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A Project to Reengineer Discharges Reduces 30-Day Readmission Rates

A Texas hospital achieves improvement in its readmission rate by implementing Project RED.

The problem of hospital readmissions—admissions that occur within 30 days of a patient's discharge—has been a long-standing concern. Since October 2012, the concern has only become more acute: that's when the Centers for Medicare and Medicaid Services (CMS) initiated the Readmission Reduction Program, reducing payments to hospitals that have more 30-day readmissions for heart attack, heart failure, and pneumonia than an established standard based on a three-year national average. The program will be expanded over the next several years to include readmissions for other illnesses, and the penalties will become stiffer.

According to the CMS, almost 20% of Medicare patients, approximately 2.6 million older adults, are readmitted to a hospital within 30 days of being discharged. The estimated cost exceeds $2.6 billion every year, or more than $1,000 per readmission.[1] The Medicare Payment Advisory Commission estimates that more than three-quarters of 30-day readmissions may be preventable.[2] Fragmentation of care, including poor communication and inadequate coordination of care when patients transition from one care setting to another, is an important factor in rehospitalization; therefore, improved communication and coordination during care transitions could significantly reduce readmission rates.

Even before the Medicare "readmission penalty" went into effect, hospitals made efforts to reduce the rate of 30-day readmissions. In August 2008, our organization, TMF Health Quality Institute (TMF), the Medicare quality improvement (QI) organization in Texas, began a CMS-funded QI project focused on care transitions. The project sought to answer this question: "Can community providers substantially reduce avoidable 30-day all-cause hospital readmissions through a community-wide collaborative effort?" The community providers included hospitals and post–acute care providers. The project aimed to reduce readmissions of Medicare beneficiaries, who often transition from one care setting to another, through a comprehensive community-wide effort to improve communication and coordination at the time of transition. The goal was a 2% reduction in 30-day all-cause hospital readmissions.

To identify a community that would benefit from the project, TMF analyzed Texas's calendar year 2007 Medicare claims and found high rates of readmissions in the Harlingen hospital referral region (HRR), an area at the southernmost tip of Texas that encompasses the cities of Weslaco, Harlingen, and Brownsville. The community-wide 30-day all-cause readmission rate was then 22% (4,273 of 19,783 discharges). According to data from the Dartmouth Atlas of Health Care, Medicare costs and usage in the Harlingen region had also been ranked among the highest in Texas and the nation in 2005, the most recent data available at the time of the project's development. (The Dartmouth Atlas of Health Care provides online tools to compare health care costs between states, HRRs, and individual hospitals. The Harlingen region had the second-highest total costs in the nation; the highest was the McAllen HRR, which borders the Harlingen HRR to the west. For more on the Dartmouth Atlas, go to www.dartmouthatlas.org.)

Once the community and hospital needs were identified, TMF worked with all acute and post–acute care providers in the Harlingen region that were willing to participate in the project. The TMF team comprised seven staff members, including four of us, the director of QI (JM), a QI consultant (VA), and two data analysts (KS and ZW). Five hospitals participated and all had similar rates of readmissions at the beginning of the project. All five hospitals chose to implement the same set of interventions described below; this article focuses on the most successful hospital, Valley Baptist Medical Center–Brownsville.

METHODS

CMS provided TMF with Medicare fee-for-service data only—no Medicare Advantage data were included in the analysis—and our team analyzed the

claims data to inform the development of a readmission reduction strategy. To establish a baseline, we analyzed data from October 1, 2007, through March 31, 2008; in this period the hospital's 30-day readmission rate was 23% (that is, 330 of 1,433 discharges were readmitted—hereinafter, numbers given in parentheses after percentages refer to the number of readmissions of those discharged in a given time period).

The baseline data provided a quantitative foundation for project planning and proved valuable in the investigation of the root causes of readmission and the evaluation of interventions as they were implemented. (It should be noted that when hospital staff implemented interventions to reduce readmissions, all patients in the target populations received them, regardless of their insurance status.)

