

Payment policy for inpatient readmissions

Chapter summary

Hospital readmissions are sometimes indicators of poor care or missed opportunities to better coordinate care. Research shows that specific hospital-based initiatives to improve communication with beneficiaries and their other caregivers, coordinate care after discharge, and improve the quality of care during the initial admission can avert many readmissions. Medicare does not reward these efforts.

In addition to adversely affecting beneficiaries' health and peace of mind, the failure to adequately attend to the care transition at discharge from the hospital results in additional Medicare spending; 17.6 percent of admissions result in readmissions within 30 days of discharge, accounting for \$15 billion in spending. Not all of these readmissions are avoidable, but some are.

To encourage hospitals to adopt strategies to reduce readmissions, this chapter explores a two-step policy option that starts with public reporting of hospital-specific readmission rates for a subset of conditions and goes on to adjust the underlying payment method to

In this chapter

- Why focus on readmissions?
- How common are readmissions?
- How can hospitals reduce readmissions?
- How can Medicare policy encourage hospitals to adopt strategies to reduce readmissions?

financially encourage lower readmission rates. We recognize the importance of pay-for-performance (P4P) measures to improve quality, but find that the underlying payment method may undercut the behavior P4P is trying to encourage. When this is true, other policies may be needed to create stronger incentives to reduce readmissions.

We focus on the hospital's role but recognize that other types of providers, including physicians and various post-acute care providers, can be instrumental in avoiding readmissions. MedPAC continues to explore ways to encourage those providers to avoid hospital readmissions (see Chapter 4 on home health P4P and Chapter 8 on skilled nursing facilities). Beneficiaries also have responsibility in the effort to avoid readmissions and should be encouraged to be engaged in their own care. Aligning incentives across all those who can influence the outcome of care would induce needed collaboration among fee-for-service providers and foster greater “systemness” and integration in the delivery of health care. ■

Hospital readmissions sometimes indicate poor care or missed opportunities to better coordinate care. Research shows that specific hospital-based initiatives to improve communication with beneficiaries and their other caregivers, coordinate care after discharge, and improve the quality of care during the initial admission can avert many readmissions. Medicare does not reward these efforts. It pays for all admissions based on the patient's diagnosis regardless of whether it is an initial stay or a readmission for the same or a related condition.¹

Policy changes could encourage more hospitals to adopt successful strategies and continue to experiment with new ones. This chapter explores a two-step policy option to provide a financial incentive for hospitals to reduce readmissions. The first step is public disclosure of readmission rates followed by payment changes to encourage hospitals to reduce their readmission rates—that is, the number of readmissions to both their own hospital and others. The Commission also plans to explore bundling Part A and Part B payments for inpatient care.

In this chapter, we focus on the hospital's role but recognize that other providers—including physicians, skilled nursing facilities (SNFs), and home health caregivers—can also be instrumental in avoiding readmissions. MedPAC continues to explore ways to encourage these providers to meet their patients' needs over the course of an episode of care (see Chapters 4 and 8). Similarly, beneficiaries have responsibility in the effort to avoid readmissions and should be encouraged to be engaged in their own care. Aligning incentives across all those who can influence the patient's outcome would induce the needed collaboration among providers, which is the foundation for fostering “systemness” in the delivery of health care.

Why focus on readmissions?

Discharge from the hospital is a critical and vulnerable care juncture for Medicare beneficiaries. Patients often experience difficulties during the transition to home or post-acute care. While in the hospital, patients tend to defer to their professional caregivers. Upon discharge, however, they may suddenly be expected to assume a self-management role in recovery with little support and preparation (Coleman and Berenson 2004). Patients and families may not realize how much support patients need, particularly if the patient has not returned to his or

her baseline physical or cognitive functional state after discharge. Further, they may not know which provider to call with questions during the interval between discharge and follow-up—if there is a follow-up visit—as it is not always clear which provider is responsible for and informed about the patient's care (HMO Workgroup 2004).

Discharge is also a time when patients are more likely to be receptive to health care recommendations. The chances of long-term adherence to medication regimens are significantly higher when medications are prescribed at hospital discharge, and this increased adherence is associated with decreased mortality rates (Lappe et al. 2004). Experts have noted that hospital-based interventions (e.g., ensuring that appropriate medications are prescribed) can be more easily implemented, can be more effectively managed and measured, and could be more cost effective than other potential outpatient intervention strategies (Lappe et al. 2004).

Despite these needs and opportunities associated with this transition, hospitals and other providers have not broadly invested in their role in managing the transition. Two related factors account for this. First, providers often operate independently of one another (in “silos”). Each is focused on his or her performance rather than on the collective performance across an episode of care. Accordingly, incentives to coordinate or standardize care processes across providers and settings are limited. These problems are exacerbated by the increasing degree of specialization in health care. Patients today are more likely than ever to pass across different settings of care with different physicians supervising their care, particularly given the increasing prevalence of hospitalists.

A second related factor is Medicare's (and other insurers') fee-for-service payment policy. Medicare pays each provider separately, and the payment amount is not affected by providers' ability to coordinate care across settings. Hospitals that invest in reducing readmissions reap none of the reward of their investment (unless they are able to fill the unused beds with more profitable patients). And because Medicare does not explicitly pay for care management services, such as follow-up phone calls or scales and blood pressure cuffs for recently discharged patients to use at home, providers often do not provide these beneficial services. With case-based payments that reward hospitals for shorter lengths of stay, hospitals focus on discharging patients as soon as is medically appropriate. Indeed, in navigating the gray area of “medical appropriateness,” hospitals and physicians

Complications and “never events”

Under current policy, Medicare sometimes pays hospitals a higher diagnosis related group (DRG) payment if a complication develops during the hospitalization due to poor care. For example, decubitus ulcers, surgical infections, or pneumonia acquired while on a ventilator could all lead to increased payments to a hospital because a DRG with complications is paid more than a DRG without complications. This payment policy fails to reward hospitals for investing in quality and process improvements to reduce the frequency of these adverse events.

To address this problem, the Congress included a provision in the Deficit Reduction Act of 2005 that requires CMS, by October 2007, to identify at least two preventable hospital-acquired complications that are either high cost or high volume. To determine whether a complication is acquired in the hospital or is present on admission, CMS will require a present-on-admission indicator on claims as of October 2007. This is consistent with MedPAC’s recommendation in our March 2005 report and is critical to ascertaining whether the hospital should be held partially or fully responsible for the complication (MedPAC 2005).

By October 2008, CMS must no longer increase payments purely due to patients acquiring one of these

preventable hospital-acquired complications. The magnitude of this policy’s impact may be less than was intended, however. CMS believes the provision will apply in a small minority of cases because it is rare that one of the selected conditions will be the only complication or comorbidity on the claim. If there is another complication or comorbidity, it will trigger the higher payment amount.

On the related issue of payment for “never events,” the Tax Relief and Health Care Act of 2006 included a provision requiring the Department of Health and Human Services Office of Inspector General to conduct a study on the incidence of never events for Medicare beneficiaries and the extent to which Medicare pays for them. Never events are defined as “serious reportable” events as identified by the National Quality Forum and include such things as leaving unintended objects in the patient as well as death or serious disability from falls, medication errors, and administration of incompatible blood during hospitalization. The Leapfrog Group has recommended to the Congress that Medicare adopt policies to require reporting of these events and preclude hospitals from billing for them (Leapfrog Group 2006). ■

may be more likely to discharge patients earlier and accept a higher risk of readmission. Aside from moving the patient out of the hospital, effective management of the discharge and transition is not financially rewarded. The Congress has recently considered financial incentives for hospitals to avoid complications during the stay and “never events” (see text box), but these measures do not create incentives to provide needed care at discharge.

