



# Drivers of Care Transformation

December 2024

Cumulative Findings from the  
Comprehensive Care for Joint Replacement (CJR) Model Evaluation

# About the Authors

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The Lewin Group, an independent contractor, collected diverse perspectives through interviews, surveys, and site visits, and clinical panels to develop this report.

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This project was funded by the Centers for Medicare & Medicaid Services under contract no. HHSM-500-2014-000331.

## Acknowledgements:

The evaluation team would also like to recognize contributions from additional team members:

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The statements contained in this report are solely those of the authors and do not necessarily reflect the views or policies of the Centers for Medicare & Medicaid Services. The Lewin Group assumes responsibility for the accuracy and completeness of the information contained in this report.

**This report explores how and why CJR hospitals transformed care for patients receiving hip, knee, and ankle replacement surgery:**

- Glimpse into how CMS designed the CJR Model to spur innovation
- Consider the many ways hospitals' unique contexts influenced their responses
- Delve into the varied strategies hospitals used to transform care
- Explore the key factors that drove success in the CJR Model

Whether you are shaping health policy, implementing programs, or advocating for patient-centered health care solutions, this report will give you evidence and insights you can use to drive meaningful improvements in health care delivery.



## Interested in learning more about the impacts of the CJR Model?

Check out our report covering the complete story of the CJR Model:

- [Drivers of Impact](#) | 30 pages

In addition to this report, the following resources are available to get a quick snapshot of key findings or to dive deep into the performance year 6 evaluation:

- [Findings at a Glance](#) | 2 pages  
Concise visual summary of key findings
- [Executive Summary](#) | 15 pages  
Succinct overview of evaluation findings
- [In-Depth Report](#) | 100 pages  
Comprehensive evaluation findings and methodology

# What's in this Report...

## **CJR Model overview**

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The CJR Model was the first large-scale mandatory episode-based payment model. Learn about how CMS designed the model to address fragmented and costly care for hip and knee replacements. This report draws from perspectives across the continuum of care to provide a 360° view of how the model transformed health care delivery.

## **Care transformation influences**

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A broad range of hospitals participated in the CJR Model, each with unique contexts that aided or impeded success. This section covers the key factors that influenced hospitals' abilities to transform care, including how hospitals aligned strategies across multiple value-based care initiatives to achieve broader health care transformation.

## **Care transformation initiatives**

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CJR hospitals used targeted strategies to redesign care for hip and knee replacements, starting before the surgery and extending beyond discharge and recovery. This section covers the landscape of strategies hospitals used to respond to the model and spotlights a handful of particularly successful approaches.

## **Lessons learned moving forward**

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The CJR Model motivated hospitals to transform care for hip and knee replacements, with strategies varying based on hospitals' unique contexts. Hospitals with prior experience in value-based care leveraged existing relationships and processes. Hospitals new to value-based care needed more support and time.

**The CJR Model furthers  
CMS' goals of improving the  
efficiency and quality of care  
for Medicare patients**



## CJR Model overview

### **The CJR Model is a mandatory value-based care model that incentivizes increased care coordination among hospitals, physicians, and post-acute care providers.**

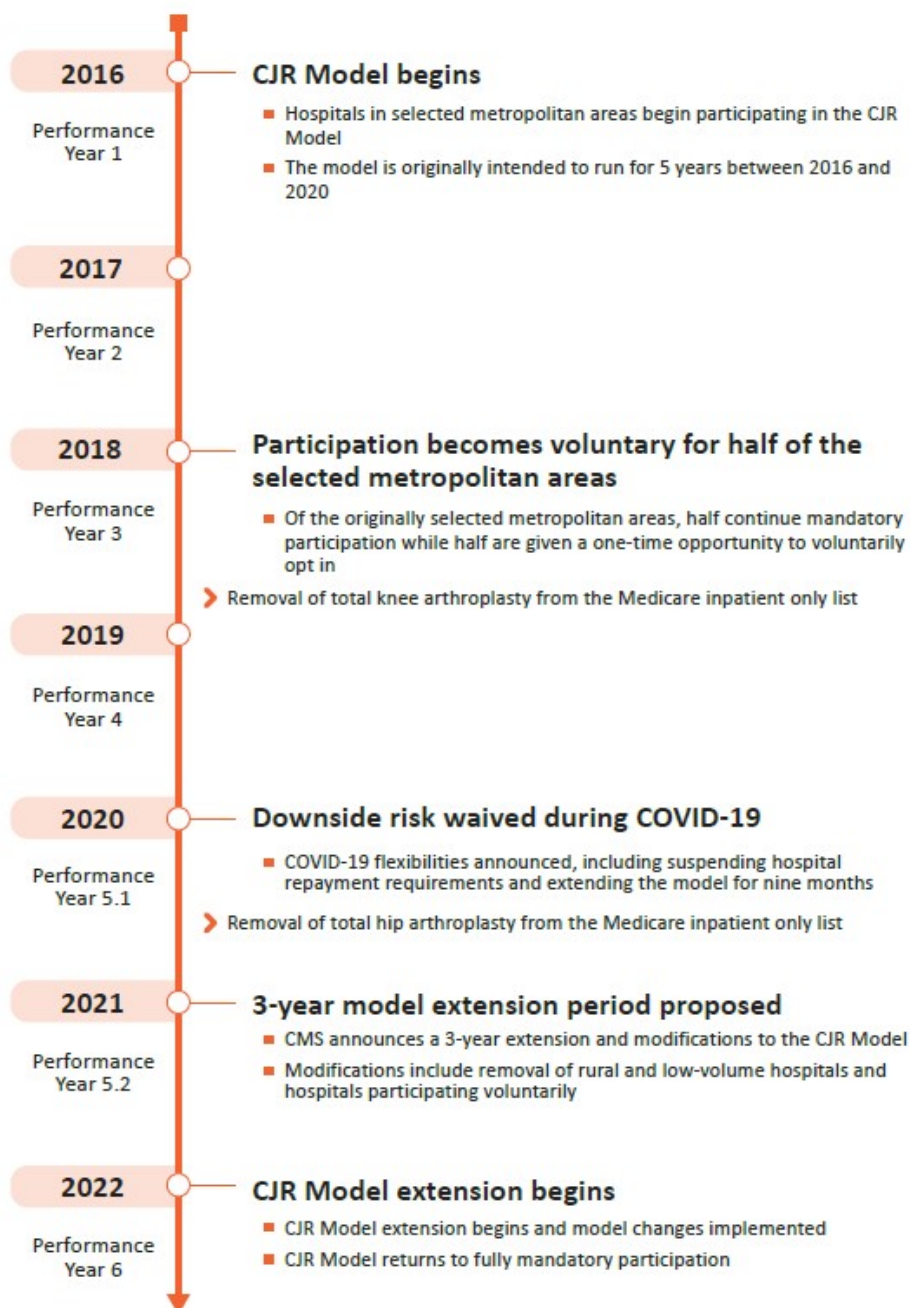
The Comprehensive Care for Joint Replacement (CJR) Model, launched on April 1, 2016, tests whether a mandatory episode-based payment approach for hip, knee, and ankle replacements can encourage hospitals to reduce costs while maintaining or improving quality of care for Medicare patients. The Centers for Medicare & Medicaid Services (CMS) holds hospitals participating in CJR financially accountable for the cost and quality of health care services during the episode, which starts with the hospital stay for a lower extremity joint replacement (LEJR) and extends 90 days after discharge. At the end of each performance year, CMS compares a hospital's actual episode payments with its quality-adjusted target price. If episode payments fall below the target price, the hospital can earn additional money from CMS, called a reconciliation payment. If episode payments exceed the target price, the hospital repays Medicare.

