

Using Comparative Effectiveness Research

JUNE 2011



**National
Business
Group on
Health**

Treatments for Knee Osteoarthritis

This guide provides actions suggested by the National Business Group on Health for employers who want to use comparative effectiveness research (CER) in their health plan and program design. It is based on research funded by the federal Agency for Healthcare Research and Quality (AHRQ). See the “Resources” section at the end of this guide for patient information on the treatment of knee osteoarthritis.

Impact on Employers

Knee osteoarthritis, a common condition for older adults, is becoming increasingly important to employers because of the aging workforce. In the U.S., knee osteoarthritis affects over 10 million

Americans and 10%-20% of individuals age 60 and over.¹

However, although knee osteoarthritis is a common condition, it is also a manageable one. Many individuals with knee osteoarthritis can control their symptoms by maintaining a healthy weight and getting regular exercise.

What is Knee Osteoarthritis?

Knee osteoarthritis is a condition that occurs when cartilage in the knee joint wears down over time, causing deep aching pain in the inner knee, stiffness and swelling.⁶ It can also cause the fluid in the knee to function improperly, making joint movement and flexibility more difficult. These symptoms can be difficult to detect at first because they often develop slowly and over a number of years.³ Risk factors for knee osteoarthritis include previous injury, joint inflammation, abnormalities of joint shape and obesity.³ The condition is also especially common in women and with individuals who play physical sports.⁶

The problem of knee osteoarthritis is not necessarily the prevalence of the condition, but in the treatments that patients most commonly use. Three very common treatments for knee osteoarthritis are glucosamine and chondroitin supplements, joint lubricant shots, and arthroscopic surgery, none of which is proven effective in reducing the symptoms of knee osteoarthritis. Surgery and joint lubrication shots are expensive and can impose unnecessary costs on employers and employees with little to no benefit.

Using Comparative Effectiveness Research

Agency for Healthcare Research & Quality

Comparative Effectiveness Research Findings

In 2008, the AHRQ Effective Healthcare Program funded a review of research literature examining evidence on the effectiveness and safety of three major treatments for osteoarthritis of the knee. The following findings are based on this review, which is entitled *Treatment of Primary and Secondary Osteoarthritis of the Knee* (2008). The review also was the basis for the publication of consumer and clinician guides in April 2009.

Main research findings:

Research demonstrates that three common treatments for knee osteoarthritis—glucosamine and chondroitin supplements, joint lubricant injections and arthroscopic surgery—are not proven effective.

Treatment Options and Findings

Glucosamine and chondroitin are oral nutritional supplements sold over the counter as a treatment for pain and to improve joint function. Since neither supplement is subject to review or approval by the U.S. Food and Drug Administration (FDA), the amount of active ingredients is not standardized and can vary based on brand.

Finding:

- The study observed groups of patients with knee osteoarthritis given either glucosamine or chondroitin, a combination of the two, or a placebo, and found that the drugs created no clinically significant effect.

Joint lubricant injections (or viscosupplementation) are a series of procedures in which a gel-like material is injected into the knee joint to reduce pain and improve knee flexibility and function. The shots are generally given at a clinic three to five times over a period of several weeks. Side effects from joint lubrication injections are generally mild and short-term. They include pain at the injection site, local joint pain, swelling and local skin reactions.

Finding:

- This treatment has demonstrated inconsistent results and any clinical improvements are likely to be small and not clinically meaningful.

Using Comparative Effectiveness Research

Still Unknown

- A specific cause for knee osteoarthritis has not been determined, but researchers have identified risk factors and ways to manage the disease through lifestyle changes.
- Since a strong relationship exists between obesity and knee osteoarthritis, experts recommend diet, exercise and maintenance of a healthy weight, which has been proven to decrease the severity of symptoms.
- Research has examined the effects of glucosamine hydrochloride. However, it has not yet been demonstrated that glucosamine sulfate, another type of glucosamine supplement, differs from the other in clinical effectiveness. It is also undetermined if glucosamine use leads to changes in glucose metabolism or glycemic control.

Below are additional facts and data about knee osteoarthritis, treatments and cost impact.