The specific causes of avoidable readmissions are varied. An adverse event, which may be due to a medical error, may have occurred during the initial admission, making recovery more complicated and ultimately necessitating readmission. Another cause might be that the patient was discharged without the proper mix and doses of

medications being prescribed. The patient may not have fully understood when to take the medication, may not be fully equipped to arrange for follow-up care without assistance, or may not know what symptoms indicate the need for outpatient medical attention. Family members may not be adequately informed and prepared for how to care for their loved one. Patients and family members also may not know about end-of-life options and resort to rehospitalization as a default. Also, community physicians and post-acute care providers receiving the patient may not be sufficiently informed about the patient’s care needs and history to enable effective care.

African American and dually eligible beneficiaries (about one-fifth of whom are African American) appear to be

at higher risk for readmissions, particularly for stroke, diabetes, and asthma (Kind et al. 2007). Dartmouth-Hitchcock Clinic, which is participating in CMS's Physician Group Practice demonstration, also reports that—in its experience—dual eligibles were more likely to be readmitted than others (Trisolini et al. 2006). This finding suggests that lack of coordination during transitions may affect beneficiaries unevenly, contributing to racial disparities in health care delivery.

In addition to the human consequences, the failure to adequately attend to the care transition results in additional Medicare spending. Readmissions are a costly aspect of Medicare-covered services. While not all that spending is avoidable or a sign of poor care, some of it is the result of preventable readmissions.

One study of coronary artery bypass graft (CABG) patients in New York attempted to identify the prevalence of related readmissions—that is, those due to complications directly related to the initial surgery. It found that 85 percent of the patients readmitted within 30 days after surgery were readmitted for complications directly related to the CABG. Examples of complications included infections, heart failure, myocardial ischemia/acute myocardial infarction (AMI), and arrhythmias (Hannen et al. 2003).

To further explore the question of what portion of readmissions is clinically related and potentially preventable (some may be related but not preventable, such as staged surgeries), the Commission applied 3M software that flags some readmissions as potentially preventable to Medicare claims data. Our intent is to illustrate an approach rather than to endorse a specific product.

TABLE 5-1

Hospital readmission rates

Percent of patients readmitted to hospital within:

	7 days	15 days	30 days
Total	6.2%	11.3%	17.6%
Non-ESRD	6.0	10.8	16.9
ESRD	11.2	20.4	31.6

Note: ESRD (end-stage renal disease).

Source: MedPAC analysis of 2005 Medicare Provider Analysis and Review file data.

TABLE 5-2

Potentially preventable hospital readmission rates

Patients readmitted to hospital within:

	7 days	15 days	30 days
Rate of potentially preventable readmissions	5.2%	8.8%	13.3%
Spending on potentially preventable readmissions (in billions)	\$5	\$8	\$12

Source: 3M analysis of 2005 Medicare discharge claims.

How common are readmissions?

A significant number of Medicare hospitalizations result in readmissions. In 2005, 6.2 percent of hospitalizations among beneficiaries resulted in readmission within 7 days, and 17.6 percent of hospitalizations resulted in readmission within 30 days.² The readmission rates for beneficiaries with end-stage renal disease are considerably higher than average, which suggests that certain subgroups of beneficiaries (particularly beneficiaries with comorbidities) are at greater risk of readmission (Table 5-1). This finding highlights the importance of risk adjustment in calculating comparable readmission rates.

The readmission rates in Table 5-1 reflect the total number of readmissions, including those that may have been unrelated to the initial diagnosis, such as a readmission for trauma after a discharge for pneumonia or AMI. Policymakers will need to consider the importance of distinguishing the clinical underpinning of readmissions. For the purposes of this analysis, we explored identifying potentially preventable readmissions with software developed by 3M (see text box, pp. 108–109). Potentially preventable readmissions are those that in many cases may be prevented with proven standards of care; however, not all potentially preventable readmissions can be avoided, even if hospitals follow best practices.

We used the software to identify which of the readmissions were potentially preventable. The 7-day rate for potentially preventable readmissions is 5.2 percent, the 15-day rate is 8.8 percent, and the 30-day rate is 13.3 percent (Table 5-2). Accordingly, 84 percent of 7-day readmissions, 78

How can readmissions be defined?

In measuring readmission rates, policymakers must address whether they want to count all readmissions in the rate or a subset of readmissions that are clinically deemed to be potentially preventable. In addition, policymakers must define a time period within which a subsequent admission is considered a readmission (e.g., within 7 days, 15 days, or 30 days of discharge from the initial admission).

Purchasers, plans, and vendors have pursued a number of ways to define readmissions. Some have defined all readmissions within a certain number of days (e.g., 7 days, 15 days, or 30 days) to count toward the rate, regardless of the clinical link between the two admissions. For example, under its program measuring hospitals' relative efficiency to help employers in their purchasing decisions, the Leapfrog Group counts all readmissions within 14 days of discharge. It specifically acknowledges that some readmissions counted are not related to the earlier discharge.

Others have begun to develop algorithms, or rules, to identify which admissions could have been reasonably prevented. For reporting purposes, UnitedHealthcare counts all readmissions to the same major diagnostic category or for infections in disclosing readmission rates for hospitals in California. Physicians with the Geisinger Health System in Pennsylvania agreed not to be paid for certain readmissions within 90 days of nonemergency coronary artery bypass graft surgery. These types of readmissions include acute myocardial infarction; atrial fibrillation; venous thrombosis; infections due to an internal prosthetic device, implant, or graft; and postoperative infections. Their approach includes all readmissions “not unrelated,” reflecting their desire to avoid litigating the difference between “definitely related” and “possibly related.” Researchers

with 3M have also developed algorithms for a wide range of conditions that identify related readmissions within 7 days to 30 days of the initial admission. Florida is proposing to use this product for reporting purposes.

Different decision rules can inform which readmissions are potentially preventable. The rules could be very narrow, identifying only those readmissions that with near certainty could have been avoided, such as complications resulting from a perforation during surgery. Or they could be broader, identifying types of readmissions that likely could have been prevented, such as readmissions for chronic obstructive pulmonary disease (COPD) after cardiac surgery—some of which may be avoided if COPD medications are appropriately adjusted at discharge.

To illustrate this broader approach to identifying clinically related and potentially avoidable readmissions, MedPAC has begun to explore 3M's software and its implications for defining Medicare readmissions. In so doing, our intent is to explore an approach, not endorse a specific product.

After excluding certain readmissions—including those related to trauma, cancer, and burns—3M combed through all permutations of diagnoses for an initial stay and for a readmission and evaluated the likelihood that a given readmission diagnosis was related to the first admission and, therefore, was potentially preventable. In general, most medical readmissions following an initial medical admission were flagged as potentially preventable. Most medical readmissions following a surgical readmission were also likely to be potentially preventable. In contrast, most surgical readmissions following either a medical or a surgical

percent of 15-day readmissions, and 76 percent of 30-day readmissions were flagged as potentially preventable.

Medicare spending on these potentially preventable readmissions is substantial: \$5 billion for cases readmitted within 7 days, \$8 billion for cases readmitted within 15 days, and \$12 billion for cases readmitted within 30 days.

In 2005, the average Medicare payment for a potentially preventable readmission totaled approximately \$7,200 (almost \$1,400 less than the payment for the original stay).