### **CMS modified the CJR Model over time, adjusting payment methodology and extending the model for an additional three performance years.**

The CJR Model originally required hospitals in 67 metropolitan statistical areas (MSAs) to participate. Because of the CJR Model's mandatory and randomized design, a spectrum of hospitals participated, with varying levels of infrastructure, care redesign experience, episode costs, utilization, and population and market features. This diverse set of participants allowed a broad test of the CJR Model. In 2018, the third performance year, CMS scaled back the number of mandatory MSAs to 34 with the highest average historical episode payments. CMS required hospitals in these mandatory MSAs not designated as low volume or rural to continue participating in the CJR Model. Hospitals in the 33 MSAs with lower average historical payments, as well as any low-volume or rural hospitals in the 67 MSAs, had a one-time opportunity to opt in to the CJR Model for Performance Years 3–5.



## Timeline of model changes



In the early part of the national public health emergency (PHE) in response to the COVID-19 pandemic, CMS recommended temporarily limiting nonessential elective procedures, including elective LEJRs. To provide relief to participant hospitals, CMS did not require repayments from hospitals between January 31, 2020, and March 31, 2021, by capping actual episode payments at the quality-adjusted target price at reconciliation. CMS also extended Performance Year 5 (January 2020–September 2021) by three quarters to give participant hospitals more relief and stability in model operations during the PHE.

Beginning in 2018 for total knee arthroplasty (TKA) and 2020 for total hip arthroplasty (THA), Medicare removed the procedures from the inpatient-only list and began paying for them in the outpatient setting. To address these policy changes and improve the model’s ability to demonstrate savings, CMS issued a final rule in 2020 to add three more performance years and to include episodes for outpatient TKAs and THAs in the model. The rule also included updates to the payment methodology, including changes to the target price calculation and reconciliation process. It also removed rural and low-volume hospitals and hospitals participating voluntarily.

## The CJR Model encourages hospitals to work with physicians and post-acute care providers to transform care for Medicare beneficiaries.



**Reduce costs for patients, providers, and taxpayers**



**Improve care coordination across the care episode**

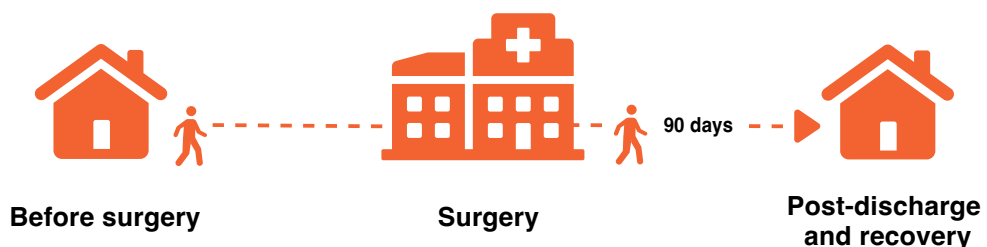


**Improve quality of care**



**Improve efficiency**

The CJR Model is a mandatory model and does not prescribe what hospitals should do to reduce LEJR episode payments and improve quality of care. Instead, hospitals chose whether and how to respond to the CJR Model in the context of other hospital and market priorities and their assessment of potential gains or losses. While hospitals only directly control the care provided during an inpatient hospital stay, the CJR Model holds hospitals financially accountable for the quality and cost of services throughout an episode of care. This approach encourages hospitals to work collaboratively with physicians and PAC providers to improve quality and lower payments from the initial hospital stay through 90 days after discharge.





However, hospitals' ability to transform the delivery of care under the model varies based on factors such as hospital characteristics, market and population features, alignment with other value-based care (VBC) initiatives, and relationships with health systems, orthopedic surgeons, and associated providers.

This report includes responses captured using a comprehensive data collection approach that assessed hospital experiences with care transformation from a variety of perspectives. We collected data through in-person site visits to 34 hospitals across 10 MSAs, nine rounds of topic-specific interviews with 385 hospital representatives, three rounds of surveys with responses from 196 hospital administrators, 249 orthopedic surgeons, 199 care coordinators, and 10 clinical review panels.

### Data collection



**34 hospital site visits across 10 MSAs**



**9 rounds of interviews with 385 hospital representatives**



**3 rounds of surveys with 196 hospital administrators, 249 orthopedic surgeons, and 199 care coordinators**



**10 clinical review panels**

This report explores **how** and **why** CJR hospitals transformed care for patients receiving hip, knee, and ankle replacement surgery. Focusing on the influences of care transformation—or the factors that motivated, limited, and supported hospital change—this report presents findings from the first six years of the CJR evaluation, including insights from telephone interviews, site visits, provider surveys, and clinical expert panels.

**A variety of factors influenced hospitals' abilities to implement care transformation changes, such as financial pressure, patient population, the surgeon and post-acute care market, and health system support**



# Care transformation influences

## Factors that motivated, limited, and supported hospital changes

### Financial pressure



#### **Financial pressure, or hospital perspectives on the financial impact of the CJR Model, varied widely.**

Hospitals used the Medicare episode data to assess potential financial gains or losses under the CJR Model, and their views on the financial impact of the CJR Model varied widely. Many interviewees noted receiving small amounts from the potential reconciliation payments from the CJR Model compared with other hospital or system initiatives which was “not big money for the hospital.” Some interviewees explained that their hospital has a stronger strategic focus on the orthopedic service line for commercial payers than for Medicare due to the larger profit margin. Others described minimal financial pressure due to low volume of CJR episodes and nominal anticipated gains under the model. Interviewees from other hospitals with higher shares of Medicare patients expressed concern about their ability to offset losses with gains on commercial cases, noting that the effort and expense required to prepare for the CJR Model would likely not be offset by reconciliation payments. Irrespective of their perception of financial pressure under CJR, many interviewees said that the opportunity to prepare for future bundled payment models motivated their response to the model.

## Patient population



### The relative complexity of the lower extremity joint replacement patient population influenced hospitals' experience with the CJR Model.

Trauma centers and hospitals that see many fracture patients felt they had fewer opportunities for care transformation activities and cost savings than hospitals with more elective patients. Hospitals serving low-income patients expressed concern that the CJR Model incentives and common care transformation strategies did not align with the needs of their complex patient population.