Table 1. Components of Project RED

1. Educate the patient about her or his diagnosis throughout the hospital stay.
2. Make appointments for clinician follow-up and postdischarge testing. • Make appointments with input from the patient regarding the best time and date for the appointment. • Coordinate appointments with physicians, testing, and other services. • Discuss reason for and importance of physician appointments. • Confirm that the patient knows where to go and has a plan about how to get to the appointment; review transportation options and other barriers to keeping these appointments.
3. Discuss with the patient any tests or studies that have been completed in the hospital and who will be responsible for following up on the results.
4. Organize postdischarge services. • Be sure the patient understands the importance of such services. • Make appointments that the patient can keep. • Discuss the details of how to receive each service.
5. Confirm the medication plan. • Reconcile the discharge medication regimen with that followed before the hospitalization. • Explain what medications to take, emphasizing any changes in the regimen. • Review each medication's purpose, how to take each medication correctly, and important adverse effects to watch out for. • Be sure the patient has a realistic plan for how to get the medications.
6. Reconcile the discharge plan with national guidelines and critical pathways.
7. Review the appropriate steps for what to do if a problem arises. • Inform the patient about a specific plan for how to contact the primary care provider (or coverage) and provide contact numbers for evenings and weekends. • Inform the patient about what constitutes an emergency and what to do in cases of emergency.
8. Expedite transmission of the discharge résumé (summary) to the physicians (and other services, such as the visiting nurses), accepting responsibility for the patient's care after discharge. The discharge résumé includes • the reason for hospitalization, with the specific principal diagnosis. • significant findings. (When creating this document, the original source documents, such as laboratory, radiology, and operative reports, and medication administration records, should be in the transcriber's possession and visible when transcribing information from one document to another.) • the procedures performed and the care, treatment, and services provided to the patient. • the patient's condition at discharge. • a comprehensive and reconciled medication list (including allergy treatment). • a list of acute medical issues, tests, and studies for which confirmed results are pending at the time of discharge and require follow-up. • information regarding input from consultative services, including rehabilitation therapy.

Table 1. Continued

9. Assess the patient's degree of understanding by asking for an explanation of the details of the plan in her or his own words; this may require
   • removal of language and literacy barriers by utilizing professional interpreters.
   • contacting family members who will share in the caregiving responsibilities.

10. Give the patient a written discharge plan at the time of discharge that contains
   • the reason for the hospitalization.
   • the discharge medications, including what medications to take, how to take them, and how to obtain them.
   • instructions on what to do if the condition changes.
   • coordination and planning for follow-up appointments that the patient can keep.
   • coordination and planning for following up on tests and studies for which confirmed results are not available at the time of discharge.

11. Provide telephone reinforcement of the discharge plan and for problem solving two to three days after discharge.

RED = ReEngineered Discharge.

Adapted from Jack BW, et al. Developing the tools to administer a comprehensive hospital discharge program: the ReEngineered Discharge (RED) program. In: Henriksen K, et al., eds. *Advances in patient safety: new directions and alternative approaches.* Rockville, MD: Agency for Healthcare Research and Quality; 2008. Vol. 3 (Performance and Tools). http://www.ncbi.nlm.nih.gov/books/NBK43688.

Data for the first quarter of 2008 showed that 54% (387 of 713) of the hospital's discharged patients were discharged to home and self-care. A review of the discharged patients' diagnoses according to the diagnosis-related groups (DRGs) in their Medicare claims found that three of the five top DRGs associated with 30-day readmissions in the first quarter of 2008 were related to heart failure; 34.5% (29 of 84) of patients with these diagnoses were readmitted within 30 days.

Selection of target population. We consulted with the hospital's QI team and, guided by the baseline data, focused initially on a target population of heart failure patients who had been admitted to the telemetry floor and were subsequently discharged to home and self-care.