Potentially preventable readmission rates vary substantially across hospitals (Figure 5-2, p. 110). The 15-day readmission rate ranges from 6 percent at the 10th

How can readmissions be defined? (cont.)

admission were not likely to be preventable. The logic in the software allows for exceptions to these general rules (Figure 5-1).

With this approach, many diagnoses qualify to be a potentially preventable readmission. For example,

potentially preventable readmissions following an initial admission for congestive heart failure (CHF) could be for CHF again or for other conditions, such as renal failure, pneumonia, COPD, and septicemia and other infections. ■

FIGURE 5-1

Examples of logic used to define potentially preventable readmissions to hospitals

Reason for initial admission	Potentially preventable	Not potentially preventable
	<p><i>Example:</i> Admission for diabetes following discharge for AMI</p> <p><i>Exception:</i> Unrelated acute events</p> <p><i>Example:</i> Admission for trauma following discharge for AMI</p>	<p><i>Example:</i> Admission for appendectomy following discharge for pneumonia</p> <p><i>Exception:</i> Prior discharge diagnosis was reason for surgery</p> <p><i>Example:</i> Admission for appendectomy following discharge for abdominal pain</p>
Medical		
Reason for readmission	Potentially preventable	Not potentially preventable
	<p><i>Example:</i> Admission for angina following discharge for PTCA</p> <p><i>Exception:</i> Unrelated acute events</p> <p><i>Example:</i> Admission for eye infection following discharge for PTCA</p>	<p><i>Example:</i> Admission for cholecystectomy following discharge for CABG</p> <p><i>Exception:</i> Surgery for complications of prior surgery</p> <p><i>Example:</i> Admission for PTCA following discharge for CABG</p>
Surgical		

Note: AMI (acute myocardial infarction), PTCA (percutaneous transluminal coronary angioplasty), CABG (coronary artery bypass graft).

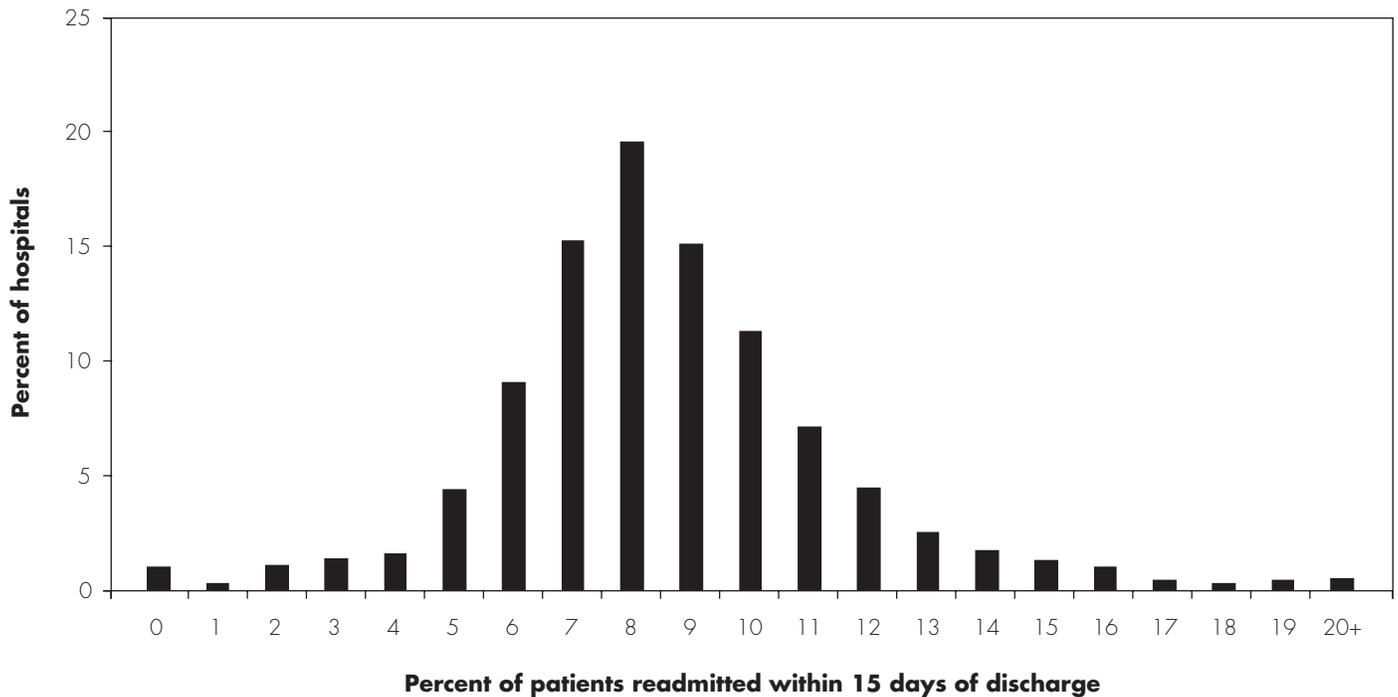
Source: 3M.

percentile to 12 percent at the 90th percentile, for example. Some of this variation is due to differences in the mix of cases and severity level of patients treated in different hospitals. Readmission rates also vary substantially by diagnosis; thus, a hospital's mix of cases will affect its overall readmission rate. The 15-day readmission rate for

heart failure and shock, for instance, is 12.5 percent; the rate for pneumonia is 8.9 percent; and the rate for major joint replacements (hips and knees) is just 5.1 percent. Thus, hospitals that concentrate on joint replacements are likely to have lower readmission rates than hospitals that concentrate on cardiac care.

**FIGURE
5-2**

Hospital readmission rates vary widely



Note: Readmissions are across all diagnosis related groups and are not severity adjusted. Readmissions are defined using 3M's software that identifies potentially preventable readmissions.

Source: 3M analysis of 2005 Medicare discharge claims data.

In comparing hospitals, we need to adjust for differences in the types of cases and the severity level of patients.³ If we control for disease-specific and severity-related differences in the incidence of readmissions, the variation across hospitals in readmissions narrows a little but overall continues to be fairly wide. Figure 5-3 shows how hospitals' actual readmission rates differ from what is expected, given their mix of cases (controlling for all patient refined diagnosis related group (APR-DRG) and the severity of illness level of the patients).⁴

About 30 percent of hospitals have 15-day readmission rates that are more than 1 percentage point above expected and 17 percent have rates that are more than 2 percentage points above expected. These are the hospitals with the greatest potential to reduce their readmission rates. We also see, however, that a substantial portion of hospitals have readmission rates that are lower than expected; 13 percent of hospitals, for instance, achieve readmission rates that are more than 2 percentage points below what is

expected given their mix of cases. Thus, not only is there potential for hospitals with above-average readmission rates to lower their rates, but hospitals that have rates close to the expected rate also have the potential to reduce their rates of readmission.

If we look at specific conditions, such as congestive heart failure (CHF), the distribution in the difference between actual and expected readmission rates is wider (Figure 5-4, p. 112). CHF is one of the conditions with the most readmissions. Some experts believe there is an especially large potential for reductions in readmission rates for CHF if proven clinical practices are followed (Lappe et al. 2004, IHI 2004a, 2004b).

The average 15-day readmission rate for CHF is 12.5 percent, but 20 percent of hospitals that treat CHF have readmission rates that are more than 4 percentage points higher than expected. Another 20 percent have CHF readmission rates that are more than 2 percentage points lower than expected. The practices of the hospitals with

low readmission rates could inform a new expectation of what could be achieved. That is, CHF readmission rates could be lower even for hospitals that currently have rates 1 to 2 percentage points lower than expected. We see wide variation in readmissions for other conditions, such as chronic obstructive pulmonary disease (COPD), pneumonia, and CABG surgery.