**“ Our biggest concerns [with CJR] were the social barriers for our patients. It’s easier when people you’re sending home have a family member who can take a week off of work to be a caretaker, or even just have running water. Having to look at it from the perspective of our patients who don’t necessarily have those things makes everything look different. For these reasons, it’s unfortunate that people are comparing us to other hospitals, even nearby ones. Social determinants of health need to be recognized in these models. ”**

– Executive leadership, hospital interview, [first annual report](#)

Hospitals focus on getting fracture patients into surgery within 24 hours of hospital admission to reduce patient morbidity and mortality. As an unexpected surgery, hospitals cannot engage in care transformation activities before surgery, such as patient optimization. Due to a limited window for intervention, interviewees described fracture patients as less prepared than elective patients at the start of the episode. Interviewees from hospitals, such as trauma centers that see a larger proportion of fracture patients and more severe fracture cases, felt disadvantaged because they did not have the same opportunities for cost savings as other hospitals in the model.

Since the start of the evaluation, interviewees have speculated that patient risk stratification by hospitals and surgeons could have undesirable consequences on higher-risk patients. Although patient optimization before surgery may appropriately delay care for some less healthy patients, patients viewed as too risky may not receive surgery at all. This practice likely affected those with low socioeconomic status and dually eligible for Medicare and Medicaid because they have higher rates of comorbid conditions. The CJR Model could have potential unintended effects for patients with substantial nonmedical needs, such as inadequate housing, food insecurity, lack of transportation, or of a suitable caregiver. Interviewees indicated that the CJR Model encourages earlier discharges home, which could increase the risk for readmissions and more medical costs for these patients.

Safety-net hospitals care for a disproportionate number of low-income patients.<sup>1</sup> Representatives from these hospitals described their limited ability to engage in common CJR care transformation strategies (such as reducing the acuity of the PAC setting and focusing efforts on earlier discharge home) due to the needs of their patient population, which they described as highly complex with concurrent unmet medical and nonmedical needs. Interviewees from these hospitals expressed pessimism about their financial prospects in the model. They considered the CJR target prices “too low” and not reflective of the high costs of care for their complex patient population.

## Strategic alignment



**The alignment of CJR with other market pressures and value-based care initiatives influenced how hospitals responded to the CJR Model. Some hospitals leveraged existing partnerships and standardized care protocols to react quickly to the CJR Model, and others enhanced or streamlined value-based care initiatives across the hospital or system.**

Some hospitals already had policies and procedures that supported the CJR Model in place at the start of the model because of previous quality improvement activities related to participation in value-based care (VBC) programs, pursuit of Joint Commission Certification, Center of Excellence status, or Six Sigma training. The presence of managed care plans in the market helped some hospitals prepare for the CJR Model by providing a blueprint for utilization management. Overall, hospitals with relevant prior experience indicated more readiness or capacity to identify areas for improvement and implement care redesign changes to succeed under the CJR Model than hospitals without relevant experience. The hospitals that felt most prepared to succeed at the start of the CJR Model often credited their model readiness to prior hospital initiatives or other payment and delivery models, such as the CMS Bundled Payments for Care Improvement (BPCI) initiative or commercial payer bundles.



**Commercial bundles helped us prepare for CJR because of the alignment needed between physicians and hospital administration. Those bundles also helped us develop the care pathways a little more stringently to better manage risks.**



– Care redesign leadership, hospital interview, [first annual report](#)

<sup>1</sup> A safety-net hospital is a type of medical center that provides health care for individuals regardless of their insurance status or ability to pay.

Most hospitals described at least some experience with VBC initiatives in addition to CJR, including other bundled payment models, managed care, or Accountable Care Organizations (ACOs). Often, hospitals noted the CJR Model as just one of many concurrent VBC efforts at the hospital and system levels.

Interviews from hospitals that participated in Medicare ACOs and the CJR Model said that the two programs had similar goals, with both programs aiming to improve quality of care while reducing costs. Hospitals used common strategies to respond to the programs, including using data to inform care pathways, strengthening care coordination, including with PAC providers, and monitoring patient outcomes.

Some interviewees said that CJR motivated the decision to join a Medicare ACO because the hospital system could leverage the technologies and funding from CJR to implement the ACO. Conversely, hospitals whose experience with ACOs predated CJR used their ACO experience, data, and resources to guide changes to the LEJR pathway in response to CJR. Many hospital- and system-level efforts also aimed to align management of VBC initiatives across programs—for example, creating one VBC management team to help coordinate care across programs, using the same PAC preferred provider network for both programs, and developing a new electronic management system to see patient notes and vital signs and track readmission risk across programs.

**“ We’re pulling all the same levers. Ensuring the patient is going to the appropriate next site of care, utilizing performance networks, monitoring patient length of stay at skilled nursing facilities, and monitoring the patients for readmission. The key operational levers are the same across the programs because the goals of the programs align. ”**

– Assistant Director of Population Health, hospital interview, sixth annual report

Interviewees discussed how participation in an ACO and CJR resulted in more awareness and greater alignment toward VBC among hospital staff. They said that having VBC programs resulted in a mindset change at the hospital. As one interviewee explained, participation in these programs increased physicians’ awareness of quality and other factors.



## Care redesign spotlight

**Prior experience with bundled payments supported this hospital's success in the model.**

**The hospital.** This for-profit, physician-owned, surgical specialty hospital had a high volume of lower extremity joint replacements (LEJRs) for Medicare patients. Compared with the average CJR hospital, it had a markedly higher number of LEJR discharges for Medicare patients (1,291 vs. 190 discharges) and percentage of LEJR discharges out of total discharges for Medicare patients (66.9% vs. 7.4%). This hospital also had prior experience with commercial bundled payment models. Those prior models exclusively covered elective surgeries and used a prospective, rather than retrospective, payment system.

**The problem.** Before the start of the CJR Model, this hospital had already made care transformation improvements, such as conducting preadmission screenings, having the care navigation team call patients in advance of the surgery to reconcile patient medications or prior hospital admissions, and hosting an elective preoperative education class to prepare patients for surgery. The CJR Model incentivized this hospital to develop relationships with skilled nursing facilities, explore the creation of gainsharing arrangements for non-ownership physicians, and analyze cost data more extensively.

**The solution.** As a result of its care transformation efforts, this hospital selected five skilled nursing facilities to become preferred providers. The hospital worked with these skilled nursing facilities to develop standards of care focused on physical therapy goals and a discharge goal of 5 to 7 days. Additionally, the hospital adopted gainsharing agreements for physicians without an ownership stake in the hospital and held them to certain quality metrics. The hospital analyzed internal cost data, such as demand of implants, to predict potential cost savings and CMS-provided claims data to study episode costs, readmissions, and complications to identify potential areas for improvement.

**The results.** In the first year of CJR, about 81% of the hospital's Medicare fee-for-service patients were discharged home and 18% were discharged to a skilled nursing facility, compared with 70% of patients being discharged to skilled nursing facilities in the prior year. During the site visit, interviewees attributed much of the hospital's success under CJR to prior experience with bundled payment models, which enabled them to focus care transformation efforts during the CJR Model on new improvements.

