VIEWPOINT

The Triple Aim for Payment Reform in Joint Replacement Surgery

Quality, Spending, and Disparity Reduction

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Elective total hip and knee replacements ("joint replacements") are effective treatments for end-stage osteoarthritis. Because of the clinical benefits of these procedures, racial and ethnic- and income-based disparities in the use and outcomes of these surgical procedures are particularly troubling. According to data from 2009 to 2017, joint replacements were less common for Black Medicare beneficiaries compared with White beneficiaries (in 2017, rates of 2.80 total hip replacements and 6.13 total knee replacements both per 1000 beneficiaries for Black beneficiaries and 4.77 total hip replacements and 9.93 total knee replacements both per 1000 beneficiaries for White beneficiaries), and income was a significant moderator of this relationship.[1] These disparities have persisted for decades despite targeted interventions that have been implemented locally to address the patient-, clinician-, and system-level causes. Hence, large-scale national reform to mitigate these marked disparities is needed.[2] The Triple Aim framework, which conveys the idea that health systems need to simultaneously optimize over multiple interlinked yet diverse goals including care experience, population health, and per-capita costs,[3] may provide a model for incorporating disparity reduction into the goals of payment reform.

> Analogous to the Triple Aim framework, can an all-encompassing framework of quality—spending—disparity reduction be applied to payment reform, whereby fulfillment of all these 3 goals would determine hospital performance and financial incentives?

Each year, more than 400 000 joint replacements are performed among Medicare beneficiaries and more than $7 billion is spent on inpatient care for these procedures,[4] making these operations among the most common inpatient surgical procedures and one of the largest surgical expenditures for Medicare. The high volume and spending for these surgical procedures combined with variability in quality has motivated their inclusion in several payment reforms. In 2016, the Centers for Medicare & Medicaid Services (CMS) mandated the Comprehensive Care for Joint Replacement (CJR) model for most hospitals located in 67 randomly selected metropolitan statistical areas.[4] The CJR is a bundled payment reform aimed at improving quality and spending for Medicare beneficiaries undergoing these surgical procedures. The CJR bundles spending for the inpatient stay and the 90-day postacute period, and holds hospitals accountable for meeting quality-adjusted spending benchmarks and target prices. Early evaluations found that the CJR was associated with modest reductions in spending while maintaining the quality of care, thereby partially meeting the intended objectives.[5]

Analogous to the Triple Aim framework, can an all-encompassing framework of quality—spending—disparity reduction be applied to payment reform, whereby fulfillment of all these 3 goals would determine hospital performance and financial incentives? While quality and spending optimization are the explicit goals of the CJR, the relatively wider reach and mostly mandatory design of the CJR makes it a suitable vehicle for disparity reduction efforts. In its original form, however, the CJR risked exacerbating disparities. In particular, the risk adjustment methodology for determining spending benchmarks did not include social risk factors that are important determinants of patient outcomes and spending, thereby potentially disadvantaging racial and ethnic minorities, low-income beneficiaries, and the safety-net hospitals that care for them.[6] The failure to account for social risk factors may encourage hospitals to selectively avoid patients who are at a greater risk of adverse events or higher spending. These incentives are particularly concerning in light of preexisting disparities in joint replacement care and evidence that safety-net hospitals have had lower performance in the CJR. Notably, the CJR may have, unintentionally, widened the gap in the use of total knee replacements between non-Hispanic White beneficiaries and Black beneficiaries, particularly for non-Hispanic Black beneficiaries living in poverty (as indicated by being dually eligible for Medicaid).[7]

The recent 3-year extension of the CJR appears to be a step in the right direction.[4] A notable update is the enhancement of the risk adjustment process for setting spending benchmarks, which goes beyond the original adjustment that used Medicare Severity–Diagnosis-Related Groups and fracture diagnoses. In the extension, CMS has included risk adjustment for hierarchical condition category count to account for clinical risk, an age bracket factor to account for age-related risk, and dual eligibility for Medicaid. The adjustment for dual eligibility is an important step that will give "credit" to hospitals, to a certain extent, for caring for patients who are clinically and socially complex and recognize the higher

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resources needed for treating these patients. This change may allay hospital concerns about treating socially disadvantaged patients who need joint replacements, thereby mitigating barriers to surgical access and the associated quality of care. This initiative also aligns with the recommendations of the Department of Health and Human Services' second report to Congress on accounting for social risk factors in Medicare payment policies.[8]

While enhanced risk adjustment is an essential first step, much work remains for using CJR and other payment reforms to reduce disparities nationally. As Medicare continues to test and implement new payment models, care must be exercised to ensure reforms do not unintentionally worsen preexisting disparities. Moreover, federal recommendations provide a roadmap that can be used by reforms such as the CJR to build on their existing frameworks and be transformed into effective disparity reduction interventions.[8]

First, the measurement and reporting of quality metrics for socially disadvantaged beneficiaries are essential to establish a baseline and monitor progress over time. This could begin with the measurement and reporting of postoperative complication rates (one of the metrics already included in the CJR quality score) separately for socially disadvantaged beneficiaries and their counterparts. Such stratified measurement and public reporting of clinical performance will highlight the disparities in surgical outcomes, provide hospitals with actionable targets, hold hospitals accountable for providing high-quality care for all, and monitor progress over time. For addressing disparities in joint replacement access and use, geographic measures such as the county- or hospital referral region–level rates of these surgical procedures separately for White and Black beneficiaries, for example, would provide actionable targets for disparity reduction.

Second, the risk adjustment framework could be enhanced to include functional risk factors. Patient functional status is an important determinant of quality and spending and may vary systematically according to social risk. To address the lack of standardized functional status data, CMS could harness and further develop CJR's current optional provision where hospitals earn additional points for submitting outcomes data such as the Patient-Reported Outcomes Measurement Information System Global-10 domain data. While lesser-resourced hospitals, such as safety-net hospitals, may not have the infrastructure to meet this goal, dedicating federal financial, technological, or implementation resources to support them in this initiative may prove valuable not only for their performance in the CJR, but also for the overall delivery of care in their settings.

Third, explicit rewards for closing the gap in use and outcomes of joint replacements between socially disadvantaged beneficiaries and their counterparts, either by meeting prespecified targets or by demonstrating measurable improvements, could accelerate advances in health equity. Hospitals, especially safety-net hospitals, that make substantial progress in disparity reduction could be encouraged to disseminate best practices and serve as role models for other hospitals.

The 34 metropolitan statistical areas that are currently mandated to participate in the CJR provide a valuable laboratory to test the use of the CJR for disparity reduction. As the CJR is modified to include disparity-focused measures, the implications of these changes can be rigorously evaluated before more widespread dissemination is undertaken. Moreover, the disparity reduction lessons from the CJR might be generalized to other existing and future payment reforms to achieve a comprehensive approach to disparity reduction across clinical areas, such as cardiac surgery, where disparities persist for Medicare beneficiaries.

As the US renews its commitment toward eliminating systemic racism and promoting equity in all aspects of US society, considerable work remains in achieving equity in joint replacements and other high-priority conditions. The Triple Aim for payment reforms, including an explicit focus on disparity reduction in addition to quality and spending, is a proactive and much-needed approach for ensuring that older US residents, regardless of their race and ethnicity or income, have the opportunity to receive high-quality and efficient care.

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