- People diagnosed with knee osteoarthritis are more likely to use health services in excess than other populations.² For example, the number of knee surgeries in the United States, including reconstruction and replacement, increased by 69% between 1997 and 2005.³
- Americans spend approximately \$850 million per year on over-the-counter glucosamine and chondroitin supplements.⁴
- The direct and indirect costs of knee osteoarthritis increase with severity of the condition.⁵
- One of two adults will develop knee osteoarthritis before age 85, and this risk increases to two of three adults who are obese.⁴

The Importance of Exercise and Weight Loss

Exercise and weight loss can decrease the amount of stress on the knees and help alleviate the symptoms of knee osteoarthritis. Even a small increase in activity several times a week can help. Each pound of extra body weight adds the equivalent of four pounds to the knees. So even a small amount of weight loss can significantly reduce physical impact on one's knees.⁴ Regular exercise can also replenish lubrication to the knee joint to reduce stiffness and pain. Doctors often recommend physical therapy, too, which can help increase flexibility and reduce knee pain, and sometimes pain medication to make it easier to maintain an active lifestyle.

Using Comparative Effectiveness Research

National Business Group on Health Strategies for Employers



Employers can educate their employees on treatment options for knee osteoarthritis and help them avoid treatments that are unlikely to be effective and may cause adverse effects. They can also use plan design and provider selection as ways to encourage evidence-based care, and engage employees in making decisions about treating knee osteoarthritis that are in the best interests of both parties.

Employee Education and Wellness

Include information about musculoskeletal health and knee osteoarthritis in the employer-sponsored health and wellness program. Employers should provide resources and educational materials on knee osteoarthritis and musculoskeletal health through events such as health fairs and/or electronically through the company's intranet or portal.

Encourage employees to maintain a healthy weight and an active lifestyle. Consider providing healthy lifestyle incentives such as gym reimbursements; include healthy options in the cafeteria; and start team-based fitness or weight-loss competitions. Even a small increase in activity each day can increase knee strength and help alleviate osteoarthritis symptoms. Weight loss also reduces the amount of stress on the knees.

Patient Decision Aids

Make patient decision aids available to employees and human resources professionals. These decision support resources can be distributed through on-site clinics, special events and electronically through the company intranet portal. Consider reducing employee cost-sharing for treatment when they are used.

Evidence demonstrates that patient decision aids are most effective for conditions that have more than one medically appropriate treatment option, neither of which has a distinct advantage.⁷ The table on the following page indicates resources that employees with knee osteoarthritis can use to help guide their treatment decisions. Although many of these products are used by National Business Group on Health members, this is not intended as an endorsement, nor is it a complete list of all such services.

Plan Design

Cover arthroscopy and viscosupplementation with prior authorization to ensure appropriate use. If a physician recognizes symptoms such as giving way, locking or catching in the knee, or recognizes mechanical symptoms through imaging, such as loose bodies, meniscal tears, or unstable flaps of articular cartilage, then arthroscopic surgery or viscosupplementation may be appropriate. Providers are often required to submit supporting documentation.

Using Comparative Effectiveness Research

Patient Decision Aids for Knee Osteoarthritis

AHRQ Effective Healthcare Program

<http://www.effectivehealthcare.ahrq.gov>

Free guide available online with a summary of research on knee osteoarthritis treatments and questions to help patients speak with their doctors about options.

Best Doctors

<http://www.bestdoctors.com>

Employers contract with Best Doctors to provide employees with expert medical consultations and a comprehensive review of diagnosis and treatment options.

Healthwise: “Should I Have Knee Replacement Surgery?”

<http://www.healthwise.com>

Healthwise offers patient education solutions for health plans, care management companies, hospitals and consumer health portals. Its patient decision aids are used by millions of people to make informed decisions.

Health Dialog: “Treatment Choices for Knee Osteoarthritis”

<http://www.healthdialog.com>

Employers contract with Health Dialog to give employees access to the Shared Decision-Making® programs which include personal health coaching, health assessments, video aids and an information database. This guide is available as a DVD and booklet and is intended for people considering knee replacement surgery.

Foundation for Informed Medical Decision Making: “Treatment Choices for Knee Osteoarthritis”

<http://www.informedmedicaldecisions.org>

The Foundation produces Shared Decision-Making® tools by combining systematic reviews of the science and evidence with information from patient focus groups and interviews about patient perspectives. If the patient does not have access to Health Dialog services, he or she may request a review copy of the decision tool from the Foundation.

Consumer’s Medical Resource

<http://www.consumersmedical.com/>

Employers contract with CMR to provide employees with a comprehensive overview of their condition, treatment options with available effectiveness and outcomes data, and lifestyle information. The service also helps patients choose the best hospitals and providers.

Ottawa Personal Decision Guide

<http://decisionaid.ohri.ca/decguide.html>

The Ottawa Personal Decision Guide is designed for any health-related decision. It helps individuals and families assess their needs and options, plan next steps, and track progress in their decision-making. These aids are available in Spanish, French and Japanese.