Click [here](#) to read the full case study report.



## Surgeon market and employment relationship



### **The level of market competition and employment relationships between hospitals and orthopedic surgeons shaped hospitals' response to the CJR Model.**

The level of market competition for independent surgeons limited some hospitals' response to the CJR Model. For example, one interviewee explained that their hospital is in a "surgeon-focused" market, where hospitals compete for independent surgeons who "run the show" by making all decisions about LEJR patient care; as a result, the hospital does not engage in patient optimization or care coordination before or after the hospital stay. The interviewee felt that employing surgeons or establishing gainsharing agreements would better position the hospital to implement care coordination strategies.



**We could not have gotten our program off the ground and had the success that we've had without our physicians. Having those employed physicians really helped with buy-in when we needed to change practices or needed to look at evidence-based practices or certification of guidelines.**



– Vice President of Patient Care Services, hospital interview, sixth annual report

Hospitals that employed surgeons often described success collaborating with surgeons on the design and implementation of new care redesign activities, while hospitals that did not employ orthopedic surgeons often described greater challenges. For example, one interviewee indicated that the hospital's financial relationship with orthopedic surgeons contributed to their support for care redesign efforts: "Surgeons at this hospital are employed by the hospital, but are also owners, so they do have incentives to make sure that they lower their cost." Hospitals that did not employ orthopedic surgeons often described the importance of other levers that the hospital can use to influence surgeon behavior, such as entering into gainsharing agreements and sharing individual surgeon performance data. Hospitals discussed the challenges of adapting to a risk-based model when a mix of employed physicians and independent physician groups perform procedures at several different hospitals. Hospitals that did not employ surgeons often described surgeons selecting LEJR surgery sites based on personal interests and preferences, including ownership of a competing hospital or ambulatory surgical center and scheduling preferences. Interviewees described how this arrangement created competition between hospitals for independent surgeons' patients and often impeded a hospital's ability to influence care and drive quality outcomes. Hospitals were hesitant to make changes that surgeons might disagree with or see as inconvenient for fear of losing their patients to another hospital.

## Care redesign spotlight

**One hospital used gainsharing under the model to motivate surgeons to negotiate lower prices with implant vendors.**

**The hospital.** This not-for-profit hospital serves a relatively affluent population in a highly competitive market. The hospital joined an area health system around the start of the CJR Model but, because the change was recent, developed most of its CJR response without support from the health system.

**The problem and solution.** The hospital understood the importance of engaging physicians in CJR but needed a process to involve physicians in decision-making early in the model. The hospital established a multidisciplinary committee led by the CJR surgeon champion to develop process improvements across the care continuum. In its monthly meetings, the committee focused on the perioperative stay, discharge disposition, physical therapy, and operating room costs. Five orthopedic surgeons in private practice approached the hospital about gainsharing under the CJR Model. The hospital reviewed CMS lower extremity joint replacement cost data, produced by a data vendor, and determined it would be mutually beneficial to work on an agreement with these surgeons. Having no experience developing gainsharing agreements in house, the hospital used consultants that had previously developed gainsharing agreements under the Bundled Payments for Care Improvement initiative to draft the CJR Model gainsharing agreements. Hospital interviewees described these agreements as “economic alignment.”

**The results.** The CJR Model and gainsharing motivated surgeons to negotiate a capped price with implant vendors that contributed to the hospital’s internal cost savings. Two pricing schemes were developed for implants—high demand and low demand—and the hospital does not restrict surgeons’ implant selection. As a result, the hospital costs for implants decreased by more than \$100,000 in the second performance year of the model.

Click [here](#) to read the full case study report.



## Post-acute care market



### **The supply and quality of post-acute care providers affect how CJR participant hospitals influence changes to post-acute care pathways.**

Hospitals identified factors that limit safe patient discharges to PAC providers, including low supply, low quality, limited bed availability, or inadequate staffing levels. Many interviewees indicated that in the rural communities they serve, which had only one SNF option, they had little influence over quality of care and discharge dates; one interviewee stated that “getting patients in and out of the hospital is a struggle every day.” Interviewees also described that surgeon relationships with PAC providers affected hospitals’ ability to influence PAC use. When orthopedic surgeons either owned or had contractual relationships with PAC providers, hospitals reported greater difficulty for them to control PAC use.

Many interviewees voiced challenges, concerns, and opposition to hospitals’ financial responsibility for care in the PAC setting, which they do not directly control. They noted, for example, that efforts to reduce the number of LEJR patients discharged to a SNF while also trying to shorten the SNF length of stay would reduce SNF revenues, making it harder to get SNFs to work with the hospitals to redesign care across the entire episode. Although the CJR Model allows hospitals to establish gainsharing agreements with partner PAC providers, none of the hospitals interviewed throughout the evaluation said that they had established such agreements. Many of the PAC providers interviewed worked with hospitals to streamline and strengthen care protocols in return for preferred referral status with the hospital.

## Health system support



### **Organizational factors, like health system affiliation, influenced hospital’s response to the CJR Model.**

Many interviewees discussed the role of the hospital system, although we observed variation in the level of involvement and influence on hospital response to the model. Some systems had a centralized approach for all their CJR participant hospitals. Other systems had minimal or no involvement. Systems often provided data analytic services, which helped member hospitals use CMS data to understand episode payments. Systems also played a key role for some hospitals in understanding policy changes, such as removal of TKA and THA from the inpatient-only list, and the effects of these changes on hospital experience in the CJR Model.

While the CJR Model was implemented at the MSA level, health systems spanned MSAs, and interviewees reported that best practices flowed to non-CJR hospitals through system-level channels. Representatives from non-CJR hospitals in the same system as CJR hospitals said that they received information from their health system about the CJR Model, as well as care redesign strategies. Hospital and orthopedic service-line leaders from both CJR and non-CJR

hospitals attended system-sponsored educational forums. An interviewee from one non-CJR hospital explained that service-line leaders from their health system met every 2 to 3 months to share information, best practices, and data. The interviewee said their hospital hired a navigator after learning of the positive impacts a navigator had at one of their system's CJR hospitals. Interviewees from non-CJR hospitals shared information and supported adopting strategies piloted by CJR hospitals to create efficiencies in their orthopedic care pathway while also preparing them for future episode-based payment models.

## Care redesign spotlight

**One hospital with a low procedure volume leveraged the resources of its health system to substantially increase the number of patients discharged home.**

**The hospital.** This case study is of a hospital that has a relatively low volume of Medicare lower extremity joint replacement (LEJR) patients and is in a highly competitive LEJR market. The hospital is part of a health system with several hospitals participating in the CJR Model, including hospitals in the same metropolitan statistical area. Interviewees said the response to the CJR Model is coordinated at the market level, so all system-owned hospitals in a given metropolitan statistical area implement similar activities in response to the model and receive similar resources.

