



The Societal and Economic Value of Orthopaedic Surgery

A Series of Five Condition-Specific Investigations

Overview

The American Academy of Orthopaedic Surgeons conducted a series of research studies to examine the social and economic value of orthopaedic surgical procedures for five common musculoskeletal conditions. The indirect economic benefits of orthopaedic surgery for all five procedures were found to result in cost savings to society that far exceeded direct costs.

The methodology for this research was developed and published in a peer-reviewed economic journal by a team of health economists, including KNG Consulting and IHS Global. This methodology enables researchers to project the indirect economic benefits of specific surgical procedures. These benefits include decreased disability costs, increased work productivity, return to independent living, and improved quality of life for patients. The results of the analyses for all five conditions have now been published in leading peer-reviewed orthopaedic journals.

Total Knee Replacement

More than 600,000 knee replacements were performed in the United States in 2009. These patients typically suffer from osteoarthritis, prior injury, or rheumatoid arthritis, conditions that cause pain and loss of mobility. Many of these patients are younger than 65 years of age. The direct costs and indirect economic benefits of knee replacement surgery were compared with the costs of nonsurgical treatment over a patient's lifetime.

Although surgical treatment led to an average \$20,635 in direct medical costs, the indirect economic benefits totaled \$39,565, resulting in an average net benefit to society of \$18,930 per patient. Therefore, the estimated overall savings to society in 2009 was \$12 billion (600,000 procedures × \$20,000 net benefits).

Anterior Cruciate Ligament Reconstruction

Anterior cruciate ligament (ACL) tears are common knee injuries often resulting in troublesome instability. Surgical repair is most often considered for younger patients and an increasingly active adult population. This investigation found that ACL reconstruction was less costly and more effective than treating patients with nonsurgical rehabilitation alone. The estimated cost savings were \$50,417 for each patient undergoing surgical repair of an ACL.



Rotator Cuff Repair Surgery

Some 4.5 million Americans see a physician every year with shoulder pain. Many of these patients suffer from dysfunction related to a tearing of the rotator cuff, a cape-like hood of four deep muscles and tendons that add strength and stability to the shoulder joint. Severe injuries to the rotator cuff may require surgery, while more minor injuries may be managed with physical therapy alone. This study estimated societal savings from surgical treatment to be \$13,771 per patient, when comparing costs associated with surgical and nonsurgical treatment. With 250,000 rotator cuff repairs performed in 2009, the lifetime societal savings was estimated to be \$3.4 billion.

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Surgical Repair of Herniated Discs

Back pain is remarkably common, resulting in approximately 10 million physician visits annually in the United States. Many of these patients suffer from a ruptured intervertebral disc that presses against spinal nerves. When conservative management of these herniated discs is not effective, surgery can decrease pain and improve function. This study looked specifically at discectomy, the most common surgical procedure used to treat a herniated disc. When the costs of discectomy were compared to conservative care such as physical therapy and medication management alone, surgical patients were estimated to benefit from function and productivity improvements that result in increased annual earnings of \$1,925. Net economic benefits to society were most likely to occur by the sixth year after surgery for patients receiving outpatient procedures and after twelve years for inpatients.

Surgical Management of Hip Fracture

More than 300,000 adults older than age 65 sustain a hip fracture every year in the United States. This number is expected to increase to at least 500,000 by year 2040. Though often elderly, many of these patients are still working and want to continue an active lifestyle. Although direct medical expenses for surgical repair were approximately \$20,000 higher than nonsurgical care, lower long-term medical expenses for surgical patients yielded substantial net savings. Over a patient's lifetime, the societal savings were estimated to average \$160,000. For U.S. patients older than age 65 in 2009, this resulted in societal savings of \$16 billion.

Summary

A new peer-reviewed health economics research methodology led to investigations of the direct and indirect economic costs for five common orthopaedic surgical procedures. Patients received substantial benefits of increased productivity and improved quality of life, often for decades. Learn more at: ANationInMotion.org/Value.