However, the Medicare claims data also showed that the community's post–acute care providers, including skilled nursing, inpatient rehabilitation, and dialysis facilities and home health agencies, were contributing significantly to the hospital's 30-day readmission rate. For example, home health agencies admitted 23% (162 of 713) of the hospital's discharges, and the hospital readmitted nearly one in seven (14% [22 of 162]) of those patients within 30 days. Similarly, skilled nursing facilities received 11% (79 of 713) of the hospital's discharges, and nearly a third of those patients were readmitted within 30 days. Therefore, our team and the hospital encouraged these providers to participate in the project and began meeting quarterly with them to collaborate on reducing avoidable readmissions. Their participation was essential for community-wide success.

Investigation of root causes. The outcome-based QI process promulgated by the CMS requires that a provider first identify its target outcome (in our case, a 2% reduction in the rate of hospital readmission), after which it must review and analyze its patient care procedures and, based on that analysis, decide which aspects of care to change. According to the CMS, "mere measurement of patient outcomes does not improve care—focused activity directed toward such improvement . . . is necessary to see change in outcomes."[3]

This combination of activities—the reviewing, analyzing, and drawing conclusions about specific aspects of care that must be changed—is known as a "process-of-care investigation." The hospital's QI team conducted such an investigation to determine the root causes of its high readmission rate. The root causes identified included
• a weak or fragmented discharge plan.
• miscommunication or failure to communicate important information at the time of transition.
• inadequate preparation of patients for discharge or self-management.
• inadequate medical follow-up with patients after discharge.
• inadequate or poor communication with patients or caregivers or both about medications, tests, and red flags (such as signs and symptoms) of a deteriorating health condition.

Project RED. Researchers at Boston University Medical Center developed a set of 11 interventions known as Project ReEngineered Discharge (Project RED) (which now comprises a dozen interventions as the model continues to be developed and refined) that can be implemented together or separately (see Table 1).[4] After reviewing several models for reducing readmission rates, the hospitals in the Harlingen region chose to implement components of Project RED. We encouraged the hospitals to begin by selecting two to four of the Project RED interventions and to implement them in a limited target population, either by unit or diagnosis. When each hospital achieved initial success, we encouraged an expansion of the Project RED interventions to include wider patient populations.

The Project RED interventions are of three types: in-hospital patient education in preparation for discharge, comprehensive discharge planning, and post-discharge patient follow-up.[4]

Implementation. Based on the findings of their root-cause analysis, Valley Baptist Medical Center–Brownsville staff set ambitious goals for themselves in the first phase of the QI initiative, choosing to implement six of the Project RED interventions (numbers 1, 2, 3, 4, 5, and 11) to help reduce readmissions of patients with congestive heart failure. One year later, the hospital added the five remaining Project RED interventions for patients with all diagnoses on the telemetry floor. Over the course of the next 15 months, the hospital incrementally expanded the initial target population from patients with heart failure to all patients in the facility, regardless of diagnosis. A timetable showing the expansion of Project RED interventions is given in Table 2.

The hospital nursing, case management, and pharmacy departments shared responsibility for implementing the interventions effectively (see Table 3). One of us (VA), the TMF QI consultant assigned to the hospital, provided the hospital's project team with technical support in all aspects of implementation and monitoring of interventions. To help the hospital track its progress, our team developed a patient discharge survey to collect patients' impressions of care and to determine whether staff members were effectively implementing the Project RED interventions (see Table 4). We also designed a spreadsheet to help the hospital's project team collect this data (see Figure 1).

Concurrent data collection. Because data reports from the CMS are retrospective, resulting in a six-month time lag, concurrent monitoring of the facility's 30-day readmission rate by the hospital's team was imperative for the project to succeed. Concurrent monitoring—collecting data "as you go"—allowed the team to determine whether an intervention was effective and, if necessary, change course more quickly than they could if they were relying on the retrospective CMS data. For example, having patients respond to a survey prior to discharge provides another opportunity to communicate any information the patient didn't receive or understand initially. Retrospective data gathering—a chart audit after discharge, for example—doesn't provide this opportunity to intervene. Both retrospective and concurrent monitoring have their place in QI projects; it's a matter of which information is of interest and the purpose for which it's needed that determines the best monitoring method to use.