**The problem.** Due to the hospital's low LEJR volume, health system representatives felt that the CJR Model was not a significant source of financial pressure. They also noted that CJR was a small amount of money compared with the hospital's Medicare Shared Savings Program Accountable Care Organization. Thus, hospital interviewees felt that their effort in preparing for the CJR Model would not be recouped through reconciliation payments, but they thought it was worthwhile to use the model as an opportunity to build the infrastructure to profit under a value-based payment system.

**The solution.** The hospital used system resources to help change patients' expectations about their post-acute care plan and created a new post-discharge patient follow-up protocol. The hospital also hired a new nurse navigator and incorporated the beneficiary notification letter and patient-reported outcomes data collection tool into the electronic health record.

**The results.** The primary impact of the hospital's CJR Model response efforts was a decrease in admissions to skilled nursing facilities and increase in discharges home for LEJR patients. The hospital and surgeons' work to change patient expectations for post-acute care and to promote recovering at home rather than a skilled nursing facility resulted in shifts in the first post-acute care discharge setting. Hospital representatives reported that, prior to the CJR Model, 75% of patients were discharged to a skilled nursing facility and 25% were discharged home as the first post-acute care setting; by the third year of the model, those proportions had flipped.

Click [here](#) to read the full case study report.





**CJR hospitals used a range of enhanced or new initiatives to align with the goals of the CJR Model**



# Care transformation initiatives

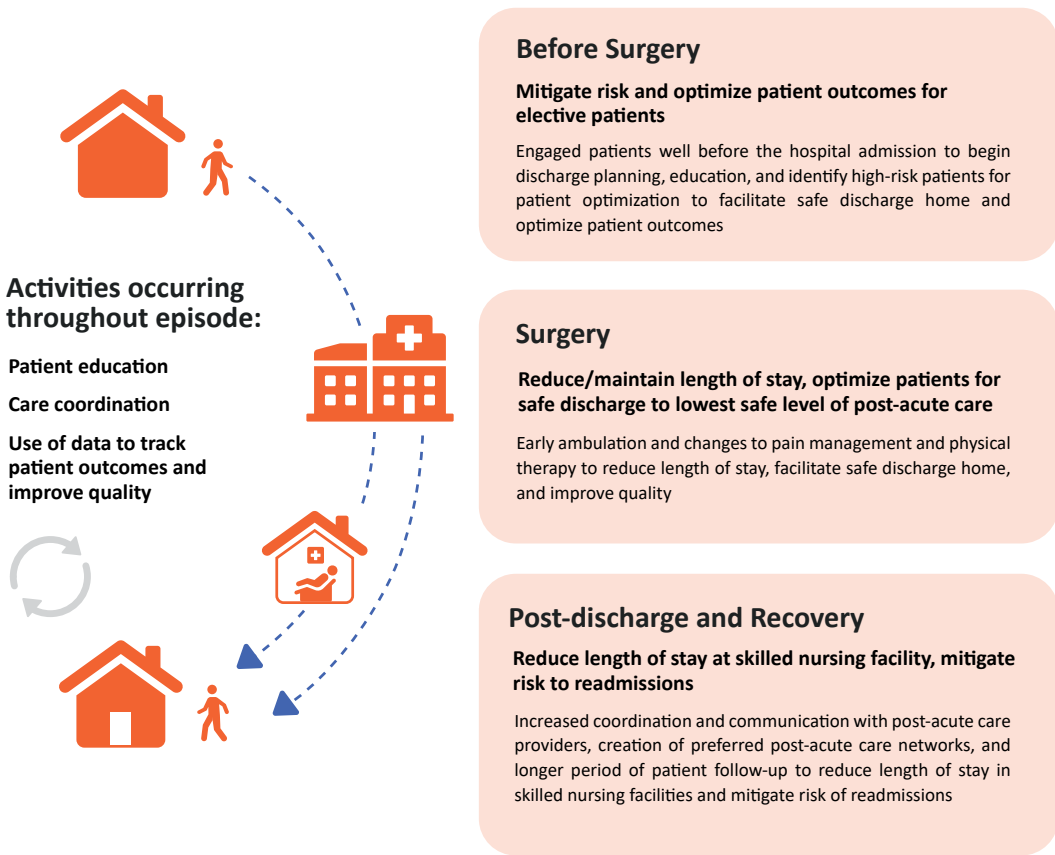
## Hospitals transformed care in multiple ways



**CJR hospitals transformed care across the care pathway, from before surgery, through surgery, and through post-discharge and recovery, to align with the goals of the CJR Model.**

Hospitals increased their focus on patient education and patient optimization, where providers identify high-risk patients and mitigate medical and social risk factors for improved outcomes and recovery. Hospitals also provided physical therapy earlier and more often, used data to inform clinical decision-making, and worked with surgeons and PAC provider partners to adopt more efficient practices. These efforts can help shift care away from more expensive settings, such as PAC facilities like SNFs and inpatient rehabilitation facilities, and toward less expensive options, such as home health care. Coordination with PAC partners can also reduce patients' length of stay in PAC facilities and limit unnecessary readmissions.

### CJR episode of care





## Before surgery



### Many CJR hospitals enhanced efforts to prepare elective patients mentally and physically before hospital admission to mitigate risk and optimize outcomes.

Many CJR hospitals started discharge planning for elective LEJR patients well before their hospital admission to educate patients about the most appropriate discharge destination for them. Hospitals also identified high-risk patients to optimize health outcomes, which would reduce their need for institutional post-acute care. They used risk stratification protocols to identify higher-risk patients before admission so that they could mitigate barriers to a safe discharge home or address modifiable risk factors to improve patient outcomes. Some hospitals, for example, used the Risk Assessment and Prediction Tool (RAPT), a standardized survey administered before surgery to predict the best discharge destination for a patient. Others created tools to assess medical risk factors and environmental and social considerations, such as the availability of caregiver support. Some hospitals instilled a new emphasis on patient optimization before surgery to address modifiable risk factors such as weight, control of diabetes, or tobacco use. Several interviewees discussed “hard stops” for these factors—that is, they used thresholds for certain health metrics that patients must meet before scheduling them for surgery.

➤ 75% of the surveyed hospitals implemented standardized patient assessments of environmental factors influencing patient recovery before scheduling surgery, and 68% used specialized care plans based on patient risk stratification. Roughly two-thirds (before surgery risk assessment: 69%; specialized care plans: 74%) of respondents said the CJR Model influenced the decision to employ these approaches.

➤ Hospital interviewees described patient education classes before surgery as an important part of their response to the CJR Model. The classes helped hospitals set patient and caregiver expectations for discharge destination, continue discharge planning, identify and mitigate risks to an unsuccessful recovery, and build caregiver engagement.

Most of the surveyed hospitals (80%) indicated that they provide patient education before admission and half (50%) of these respondents noted that the CJR Model influenced their decision to implement or enhance patient education activities.

**Prehabilitation**, or **prehab**, provides physical therapy before elective LEJR surgery. Prehab seeks to strengthen deconditioned muscles around a patient’s joint to improve surgical outcomes and to educate patients about the exercises they need to do after their surgery to facilitate quicker ambulation (that is, walking without assistance) and reduce hospital length of stay. Hospital interviewees and clinical experts indicated that prehab helps prepare patients for surgery by “demystifying” the post-surgical rehabilitation process.



