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THE ORTHOPAEDIC FORUM

Managing Episodes of Care: Strategies for Orthopaedic Surgeons in the Era of Reform

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While the demand for hip and knee replacements is on the rise, reimbursement from public payers continues to decline. As Medicare experiments with payment reform strategies, such as the National Pilot Program on Payment Bundling outlined in the Patient Protection and Affordable Care Act (PPACA), orthopaedic surgeons will need to identify ways to cut costs, maintain quality measures, and manage post-acute care to survive in a changing marketplace. This article seeks to demystify the episode-of-care bundled payment methodology, provide a roadmap of what orthopaedic surgeons can do to participate in this demonstration project, and present strategies to mitigate the inherent risks.

Background

Fiscal Underpinnings

In the last twenty years, orthopaedic surgeons have experienced declining Medicare reimbursement, with surgeon payments for total hip and knee replacement decreasing by 69% and 66%, respectively¹. Without a permanent fix to the flawed Medicare sustainable growth rate formula, physicians' reimbursement will continue to decline². Medicare reimbursement is also a challenge for hospitals. Sixty-three percent of all U.S. hospitals have negative margins on Medicare patients, with one-quarter sustaining inpatient margins of -20% or lower³. As the U.S.

population ages, a growing number of patients requiring total hip and total knee replacements will come from the Medicare population. Additionally, an estimated thirty-two million previously uninsured Americans will be insured under plans that reimburse at Medicaid or Medicare-equivalent rates under PPACA coverage expansions by 2014⁴. Orthopaedic surgeons and hospitals will need to find ways to more efficiently treat this population to protect market share and achieve positive margins on Medicare payments.

In an attempt to bend the cost curve, Medicare has begun experimenting with innovative payment methodologies that encourage coordinated, high-quality, and efficient care. Such methodologies are being tested as alternatives to the traditional fee-for-service arrangement criticized for rewarding the over-use and duplication of services⁵. Section 3023 of PPACA establishes a five-year National Pilot Program on Payment Bundling to begin no later than January 1, 2013⁴. The pilot program will test the effects of providing a bundled payment to a group of providers for an episode of care. While the eight conditions to be pilot tested have not yet been announced, total joint replacement is predicted to be among them. The Medicare Payment Advisory Commission (MedPAC) recently highlighted degenerative arthritis of the hip and knee as being among the top twenty fastest growing and highest cost clinical episodes³.

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TABLE I Orthopaedic Medicare Severity Diagnosis-Related Groups for Acute Care Episode Demonstration

MS-DRG	Description*
461	Bilateral or multiple major joint procedures of lower extremity with MCC
462	Bilateral or multiple major joint procedures of lower extremity without MCC
466	Revision of hip or knee replacement with MCC
467	Revision of hip or knee replacement with CC
468	Revision of hip or knee replacement without CC/MCC
469	Major joint replacement or reattachment of lower extremity with MCC
470	Major joint replacement or reattachment of lower extremity without MCC
488	Knee procedures without primary diagnosis of infection with CC/MCC
489	Knee procedures without primary diagnosis of infection without CC/MCC

*MS-DRG = Medicare severity diagnosis-related group, MCC = major complication or comorbidity, and CC = complication or comorbidity.

Medicare's precursory Acute Care Episode Demonstration Project is currently pilot testing primary, bilateral, and revision hip and knee replacement procedures (Table I) in a similar, but more limited, pilot program in four southern states⁶.

Definition of Episode-of-Care Payment Bundling

Episode-of-care payment bundling is similar to the 1990s concept of global capitation. A bundled payment is made for treating a medical condition over a defined period of time. If the cost to treat the patient exceeds the payment, the provider operates at a loss (negative margin). If the provider can reduce the cost of care below the payment amount, the provider achieves a profit (positive margin). The episode duration is currently defined by PPACA as three days prior to admission through thirty days after discharge. However, the Secretary of Health and Human Services is given the authority to extend the episode duration⁴. The bundled payment will include inpatient and outpatient hospital services, physician services (both in and out of the hospital), and post-acute care (including home health, skilled nursing facilities, inpatient rehabilitation, and long-term-care hospitals). To ensure budget neutrality, the bundled payment may not exceed the amount that would otherwise be paid in the absence of the pilot program⁴.