Given the importance of concurrent monitoring for the success of the QI project, it should be noted that the support of the hospital's top administrators was crucial. Our QI consultant (VA) worked with the hospital's project leader, an RN who served as QI coordinator, to gather and review patient survey results monthly. The project leader also collected concurrent monthly monitoring data on 30-day readmission rates for both the target population and the entire facility. This process of data collection and periodic review was critical in identifying areas that needed improvement. The hospital's project team also conducted

Figure 1. Discharge Tool to Track Effectiveness of Project RED Interventions

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Hospital Name:																
2	Target Population:																
3																	
4													DC Summary		Telephone Reinforcement		
5	Patient Name/ Tracking No.	Admission Date	Discharge Date	#1 Taught Diagnosis	#2 Follow-up Appointments	#3 Test Results or Studies Incomplete	#4 Other Help or Services Arranged	#5 Red Flags	#6 Written Discharge Plan Easy to Read	#7 Written Discharge Plan Information	#8 Discharge Medications	#9 Teach Back	#10 DC Summary	#11 Date Discharge Summary Sent	#12 Patient Eligible for Tel. Reinforcement	#13 Tel. Reinforcement Date	#14 ASA Prescribed
6																	
7																	
8																	
9																	
10																	

RED = ReEngineered Discharge.

Table 2. Timetable of Expansion of Project RED Interventions at Valley Baptist Medical Center–Brownsville

Date	Intervention
January 2009	Hospital implemented first six components of Project RED on telemetry floor for heart failure patients
October 2009	Hospital began to schedule follow-up physician appointments facility-wide prior to discharge using a paper appointment tool developed by TMF
January 2010	Hospital expanded original six components of Project RED to 11 interventions for heart failure patients on telemetry floor and began collecting Project RED monitoring data using patient discharge survey
May 2010	Hospital expanded target population from heart failure patients to telemetry floor patients with all diagnoses discharged to self-care and physician follow-up
August 2010	Hospital implemented all interventions for patients with all diagnoses on the medical floor
October 2010	Hospital expanded Project RED interventions facility-wide to all inpatient units, except for the follow-up calls for patients in the women's center (labor and delivery, postpartum, neonatal ICU, and nursery)
January 2011	Hospital expanded Project RED interventions to the ED, where registrants flag patients' accounts to alert ED staff and ED case managers of a potential readmission

RED = ReEngineered Discharge; TMF = TMF Health Quality Institute.

frequent evaluations of the interventions using the Institute for Healthcare Improvement's Plan–Do–Study–Act (PDSA) worksheet for testing change.[5]

Engaging post–acute care providers. Several of the consultants on our team (including VA, our QI consultant) helped the hospital organize and facilitate quarterly regional workgroup meetings that served as a platform for hospital staff and representatives of other community health care providers to discuss barriers to successful transitions. The primary aims of the meetings were to address problems that occur when providers don't communicate with each other and coordinate care poorly, and to allow providers to share in an open forum, with the expectation of developing processes that would improve communication and coordination of care at transitions. A secondary goal was that participating providers would take responsibility and be accountable for hospital readmissions, with the understanding that frequent 30-day readmissions are a community problem.

In practical terms, this meant getting each type of facility to implement evidence-based, provider-specific interventions. For example, the hospital's RN QI coordinator met with representatives from the local dialysis center in the quarterly regional workgroups, which resulted in an immediate change in the hospital's discharge processes. The hospital's project team provided the dialysis facility with current data from selected fields of the hospital's electronic health records to achieve timely and effective transfer of patient records. For dialysis patients being discharged from the hospital, the dialysis center received

- an admission "face sheet," the cover sheet on the patient's chart that has the patient's name, physician, and insurance and emergency contact information.
- the current medical history and physical examination results.
- the nephrologists' consultation note and latest progress note.
- the medication reconciliation record.
- dialysis orders.
- the most recent hemodialysis flow sheet.
- the date of the next scheduled dialysis session.
- all current laboratory reports.
- hepatitis B antigen and antibody test results (if more than 30 days had elapsed since the last outpatient dialysis session).
- a surgical report and radiologic confirmation of arteriovenous graft or arteriovenous fistula, if appropriate.

