The Effects of a Nationwide Medicare Bundled Payment Reform Program in the United States

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Sector(s): Health

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Sample: 196 Metropolitan Statistical Areas

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In an attempt to improve quality and reduce spending, Medicare—public health insurance for the elderly and disabled in the United States—is shifting away from the traditional fee-for-service (FFS) payment model, which pays providers for each service delivered to patients. One of the primary alternative payment models for medical care in the United States is bundled payments, where one payment is made for all services related to a specific episode of care. In this randomized controlled trial, researchers examined the impact of bundled payments on Medicare spending, utilization, and quality of care for knee and hip replacements, two common and expensive medical procedures. Evidence from the first year of implementation of a five-year mandatory bundled payment model showed a reduction in health care utilization, but no evidence of an impact on health care quality, the volume of patients treated, or the mix of patients treated. The results also suggest that while this bundled payment model decreased total Medicare spending per joint replacement episode, there were no net savings for Medicare after factoring in the bonus payments to hospitals.

This project is registered on the AEA RCT Registry, and clinicaltrials.gov.

Policy issue

Traditionally, most Medicare payments have been made under the fee-for-service (FFS) payment system. Under FFS, providers are paid for each service delivered to patients, which may result in the over-provision of care. Capitation—in which providers are paid a fixed amount per patient no matter how many services are delivered—is a natural alternative to FFS. However, there is concern that capitation may result in under-provision of care because providers do not receive additional reimbursement for providing

more care even when more care is medically appropriate.

Bundled payments are viewed as a middle ground between FFS and capitated reimbursement models. Under the bundled payment model studied, the Centers for Medicare and Medicaid Services (CMS) sets a target price for an entire episode of care, including the initial acute care hospital stay and post-acute care during the recovery period. Hospitals are eligible for bonus payments from Medicare if they spend less than the target price for an episode, provided that they meet the quality standards. Conversely, they are responsible for paying the difference if they spend more than the target price. The goal is to encourage appropriate provision of care and also coordination of care among multiple providers.

Context of the evaluation

Although bundled payments are becoming an increasingly common alternative to the FFS payment model for Medicare, to date there has been limited rigorous evidence of their effects. In April 2016, CMS launched a five-year national randomized controlled trial of the mandatory Comprehensive Care for Joint Replacement (CJR) bundled payment model for knee and hip replacements. In 2014, Medicare paid for nearly 500,000 hip and knee replacements,[1], accounting for roughly $6 billion in Medicare inpatient spending (just under five percent of total inpatient Medicare spending).[2], CMS implemented its policy at the Metropolitan Statistical Area (MSA) level, which is a core geographic area with a large population that is tied together economically and socially.[3] CMS excluded MSAs from the program if they had low hospital discharges for knee and hip replacements, and within the 196 eligible MSAs they excluded hospitals that were already participating in a voluntary CMS bundled payment program; about 1,600 hospitals were eligible in 2016. The average eligible MSA had 15 acute care hospitals and 51 institutional post-acute care providers, such as skilled nursing or rehabilitation facilities. The population of Medicare beneficiaries in the study had an average age of 72.5 and was 90 percent white and 65 percent female.



A patient with their leg wrapped in gauze in a hospital.

Photo: Shutterstock.com

Details of the intervention

In this CMS-designed randomized controlled trial, independent researchers evaluated the impact of the CJR bundled payment model on Medicare spending, utilization, and quality.

CMS divided the 196 eligible MSAs into different subgroups based on population size and historical average payments for hip and knee replacements.[4] Within each subgroup, CMS then randomly divided MSAs into either the treatment or control group:

1. *Control:* MSAs continue to pay for hip and knee replacements within the current FFS model. This represents the status quo.
2. *Treatment:* Hospitals in these MSAs were required to participate in the CJR bundled payment model. Under this bundled payment model, hospitals receive a bonus payment if they spend less than the target price for an episode (from the initial hospital stay through the 90-day post-discharge recovery period) or could pay a share of the difference if they spend more. The bonus payments and penalties will increase over time. In the first year, hospitals spending below the target received a payment of up to 5 percent of the target but faced no penalty if they spent over the target. By the fifth year, however, it was planned that hospitals could lose or gain up to 20 percent of the target price depending on their spending and quality.

Results and policy lessons

In the first year of the planned five-year CJR bundled payment model, researchers found that the CJR bundled payment model reduced health care utilization, with no evidence of harm to health care quality or change in volume of patients treated or the mix of patients treated.

The CJR bundled payment model reduced the share of patients discharged to institutional post-acute care settings such as skilled nursing, long-term care, or inpatient rehabilitation facilities after their hip or knee replacements by 2.9 percentage points, relative to the control group average of 33.7 percent (an 8.6 percent decrease). Spending in institutional post-acute care during the episode also declined by $307 per episode relative to a control group average of $3,871(an 8 percent decrease). The CJR bundled payment model decreased total Medicare spending per episode by $453 relative to a control group average of $22,872 (a 2 percent decrease), a result that was significant at the 10 percent level. Once bonuses to hospitals participating in the CJR bundled payment model were factored in, there was no statistically significant difference in total Medicare spending. There was no evidence that the CJR bundled payment model had any effect on health care quality during the episode, the volume of patients treated, or the case mix of patients treated.

The estimated impacts of this randomized, mandatory bundled payment model were substantially smaller than several prior, observational studies of voluntary bundled payment models for hip and knee replacement. This may reflect selection bias in observational studies, if hospitals with lower expected spending or hospitals most likely to respond to bundled payments were more likely to volunteer for previous studies. It may also reflect that the incentives in the first year of the CJR bundled payment model were about one-fourth the size of those in a previously studied voluntary model; by the fourth year of the CJR bundled payment model, they will be the same.

As incentives and penalties faced by the hospitals increase in subsequent years, continued evaluation can shed further light on how a mandatory CJR bundled payment model affects participating hospitals' utilization, spending, and quality of care over time. However, in December 2017 CMS modified the CJR bundled payment model to be voluntary for 33 of the MSAs.[5] Starting in the program's third year, the mandatory participation randomized controlled trial can only be conducted in half of the original MSAs.

1. U.S. Department of Health and Human Services. “2014 CMS Statistics.” CMS. 2014. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/CMS-Statistics-Reference-Booklet/Downloads/CMS_Stats_2014_final.pdf#page=36

2. CMS. “National Summary of Inpatient Charge Data by Medicare Severity Diagnosis Related Group (MS-DRG), FY2014.” CMS. October 31, 2017. https://data.cms.gov/Medicare-Inpatient/National-Summary-of-Inpatient-Charge-Data-by-Medic/sfua-yggc

3. U.S. Census Bureau. "Metropolitan and Micropolitan: About." U.S. Census Bureau. January 17, 2018. https://www.census.gov/programs-surveys/metro-micro/about.html

4. After randomization occurred, CMS revised its eligibility criteria, excluding eight of the 75 MSAs originally assigned to treatment; 67 MSAs ultimately participated in bundled payments. The researchers measured the impact of the CJR bundled payment model by comparing the 75 MSAs originally assigned to the bundled payment model to the 121 eligible MSAs that were not, under the assumption that any differences between the two groups were due to the different payment model. Since assignment to treatment increased the chance of actually participating by 89 percentage points (67/75), the effect of participating in the bundled payment model is found by multiplying the difference in outcomes between those originally assigned to treatment and those assigned to control by 1.1 (1/0.89).

5. CMS. “Comprehensive Care for Joint Replacement Model.” CMS. Accessed July 26, 2018. https://innovation.cms.gov/initiatives/cjr