While the study design for the 2013 pilot program has not yet been disclosed, the competitive bidding process for the Acute Care Episode Demonstration Project is publicly available. Applicants to the demonstration project were given data on their historical Part A and Part B payments to use in structuring their bids⁶. Selected pilot sites offered Medicare a discount of 1% to

6%⁷. It was left up to physicians and hospitals to decide how the discount was achieved. In some instances, the pilot hospital chose to assume the cost of the physician discount and matched the Medicare physician fee schedule⁷. Applicants were required to describe what processes or other changes would enable the organization to offer the proposed discount and demonstrate how quality would be maintained⁶. To ensure that costs are not being shifted outside the bundled period, Medicare closely monitors utilization patterns before and after the episode of care⁶.

Quality measures are also monitored to discourage providers from skimping on care and to ensure that quality is maintained or improved, although quality is difficult to define and measure. While PPACA references the word *quality* 906 times, it is not plainly defined in the legislation. PPACA's inferred definition is heavily based on the Institute of Medicine's six aims for improving the delivery of care outlined in *Crossing the Quality Chasm*, namely, that care should be (1) safe, (2) effective, (3) timely, (4) patient-centered, (5) efficient, and (6) equitable⁸. On the basis of these aims, Medicare, in consultation with the Agency for Healthcare Research and Quality, will develop specific quality measures based on the following nine categories⁴:

1. Functional status improvement
2. Rates of avoidable hospital readmissions
3. Rates of discharge to the community
4. Rates of admission to an emergency room after a hospitalization
5. Incidence of health-care-acquired infections
6. Efficiency measures
7. Measures of patient-centeredness of care
8. Measures of patient perception of care
9. Other measures, including measures of patient outcomes

From the perspective of an orthopaedic surgeon performing joint replacement, the above definition implies that there are several components to quality, namely: (1) correct diagnosis, (2) adherence to appropriate indications for treatment, (3) thorough patient education, (4) a durable result that leaves the patient better off than before the joint replacement, and (5) avoidance of complications.

While payment bundling inherently shifts the financial risk back to providers, it also presents an opportunity to reap financial rewards if patient care is efficiently managed. As providers find ways of ratcheting down their costs while improving or maintaining defined quality measures, the impact of their efforts will extend not only to the Medicare population but to all payers and may increase overall margins. With commercial payers geared up to jump on the cost-savings bandwagon, it is arguable that failure to perform this type of a self-assessment will be very costly to physicians and hospitals as the marketplace shifts away from the fee-for-service payment structure.

Surgeons could offset decreases in Medicare reimbursement by structuring gainsharing arrangements with hospitals. These relationships would allow physicians and hospitals to collaborate on efforts to reduce costs, improve quality measures, and manage post-acute care patterns. Typically, this level

of integration and financial alignment between providers is legally prohibited⁷. Within the context of a demonstration project, however, the law allows such provisions to be waived as necessary to carry out the pilot program. Under the Acute Care Episode Demonstration, gainsharing payments made to physicians are limited to 25% of the physician fee schedule⁶. Acute Care Episode Demonstration pilot sites implementing gainsharing programs are required to provide a detailed explanation of how cost savings will be achieved, how financial gains will be measured, and how the gains will be allocated among physicians⁶. Incentive payments must not induce physicians to reduce or limit medically necessary services, must not be based on the volume or value of referrals, must be based on net savings attributable to the program, and must be linked to actions that improve overall quality and efficiency⁶. If the Centers for Medicare and Medicaid Services chooses to use the same approach for the 2013 pilot program, gainsharing programs will be allowed, but will need to be robust and defensible.

A Roadmap for Building an Episode-of-Care Program

The episode-of-care structure is inherently collaborative. A surgeon interested in participating in the 2013 demonstration project should initiate discussions with his or her affiliated hospital(s) to gauge the level of organizational interest and support. To apply as a pilot site, a surgeon would need to collaborate with a hospital, a physician group, a skilled nursing facility, and a home health agency⁴. Before investing extensive time and resources into developing a program, potential applicants will want to consider the following four questions to help to determine if the episode-of-care project fits them.