Cigna: Osteoarthritis

<http://www.cigna.com>

The “Topic Overview” page at Cigna contains a wealth of information for a patient with knee osteoarthritis, including patient decision aids, information on diagnosis, health tips, and what to discuss with a doctor.

Cover total knee replacement with prior authorization for severe cases of knee osteoarthritis. Although expensive and temporarily debilitating, total knee replacement has been shown effective in reducing pain and improving function for some severe cases of knee osteoarthritis. This may be a practical option for severe cases, but also carries several risks, including blood clots, nerve damage, blood vessel injuries and infections.⁸

Using Comparative Effectiveness Research

Network Management

Encourage use of Centers of Excellence (COE) for knee procedures. Employers can work with their health plans to identify and promote use of facilities recognized as COE. Benefit communications should encourage beneficiaries to select these facilities if surgery is deemed necessary. Plan design can be used to reinforce the selection, including lower cost-sharing for a procedure performed at a COE and a per diem for travel and lodging. All the major health carriers designate orthopedic Centers of Excellence.

Work with health plans to monitor knee surgery rates and other knee-related diagnoses and procedures, using diagnosis and procedure codes to identify outliers and regional variation. Collecting data on an employee population allows an employer to understand the extent of the need for these procedures and to develop appropriate and targeted solutions. Tracking the codes listed above helps in identifying locations or workplace populations with high utilization of possibly unnecessary knee procedures.

Diagnosis and Procedure Codes

Knee osteoarthritis	719.47
Arthroscopy (diagnostic)	29870
Arthroscopy (surgical)	29866-29868 29871-29889
Viscosupplementation	No code listed
Total knee replacement	27447

Conclusion

Osteoarthritis of the knee can create significant costs for employers through excessive use of expensive treatments that may not be effective. As the workforce ages and obesity rates increase, these costs are likely to increase as well if left unaddressed. Although the effectiveness of many common treatments for knee osteoarthritis is not proven, employers can help their employees with osteoarthritis make informed decisions and choose healthy behaviors through education on healthy lifestyles and information about patient decision aids. Through plan design and network management, employers can also influence and monitor how employees make decisions.

REFERENCES

- 1 Parmet S, Glass RM. Osteoarthritis of the knee. *JAMA*. 2003;289(8):1068.
- 2 Wright EA, Katz JN, Cisternas MG, Kessler CL, Wagenseller A, Losina E. Impact of knee osteoarthritis on health care resource utilization in a US population-based national sample. *Medical Care*. 2010;48(9):785-791.
- 3 Agency for Healthcare Research and Quality. Three treatments for osteoarthritis of the knee: Evidence shows lack of benefit. April 2009.
- 4 Landro L. Doctors' new advice for joint pain: get moving. *WSJ*. 12 April 2011. <http://online.wsj.com/article/SB10001424052748703841904576257151484986480.html>.
- 5 Gupta S, Hawker GA, Laporte A, Croxford R, Coyte PC. The economic burden of disabling hip and knee osteoarthritis (OA) from the perspective of individuals living with this condition. *Rheumatology* 2005;44:1531-1537.
- 6 Sports Injury Clinic. Arthritis of the knee (osteoarthritis). Available at: <http://www.sportsinjuryclinic.net/cybertherapist/front/knee/arthritis.php>, accessed on December 14, 2010.
- 7 O'Conner AM, et al. Decision aids for people who are facing health treatment and screening decisions. *Cochrane Database of Systematic Reviews*. 2009. Issue 3, Article Number CD001431.
- 8 Shiel WC, Lee D. Total knee replacement. *MedicineNet.com*. http://www.medicinenet.com/total_knee_replacement/article.

Using Comparative Effectiveness Research

Resources

For Employers

Clinician's Guide: *Three Treatments for Osteoarthritis of the Knee: Evidence Shows Lack of Benefit*

Agency for Healthcare Research and Quality, April 2009

Evidence Report: *Technology Assessment for Total Knee Replacement*

Agency for Healthcare Research and Quality, December 2003

Arthroscopic Lavage and Debridement for Knee Osteoarthritis and other Knee Conditions

National Business Group on Health,
National Committee on Evidence-Based
Benefit Design, 2008

For Employees

Guide for Patients and Consumers:

*Osteoarthritis of the Knee,
A Guide for Adults*

Agency for Healthcare Research and Quality,
April 2009

*Choosing Pain Medicine for Osteoarthritis:
A Guide for Consumers*

Agency for Healthcare Research and Quality,
January 2007

Questions are the Answer

Agency for Healthcare Research and Quality
Easy-to-use consumer website that helps
patients take an active role in their health care
by asking questions so that they understand
their condition and options.