The hospital's social work staff monitored the discharge logs and was responsible for sending the patient's records to the dialysis center whenever a discharge occurred the previous evening. When a patient died during the hospitalization, a social worker would directly notify the dialysis center. Monitoring data as reported by one of the dialysis centers showed that the new processes consistently provided proper

Table 3. Project RED Interventions and Departments Responsible for Their Implementation

Intervention	Responsible Departments
• Educate the patient on diagnoses throughout the hospital stay. • Discuss completed tests or studies. • Review appropriate steps for what to do if a problem arises.	Nursing and case management
• Organize postdischarge services. • Provide customized, real-time critical information to the next care provider(s).	Case management
• Confirm the medication plan.	Nursing, pharmacy, and case management
• Reconcile medications for discharge. • Give the patient a written discharge plan.	Nursing

RED = ReEngineered Discharge.

transfer documentation for dialysis patients. The new processes were then extended to all of the community's dialysis centers.

By working with the post–acute care providers at the regional workgroup meetings, the hospital's QI team identified communication issues at all points of transition. They decided to reinforce the hospital's internal and external communication policies using the Situation–Background–Assessment–Recommendation (SBAR) communication tool, originally developed by the United States Navy to standardize communication between providers.[6] The QI team created SBAR pocket cards to help staff members communicate effectively during patient transitions. (All tools, resources, and evidence related to the care transitions project are available on the TMF Web site at http://bit.ly/102cvJU.)

Data reports for all providers. To increase accountability and transparency, we sent all providers that participated in the regional workgroups (including inpatient rehabilitation and skilled nursing facilities, home health agencies, and hospitals) both community-level and provider-specific quarterly reports generated from CMS data. The community-level reports showed readmission rates by provider type and the overall community 30-day readmission rate. Confidential, provider-specific data reports given to each participating provider included

• the percentage of patients readmitted within 30 days.

• the percentage of patients readmitted within 30 days who received a physician's visit between hospital discharge and readmission.
• readmission rates by DRG.
• Hospital Consumer Assessment of Healthcare Providers and Systems data.

Educating staff to respond to survey data. As mentioned above, concurrent monitoring allows for rapid changes in practice in response to data. For example, one of the patient survey items was, "When the nurses were teaching me, they asked me to explain what I had learned in my own words." The number of patients who answered affirmatively ranged from 67% (14 of 21) to 75% (12 of 16) in the first quarter of 2010, indicating that there was room for improvement in the Project RED teach-back intervention. In response, our QI consultants provided in-service education on health literacy and patient safety for hospital staff, including nurses, social workers, and case managers. After the staff education, the positive responses on the patient surveys increased to 92% (22 of 24) in the third quarter of 2010.

In addition, our medical director provided informative continuing medical education presentations to the hospital's medical staff to ensure that the physicians were knowledgeable about the care transitions project and its goals. Several TMF consultants (including VA, Cindy Bigbee, MSN, RN, and Mary Healy, RN) provided formal educational presentations on medication reconciliation and health literacy to the hospital staff.

One of us (VA) reviewed all data on a monthly basis with the hospital's project leader and the hospital team; the project leader then provided a quarterly report to the hospital's performance improvement resource committee, effectively engaging hospital management and other hospital departments in the project.