1. Does the affiliate hospital perform a substantial number of total joint replacements annually?

There is a strong correlation between volume and quality. For this reason, Medicare limited the Acute Care Episode Demonstration to applicants that met evidence-based volume standards⁶. The minimum annual surgical volume thresholds for total joint replacement are set at ninety Medicare patients and a total of 125 patients per hospital⁶. Minimum volume thresholds have not yet been set for the 2013 pilot program, but the Acute Care Episode thresholds provide a good litmus test.

2. Does the affiliate hospital report quality measures to Medicare?

The Acute Care Episode Demonstration limited applicant hospitals to those that have reported quality measures to Medicare through the Reporting Hospital Quality Data for Annual Payment Update program and received the full IPPS (Inpatient Prospective Payment System) annual payment since fiscal year 2006⁶. Hospitals are required to participate in the Reporting Hospital Quality Data for Annual Payment Update program throughout the demonstration period. In addition, Medicare requires hospitals to provide additional quality measures specific to the Medicare severity diagnosis-related groups (MS-DRGs) being pilot tested. Physicians are not required to report quality measures under the Acute Care Episode Demonstration. While

PPACA does not indicate that physician quality reporting will be required under the 2013 pilot program, it contains a clause that allows the Secretary of Health and Human Services to include any quality measure he or she determines to be appropriate.

3. Are fellow surgeons interested in participating in the demonstration?

Any physician performing services under one of the specified MS-DRGs at a pilot hospital is by default part of the Acute Care Episode Demonstration Project⁶. No formal legal structure is required⁶. However, a collaborative entity such as a physician hospital organization is necessary to receive, allocate, and distribute payments. Letters of commitment from all providers attesting to their ability and willingness to participate in the demonstration project suffice as documentary evidence of a physician hospital organization⁶.

4. Are fellow surgeons willing to accept financial risk for potential complications?

Under episodes of care, one bundled payment is made to the contracting entity per patient per episode by MS-DRG⁶. There are no contingencies or carve-outs that revert payment back to fee-for-service. In the 2013 pilot program, no additional payments will be made for readmissions, acute revisions, or required follow-up care should complications arise within thirty days of discharge. The model assumes that the costs associated with these complications are embedded in the historical data used to inform the bid.

If the answer to the above four questions is yes, potential applicants should move forward and begin building an episode-of-care program. The first step is building relationships with other providers involved in patient care throughout the episode. Initiate discussions with hospital leadership and other post-acute care partners regarding a joint strategy for approaching episodes of care. Establish teams to address the financial and clinical components. Develop mutually beneficial incentives that encourage the efficient use of resources and promote improved quality measures.

The second step is identifying current-state episode components, costs, and reimbursement. In order to determine the amount an applicant can afford to bid, providers need to thoroughly understand the components of care across the episode (Fig. 1), as well as their collective historical costs and payments per procedure. Use patient cohorts to accurately define costs and payments within each procedure (e.g., costs associated with patients with major comorbidities versus those without). To reduce provider risk, incorporate probabilities of follow-up care into the bundle, such as identifying the probability and associated cost of surgical site infections, dislocations, acute revisions, and/or readmissions within thirty days.

The third step is creating the infrastructure necessary to receive and distribute payments among providers, which must include developing processes to submit claims and collect from secondary insurers, when applicable. Under episodes of care, the contracting entity essentially takes on the role of payer in terms of accepting risk and disbursing payments. As payer, the entity will

