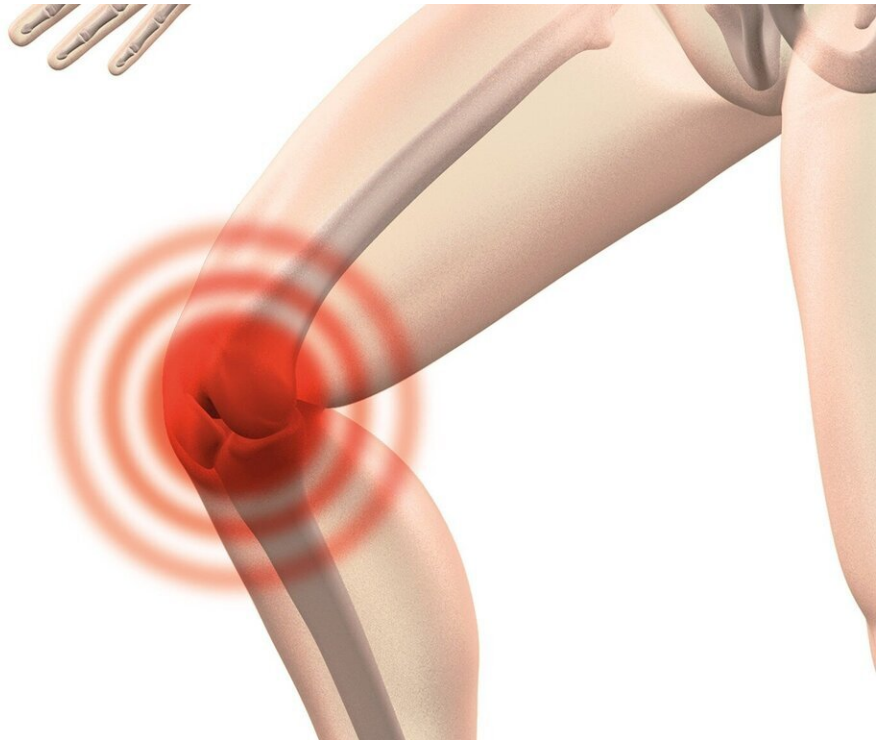


# High costs of nonoperative treatment in the year before total knee replacement

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In the year before total knee arthroplasty (TKA), patients incur considerable costs for nonoperative treatments and other procedures for osteoarthritis (OA)—raising questions about the value of those procedures, reports a study in the *Journal of Bone and Joint Surgery*.

The study shows "substantial variation in the type and cost of nonoperative procedures for patients with late-stage knee OA prior to TKA," according to the report by Eric L. Smith, MD, of New England Baptist Hospital, Boston, and colleagues.

## **Estimated costs of \$2.4 billion over 3 years for nonoperative procedures before TKA**

Using nationwide commercial insurance databases, the researchers analyzed claims for nearly 24,500 patients who underwent primary TKA in 2018 and 2019. The study examined the types and costs of nonoperative procedures in the months leading up to TKA.

Average costs for nonoperative procedures in the year before TKA were \$1,355 per patient. Knee imaging studies were the most common procedure overall, performed in about 96% of patients. Intra-articular steroid injections were the most frequent treatment procedure, performed in 54%. Bracing was the least common nonoperative treatment, performed in approximately 8% of patients.

Intra-articular injection of hyaluronic acid, excluding professional administration fees, was the most costly procedure: performed in about 13% of patients, it made up 10% of total costs. By comparison, steroid injections were performed in more than half of patients, but accounted to just over 1% of costs. Physical therapy was used in about 27% of patients and accounted for about 17% of costs.

Most patients underwent at least two nonoperative treatments, while more than one-third underwent three or more. Costs increased with time between diagnosis and surgery, exceeding \$2,000 in patients with a 12-month duration before undergoing TKA.

Women had higher total costs for nonoperative treatment, with the greatest differences in [physical therapy](#) and prescription of nonsteroidal anti-inflammatory drugs. Men had higher costs for opioids. Procedures and costs also varied by region, with the Northeast region having the highest average cost (\$1,740).

TKA is a highly effective and cost-efficient treatment for knee OA. The researchers note that decisions about TKA can be "extremely complicated," involving factors related to patients, providers, and insurers. For example, insurers may require some period of nonoperative treatment before authorizing coverage for TKA. With the national focus on reducing costs while delivering high-value care, the requirement of nonoperative treatment in the months before TKA warrants evaluation.

Extrapolated to the 600,000 TKAs performed each year in the United States, the total costs of nonoperative treatment are estimated at \$2.4 billion over a 3-year period and are likely to increase in the future. The authors point out some limitations of their study, mainly related to the use of insurance claims data.

"For patients who eventually undergo TKA, the cost-effectiveness of these nonoperative treatments right before TKA needs to be carefully considered as the health-care system transitions toward a value-based model," Dr. Smith and coauthors conclude. They also note that some nonoperative treatments—for example, intra-articular steroid or hyaluronic acid injections or bracing—do not have strong evidence of effectiveness. The researchers call for further studies focusing on the benefits of nonoperative treatments at different stages of knee OA.

**More information:** Darren Z. Nin et al, Costs of Nonoperative Procedures for Knee Osteoarthritis in the Year Prior to Primary Total Knee Arthroplasty, *Journal of Bone and Joint Surgery* (2022). [DOI: 10.2106/JBJS.21.01415](https://doi.org/10.2106/JBJS.21.01415)

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