Expansion of Project RED. In May 2010, with the intention of further lowering the readmission rate, the hospital decided to expand the intervention target population to all patients who were discharged from the telemetry unit to home and self-care, regardless of their diagnoses. Subsequently, the hospital continued to spread the Project RED interventions to additional medical floors, eventually covering the entire hospital. The proportion of hospital patients who received the Project RED interventions increased from 6.5% (183 of 2,830) initially to 60.1% (6,692 of 11,140) by the end of the QI project.

The hospital began implementing Project RED interventions in the ED in October 2010 and created a new RN position, ED case manager. The case manager used electronic health records to identify ED patients in the 30-day readmission time period,

conducted a readmission patient survey to identify root causes for ED utilization and possible readmission, and reviewed the previous care plan, medications, and postdischarge services to identify gaps in the hospital's discharge education and planning. The hospital subsequently expanded the use of this electronic readmission survey facility-wide. The ED case manager continues to review patients who present at the ED; the case manager and the ED physician also discuss any previous readmissions each patient may have had as well as the previous care plan to identify potential causes for the ED visit and potential readmission. As a result of the implementation of the Project RED interventions, staff members' awareness of potential readmissions has been raised and this continues to have a significant impact on the hospital's overall readmission rate.

RESULTS

According to a comparison of Medicare claims data in the baseline quarter (the first quarter of 2008) and the remeasurement quarter (the fourth quarter of 2010), Valley Baptist Medical Center–Brownsville reduced its 30-day facility-wide readmission rate by 8.3 percentage points, from 23.3% (166 of 713) at baseline to 15% (89 of 593) at remeasurement, representing a statistically significant relative improvement of 36% (P = 0.002) (see Figure 2). This reduction was for all Medicare fee-for-service patients facility-wide, regardless of discharge disposition.

During the same period (baseline to remeasurement), a comparison of Medicare claims data showed improvements in the performance of participating post–acute care community providers, which received 46% (326 of 713) of the hospital's discharges and achieved a decrease in readmissions from 19% (62 of 326) to 12% (33 of 271) (P = 0.06). (To protect patient privacy, federal regulations do not allow QI organizations to disclose provider-specific data on readmission reports when fewer than 11 patients are readmitted. In the following, the total number of readmissions for some types of providers was less than 11; therefore, we report only the rate of relative improvement for each provider type, not the actual rates of readmission at baseline and in the remeasurement period.[7]) Relative improvements in provider-specific 30-day readmission rates were

- 51% from skilled nursing facilities.
- 39% from post–acute care home health agencies.
- 35% from inpatient rehabilitation facilities.
- 16% from long-term acute care facilities.

The hospital and its post–acute care providers outperformed the other hospitals and providers in the Harlingen region in the reduction of 30-day readmissions. The region's overall readmission rate dropped from 22% (1,084 of 4,910) to 20% (908 of 4,505), while Valley Baptist Medical Center–Brownsville's rate dropped from 23.3% (166 of 713) to 15% (89 of 593).

DISCUSSION

Patients' understanding, engagement, and self-management skills are critical elements in reducing readmissions. Patients and their family members must understand the disease, the treatment plan, and what to do if there are signs of a worsening condition.
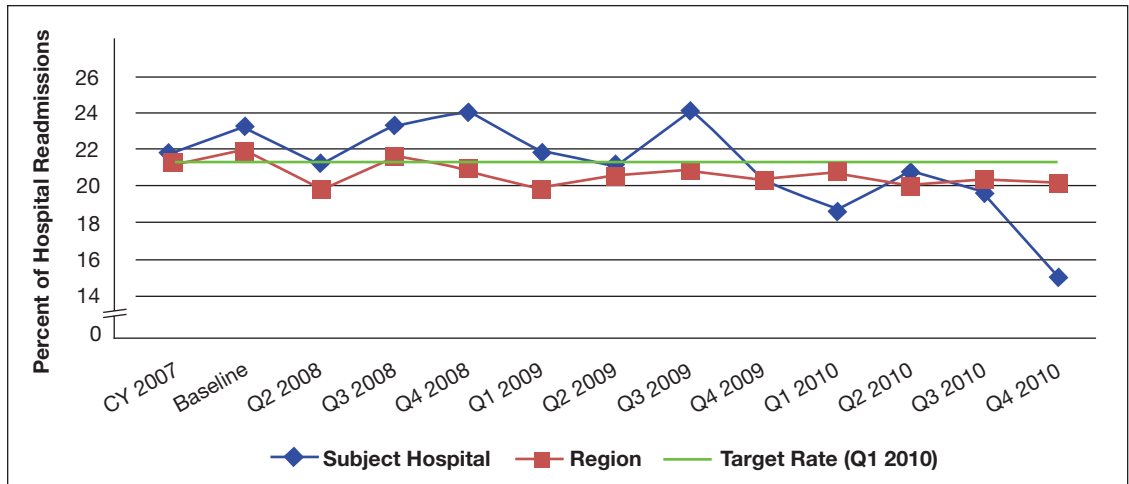
Patients are often unprepared for discharge and self-management. They may not understand changes in their medications or the need for follow-up care. It may be easier for providers, but it is neither sufficient nor effective, to use a standardized set of discharge instructions and services for each patient. Sometimes