Total Joint Replacement Episode of Care

Understanding the Components of the Episode

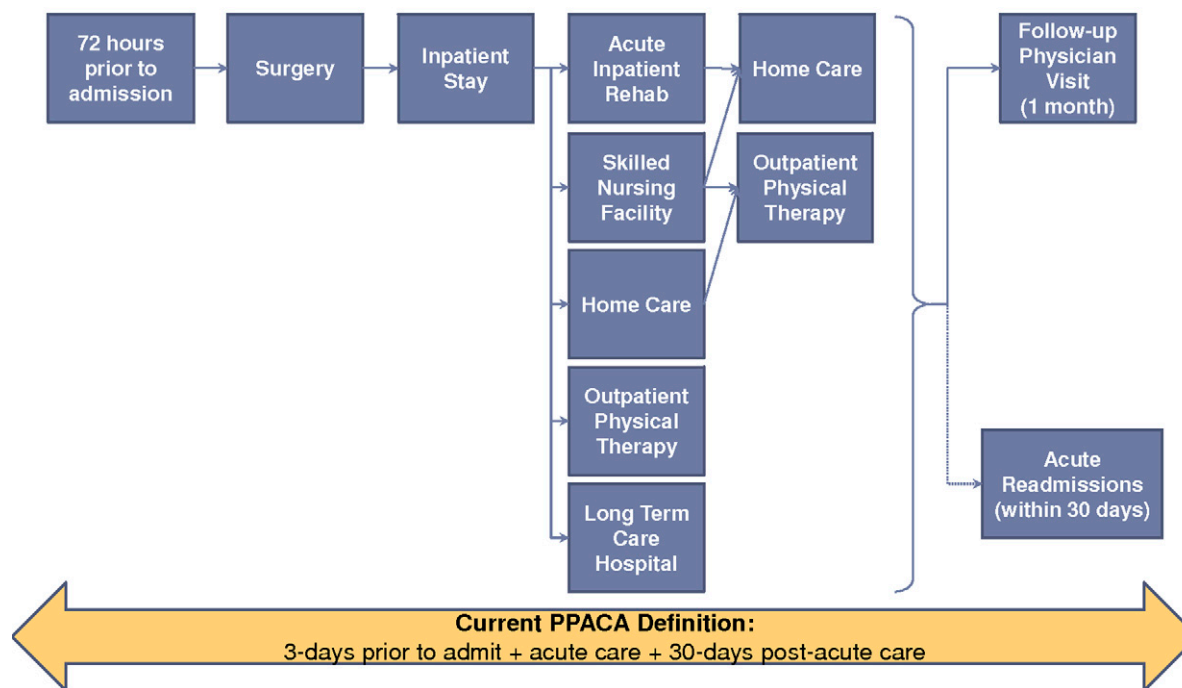


Fig. 1

The Patient Protection and Affordable Care Act (PPACA) defines an episode of care as three days prior to an acute hospital admission through thirty days after discharge. The first step in calculating the cost and payment associated with an episode of care is to understand the major components.

require resources (e.g., data and personnel) to perform essential insurance functions such as utilization review and risk management. Under the Acute Care Episode Demonstration, Medicare does not specify who within the physician hospital organization contracting entity should be responsible for receiving and distributing payments (e.g., the hospital, the physician group, or a management services organization controlled by the hospital and physicians)⁶. Instead Medicare leaves this decision to the discretion of the organization on the basis of its culture and structure.

Strategies to Manage Risk

The primary reason why global capitation failed in the 1990s was the inability of providers to manage the insurance risk of disease prevalence for a population. While providers were compensated for patients who did not require much (or any) care, they were also put at risk for patients who developed an expensive medical condition and required a great deal of care. The risk of a patient developing an expensive medical condition was largely outside the provider's control. If a provider had too few patients in the population to spread the risk associated with expensive medical conditions, the provider was inadequately compensated for the care rendered to the population. Under the episode-of-care arrangement, providers are paid according to the medical conditions they treat. Providers are at risk when the cost to treat the condition exceeds the bundled payment. Of particular concern is the risk of a patient developing a complication and requir-

ing uncompensated follow-up care within a specified window of time (e.g., acute revisions, infections, and readmissions within thirty days). Unlike the risks of global capitation, these risks are largely within the providers' control. Much can be done to effectively reduce costs and minimize complications⁹.

Strategies to Manage Costs

The two primary hospital cost drivers for total joint replacement are length of stay and the prosthesis cost, which account for over half of all hospital costs. It is critical that a strategy for reducing length of stay and implant costs be developed jointly by the orthopaedic surgeons and the hospital. Substantial cost savings can be achieved by identifying and reining in outliers. For each cost driver, it will be important to drill down to physician-level data to detect variations among providers. By working with physicians to raise awareness of these variations, the root causes can be better understood (e.g., patient mix, severity, consultation patterns, prosthesis preferences, and post-acute care preferences). Once identified, the root causes that can be modified can be targeted and incentives can be created to reduce costs. Developing a collaborative episode-of-care business model will require rigorous, evidence-based, cost-benefit analyses that will likely result in tough, but necessary, decisions.