## Surgery



**Hospitals implemented efforts to reduce length of stay and prepare patients for discharge to the lowest level of post-acute care that meets patient safety and care needs.**

To transform care during surgery, hospitals implemented efforts to reduce length of stay, such as changes to pain management and physical therapy services. Interviewees mentioned that standardizing pain management and changing intra-operative and postoperative pain management practices improved patients' postoperative status. These efforts resulted in earlier and more intensive patient ambulation and, therefore, shorter inpatient length of stay. Hospitals worked with anesthesia and surgical teams to standardize pain management practices. Interviewees frequently discussed ambulating patients on the day of surgery and multiple times per day, as well as implementing more aggressive physical therapy plans than in the past. They invested in increased staff availability (for example, on weekends and in evenings) and began orthopedic procedures earlier in the day to allow for these changes. Most interviewees also mentioned that they applied the changes made to physical therapy orders to all patients, not just CJR patients.



Most of the surveyed hospitals (89%) implemented same-day post-surgery ambulation and physical therapy for joint replacement patients, and 92% implemented pain management practices that allow for early patient mobility. Roughly half of respondents (59%, same day ambulation; 53%, pain management) said the CJR Model influenced their decision to use both practices.



## Post-discharge and recovery



**Many hospitals extended patient follow-up, developed post-acute care protocols, and increased coordination with providers to reduce length of stay at post-acute care facilities and avoid hospital readmissions.**

Hospital interviewees discussed efforts to strengthen and extend patient follow-up after discharge to reduce emergency department use and hospital readmissions. Interviewees frequently mentioned calling patients within the first 3 days of hospital discharge and following up 30, 60, and 90 days after discharge. Many said that they have care coordinators systematically following up with SNFs on the status of patients or that they have invested in data tracking and analysis software that allows them to follow patients.

**“ And so now that we’ve been able to have that communication upfront with the patient and family, we have actually gone through and looked at what is each SNF’s quality data and here are the ones that far outweigh the others. The patient, the family can still have their choice regardless, but it’s a more well-informed decision for them. ”**

– Hospital director of quality on creating preferred PAC network, [second annual report](#)

➤ 81% of the surveyed hospitals reported scheduling follow-up appointments for all LEJR patients before discharge, and 65% said they followed up with patients by telephone during the entire 90-day episode. 57% indicated the CJR Model influenced their decision to schedule follow-up appointments before discharge, while 86% reported that the model influenced their telephone follow-up and tracking of patients throughout the episode.

Hospitals implemented efforts to increase coordination with PAC providers to improve care under the CJR Model. Coordination efforts often included educating PAC providers on the CJR Model and bundled payments or a general increase in communication and collaboration between hospital and PAC staff. Interviewees discussed having regular meetings between hospital and PAC staff and introducing PAC providers to the quality or financial metrics that hospitals monitored (for example, readmissions, PAC length of stay, and progress measures developed by hospitals).

**“ We try to have or align ourselves with PAC providers that have the same goals that we do to provide quality care for patients at the right time at the right place in the right setting. ”**

– Hospital interviewee, sixth annual report

Many hospitals implemented or enhanced their preferred provider networks for PAC providers to increase use of higher-quality post-acute care, reduce SNF length of stay, and decrease hospital readmissions. Interviewees discussed expending significant effort to identify the “highest quality” SNFs and improve their working relationship with those providers. Some reported relying on the CMS Five-Star Quality Rating System to inform selections for their preferred provider list, while other hospitals selected SNFs with the shortest length of stay.

➤ Nearly two-thirds (62%) of the surveyed hospitals indicated that they had implemented a preferred provider network for PAC providers, and 72% said the CJR Model influenced their decision to implement or enhance this strategy.

## Care redesign spotlight

**One hospital redefined the normal standard of care after surgery and limited its preferred post-acute care provider network to reduce discharges to skilled nursing facilities.**

**The hospital.** This small hospital performs relatively few Medicare lower extremity joint replacement (LEJR) procedures and is part of a larger health system. Although this hospital is its health system's only CJR participant hospital, the health system provides substantial support because it plans to pursue involvement in commercial bundles. It is also in a market with a large concentration of skilled nursing facilities, which hospital interviewees described as over-bedded.

**The problem.** Hospital interviewees reported serving a challenging patient population, noting a large homeless population, a high prevalence of opioid use, and a large dually eligible population, and hospital representatives questioned the possibility of reducing skilled nursing facility admissions or length of stay. However, hospital leadership also recognized that, particularly in a market with a large concentration of skilled nursing facilities, working with and modifying the existing preferred post-acute care network was a crucial component for the hospital's success under CJR.

**The solution.** In response to the CJR Model, the hospital taught its staff that the "normal" standard of care is for a patient to return home with home health after surgery. Additionally, the health system reduced referrals from 120 to 60 skilled nursing facilities, intending to send referrals to the 25 highest-quality facilities chosen based on select quality metrics. If a patient required discharge to a skilled nursing facility, the hospital took a more active role in educating patients about the quality of facility options rather than choosing one that was geographically convenient. Finally, as a result of the model, the hospital developed new care pathways for the preferred skilled nursing facility that included best practices for wound care, a preferred therapy regimen, and length of stay guidelines.

**The results.** During the first year of CJR, the hospital reported decreasing the proportion of LEJR patients discharged to a skilled nursing facility from 58% to 29% and cutting length of stay by almost a day. Total episode payments for CJR patients were reduced by more than \$4,500, largely due to reduced average skilled nursing facility payments.

Click [here](#) to read the full case study report.







## Throughout the episode



### Hospitals enhanced care coordination, used data to inform strategy, and engaged orthopedic surgeons in care transformation.

Hospital interviewees and survey respondents reported staffing changes to accommodate CJR patients and support care coordination. They hired new staff in roles such as care planners, case managers, navigators, and transition coordinators. Their responsibilities often included doing an initial patient assessment 2 to 4 weeks before the surgery. This assessment served as the preliminary discharge plan, and their contact with patients continued through the 90-day post-discharge and recovery period. Some of the care navigators followed the patients during their PAC facility stay to prevent readmission and ensure timely and appropriate discharge.



**Obviously one of the biggest changes we've seen is length of stay pressure, to move people along the continuum in a shorter amount of time. To that end, some of our area referral hospitals have even gone so far as to provide us with guidelines for their elective joints.**



– SNF interviewee, [fourth annual report](#)



### Participating hospitals gained novel insights from Medicare episode data, which they used to design and evaluate a response to the model.

CMS provides CJR hospitals with Medicare data on spending and utilization for the episode of care. Before the CJR Model, many hospitals did not have data on the entire episode. In interviews, hospitals noted the data's value in understanding total episode costs, including how PAC use, especially SNF length of stay, and hospital readmissions contribute to costs. Some hospitals noted that prior to CJR, they did not know which patients readmitted and relied on the surgeons to inform them of any readmissions. Some hospitals used external vendors to do a cost-benefit analysis, while others conducted this analysis internally with hospital staff or with the support of the hospital system. Frequently, they indicated that PAC use represented the largest opportunity to reduce episode payments.