How can hospitals reduce readmissions?

Research and the experience of individual hospitals suggest that hospitals can reduce the number of readmissions. We discuss effective initiatives and strategies.

Provide better, safer care during the inpatient stay

The Agency for Healthcare Research and Quality has found that by providing better, safer care in the inpatient setting, hospitals can lower the incidence of adverse

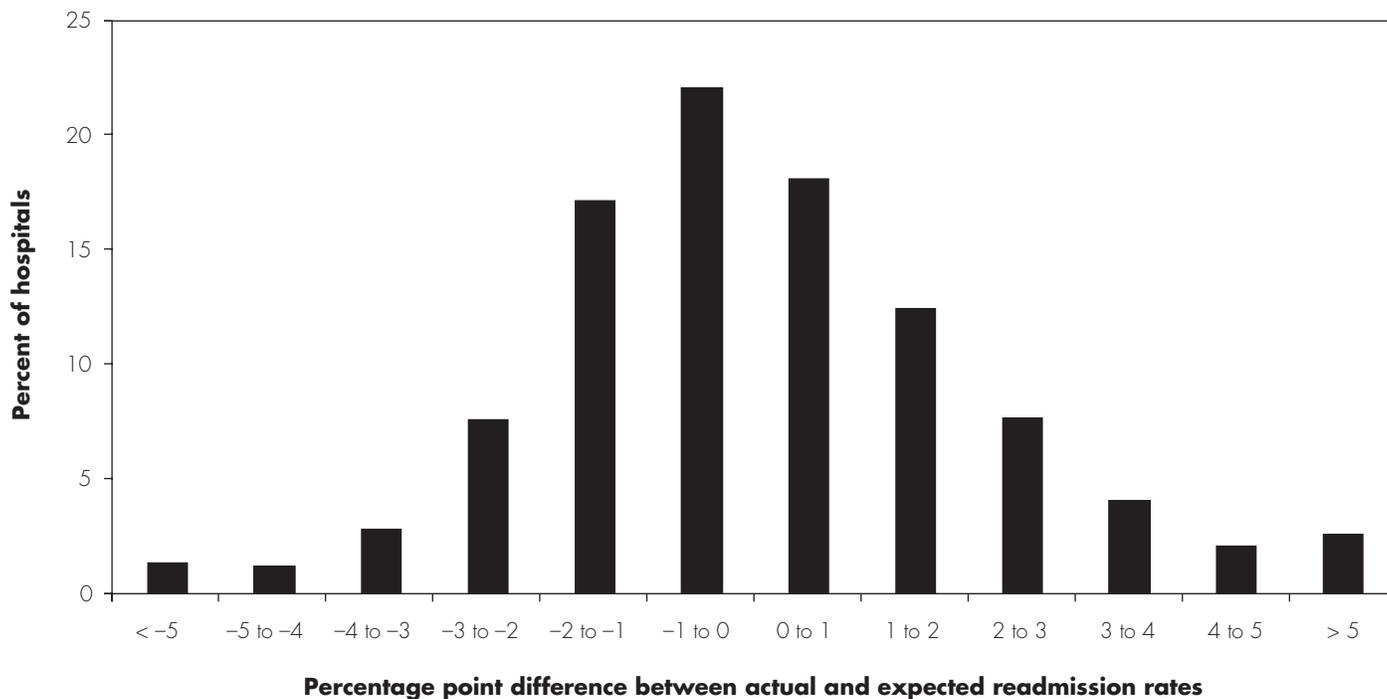
patient safety events that occur during hospitalization. These events, such as anesthesia complications, pulmonary embolism, infection due to medical care, hemorrhage, and acute respiratory failure, increase the chance that a patient will need to be readmitted. A study that looked at California non-Medicare data found that the likelihood of readmission doubled (from 14 percent to 28 percent) with an adverse patient safety event during the initial hospitalization (Bernard and Encinosa 2004).

Similarly, the Pennsylvania Health Care Cost Containment Council found that rates of readmission after CABG with hospital-acquired infections are more than double those of uninfected CABG patients; 13.2 percent of beneficiaries with infections were readmitted within 7 days while only 5 percent of those without an infection were readmitted. Over a 30-day window, 27.9 percent of those with complications were readmitted, compared with 12.9 percent without complications (PHC4 2006).

In addition, by incorporating best practice guidelines into clinical care, providers can avoid some complications that

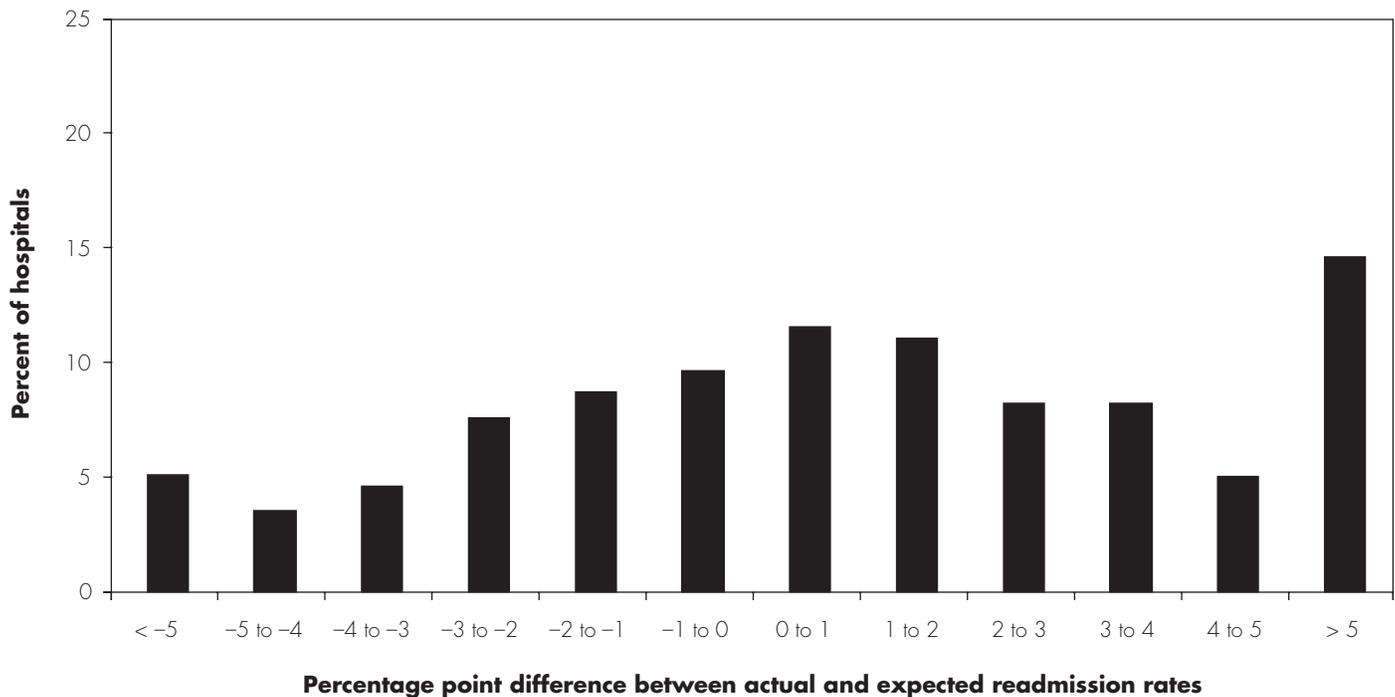
FIGURE 5-3

Readmissions vary across hospitals even after adjusting for severity



Note: Expected rates are based on the average rate of readmission across all hospitals, controlling for all patient refined diagnosis related group and severity class of patients. Readmissions are identified using 3M's software that defines potentially preventable readmissions.