The implementation of standardized clinical pathways and establishment of best practices may be an effective way to reduce

length of stay without compromising patient satisfaction or safety¹⁰. Walter et al. decreased length of stay by more than one day by implementing clinical pathways for total hip and total knee replacement while maintaining high patient satisfaction rates and low complication and readmission rates¹⁰. The key elements contributing to the success of the pathways included preoperative patient education, standardized order sets derived from evidence-based medicine, and the use of a nurse practitioner to champion the pathway and ensure compliance¹⁰.

Substantial savings can be achieved by moving to implant standardization and negotiating steep discounts with vendors in return for offering preferred status and/or volume guarantees¹¹. Healy and Iorio demonstrated a cost reduction potential of 25.7% for hip implants and 8.4% for knee implants under an implant standardization program¹¹. This option, however, is likely to be unpopular with physicians and may negatively affect patient outcomes if the vendor's implant selection is limited. Arguably, the better option is to place a price ceiling, a set price the hospital will pay for joint implants, that is imposed unilaterally across all vendors¹¹. Vendors must match the price or decline the business.

Post-acute care may constitute >50% of the overall cost of a total joint replacement episode¹². This distribution holds tremendous opportunities for physicians and hospitals to reallocate dollars along the continuum of care. A study conducted by Gage et al., based on a 5% national sample of Medicare data, found substantial variations in costs by post-acute care setting (Fig. 2)¹². The costs associated with sending a patient to inpatient rehabilitation followed by home health care is nearly dou-

ble the cost of sending a patient home with a home health agency¹². Sending a patient to a skilled nursing facility followed by home health care costs 50% more than sending the patient home with home health care alone. Under the current Medicare reimbursement model, there is no incentive for hospitals or physicians to make cost-effective post-acute care decisions. However, under the episodes-of-care arrangement, choosing a more cost-effective post-acute care setting translates to less expense, as long as complications and readmission rates remain low. The implementation of evidence-based discharge protocols is clearly warranted to manage post-acute care and ensure that patients are placed in the appropriate setting. Patients and their families need to be educated early in the process to set clear expectations and encourage active participation in their recovery during both the hospital stay and throughout post-acute care.

Strategies to Reduce Complication Risk

In addition to managing costs, providers should develop a collaborative plan to minimize complications and manage comorbidities to reduce the risk of uncompensated follow-up care and preventable readmissions. Quality measures should be tracked and compared with the best physician and national benchmarks. Surgical site infections, venous thromboembolism, and medical comorbidities are the leading causes of postoperative complications in patients who have a total joint replacement¹³. It is essential that providers develop strategies to target and reduce the prevalence of these complications, in conjunction with reducing dislocations, acute revisions, and thirty-day readmissions, to improve quality and reduce the cost of each episode of care.