## Care redesign spotlight

**One hospital's novel approach to care coordination included a 24-7 care line to identify and prevent adverse events and reduce readmissions.**

**The hospital.** This large, urban hospital serves a diverse patient population. Interviewees said that housing is a common challenge for the hospital's lower extremity joint replacement patients, particularly those with walk-up apartments lacking elevators or combined shower-bathtub units, as well as those who have to use public transportation.

**The problem.** Hospital interviewees noted that some surgeons are resistant to discharging patients directly home, and changing this culture has been challenging. In response to surgeon concerns about increasing discharges to home under the CJR Model, the hospital contracted with the affiliate health system for access to its care navigation program, which includes a nurse practitioner who is supported by a nurse and a resource coordinator. The hospital noted that it purchases the health system's services at a rate that is more affordable than those offered by other consultants due to its status as an "affiliate."

**The solution.** Patients receive the care navigator's phone number that they (or their caregiver) can call with any questions or concerns "24-7." In addition, the care navigator contacts patients within 72 hours of discharge and follows patients through the 90-day post-discharge period. In the post-acute care setting, the care navigator can help engage in patient care, such as the management of patient medication. The care navigator may also remove staples, refill medications, and diagnose or treat any additional issues and will follow up with surgeons. The care navigator alerts the hospital if they learn of a readmission to a different hospital.

**The results.** The hospital aimed to reduce readmissions through the care navigation program. Claims analyses showed that from before the start of the model to the third performance year the readmission rate decreased from an average of 14.3% to 9.4%.

Click [here](#) to read the full case study report.





**Hospitals leveraged guidelines or directives, performance data and financial gainsharing agreements to align surgeon behavior with model incentives.**



**The data from outside of the hospital is stuff that we have never had. We never had any idea how much post-acute care costs. This data motivated us to go and tighten things up.**




– Data management, hospital interview, [first annual report](#)

Although the CJR Model holds hospitals accountable for LEJR episodes, orthopedic surgeons affect episode costs through the decisions they make and services they provide. Hospitals engaged orthopedic surgeons in efforts to redirect patient discharge destination from SNFs to home and improve care coordination after discharge to reduce readmissions. These efforts included assessing patient risk and discussing discharge destination with patients during preoperative office visits, starting the discharge planning process earlier in the care pathway, encouraging patients to attend presurgical education classes, implementing interdisciplinary rounding that involved surgeons and physical therapists, and improving coordination between the emergency department physicians and surgeons. Many interviewees also described working with surgeons to standardize implants, order sets, or clinical pathways.



Orthopedic surgeons responding to the survey indicated that they received guidelines or directives from hospitals about patient risk factors to consider in determining whether to perform an LEJR. More than half of respondents reported that hospitals provided guidelines or directives that they should consider uncontrolled diabetes (66%), obesity (56%), or patient smoking (51%). Most surgeon survey respondents (83%) reported that the proportion of LEJR patients they recommend for discharge to an institutional PAC setting has decreased coincident with the CJR Model. More than half of respondents (63%) indicated that hospital guidelines or directives for surgeons on discharge destination changed during the CJR Model, and these guidelines or directives at least somewhat influenced most respondents' (67%) decisions.

Hospitals shared information with surgeons about episode costs, quality measures, and PAC use in addition to patient outcomes, such as readmissions or length of stay to engage physicians in hospital activities related to the model. Interviewees said that the CJR performance data helped them work with surgeons to shift discharge destinations and mentioned that surgeons tended to discharge patients to lower-intensity settings after viewing episode data. They also indicated that discharge patterns and episode cost data showed surgeons the value of ordering outpatient rehabilitation versus SNF or home health care. As one interviewee reported, "When they saw the actual difference in costs, it shifted a lot of practice."

 The majority (73%) of hospitals that responded to the evaluation team's survey indicated they reported patient outcomes to individual surgeons, and most of those hospitals (77%) indicated that the CJR Model influenced their decision to implement the strategy. Of those surgeons who indicated in the orthopedic surgeon survey that they received performance feedback from hospitals, most (85%) responded that the metrics influenced them to modify their care practices.

As part of the CJR Model, participant hospitals may enter into agreements to share financial gains from internal cost savings or reconciliation payments with surgeons. Sharing financial gains may help hospitals engage or reward surgeons for their role in controlling costs, although gainsharing arrangements may also include accountability for reconciliation amounts owed to Medicare. Hospitals that had gainsharing agreements with surgeons felt that they increased buy-in for care redesign activities, such as lowering use of institutional PAC facilities, referring patients to preferred PAC providers, or standardizing implants. Hospital interviewees noted that they shared both internal cost savings and reconciliation payments with surgeons, but none reported sharing responsibility for repayments to Medicare. Interviewees described quality and utilization thresholds for surgeons to meet to share in savings, and some agreements required surgeon participation in activities related to the CJR Model or compliance with the hospital's preferred implant list.

## Care redesign spotlight

**A health system with multiple participating hospitals in the same market implemented a single care transformation strategy that led to success for both hospitals.**

**The hospital.** This hospital is part of a regional health system that owns two CJR hospitals in the same metropolitan statistical area. This hospital is the largest hospital in the health system and is a teaching hospital that owns an inpatient rehabilitation facility and a home health agency. This hospital is considered the metropolitan statistical area's market leader; around half of all lower extremity joint replacement episodes in the area are performed at the hospital.

**The problem.** At the start of the model, the hospital identified a need to hire more staff to support implementation. The health system created a position for a total joint coordinator to drive changes that would improve performance under the CJR Model at both participating hospitals. The higher-volume CJR hospital hired the total joint coordinator and shared the coordinator with the smaller hospital in the system. The lower-volume hospital in the health system specified a nurse navigator to work with the total joint coordinator to be the point of contact at the hospital.

**The solution.** The total joint coordinator began by meeting with physical therapy, care management, and nursing departments to identify their roles in care coordination and how they could improve the process. Under the direction of the total joint coordinator, the hospital developed a new joint class. The class covers the entire care pathway, from pre-surgical patient optimization to pain management to recovery expectations. Patients are strongly encouraged to attend class prior to surgery.

**The results.** The health system received a reconciliation payment for the larger hospital each year during the first 3 years of the model, and the smaller hospital improved performance each year, moving from having a repayment of \$166 per episode in year 2 of the model to earning a reconciliation payment of \$2,308 per episode in year 3. Interviewees at the health system felt that more experience under the model, as well as increased discharges to home, were responsible for the improved performance over the course of the CJR Model.

Click [here](#) to read the full case study report.



