versus total hip arthroplasty (hazard ratio = 1.42, rate difference = 1.3%). Data from one small cohort study with a mean follow-up of 5.9 years reports revision rates that are similar between total hip resurfacing and total hip arthroplasty. There is no evidence comparing long-term (> 10 years) revision rates between total hip resurfacing and total hip arthroplasty.

Other complications: Reported risks of other complications in the short-term for total hip resurfacing are generally low except for heterotopic ossification; the risk of femoral neck fractures range from 0.4–2.6%, avascular necrosis from 0.4-2%, femoral component loosening from 0-3.6%, acetabular component loosening from 0-1.8%, acetabular component migration from 0–1.9%, and femoral component migration was not detected in any hips. Heterotopic ossification rates ranged from 0-42.7%.

Learning curve threshold: A number of studies identified that the rate of major complications (including femoral neck fracture and revisions) decreases as surgeons gain experience performing total hip resurfacing. The studies suggested that experience is associated with improved surgical technique and patient selection. However, with respect to identifying the number of procedures necessary for improved outcome, no consistent threshold was identified.

Metal ion safety: Patients with metal-on-metal total hip resurfacing are likely to experience elevated metal serum levels (Co and Cr). Concerns have been raised regarding the safety of and risks associated with prolonged exposure to metal ions, and whether such exposure may increase the risk of cancers or metabolic disorders. However, an association between total hip resurfacing and cancer or metabolic disorders has not been reported with the current length of follow-up. The results from long-term monitoring will be needed to assess the risk of metal ion exposure.

#### *Differential efficacy or safety*

There is low evidence to suggest that short-term revision rates are twice as high in patients who receive total hip resurfacing for a primary diagnosis of dysplasia compared with patients of primary osteoarthritis. The 5-year cumulative revision percent for dysplasia is four times greater in those receiving total hip resurfacing compared with total hip arthroplasty (12% vs. 3%) in one registry study. One small prognostic study supported this data, with 5.2% revision rates in dysplasia patients compared with 0% revision rates in osteoarthritic patients.

There is low evidence to suggest that short-term revision rates are slightly higher in patients who receive total hip resurfacing for a primary diagnosis of osteonecrosis compared with patients of primary osteoarthritis. The 5-year cumulative revision percent for dysplasia is two times greater in those receiving total hip resurfacing compared with total hip arthroplasty (6% vs. 3%) in one registry study and rates are the same in one small prognostic study.

There is moderate evidence from three registries that 3- and 5-year revision rates are higher in females than in males (hazard ratios range from 1.57 to 2.5). Much of the difference in rates between sexes disappeared in one study when controlling for femoral component head size; the smaller the head, the higher the failure rate.

Two low quality studies evaluated the effect of obesity on total hip resurfacing with conflicting results. One reported lower revision risk with increasing obesity, and one reported higher.

Two low quality studies evaluated the effect of the Surface Arthroplasty Risk Index (SARI) on total hip resurfacing. Both suggest a SARI score > 3 preoperatively results in an increased risk of early complications and revision.

[\[Evidence Source\]](#)

## Overall Summary

There is moderate evidence that total hip resurfacing is similar to total hip arthroplasty with respect to short-term (< 5 years) functional, quality of life and activity outcomes, although the short-term revision rates are slightly higher for total hip resurfacing, particularly for women and for patients with diagnoses of dysplasia and osteonecrosis (compared to osteoarthritis).

## FDA Contraindications

- Patients with active or suspected infection in or around the hip joint, or sepsis;
- Patients who are skeletally immature;
- Patients with bone stock inadequate to support the device including:
  - Patients with severe osteopenia should not receive a Hip Resurfacing procedure. Patients with a family history of severe osteoporosis or severe osteopenia;
  - Patients with osteonecrosis or avascular necrosis with >50% involvement of the femoral head (regardless of FICAT Grade) should not receive a Hip Resurfacing device;
  - Patients with multiple cysts of the femoral head (>1cm) should not receive a Hip Resurfacing device;
  - Note – In cases of questionable bone stock, a DEXA scan may be necessary to assess inadequate bone stock.
- Patients with any vascular insufficiency, muscular atrophy, or neuromuscular disease severe enough to compromise implant stability or postoperative recovery;
- Females of child bearing age due to unknown effects on the fetus of metal ion release.
- Patients with known moderate or severe renal insufficiency;
- Patients who are immunosuppressed with diseases such as AIDS or persons receiving high doses of corticosteroids;
- Patients who are severely overweight;
- Patients with known or suspected metal sensitivity (e.g., jewelry).

## [\[FDA Information\]](#)

### PROCEDURE

Hip resurfacing

### DIAGNOSES

Osteoarthritis of the hip

Dysplasia of the hip

Avascular necrosis of the hip

## APPLICABLE CODES

<b>CODES</b>	<b>DESCRIPTION</b>
<b>ICD-9 Diagnosis Codes</b>	
715.15	Osteoarthritis, localized, primary, pelvic region and thigh
715.25	Osteoarthritis localized secondary involving pelvic region and thigh
715.35	Osteoarthritis, localized, not specified whether primary or secondary, pelvic region and thigh
715.95	Osteoarthritis, unspecified whether generalized or localized, pelvic region and thigh
733.42	Aseptic necrosis of head and neck of femur
755.63	Other congenital deformity of hip (joint)
755.8	Other specified anomalies of unspecified limb
<b>ICD-9 Volume 3 (Procedure Codes)</b>	
00.85	Resurfacing Hip, Total, Acetabulum And Femoral Head
00.86	Resurfacing Hip, Partial, Femoral Head
00.87	Resurfacing Hip, Partial, Acetabulum
81.51	Total Hip Replacement
81.52	Partial Hip Replacement
81.53	Revision Of Hip Replacement, Not Otherwise Specified
<b>CPT Codes</b>	
27125	Hemiarthroplasty, hip, partial (eg, femoral stem prosthesis, bipolar arthroplasty)
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	acetabular component only, with or without autograft or allograft
27138	femoral component only, with or without allograft
<b>HCPCS Codes</b>	
S2118	Metal-on-metal total hip resurfacing, including acetabular and femoral components

Note: Inclusion on this list does not guarantee coverage

Coverage guidance is prepared by the Health Evidence Review Commission (HERC), HERC staff, and subcommittee members. The evidence summary is prepared by the Center for Evidence-based Policy at Oregon Health & Science University (the Center). This document is intended to guide public and private purchasers in Oregon in making informed decisions about health care services.

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