Source: 3M analysis of 2005 Medicare discharge claims data.

**FIGURE
5-4****Adjusted readmission rates for congestive heart failure vary substantially**

Note: Expected rates are based on the average rate of readmission across all hospitals, controlling for all patient refined diagnosis related group and severity class of patients. Readmissions are identified using 3M's software that defines potentially preventable readmissions.

Source: 3M analysis of 2005 Medicare discharge claims data.

can occur after discharge. For example, after hip and knee replacement, the use of blood thinning medications, elastic stockings, and exercises to increase blood flow in the leg muscles may help avoid blood clots, which can surface a few weeks after surgery. In Pennsylvania, blood clots are among the top three reasons for readmission, accounting for 889 hospital days in 2002 (PHC4 2005). Similarly, early extubation or use of beta blockers and aspirin on discharge for CABG patients could also contribute to lower readmission rates (Hannen et al. 2003).

Attend to patient's medication needs at discharge

Medication errors pose a significant threat to patients after discharge. One study found that 19 percent of all patients discharged from the hospital experienced an associated adverse event within three weeks; 66 percent of them were adverse drug events (Forster et al. 2003). Another study found that elderly patients who had medication discrepancies at discharge were more than twice as likely to be rehospitalized within 30 days as those who

did not experience a discrepancy. Discrepancies, which can be thought of as potential errors, include separate prescriptions for both the brand name and the generic name of the same drug or patients simply being unaware they should be taking a medication one of their doctors prescribed (Coleman et al. 2005).

Hospitals have found effective strategies to reduce such postdischarge complications. For example, one hospital found that if, upon discharge of cardiovascular patients, physicians and nurses referred to a checklist of indications and contraindications for five medications known to prevent complications and save lives, appropriate use of the medications increased dramatically. Prescriptions for beta blockers, which can prevent heart attacks, increased from 57 percent of patients who needed them to 98 percent; prescriptions for warfarin, which can protect certain patients from strokes, increased from 40 percent of patients who needed it to about 90 percent. This discharge medication protocol significantly improved mortality rates after discharge and 30-day readmission rates, particularly

for patients with CHF and for cardiovascular patients without CHF. This initiative did not require additional employees and was integrated into the hospital's existing medical informatics infrastructure (Lappe et al. 2004).

Improve communication with patients before and after discharge

Another way hospitals can reduce readmissions is to improve communication with patients and better coordinate their care transition on discharge. Patients might not be equipped to care for themselves at home, know who to call with questions, or fully understand their new health care needs. Hospitals have demonstrated their ability to address these problems by improving coordination and communication.

One study found that several Philadelphia hospitals were able to better meet patient needs and reduce readmissions by 45 percent over the 24 weeks of the study by having nurses repeatedly meet with patients at high risk for poor outcomes after discharge, both during hospitalization and at home after discharge. During these visits, interventions focused on medications, symptom management, diet, and activity. The nurses also provided written instructions and medication schedules, addressed patients' and caregivers' questions, and worked with community physicians to obtain needed services and adjustments to therapies (Naylor et al. 1999). Another study tested the effect of a "transition coach" to empower elderly patients. The coach reviewed medication, provided a personal health record to aid cross-site information transfer, and encouraged timely follow-up, among other things. This intervention also resulted in lower readmission rates at 30 days, 90 days, and 180 days after discharge (Coleman et al. 2006).

Less comprehensive approaches are also effective, particularly in reducing CHF readmissions. Hackensack University Medical Center implemented an initiative in which nurses telephone CHF patients after discharge to check on specific health indicators, such as weight, swelling, shortness of breath, pain, appetite, and activity level. With this information, they can monitor patients' needs and communicate with their physicians if there is an indication that medications should be adjusted. The hospital reported a 78 percent decrease in readmission rates (IHI 2004a). Baylor University Medical Center also reports reducing CHF readmissions by redesigning the discharge process to emphasize patient education, having a nurse call within 24 hours of discharge, and improving communication among providers in the hospital (IHI 2004b).

Billings Clinic and Park Nicollet Health Services, which are both integrated delivery systems, use a program in which CHF patients, who first receive education about their self-care and postdischarge intervention program during hospitalization, call or log-in each morning to report their weight and symptoms. Each day, nurses identify patients with worsening conditions. Nurses can modify medication and become involved in end-of-life issues. Because they actively manage only those with worsening conditions, each nurse can have a caseload up to 300 patients (Berenson 2006).

Stroke patients may also present an opportunity for preventing readmissions. Beneficiaries readmitted after suffering a stroke were much more likely than other patients to be dehydrated and have electrolyte imbalances (Kind et al. 2007). These findings suggest that if hospitals monitor those symptoms and address them in a timely way, they could avoid readmissions.

Simply providing complete discharge instructions can also help. One study in a Minnesota hospital found that CHF patients who received all instructions about how to care for themselves upon discharge were less likely to be readmitted than those who did not. The types of instructions concerned drug interactions, worsening symptoms, activity, diet, follow-up appointments, and weight monitoring. Only 68 percent of the patients received all appropriate discharge instructions (VanSuch et al. 2006).⁵

Improve communication with other providers

Improved communication with community physicians and post-acute care providers can also lower readmission rates. For context, consider that most readmissions, 64 percent, are for beneficiaries discharged home without any additional post-acute care, 20 percent are for patients discharged to SNFs, 11 percent are for patients discharged home with home health care, and 5 percent of readmissions are for patients initially discharged to rehabilitation hospitals or units, long-term care hospitals, or psychiatric hospitals. Of particular concern is the disproportionate share of readmissions for patients in SNFs—although 16 percent of patients are discharged to SNFs, they account for 20 percent of readmissions—and the recent growth in their readmission rates (see Chapter 8).

While the receiving facility or provider is responsible for providing good care to avert readmissions, the hospital

has an important role in enabling effective follow-up care. Perhaps most importantly, it provides key clinical information, in the form of a discharge summary, to these other providers. Research is beginning to show that discharge summaries are not executed in a timely and complete way, resulting in discontinuity of care and adverse clinical outcomes such as readmissions. Patients treated in follow-up by a physician who did not receive a discharge summary appear to be at greater risk for readmission. Indeed, the discharge summary is often unavailable at follow-up: Only between 12 percent and 34 percent of physicians report having the discharge summary at the first postdischarge visit. The discharge summaries are also not always sufficiently complete. They may lack information on diagnostic test results, discharge medications, and follow-up plans (Kripalani et al. 2007).

The experience of group practices provides some insight on the ability of providers to address these problems. For example, Healthcare Partners, a large group practice in Southern California, has focused on improving the distribution and content of its discharge summaries, establishing a goal that primary care physicians receive discharge summaries within one business day of their patients' discharge. The Lahey Clinic in Massachusetts conducts quarterly meetings with SNF physicians focusing on hospital readmissions from SNFs and whether they can be prevented (HMO Workgroup 2004).

