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The CMS Comprehensive Care Model and Racial Disparity in Joint Replacement

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In April 2016, the Centers for Medicare & Medicaid Services (CMS) implemented the Comprehensive Care for Joint Replacement (CJR) model, an alternative payment model involving lower extremity joint (knee and hip) replacement. This program involves acute care hospitals in 67 randomly selected metropolitan statistical areas.¹ Under the CJR model, hospitals will be held accountable for Medicare costs related to lower extremity joint replacement for 90 days after patient hospital discharge. Medicare will continue to reimburse hospitals and post-acute care clinicians and facilities on a fee-for-service basis during the 90-day CJR episode. The model also sets a target payment rate for each hospital based on historical costs and regional averages. Eventually, by the fifth year, the target rate will be based entirely on the regional average. At the end of each year, if total payments during the CJR episode are lower than the target payment rate and a hospital meets all quality thresholds, the hospital would receive the difference between incurred costs and its target payment. Starting in the second year of the program, 2017, hospitals will be required to repay to Medicare any incurred costs beyond the target payment.

The CJR program is an example of CMS's efforts to transition half of all payments to value-based care models by 2018. The CJR encourages hospitals to work closely with physicians and post-acute care clinicians and facilities to reduce fragmentation of care, improve quality of care, and reduce costs. Medicare currently pays for different types of postoperative care services separately, giving clinicians and hospitals no financial incentive to pay attention to related care that patients receive in other settings. The CMS estimates that the new program will save \$343 million over the 5 performance years of the CJR model,² with most savings

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expected to be from reduced readmissions and use of post-acute care, such as skilled nursing facilities.

Identifying lower extremity joint replacement for this alternative payment model as away to reduce health care costs and improve care makes good sense. Utilization is projected to increase exponentially in the next decades as the prevalence of end-stage lower extremity osteoarthritis continues to increase. Some estimates suggest that demand for hip replacement could increase by 170% and demand for knee replacement could increase by more than 600%.³ For instance, in 2015, the number of total knee replacements performed in the United States exceeded 1 million,³ representing a 2-fold increase in total knee replacement operations over the past decade and making Medicare the single largest payer for these procedures.

Nonetheless, as well-intentioned and appropriate as it might be, the CJR model unfolds in the setting of a well-documented disparity in health care. Arthritis-related activity, work limitations, and severe pain (clinical indications for joint replacement) disproportionately affect African American patients compared with white patients.⁴ However, studies in the last 10 to 15 years have documented marked racial differences in utilization of elective joint replacement (41.5 per 10 000 for black patients vs 68.8 per 10 000 for white patients; $P < .001$).⁵ The reasons for this disparity are complex and involve patient-, clinician-, and system-level factors. Compared with white patients, African American patients are more likely to express lower preference for the treatment, which has been shown to be amenable to patient-centered educational interventions.⁶ There is also evidence to suggest that minority patients are more likely to receive joint replacement at low-volume or low-quality hospitals compared with nonminority patients and may have poorer surgical outcomes including higher rates of hospital readmission.⁷

African American patients also receive different types of rehabilitation care. In a sample of 129 522 patients who underwent elective total knee replacement in Pennsylvania between 2008 and 2012, patient race was significantly associated with discharge destination after surgery, even after adjusting for baseline comorbidity burden. Compared with white patients ($n=121\,449$), African American patients ($n=8073$) had significantly higher odds of being admitted to a skilled nursing facility (odds ratio, 2.86 for age <65 years vs 2.19 for ≥65 years) or an inpatient rehabilitation facility (odds ratio, 2.04 for age <65 years vs 1.64 for age ≥65 years) for rehabilitation following surgery. In addition, admission to a skilled nursing or inpatient rehabilitation facility was associated with increased odds of all-cause 30-day readmission (odds ratio, 7.76 for inpatient rehabilitation facility and 2.01 for skilled nursing facility) to an acute care hospital.⁷ These readmissions can signal inadequate discharge planning or poor care continuity between acute care and post-acute care clinicians and settings. Therefore, the CJR model, in which hospitals are held financially responsible for post-acute care, might improve the quality of care provided for minority patients following joint replacement.

The architects of the CJR model recognize the potential for unintended consequences such as shifting care outside of the episode, limiting some aspects of care, or even an increase in the number of episodes of care. But what is less appreciated is the potential effect of the

model on racial disparity in joint replacement utilization. One possibility is that the program could exacerbate the existing racial disparity by indirectly discouraging hospitals from performing surgery in African American patients. Target payment rates in the CJR program vary only for patients who have a major complication or emergency joint replacement surgery as opposed to elective surgery and do not consider race or socioeconomic status (SES). Socioeconomic status can substantially affect patients' capacity to recover at home and thus the cost of rehabilitation following surgery during the 90-day CJR episode. For example, patients without reliable caregivers or transportation will likely require a lengthy stay at a skilled nursing facility and incur higher Medicare expenditures than patients who return home quickly and recover there. This creates a strong incentive for hospitals to avoid socioeconomically disadvantaged patients under the CJR payment model. Because black patients are disproportionately represented in the low-SES patient population, the CJR model may exacerbate existing racial and SES disparities in joint replacement utilization. This is not an unfounded concern. Some evidence suggests that hospitals select patients to treat based on a patient's baseline risk of poor outcomes and potential profitability.^{8,9} However, CMS is conducting ongoing work to assess the issue of risk adjustment for SES, with a report due to Congress by October 2016.

On the other hand, the CJR program has potential to reduce racial disparities in surgical outcomes for patients who receive joint replacement surgery. This is in part because the CJR program creates strong financial incentives to provide high-value postacute care, which is likely to benefit all patients regardless of race and SES. The gains in quality actually may be greatest for black patients, who are historically exposed to higher rates of poor-quality post-acute care and higher risk of readmissions. The net effect of the policy is difficult to predict. It is conceivable that existing vertical inequalities (within patient groups) related to joint replacement outcomes will be narrowed, whereas horizontal inequalities (between patient groups) might be exacerbated, thus leaving in place a well-entrenched disparity.

In addition, race is often a proxy for SES,¹⁰ with SES serving as the primary driver behind racial disparities. From this perspective, the CJR's potentially adverse effect on the access component of disparities could be greater in poor black patients compared with higher-income black patients. Thus, black patients in poor regions or black patients who are "dualy eligible" for Medicaid and Medicare might have less access to the CJR than they currently do. These attributes (proxies for low SES that are not based on race) can be monitored and ultimately adjusted for in risk adjustment or payment schema.

In summary, CMS's comprehensive care model represents a creative and well-considered strategy to promote value-based health care. The model accomplishes this goal by incentivizing care coordination among health care delivery organizations to effectively support longer episodes of care. The CJR program will move the health care payment system away from fee-for-service to alternative payment models that could in the long run improve patient outcomes while lowering the cost of care. However, there is always potential for unintended consequences, including the potential widening of racial disparities in utilization of joint replacement surgery. Evaluation of the policy should include specific assessments on how implementation of the model affects the existing racial disparity in joint

replacement use and outcomes and how the model could be fine-tuned to address an important disparity in elective surgical care.

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