Reducing 30-day Readmission After Joint Replacement

Monique C. Chambers, MD, MSL[a], Mouhanad M. El-Othmani, MD[a], Afshin A. Anoushiravani, MD[a], Zain Sayeed, MSc, MHA[a], Khaled J. Saleh, MD, MSc, FRCS (C), MHCM, CPE[b,*]

KEYWORDS

• Readmission • Complications • TJA • Quality measures • 30-day readmissions

KEY POINTS

- Hospital readmission rate contributes a practically avoidable source of waste and financial burden; the topic is a focus in the surgical literature and a target for quality improvement.
- Unplanned readmissions bring about severe ramifications for the patient, patient families, the institution, and the health care system.
- The implications of readmission within 30 days of discharge should drive providers, administrators, and policymakers to turn more attention to system-based procedures.
- These system-based procedures can help to decrease readmission, and ultimately improve quality of care while decreasing health care–associated costs.

INTRODUCTION

Total joint arthroplasty (TJA) is one of the most effective and efficient interventional procedures in medicine, because it offers a successful option to address chronic pain and functional disability of the associated joint.[1] Although it was developed initially to address degenerative changes seen in the elderly population, TJA indications have continued to expand to include conditions that affect younger, more active patients.[2,3]

It is projected that there will be as many as 610,582 primary and 99,898 revision total hip arthroplasty (THA) procedures annually by 2020.[4] For total knee arthroplasty (TKA), as many as 1.5 million primary TKA procedures and 161,405 revision TKAs are anticipated in the same year.[5] Based on current trends, 5.6% of those THAs and 3.3% of TKAs are followed by a readmission within 30 days of discharge.[6] Hospital readmission has become a focus of quality measures used by the Centers for Medicare and Medicaid (CMS) to evaluate quality of care. Recent policy changes provide incentives and enforce penalties to decrease 30-day hospital readmissions, with the hopes of improving the quality of health care delivery.

In 2013, the CMS rolled out the implementation of the Readmission Penalty Program. Hospitals are no longer reimbursed for necessary care of patients that are readmitted within 30 days of discharge, with few exceptions to the primary diagnosis for readmission.[7] As more provisions within the Patient Protection and Affordable Care Act are developed, readmission rates, as part of a bigger set of quality metrics, are being used to determine reimbursement rates for physicians. Further, the need for readmission is

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[a] Division of Orthopaedics and Rehabilitation, Southern Illinois University School of Medicine, 701 North First Street, Springfield, IL 62781, USA; [b] Department of Orthopaedic and Sports Medicine, Detroit Medical Center, 311 Mack Avenue, 5th Floor, Detroit, MI 48201, USA
* Corresponding author.
E-mail address: kjsaleh@gmail.com

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deemed as an indication for inadequate quality of care, and is therefore subjected to financial penalties.[7] However, readmissions may often be a result of an independent incident, unrelated to the surgical arthroplasty procedure. As such, surgeons and administrators are pressed with the challenge to accommodate the growing number of patients who qualify for arthroplasty procedures, while also improving quality of care and decreasing the costs to the system. With this daunting task before total joint surgeons, the purpose of this review is to identify risk factors that have been significantly associated with higher readmission rates, address approaches to minimize 30-day readmission, and discuss the potential future direction within this area as new government regulations arise.

UNDERSTANDING THE ECONOMIC SCOPE OF 30-DAY READMISSIONS

The rate of THA being performed in the United States is 4 times higher than it was in 2005, with associated economic burden of $13.43 billion. Following a similar trend, TKAs have increased by up to 5 times with a total cost of $40.8 billion, further straining financial resources and expenditures.[5,8] Unplanned readmissions carry a cost burden of $17.5 billion for Medicare patients alone.[9,10] However, the etiology and the cost associated with the event of readmission after arthroplasty vary greatly. As such, understanding the various factors and variables that lead to readmission after TJA is a principal goal for both policymakers and hospital administrators.

The high efficiency and impact of TJA has led to further resource allocation, as TJA expenditure constitutes the greatest share of Medicare funds.[11] Because the hospital readmission rate contributes a practically avoidable source of waste and financial burden, the topic became a central focus in the surgical literature and a target for multiple quality improvement approaches. The average cost of readmissions for THA is $17,103 and readmissions after TKA are $13,008.[9] The financial costs for revision operations are even greater, with the average revision owing to a surgical complication being $29,893.[9] Considering the substantial costs of an additional hospital admission, the goal of reducing 30-day readmission rates has become a primary focus of the CMS.

Risk and gain sharing strategies will continue to evolve as more provisions within the Patient Protection and Affordable Care Act are implemented. It is important that such changes do not negatively impact quality of care or the sustainability of hospitals and providers to ensure access to high-quality care. Shared responsibility for the gains and risks associated with care delivery will be bundled into a single payment for an entire episode of care. As such, physicians should be equipped with the tools to negotiate bundle payments, taking into account the costly reality of a possible readmission. More emphasis should be placed on quality improvement, and as such, understanding factors that increase the risk of readmissions is vital to adequately mitigate poor patient outcomes and financial waste.

RISK FACTORS ASSOCIATED WITH INCREASED 30-DAY READMISSION RATES

Orthopedic readmissions are owing to a number of variables, both nonmodifiable and modifiable. A multitude of factors have been analyzed in the literature. These range from hospital-related factors, such as hospital and surgeon volume; to patient-associated elements, including demographics, age, and comorbidities; to orthopedic/surgical-specific facets like surgical time.[12–15] Determining patients at risk for readmission requires identification of a number of variables beyond merely the patients' background and comorbidities. In fact, establishing a predictive model for readmissions requires thorough consideration of a broad category of variables such as social history, family support, economic status, and the interplay between these factors.

Patient-Specific Factors

Patient demographics, such as age, race, and gender have been shown to be associated significantly with an increased risk in readmission rates.[9,14,16–19] Patients over the age of 40 have a steady increase in hospital readmission risk until over the age of 75, and then there is a decreased risk of unrelated readmission.[20,21] African American race and male gender have also been identified as independent predictors of readmission, with an odds ratio of 1.5 for males compared with females.[22] The higher readmission risk noted in these populations might be partly explained by the association of these variables with an increased risk for other medical comorbidities. Although patient demographics are nonmodifiable factors, they can be used to establish patient expectations and to better guide preoperative optimization for TJA candidates.

Additional patient-specific variables, such as comorbid conditions independent of the index surgery, have also been studied to determine