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DOI: 10.1056/NEJMp1702071

Decision Aids and Elective Joint Replacement — How Knowledge Affects Utilization

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The health care market is undergoing rapid transformation, spurred in part by the Affordable Care Act (ACA) and recent payment reforms introduced by the Centers for Medicare and Medicaid Services (CMS). The industry is shifting from a business-to-business model involving insurers, health care providers, and pharmaceutical companies — which traditionally sheltered patients from financial and medical decisions — to a business-to-consumer model in which the patient (the consumer) is at the center of decision making. Innovations in health care technology are also rapidly expanding access to information and, in some cases, disinformation. Access to accurate and timely information empowers patients to make well-informed choices about their care. The centerpiece of this consumer-centric revolution in health care is shared decision making.

In December 2016, CMS announced a national pilot of the Beneficiary Engagement and Incentives Models, launched under the authority of Section 1115A of the Social Security Act, which was added by the ACA. These models employ shared-decision-making tools, including decision aids and target preference-sensitive treatments such as joint replacement. CMS proposed two models: a Shared Decision Making Model and a Direct Decision Support Model. The Shared Decision Making Model will test an approach for integrating a structured four-step shared-decision-making process into clinical practice for clinicians in accountable care organizations. It's expected to engage more than 150,000 Medicare beneficiaries annually and will pay participating organizations $50 for each shared-decision-making service provided by their clinicians.

The Direct Decision Support Model, on the other hand, will target organizations that provide health management and decision support services. CMS will partner with up to seven organizations to support approximately 700,000 Medicare beneficiaries each year. Although the initiative's goals are to improve the quality of decision making and patient engagement in the care process, an implicit assumption is that well-informed patients might choose to receive less care, thereby reducing costs. It's also important to note that shared-decision-making tools aren't just about eliciting and honoring patient preferences — they could also help address the health care industry's market and regulatory failures, such as paying for unnecessary care.

It's not surprising that elective knee and hip replacement are among the preference-sensitive treatments targeted by CMS as part of its national effort to promote shared decision making. Osteoarthritis of the knee and hip is among the most prevalent chronic conditions in the United States. Joint replacement is one of the most successful surgical procedures in history, and the substantial evidence supporting its effectiveness and safety has made it one of the most commonly performed elective surgeries in elderly patients. Furthermore, use of joint replacement is projected to grow rapidly during the next decade as end-stage lower-extremity osteoarthritis, a pro-

gressive condition, becomes more common.

There are several reasons why joint replacement is an ideal target for cost-containment and quality-improvement efforts that are based on shared decision making. First, joint replacement accounts for a substantial portion of the overall costs of surgical care for elderly Americans, and CMS is the single largest payer for total joint replacement. A recent CMS cost-containment initiative that uses an alternative payment model to target knee and hip replacement is anticipated to save $343 million over the next 5 years.

The effect of decision aids on utilization may vary depending on a patient's baseline treatment preference (which varies by race), rather than on the basis of race alone.

Second, there is marked variation in rates of joint replacement in the United States. The most remarkable and persistent variation involves race. Even though the prevalence of osteoarthritis in older Americans is similar among racial and ethnic groups, numerous studies have reported substantial racial differences in utilization of joint replacement. For instance, black Americans are about 40 to 50% less likely than white Americans to undergo the procedure.[1] Most of these studies relied on Medicare data, so access to the procedure wouldn't have varied on the basis of insurance status.

Third, joint replacement is an ideal preference-sensitive treatment because the balance of benefits and risks is debatable. Decisions about whether to have joint replacement therefore involve patient discretion and might be influenced by doctors' framing of discussions with their patients who are candidates for the procedure.

Decision aids are commonly used to support shared decision making. Designed as counseling tools, particularly for preference-sensitive treatments, they provide high-quality information on treatment options and clarify the anticipated outcomes associated with each choice. In this way, they empower patients and facilitate communication and decision making. Use of decision aids is associated with increased patient knowledge and more realistic perceptions about the disease and treatment options, reductions in the proportion of patients who make decisions passively or remain indecisive after counseling, and improved concordance between patient values and treatment choices.

Studies have shown that use of decision aids is linked to lower utilization of elective, invasive procedures such as joint replacement.[2] A Cochrane review of 105 studies involving decision aids showed that they were associated with increased knowledge, a clearer sense of one's values, and more accurate risk perception. Patients who viewed decision aids were also better informed and more engaged in decision making,[3] and in 18 studies involving major elective surgery, they tended to favor conservative treatment over surgery. But such studies involved predominantly white patient populations, who are more likely than black populations to prefer joint replacement.[4]

More recent studies evaluating the effect of decision aids in minority populations have come to different conclusions. For example, a randomized, controlled trial involving only black patients showed that use of a decision aid significantly increased patients' knowledge about the risks and benefits of joint replacement, as well as their preference for surgery.[5] In a subsequent trial, black patients randomly assigned to view a decision aid focused on knee osteoarthritis prior to seeing an orthopedic surgeon for consideration of surgery were 85% more likely to undergo surgery than those who didn't view the decision aid: 23 of 150 of these patients underwent the procedure, as compared with 11 of 154 in the control group.[4]

It's possible that the effect of decision aids on utilization of elective joint replacement will vary depending on a patient's baseline treatment preference (which varies by race), rather than on the basis of race alone. Patients with a higher baseline preference for surgery might be nudged by decision aids toward a more conservative treatment approach (typically pain management with or without physical therapy and weight loss), as suggested by earlier studies. Patients with a lower baseline preference for surgery, however, might be more likely to

opt for joint replacement after viewing a decision aid and learning more about its risks and benefits. Thus, when decision aids are used as tools for promoting shared decision making, they may improve communication between patients and providers about treatment options and help elucidate a population's true demand for preference-sensitive treatments such as joint replacement. But whether they will result in cost savings for CMS will depend on their net effect on utilization in various patient groups.

The views expressed in this article are those of the author and do not represent those of the Department of Veterans Affairs.

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DOI: 10.1056/NEJMp1703432