Review practice patterns

Aside from greater adherence to evidence-based guidelines and better communication with patients and other providers, hospitals can review other aspects of practice patterns that influence the likelihood of patients being readmitted. For example, hospitals may consider keeping some patients an extra day to be more certain their condition has stabilized. They may provide comparative information to physicians about their readmission rates and encourage a dialogue between physicians with high readmission rates and those with low rates. For example, some cardiothoracic surgeons prefer to manage postdischarge atrial fibrillation on an outpatient basis for patients who have recently undergone CABG surgery, and others prefer to readmit such patients (Hannen et al. 2003). A hospital may also reevaluate expansion plans. Higher bed supply is associated with higher rates of admission for patients with chronic illnesses such as CHF, COPD, and cancer as well as end-of-life care (Wennberg et al. 2004). The local bed supply, rather than patient preferences, explained the differences in end-of-life care among patients in one study (Pritchard et al. 1998).

Physician Group Practice demonstration participants implement systems to reduce readmissions

Physician groups participating in CMS's Physician Group Practice demonstration have strong incentives to improve quality and lower total spending. They have put in place better systems to reduce readmissions. One clinic reduced readmissions by scheduling all elderly patients for their first follow-up visit within 4 to 10 days of discharge. In addition, all the sites have considered ways to influence or modify physicians' practice patterns, including modifying work processes (e.g., color-coded disease management worksheets to remind physicians and other clinical staff to order certain tests) and providing feedback reports to physicians (Trisolini et al. 2006).

How can Medicare policy encourage hospitals to adopt strategies to reduce readmissions?

This section explores a two-step policy option to provide an incentive for hospitals to reduce their readmission rates, particularly if they have high rates compared with their peers. The first step is public disclosure of hospital-specific, risk-adjusted readmission rates. This will ensure that hospitals know their rates and how they compare with those of their peers and will allow beneficiaries and other providers to use this information when they make health care decisions or admit patients. After a year or two, public disclosure could be complemented by a change in payment rates, so that hospitals with high risk-adjusted rates of readmission receive lower average per case payments. Depending on design, the policy not only could encourage hospitals with excessive rates to reduce readmissions but also could encourage top-performing hospitals to consider opportunities for continued improvement.

An important parallel policy would be to encourage other providers, including physicians, SNFs, and home health providers to prevent readmissions. Holding each entity accountable will motivate them to collaborate with one another because their success will partly depend on the success of their care partners.

Medicare should pursue other policies, such as pay-for-performance (P4P) that includes both process and outcome measures and accreditation standards, as well. Currently, to receive the full Medicare payment update, most hospitals report their performance on the frequency with which they

give discharge instructions during an admission for heart failure. Next year, hospitals will report patients' responses on two specific care transition questions: "Did hospital staff talk with you about follow-up care?" and "Did you get information about symptoms to look out for?" But if the underlying payment method creates a stronger counterincentive than a P4P measure or an accreditation standard, the effectiveness of the P4P initiative and the institutional commitment behind improving performance on a process measure may be limited.

A related issue that is beyond the scope of this chapter is the lack of funding for care management services. The Commission discussed two approaches in its June 2006 report to the Congress. Perhaps once experience is gained in how much hospitals can improve and what resources are needed to achieve improvement, policymakers can consider the need for any explicit financing for care management services as a complement to a change in readmission payment policy.

While the rationale for changing hospitals' incentives and aligning them with other providers' incentives to avoid readmissions may be clear, the technical aspects of measuring and comparing readmission rates, which are the foundation of any public disclosure and payment change option, require careful navigation. The following section discusses a two-step policy approach and several of the most pertinent issues.

Start with select conditions

It may be prudent to focus on disclosure and payment changes for a limited number of conditions at the outset. DRGs with high volume and high rates of readmission are good candidates. Ideally, the subset would include conditions for which some hospitals have successfully reduced readmissions.

By focusing on a subset of conditions, Medicare and hospitals can gain needed experience to refine measurement techniques and assess the value of expanding the policy to a broader set of DRGs. Among the key measurement issues and aspects to assess are:

- What is the time period within which readmissions are defined? For example, should it be 7 days, 15 days, or 30 days? (For illustrative purposes, we have provided data analysis on 15-day readmissions throughout the chapter.)

- Should all readmissions be counted in the selected time period or just the subset that are clinically determined to be potentially preventable?
- What is the benchmark against which hospitals are measured? Should it be average readmission rates across all peers? Or should it reflect a higher standard, perhaps the readmission rate of top performers, to raise expectations?
- How does this policy affect discharge destination patterns and overall episode costs? For example, do hospitals respond by discharging more patients to rehabilitation services rather than home? If so, do outcomes improve and how do overall episode costs compare?

Good candidates for this starter set include CHF, COPD, and CABG. In Table 5-3 (p. 116), we list those conditions as well as several others to illustrate a potential starter set. Together, these conditions account for nearly 30 percent of readmissions in the 15-day window after discharge from the initial hospitalization.

Significant variation in readmission rates for these conditions suggests the opportunity for improvement. The wide variation in CHF is illustrated earlier in the chapter.

Value in disclosure

Once the starter set of DRGs has been identified and measurement issues have been addressed, Medicare could begin public disclosure of hospital readmission rates. A few years of experience with disclosure allows for refinement in measurement techniques in preparation for a change in payment policy. It would also ensure that all hospitals know their readmission rates, including readmissions to other hospitals, and have the opportunity to improve their rates before a penalty is imposed.

Disclosing these rates would also allow beneficiaries, physicians, and other providers to act on this information. Beneficiaries may use it to select which hospital to use and physicians and other post-acute care providers may use it in their admitting and affiliation decisions.

Structuring the payment incentive

A first consideration in designing a payment incentive is whether the policy should be a penalty only or whether it should include a positive reward for high-performing hospitals. A penalty-only policy may be sufficient to motivate hospitals to better meet patients' needs during

**TABLE
5-3**

Hospital readmissions for seven conditions make up almost 30 percent of spending on readmissions

Condition	Type of hospital admission	Number of admissions with readmissions	Readmission rate	Average Medicare payment for readmission	Total spending on readmissions
Heart failure	Medical	90,273	12.5%	\$6,531	\$590,000,000
COPD	Medical	52,327	10.7	6,587	345,000,000
Pneumonia	Medical	74,419	9.5	7,165	533,000,000
AMI	Medical	20,866	13.4	6,535	136,000,000
CABG	Surgical	18,554	13.5	8,136	151,000,000
PTCA	Surgical	44,293	10.0	8,109	359,000,000
Other vascular	Surgical	18,029	11.7	10,091	182,000,000
Total for seven conditions		318,760			\$2,296,000,000
Total DRGs		1,134,483			\$7,980,000,000
Percent of total		28.1%			28.8%

Note: COPD (chronic obstructive pulmonary disease), AMI (acute myocardial infarction), CABG (coronary artery bypass graft), PTCA (percutaneous transluminal coronary angioplasty), DRG (diagnosis related group). Analysis is for readmissions within 15 days of discharge from the initial inpatient stay. Readmissions are identified using 3M's software that defines potentially preventable readmissions.

Source: 3M analysis of 2005 Medicare discharge claims data.

the transition from the hospital to home or post-acute care. By not paying more than under current law to high performers, Medicare saves money and encourages all hospitals to be efficient. Also, reducing the frequency of readmissions may pay off financially for hospitals under current payment and be its own reward for incurring additional discharge planning and other such costs. MedPAC analysis shows that for patients who are later readmitted, hospitals have lower margins on both the initial admission and readmissions, compared with patients who are not readmitted. By reducing the frequency of these patients' readmissions, hospitals may be able to fill the beds with other patients who are more profitable.

