Improving the Surgical Authorization Process for Total Hip and Knee Replacement: Expertise Supported by Technology

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Executive Summary

The rapidly growing demand for total hip and knee replacement, combined with persistent surgical over-utilization, presents a growing challenge for patients, providers, insurers, and self-insured employers. By 2040, approximately 4.8 million total hip and knee replacements are projected to be performed annually in the United States. With studies estimating that 15–20% of procedures may be premature or inappropriate, this could represent as many as 960,000 patients that may have inappropriate or premature surgery annually by 2040 if current rates persist.

Joint Ai Surgical Authorization (JASA) provides a new approach to addressing these challenges, using machine-learning technology coupled with clinical expertise to support a truly independent, standardized, and efficient evaluation of joint replacement surgical candidacy.

The Problem: The Growing Challenge in TJR Surgical Authorization and Utilization Review

Despite longstanding efforts to improve surgical utilization, premature and inappropriate joint replacement surgery remains an ongoing and unresolved concern. This challenge will only become more significant as the number of hip and knee replacements continues to grow. At the same time, the current authorization process remains inefficient and administratively burdensome for both insurers and providers alike. Combined, these factors, create delays for appropriate surgical candidates while still failing to adequately address persistent surgical over-utilization. The need for a better approach is increasingly recognized across orthopaedics, with the American Academy of Orthopaedic Surgeons (AAOS) calling for broad prior authorization reforms aimed at reducing administrative burden and delays in patient care.

At the core of these challenges are several fundamental limitations in how the current authorization process evaluates surgical candidacy. While X-rays are routinely obtained, the authorization process lacks an independent evaluation of the X-ray images to objectively and consistently assess the severity of joint degeneration. Reviewers also rely on clinical documentation submitted by the provider to understand a patient's pain and functional limitations. This information is filtered through the provider's, rather than the patient's direct perspective on their pain and function and therefore may be subject to variability and provider bias. Direct assessment of pain and function is particularly important when evaluating surgical candidacy, as these are primary factors in determining the need for joint replacement surgery. Patient Reported Outcome Surveys (PROs) are already routinely collected and provide this information directly from patients about their pain and functional limitations, yet this information is generally not used in the surgical authorization process.

Accurately determining surgical candidacy is critical on the clinical side as well, as joint replacement performed prematurely or if inappropriate, can result in suboptimal short- and long-term outcomes, an increased risk of complications, and higher healthcare costs for patients, insurers, and self-insured employers. Despite the substantial resources devoted to prior authorization and utilization management, surgical over-utilization remains a persistent and unresolved challenge, highlighting the need for a more independent, standardized, and importantly, a more efficient approach to determining who is an appropriate candidate for surgery and when surgery is indicated.

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The Solution: Joint Ai Surgical Authorization (JASA)

For the first time ever, the Joint Ai Surgical Authorization (JASA) provides a truly independent approach to evaluating surgical candidacy for total hip and knee replacement patients. Developed by experienced orthopaedic surgeons, JASA brings together clinical expertise, a standardized review process, and machine-learning technology to support more accurate and efficient surgical authorization decisions.

JASA uses information that is readily available and already collected by providers. JASA first provides an independent evaluation of the level of degeneration from routine X-ray images using a machine-learning tool to objectively and consistently assess the severity of joint degeneration. Next, direct patient-reported information from validated Patient Reported Outcome Surveys (PROs) are used to evaluate pain and functional limitations. Then, a structured checklist is used to collect prior treatment, possible contraindications, and relevant comorbidities. This information is then synthesized into a single, standardized, patient-specific report designed to directly address surgical over-utilization. The report identifies appropriate surgical candidates who can move through the authorization process rapidly, while identifying patients for whom surgery may be premature or inappropriate and who should continue with non-operative care. The report also identifies patient-specific factors that may need to be addressed prior to surgery, helping to better prepare patients for optimal post-operative outcomes.

At the same time, JASA streamlines the surgical authorization process. Rather than requiring reviewers to manually search through extensive unstructured clinical documentation, JASA organizes the information needed to evaluate surgical candidacy into a single, easy-to-review report. Appropriate candidates can move through the authorization more efficiently, while cases requiring additional consideration can be identified for a more focused clinical review. This allows reviewer time and clinical expertise to be concentrated where they are most needed and significantly reduces requests for additional information, repeated communication between insurers and surgical practices, and the need for expensive peer-to-peer reviews.

JASA results in a process that benefits all stakeholders: reduced overutilization rates, less administrative burden for both insurers and providers and a more standardized and focused utilization review for insurers and self-insured employers. Most importantly, patients benefit from a process designed to permit appropriate surgical candidates to move forward efficiently while ensuring those for whom surgery may be premature receive the most appropriate care.

Closing Statement and Next Steps

JASA represents a new approach to surgical authorization for total joint replacement patients, bringing together clinical expertise, standardized processes, and technology to address both surgical over-utilization and the inefficiencies of the current authorization process. JASA has the potential to also significantly reduce unnecessary administrative burden, improve utilization management and most importantly, help patients receive the right treatment at the right time.

Interested in learning more about JASA or exploring opportunities to collaborate? Visit www.jointai.co to learn more about our work. To learn more about Dr. Anthony DiGioia, visit: www.pittsburghboneandjoint.com/about-dr-tony-digioia

For questions, comments, or partnership opportunities, contact us at info@jointai.co