<http://www.ahrq.gov/questionsaretheanswer/>

*For Free Print Copies of the Consumer
and Clinician Guides*

AHRQ Publications Clearinghouse – 800.358.9295

*Osteoarthritis of the Knee, A Guide for Adults:
Consumer's Guide*, AHRQ Pub. No. 09-EHC001-A

*Three Treatments for Osteoarthritis of the Knee:
Clinician's Guide*, AHRQ Pub. No. 09-EHC010-3

Using Comparative Effectiveness Research



JUNE 2011

Treatments for Knee Osteoarthritis

This Guide was developed by the National Business Group on Health, which should be cited accordingly. Copyright 2011 National Business Group on Health.

Written by:

Demian T. Kendall

Program Assistant, National Business Group on Health

Acknowledgements:

The National Business Group on Health would like to acknowledge the members of the National Committee on Evidence Based Benefit Design for their valuable guidance and review. We would also like to thank the Agency for Healthcare Research and Quality, Department of Health and Human Services and Joint Commission Resources, Inc. for their support of this project.

All materials are in the public domain. Additional copies of this *Guide* are available at www.businessgrouphealth.org or by contacting healthservices@businessgrouphealth.org for more information.

About the National Business Group on Health

The Business Group is the only non-profit organization devoted exclusively to representing large employers' perspectives on national health issues and providing solutions to its members' most important health care and health benefits challenges. The Business Group fosters the development of a safe health care delivery system and treatments based on scientific evidence. Members share strategies for controlling costs, improving patient safety and quality of care, increasing productivity and supporting healthy lifestyles.

National Business Group on Health

National Business Group on Health
20 F Street, N.W., Suite 200 • Washington, D.C. 20001
Phone (202) 558-3000 • Fax (202) 628-9244 • www.businessgrouphealth.org
Helen Darling, President, National Business Group on Health

National Committee on Evidence-Based Benefit Design

Wayne Burton, M.D. (Co-Chair), **American Express**; Kyle Wendt (Co-Chair), **Lowe's Companies, Inc.**; Joyce Dubow, **AARP**; Carolyn Clancy, M.D., Jean Slutsky, **Agency for Healthcare Research and Quality**; Jim Knutson, **Aircraft Gear Corporation**; Ted Abernathy, M.D., **American Academy of Pediatrics**; Ann Greiner, **American Board of Internal Medicine**; Janet Wright, M.D., **American College of Cardiology**; Steve Weinberger, M.D., **American College of Physicians**; Razia Hashmi, M.D., **Anthem**; Jennifer Boehm, **Aon Hewitt**; Sheila Sweeney, **Assurant, Inc.**; Naomi Aronson, Ph.D., **Blue Cross and Blue Shield Association**; Melissa Scribner, **Boston Scientific**; Maribeth Shannon, **California Healthcare Foundation**; Peter Browne, **Cerner Corporation**; John Santa, M.D., **Consumer Reports Health Ratings Center**; Aldy Duffield, **Dell Inc.**; Elizabeth Casteel, J.D., **FedEx**; Laurie Jarasitis, **Fidelity Investments**; Anna Fallieras, **General Electric Company**; Julia Halberg, M.D., **General Mills, Inc.**; Barbara McNeil, M.D., Ph.D., **Harvard Medical School**; Lydia Boyd Campbell, M.D., Paul Grundy, M.D., **IBM Corporation**; J. Russell Teagarden, **Medco Health Solutions**; Michael C. Sokol, M.D., **Merck & Co., Inc.**; Peggy O'Kane, **NCQA**; Melissa Miller, **NextEra Energy, Inc.**; Roger Merrill, M.D., **Perdue Farms, Inc.**; Fred Williams, **Quest Diagnostics Incorporated**; Lisa Montalvo, **Safeway, Inc.**; Collier Case, **Sprint Corporation**; Melissa Metzgar, **Starwood Hotels and Resorts Worldwide, Inc.**; Joshua Riff, M.D., **Target Corporation**; Terry Wolf, **The Boeing Company**; Sharon Levine, M.D., **The Permanente Medical Group**; David Levin, M.D., **Thomas Jefferson University**; Bruce Kelley, Ph.D., **Towers Watson**; Vince Kerr, M.D., **UnitedHealth Group**; Alex Ommaya, Sc.D., **U.S. Department of Veterans Affairs**; Shari Davidson, **Visant Corporation**; Chris McSwain, Sally Welborn, Lisa Woods, **Wal-Mart Stores, Inc.**

Cassell & Fenichel Communications, L.L.C., Publications Management
PlusOne Studios LLC, Graphic Design