On the other hand, a policy that pairs a penalty with a reward for good performance could help to offset possible lost revenue associated with lower rates of readmissions (if the hospital does not fill the beds with more profitable patients) and the costs for the actions (e.g., additional nursing and discharge planning staff, longer lengths of stay) hospitals would take to reduce readmissions.

We explore illustrative approaches for each type of incentive below. Then we consider how to adjust payment for readmissions to a hospital other than the one with the initial stay. This issue is pertinent regardless of whether a

penalty-only or a combined reward and penalty approach is pursued. Lastly, we discuss risk adjustment issues.

A penalty-only approach

Under an approach that creates a penalty for hospitals with high readmission rates but holds top-performing hospitals harmless, Medicare could identify those hospitals with a higher rate of readmissions and impose the penalty only on them. To do this, Medicare could first calculate each hospital's readmission rate based on the prior year's performance and then select a benchmark rate (e.g., the average risk-adjusted readmission rate across all hospitals). For the next year, Medicare would reduce payment for each related readmission only for those hospitals with readmission rates above the benchmark rate. This approach combines several attractive features. It does not affect hospitals with lower rates of readmissions; the penalty can be applied in real time rather than assessed at the end of the year, which may have greater operational impact; and it can be designed to reduce Medicare's spending.

In this illustration (Table 5-4), hospitals with a readmission rate greater than 10 percent would receive the penalty. Because hospital A has a 5 percent readmission rate, it has no change in its payment. Hospital B, with a 20 percent readmission rate, receives the penalty and would be paid less for each readmission. With no change in the ratio of

**TABLE
5-4**

Payment effects on providers from two illustrative readmission payment policies

	Initial admissions			Readmissions			Readmission rate	Total payment across all stays	Average payment per case
	Number	Per case payment	Total payment	Number	Per case payment	Total payment			
Current policy									
Hospital A	570	\$5,000	\$2,850,000	30	\$5,000	\$150,000	5%	\$3,000,000	\$5,000
Hospital B	500	5,000	2,500,000	100	5,000	500,000	20	3,000,000	5,000
Hospital C	500	5,000	2,500,000	100	5,000	500,000	20	3,000,000	5,000
Penalty only: <i>Decrease payment for readmissions 24 percent for hospitals with readmission rate >10 percent</i>									
Hospital A	570	5,000	2,850,000	30	5,000	150,000	5	3,000,000	5,000
Hospital B	500	5,000	2,500,000	100	3,800	380,000	20	2,880,000	4,800
Hospital C	510	5,000	2,550,000	70	3,800	266,000	12	2,816,000	4,855
Reward and penalty: <i>Increase payment for initial admissions 2 percent; decrease payment for readmissions 24 percent</i>									
Hospital A	570	5,100	2,907,000	30	3,800	114,000	5	3,021,000	5,035
Hospital B	500	5,100	2,550,000	100	3,800	380,000	20	2,930,000	4,883
Hospital C	510	5,100	2,601,000	70	3,800	266,000	12	2,867,000	4,943

admissions to readmissions, its average payment per case declines by \$200. Hospital C has the same readmission rate as hospital B at the outset, but, in the face of the penalty, reduces its readmission rate and slightly increases its admission rate. As a result, it experiences a smaller decrease in its average payment per case than hospital B.

A reward and penalty approach

If policymakers prefer to couple a reward for high-performing hospitals with a penalty for low performers, Medicare could adjust its current payment method for initial admissions and readmissions at the beginning of a year so that, in any given year, hospitals with fewer than expected readmissions would receive higher average case payments than under current law. This illustrative approach would reward hospitals with low rates, but not necessarily those that reduced their readmission rates. Those with a higher than expected rate of readmission would receive lower average case payment. To create this result, Medicare could increase its payment for initial admissions while decreasing its payment for readmissions. The magnitude of the two adjustments and their calibration relative to one another would be critical to the success of the policy. They will determine the degree of the incentive for hospitals to change behavior and the effect on Medicare spending. Because there are many more initial admissions than readmissions, the increase in payment

for initial admissions should be smaller than the reduction in readmission payment. Ideally, the payment would be high enough to change behavior but not too high to increase spending. To illustrate the concept, we provide the following hypothetical example in Table 5-4.

In this example, hospital A has 5 percent readmissions for a certain DRG while hospital B and hospital C have a 20 percent readmission rate. Their average per case payment is \$5,000. If, under the new policy, Medicare increased payment for initial admissions by 2 percent and decreased payment for readmissions by 24 percent, average per case payment would go up for the hospital with fewer readmissions and down for those with more. If there is no change in the ratio of initial admissions and readmissions, hospital A would have increased its Medicare payment per case (\$5,035). With no change in the ratio of initial admissions to readmissions, hospital B would have lower payment per case (\$4,883). Hospital C, in this example, responds to the policy by reducing the number of readmissions but uses the extra capacity to increase its initial admissions. Its new average payment per case is higher than that for hospital B (which did not change behavior) at \$4,943.

Medicare savings in this illustration come from two sources: reduced payments for readmissions (partially

offset by higher payment for initial admissions) and fewer readmissions (partially offset by an increase in initial admissions that could result given more available beds).

Accounting for readmissions to other hospitals

Another payment design issue to consider is how to adjust a hospital's payment when a patient is readmitted to a hospital other than the one that had the initial admission. This happens about 30 percent of the time. Because the readmitting hospital, in this situation, has a minimal ability to prevent the readmission, it is not reasonable to reduce payment for the readmission. The penalty should apply to the hospital with the initial admission. This can be accomplished in a number of ways. It could be part of "netting," the routine process in which CMS makes retroactive payment adjustments to hospitals. CMS could deduct the penalty for the readmission to the same or a different hospital from future claims payments. This approach requires an added layer to the existing claims reconciliation process.

Alternatively, Medicare could withhold a percentage of payment for the initial stay. If the claims did not reflect a readmission within 15 days (or whatever time period is specified), the withhold could be returned to the hospital with the initial stay. If a related readmission were detected, the withhold would not be returned. Whichever hospital had the readmission would be paid in full. This approach keeps the penalty with the hospital that had the greatest ability to prevent the readmission. To be administratively manageable, the process of detecting preventable readmissions would need to be highly automated and an integrated step in fiscal intermediaries' claims review and payment process.

Another option is to apply the policy only to readmissions to the same hospital, thereby avoiding the administrative challenges associated with accounting for readmissions that occur across hospitals. Under that approach, payment for readmission to the same hospital could be reduced. However, this approach would limit the scope of the policy significantly and create perverse incentives. Hospitals would have an incentive to have patients who needed follow-up inpatient care go to a different hospital, jeopardizing continuity and quality of care.

Importance of risk adjustment and addressing patient nonadherence

It will be necessary to risk adjust hospitals' rates. Readmission is generally more likely the more severely ill a patient is, even within the same DRG. Refined DRGs

that better account for severity of illness should help in adjusting for this factor, which is beyond the hospital's control.

Patients' adherence to discharge instructions also affects hospitals' readmission rates. Care provided by family, which can be important in avoiding readmissions, may be declining, as we discuss in Chapter 1. Certain hospitals may have patient populations with language and cultural barriers that might contribute to readmissions. If a hospital has a larger portion of nonadherent patients than other hospitals, its performance may look worse than that of its peers.

One way to address this problem is to allow hospitals to indicate that a patient was nonadherent upon discharge or readmission. Readmissions for those patients would not be counted in the providers' overall rate. Britain has pursued a similar exemption process in measuring adherence to quality-of-care measures as part of its P4P program. It found that relatively few family practices claimed a large portion of patients as exempt or nonadherent—only 1.1 percent excluded more than 15 percent of their patients (Doran et al. 2006).