Average Medicare Episode Payment by Episode Pattern

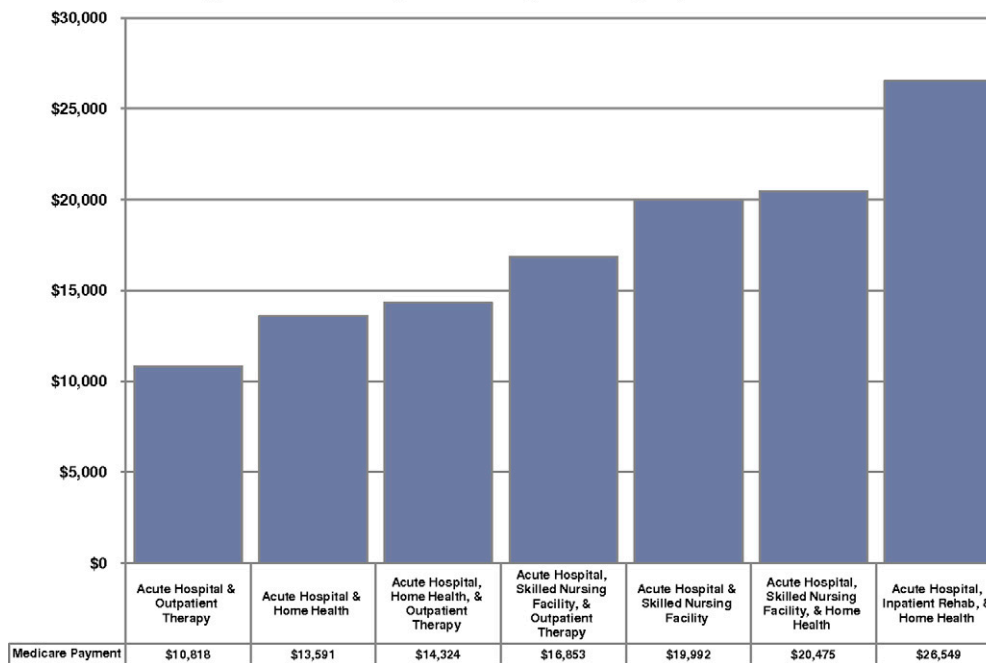


Fig. 2

Substantial variation exists in post-acute care episode patterns. Managing post-acute care may provide material savings under a bundled payment arrangement. Figure 2 is derived from data presented by Gage et al.¹².

In an analysis of 490 consecutive thirty-day readmissions at a specialty orthopaedic hospital, McCormack et al. found the majority of patients were readmitted to treat or to rule out surgical site infections¹³. Surgical site infections following total joint arthroplasties are rare, but expensive, complications with an associated treatment cost of \$50,000 to \$100,000¹⁴. Most high-volume joint replacement institutions report rates of surgical site infections in the vicinity of 1% for primary joint replacements¹⁵. Strategies to decrease the prevalence of surgical site infections include preoperative *Staphylococcus aureus* decolonization of the nares, utilizing surgical time-out protocols, reducing or eliminating flash sterilization of equipment, maintaining operating-room discipline, and using evidence-based best practices in surgical scrubbing and skin preparation. A preoperative program using nasal mupirocin to decolonize the nares of patients has been shown to lead to decreased rates of surgical site infections¹⁶. Surgical time-out protocols are highly effective in ensuring compliance with antibiotic prophylaxis¹⁷. Similarly, surgical time-out protocols provide an excellent mechanism to ensure that the proper postoperative chemoprophylaxis is ordered. Flash sterilization should only be used in the event of inadvertent contamination of a surgical instrument or in case of a test-cycle failure for an urgently needed instrument. Flash sterilization should not be used because of poor operative planning, inaccurate scheduling, or a chronic shortage of equipment. Surgeons must be educated that flash sterilization is not an equivalent antiseptic method to the use of the central sterilization process and places their patients at risk of developing surgical site infections. Maintaining discipline by minimizing operating-room traffic and decreasing the length of the surgery are also important steps to reducing surgical site infections. Lastly, each institution must adopt evidence-based best practices for hand-washing and preparing patients for surgery. Use of alcohol-based hand rubs and chlorhexidine gluconate skin preparations have been shown to be effective in reducing bacterial counts on patients and physicians^{18,19}. Jordan et al. achieved a 35% reduction in readmissions by educating physicians on evidence-based protocols for decreasing surgical site infections and facilitating outpatient evaluations of potential complications⁹.

Venous thromboembolism is another costly complication of hip and knee arthroplasty and is responsible for a substantial number of readmissions¹³. While the method and timing of venous thromboembolism prophylaxis is a controversial subject, there is uniform agreement among industry experts that patients undergoing total joint arthroplasty should be stratified into risk categories and receive the appropriate prophylaxis based on the individual's risks and the procedure being performed. The American College of Chest Physicians guidelines provide an industry-accepted standard of care for venous thromboembolism prophylaxis following total joint arthroplasty. These guidelines recommend that either warfarin or fractionated heparin prophylaxis be used on all patients without a contraindication²⁰. Risk stratification and compliance with the American College of Chest Physicians guidelines are essential to minimizing the risk of postoperative venous throm-

boembolism. Developing a mechanism for the early detection and treatment of venous thromboembolism in an outpatient setting, including the ability to obtain same-day ultrasound and computerized tomography scans, is critical to reducing readmissions when postoperative venous thromboembolisms occur¹³.