**The CJR Model offers key learnings and considerations for the design and development of future payment models**





# Lessons learned moving forward

## What drove success in the CJR Model?



**Because model participation is mandatory, hospitals had varying levels of model readiness at the start of CJR.**

Hospitals with experience in bundled payment models and other value-based care initiatives were more prepared for CJR than hospitals without similar experience. Experienced hospitals were more ready or able to identify areas for improvement and make care redesign changes to succeed under the CJR Model. The hospitals that felt most prepared to succeed at the start of the CJR Model often credited their model readiness to prior hospital initiatives or participation in other payment and delivery models, including the CMS BPCI initiative or commercial payer bundles. Hospitals with experience in programs such as BPCI understood key transformation strategies to use in response to CJR, such as standardizing care protocols, engaging physicians and other members of the care team, coordinating care across the episode, and reducing PAC length of stay. In some cases, hospitals leveraged changes they had made in response to other payment models to succeed in CJR. For instance, they used existing hospital committees to identify bundled payment model response strategies and existing preferred PAC networks to optimize post discharge care.

Awareness of these key care transformation strategies allowed hospitals with prior experience to make changes in response to CJR in the model's first year. In contrast, hospitals without prior experience took longer to respond, making changes in year two or beyond as their understanding of bundled payment models improved. Hospitals without experience in bundled payment or value-based care initiatives may need to spend more time preparing for model implementation by engaging key staff such as surgeon or physician champions, nurse navigators, and hospital leadership. They may also opt to hire consultants to identify how to respond to the model.



**Although hospitals bear accountability for lower extremity joint replacement episodes under CJR, successful hospital care transformation strategies also require orthopedic surgeon support and buy-in.**

Hospitals shared information with surgeons about episode costs, quality measures, and PAC use as well as patient outcomes, such as readmissions or length of stay, to engage physicians in hospital activities related to the model. Hospitals said that the CJR performance data helped them work with surgeons to shift discharge destinations. After viewing episode data, surgeons tended to discharge patients to lower-intensity settings. Discharge patterns and episode cost data showed surgeons the value of ordering outpatient rehabilitation versus SNF or home health care.

Hospitals that had gainsharing agreements with surgeons felt that they increased buy-in for care redesign activities, such as lowering use of PAC facilities, referring patients to preferred PAC providers, or standardizing implants. Hospitals noted that they shared internal cost savings and reconciliation payments with surgeons, but none reported sharing responsibility for repayments to Medicare. Hospitals described quality and utilization thresholds for surgeons to meet to share in savings, and some agreements required surgeon participation in activities related to the CJR Model or compliance with the hospital's preferred implant list.

Hospitals largely agreed that hospital employment of orthopedic surgeons strongly influenced surgeon engagement. Some hospitals said it was hard to get physician buy-in to the CJR Model when the surgeons were not directly affected. Hospitals that did not employ their surgeons emphasized the importance of building a relationship with the physician groups that practiced at their hospitals to engage them in care redesign.



**Care transformation before and during surgery centered on patient education, engagement, and optimization, but hospitals could not apply these strategies across all patient populations.**

CJR hospitals used a range of enhanced or new initiatives to transform care before surgery and during the hospital stay for LEJR patients. Key care transformation strategies before surgery included educating patients, engaging patients earlier in discharge planning conversations, and identifying high-risk patients to facilitate safe discharge home and optimize patient outcomes. Key strategies during the hospital stay included redesigned care protocols that emphasized same-day ambulation, pain management practices that aid in early mobility, and scheduling of patient follow-up appointments prior to discharge.

Hospitals serving a large share of patients with health-related social needs were concerned that the CJR Model incentives and common care transformation strategies did not align with the needs of their complex patient population. They said that early discharge home is not realistic for patients with substantial unmet nonmedical needs, such as inadequate housing, food insecurity, and lack of transportation or a suitable caregiver, and noted that these patients are at risk for readmissions and higher medical costs. Additionally, target prices may not adequately reflect the high cost of care for patients with both medical and nonmedical needs, making it harder for hospitals that care for many of these patients to succeed in the model.

Hospitals such as trauma centers that see a larger share of fracture patients and more severe fracture cases also felt disadvantaged in the CJR Model because they do not have the same opportunities for cost savings as other hospitals. Hospitals cannot engage fracture patients in care transformation activities before the hospital stay because fractures are an unexpected surgery. Fracture patients may be less prepared at the start of the episode for safe discharge home after surgery than patients with an elective LEJR.



**Under CJR, hospitals are responsible for episode costs in the post-acute care setting, so coordination with post-acute care providers was an important driver of success.**

Care transformation during the post-discharge and recovery period was critical for hospitals in reducing episode payments. One key strategy was to enhance relationships with PAC providers. Hospitals created preferred PAC provider networks and set expectations for rehabilitation protocols and length of stay. They aimed to reduce the use of expensive settings, such as SNFs and inpatient rehabilitation facilities, and direct patients toward less expensive options, such as home health care.

Hospitals increased coordination with PAC providers to improve care under the CJR Model. Coordination efforts often included educating PAC providers on the CJR Model and bundled payments. Hospitals discussed having regular meetings with PAC staff and introducing PAC providers to the quality or financial metrics that hospitals monitored (for example, readmissions and PAC length of stay). Many hospitals created or enhanced their preferred PAC provider networks to increase use of higher-quality post-acute care, reduce SNF length of stay, and decrease hospital readmissions. Hospitals said they made significant efforts to identify the highest-quality SNFs and improve their working relationship with those providers.

Although many hospitals were successful in engaging PAC providers to reduce spending, others felt that they could not influence PAC provider actions. Hospitals that could not successfully reduce PAC spending stated that the biggest issue was the access to quality PAC providers in their market. These PAC providers lacked an incentive to engage with the hospitals in cost-saving strategies. Hospitals that were successful often noted that they had existing relationships with PAC providers or even owned PAC providers. Hospitals that did not have these relationships found it more difficult to influence PAC provider behavior and reduce costs.



**CJR hospitals that participate in other value-based care initiatives, such as Medicare Accountable Care Organizations, used common strategies to respond across the programs.**

CJR hospitals leveraged key care transformation strategies across value-based care initiatives. For example, they used data to inform care pathways, strengthened care coordination, including with PAC providers, and monitored patient outcomes. Hospitals participating in multiple programs used system-level efforts to align management of value-based care initiatives, such as creating one value-based care management team to help coordinate care, using the same PAC preferred provider network for multiple programs, and developing an electronic management system to see patient notes, vital signs, and track readmission. Some hospitals felt that participation in both CJR and other value-based care initiatives resulted in more awareness and greater alignment toward value-based care among hospital staff.

However, CJR hospitals without other value-based care experience, especially those with small LEJR service lines, did not make the same system-wide care transformation efforts. At these hospitals, CJR was not influential enough to invest in more staff, hospital departments, or initiatives that affected care at the hospital more broadly.



The CJR Model provides evidence that payment incentives that hold providers accountable for a well-defined and clinically meaningful episode of care can motivate transformative changes to patient care. Hip and knee replacements require significant post-acute and rehabilitation care.

By making hospitals accountable for rehabilitation, providing them with information about the use and cost of care beyond the hospital stay, and allowing them to share in the savings to Medicare, CJR gave providers both the means to drive better value and the incentive for doing so.