

Total knee replacement appears cost-effective in older adults

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Total knee replacement (arthroplasty) appears to be a cost-effective procedure for older adults with advanced osteoarthritis, according to a report in the June 22 issue of *Archives of Internal Medicine*, one of the JAMA/Archives journals. The procedure appears to be cost-effective across all patient risk groups, and appeared more costly and less effective in low-volume centers than in high-volume centers.

Approximately 12 percent of adults older than 60 have symptoms of [knee osteoarthritis](#), and their direct medical costs are estimated to range from \$1,000 to \$4,100 per person per year, according to background information in the article. "Total knee arthroplasty is a frequently performed and effective procedure that relieves pain and improves functional status in patients with end-stage knee osteoarthritis," the authors write. "Almost 500,000 total knee arthroplasties were performed in the United States in 2005 at a cost exceeding \$11 billion. Projections indicate dramatic growth in the use of total knee arthroplasty over the next two decades."

Elena Losina, Ph.D., of Brigham and Women's Hospital and the Boston University School of Public Health, and colleagues developed a computer simulation model and populated it with Medicare claims data and cost and outcomes data from national and multinational sources. They then projected lifetime costs and quality-adjusted life expectancy—or the number of years remaining of good health—for patients at different levels of risk and receiving total knee arthroplasty at high-volume or low-volume facilities.

Overall, having a total knee arthroplasty increased quality-adjusted life expectancy of the Medicare population (average age 74) from 6.822 to 7.957 quality-adjusted life years (years of life in perfect health). Total costs increased from \$37,100 among individuals not receiving total knee arthroplasty to \$57,900 per person undergoing total knee arthroplasty, resulting in a cost-effectiveness ratio of \$18,300 per quality-adjusted life year. Therefore, total knee arthroplasty is a highly cost-effective procedure for the management of end-stage knee osteoarthritis compared with non-surgical treatments and is within the range of accepted cost-effectiveness for other musculoskeletal procedures, the authors note.

"This result is robust across a broad range of assumptions regarding both patient risk and hospital volume," they write. "For patients who choose to undergo total knee arthroplasty, hospital volume plays an important role: regardless of patient risk level, higher-volume centers consistently deliver better outcomes. But the additional survival benefits associated with high-volume centers provide limited cost-effectiveness benefits for high-risk patients deliberating between medium- and high-volume centers." Even procedures performed in low-volume centers were more cost-effective than not having total knee arthroplasty, regardless of the patient's risk of complications.

"Clinicians, patients and policy makers should consider the relative cost-effectiveness of total knee arthroplasty in making decisions about who should undergo total knee arthroplasty, where and when," the authors conclude.

More information: *Arch Intern Med.* 2009;169[12]:1113-1121.

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