Medical comorbidities likewise pose an increased risk for the development of complications requiring necessary, but uncompensated, follow-up care in the thirty-day postoperative period¹³. The risk is particularly volatile when comorbidities go unrecognized preoperatively and/or are improperly managed. By rigorously evaluating the medical condition of patients preoperatively and closely managing medical comorbidities, providers can effectively reduce many postoperative issues. Substantial variation exists in preoperative evaluations performed by surgeons. To ensure comorbidities are adequately identified, organizations should establish minimum standards at the physician-practice level. In addition, each patient should be screened for comorbidities in an institution-based preadmission testing unit to address any deficiencies in, or questions arising from, the physician preoperative evaluation. The preadmission testing unit provides an excellent setting to perform *Staphylococcus aureus* eradication and to educate and reinforce patient expectations regarding length of stay and the post-acute care plan.

Patient education and the continuity of care across the acute and post-acute settings are vital to the prevention of dislocations, acute revisions, and complications that lead to readmissions. Traditionally, care transitions between acute and post-acute settings are vulnerable to communication breakdowns because of the lack of continuity between providers. To truly manage care across an episode, a continuous point of contact is needed to track the patient's care from preadmission testing through post-acute care. The important question is to determine the most appropriate person to fulfill this role. In some cases, the surgeon or surgeon's practice may be able to fulfill this function. However, many surgeons may find they do not have the time or staffing resources required. Another option is utilizing the patient's primary care physician to manage the episode of care, particularly any comorbidity. Many primary care physicians who refer patients to surgeons expect to participate in the postoperative care of the patients they refer. Jencks et al. found that arranging follow-up primary care visits within two weeks of discharge was effective in reducing readmissions following total joint arthroplasties²¹. Another possible solution is developing a comprehensive hospitalist program. López et al. affirmed that medical issues arising during the immediate postoperative period are most appropriately treated by a dedicated group of hospitalists trained in primary care²². Other options include a physiatrist or an orthopaedic certified registered nurse practitioner. Regardless of who fulfills this role, establishing relationships that allow the provider to perform rounds and/or call patients at affiliated post-acute facilities will be critical to mitigate risks associated with comorbidities, complications, and readmissions.

Experienced orthopaedic surgeons may find themselves having a déjà vu moment, wondering if episodic bundled payments

are simply a return to global capitation of the 1990s. The episode-of-care concept is certainly an old idea in a new context. Whether we feel ready or not, bundled payments are unlikely to go away this time. The economic conditions surrounding the rising cost of health care may have reached a tipping point at which federal and state budgets, employers, and patients are unwilling and/or unable to afford the bill. We have entered an era of reform in which the demand for transparency and increased scrutiny on our relative costs and quality is quickly becoming the norm. While a nationwide expansion of episodes of care would require congressional approval, managed-care payers are eagerly watching from the sidelines to see if such payment arrangements prove to be effective in containing costs. Facing financial pressure under recent insurance reforms that limit their ability to increase annual premiums and curtail high-risk beneficiaries, managed-care payers may not be able to wait until 2018 for the completion of the Medicare pilot program and may lead the change to bundled payment and other cost containment measures.

The 1990s left many physicians disaffected by global capitation. Dwindling Medicare reimbursement has led many surgeons to question whether it makes good business sense to participate in the Medicare program. Given the existing fragmentation in the health-care system and the current lack of incentives to manage care across a clinical episode, a healthy dose of skepticism is warranted. This skepticism, however, must be weighed against the impending market changes. There will be winners and losers under health-care reform. Reacting early and maintaining the agility necessary to respond will be essential to maintain market share and achieve positive margins. A strategic approach to episodes of care, in which physicians and hospitals work in collaboration to contain costs, improve quality, and manage ex-

pensive post-acute care to redistribute the pieces of the financial pie, shows the greatest promise of achieving shared savings and mitigating the inherent risks while providing high-quality patient care.

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