To temper the incentive to declare a high proportion of patients as nonadherent, Medicare could keep and publicly report a tally of the number of patients who were exempt from the rate for each facility. In addition, perhaps an objective and verifiable standard for nonadherence could be established to limit ambiguity and variation in how hospitals use this exceptions process. CMS might require providers who had excessive numbers of nonadherent patients over time to have plans in place to reduce the incidence of nonadherence.

Even with these sorts of strategies, an exceptions process might be counterproductive. Ideally, a provider facing the challenges associated with nonadherent patients will invest in strategies to encourage patients to adhere to their care plans. Allowing hospitals to exempt these patients from their readmission rates could undercut the incentive to make this investment and fail to address an important part of the problem. ■

Endnotes

- 1 Quality improvement organizations and other CMS contractors have authority to review readmissions claims for medical necessity and potential unbundling of services. There appears to be wide variation in how aggressively these entities focus on readmissions. Interviews with hospital administrators suggest that, in some regions of the country, the review is or has been so robust that administrators believe Medicare does not pay for readmissions within 30 days of discharge of a prior hospitalization.
- 2 Readmissions are identified as cases that are readmitted to an acute care hospital (either the same or a different hospital) after an acute care stay within a specified time frame—7 days, 15 days, or 30 days for this analysis. People transferred from one hospital to another hospital are not considered readmissions. In calculating readmission rates, the denominator in the equation excludes people who died in the hospital or were transferred to another acute care hospital.
- 3 For example, according to 3M's analysis, patients with congestive heart failure (CHF) in severity level 1 have a readmission rate of 9.7 percent, while CHF patients in severity level 4 have a 16.3 percent readmission rate over a 15-day window.
- 4 Using national data from all hospitals, the percentage of discharges with at least one readmission for each APR–DRG and severity-of-illness (SOI) level is calculated to establish a national readmission rate norm. The expected number of discharges with at least one readmission for each APR–DRG and SOI level in a hospital is calculated by multiplying the readmission rate for the APR–DRG and SOI level from the national readmission norm by the number of patients in the hospital in that APR–DRG and SOI level. The expected number of patients with at least one major readmission in each APR–DRG and SOI level summed across all APR–DRGs and SOI levels is the hospital's expected number of patients with at least one readmission.
- 5 Lack of good communication at discharge also appears to influence the broader patient experience and recovery, aside from readmission rates. A study focused on patient recovery after knee replacement surgery found that patients reporting coordination problems were more likely to experience joint pain and delayed resumption of functioning than those who did not report coordination problems (Weinberg et al. 2007).

References

- Berenson, R. A. 2006. *Challenging the status quo in chronic disease care: Seven case studies*. September. Oakland, CA: California Healthcare Foundation.
- Bernard, D. M., and W. E. Encinosa. 2004. *Adverse patient safety events: Costs of readmissions and patient outcomes following discharge*. Washington, DC: AHRQ.
- Coleman, E. A., C. Parry, S. Chalmers, et al. 2006. The care transitions intervention: Results of a randomized controlled trial. *Archives of Internal Medicine* 166 (September 25): 1822–1828.
- Coleman, E. A., J. D. Smith, R. Devbani, et al. 2005. Posthospital medication discrepancies: Prevalence and contributing factors. *Archives of Internal Medicine* 165 (September 12): 1842–1847.
- Coleman, E., and R. Berenson. 2004. Lost in transition: Challenges and opportunities for improving the quality of transitional care. *Annals of Internal Medicine* 141, no. 7 (October 5): 533–536.
- Doran, T., C. Fullwood, H. Gravell, et al. 2006. Pay for performance programs in family practices in the United Kingdom. *New England Journal of Medicine* 355, no. 4 (July 27): 375–384.
- Forster, A. J., H. J. Murff, J. F. Peterson, et al. 2003. The incidence and severity of adverse events affecting patients after discharge from the hospital. *Annals of Internal Medicine* 138, no. 3 (February 4): 161–167.
- Hannen, E. L., M. J. Racz, G. Walford, et al. 2003. Predictors of readmission for complications of coronary artery bypass graft surgery. *Journal of the American Medical Association* 290, no. 6 (August 13): 773–780.
- HMO Workgroup on Care Management. 2004. *One patient, many places: Managing healthcare transitions*. February. Washington, DC: AAHP Foundation.
- Institute for Healthcare Improvement. 2004a. *Reducing readmissions for heart failure patients: Hackensack University Medical Center*. <http://www.ihl.org>.
- Institute for Healthcare Improvement. 2004b. *The MedProvider inpatient care unit—congestive heart failure project*. <http://www.ihl.org>.
- Kind, A. J. H., M. A. Smith, J. R. Frytak, et al. 2007. Bouncing back: Patterns and predictors of complicated transitions 30 days after hospitalizations for acute ischemic stroke. *Journal of the American Geriatrics Society* 55, no. 3 (March): 365–373.
- Kripalani, S., F. LeFevre, C. O. Phillips, et al. 2007. Deficits in communication and information transfer between hospital-based and primary care physicians. *Journal of the American Medical Association* 297, no. 8 (February 28): 831–840.
- Lappe, J. M., J. B. Muhlestein, D. L. Lappe, et al. 2004. Improvements in 1-year cardiovascular clinical outcomes associated with a hospital-based discharge medication program. *Annals of Internal Medicine* 141, no. 6 (September 21): 446–453.
- Leapfrog Group. 2006. Letter to Hon. Bill Thomas, November 30, 2006. http://www.leapfroggroup.org/media/file/Letter_ChairmanThomas_NeverEvents.pdf.
- Medicare Payment Advisory Commission. 2005. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.
- Naylor, M. D., D. Broton, R. Campbell, et al. 1999. Comprehensive discharge planning and home follow-up of hospitalized elders. *Journal of the American Medical Association* 281, no. 7 (February 17): 613–620.
- Pennsylvania Health Care Cost Containment Council. 2006. *Pennsylvania's guide to coronary artery bypass graft surgery 2004*. Harrisburg, PA: PHC4.
- Pennsylvania Health Care Cost Containment Council. 2005. *Total hip and knee replacements*. Harrisburg, PA: PHC4.
- Pritchard, R. S., E. S. Fisher, J. M. Teno, et al. 1998. Influence of patient preferences and local health system characteristics on the place of death. SUPPORT investigators. Study to understand prognoses and preferences for risks and outcomes of treatment. *Journal of the American Geriatrics Society* 46: 1242–1250.
- Trisolini, M., G. Pope, J. Kautter, et al. 2006. *Medicare physician group practices, innovations in quality and efficiency*. New York: The Commonwealth Fund. December.
- VanSuch, M., J. M. Naessens, R. J. Stroebel, et al. 2006. Effect of discharge instructions on readmission of hospitalized patients with heart failure: Do all of the Joint Commission on Accreditation of Healthcare Organizations heart failure core measures reflect better care? *Quality and Safety in Healthcare* 15: 414–417.
- Weinberg D. B., J. H. Gittel, R. W. Lusenhop, et al. 2007. Beyond our walls: Impact of patient and provider coordination across the continuum on outcomes for surgical patients. *Health Services Research* 42, no. 1, pt. 1 (February): 7–24.
- Wennberg, J. E., E. S. Fisher, T. A. Stukel, et al. 2004. Use of hospital, physician visits, and hospice care in the last six months of life among cohorts loyal to highly respected hospitals in the United States. *British Medical Journal* 328 (March 13): 3.