Table 4. Patient Discharge Survey Tool

The Nine Survey Questions (Yes or No answers)
I was taught about my diagnosis during my hospital stay.
I have received a written discharge plan that is easy to read and understand.
I have follow-up appointments with my physicians.
I have received a written discharge plan that has the information I need to take care of myself at home.
I have been told about test results or studies that have not been completed before I go home.
I have a written list of my discharge medications and know which medications are new or changed.
If I need home health care, medical equipment, or other help or services after I go home, it has been arranged.
When the nurses were teaching me, they asked me to explain what I had learned in my own words.
I understand what to do and who to call if a problem arises after I am home.

Figure 2. Comparison of Quarterly Rates of 30-Day Hospital Readmission for Valley Baptist Medical Center–Brownsville and Other Harlingen Region Hospitals[a]

[a]Regional rate includes the rate for Valley Baptist Medical Center–Brownsville.
Note: Target rate is a constant 21.3%, which is 2% less than the rate at baseline, 23.3%.

patients are readmitted because they are too embarrassed to tell providers they can't afford their medications, can't read, or don't understand their discharge instructions. As a result, they may not get their prescriptions filled or take medications as prescribed, or they may fail to follow discharge instructions in other ways. Designated medical staff, most often nurses, must ascertain the relevant patient information by asking questions and actively listening, so that if necessary polypharmacy can be addressed, less expensive drugs can be prescribed, and patients can be referred to a federally qualified community health center or other community resources.

Clearly, it is not enough to simply pass on correct information to the patient. Nurses must use their clinical skills and knowledge to make sure the patient is fully prepared for discharge and understands the discharge instructions.

The teach-back method, in which the nurse or other provider asks the patient to repeat the instructions given, is effective in ensuring that the patient understands the discharge instructions and gives the provider an opportunity to restate them, if necessary, at a health literacy level that the patient can understand.

Designating responsibility. In addition, designated staff members (a unit clerk, nurse, or pharmacist, for example) must take charge of certain important yet simple elements of the patient's care, such as
• making the follow-up appointments for the patient prior to discharge (the unit clerk would have

this responsibility). When the hospital took on this task, twice as many patients saw their physician after discharge.
• making follow-up calls to the patient two to three days after discharge to answer any questions regarding the discharge plan and medication list and to further ensure that the patient has an understanding of her or his self-management responsibilities (performed by a nurse, patient discharge advocate, coach, case manager, or pharmacist).
• conducting medication reconciliation prior to discharge by comparing the medication list from home with medications prescribed at discharge, the goal being adequate patient self-management after discharge (performed by a nurse or pharmacist). Patients and family members must be thoroughly educated on the changes in medication regimens that result from the medication reconciliation process, including which medications to continue taking, which to stop taking, which may be new, and any changes in medication frequency or dosage.
• making sure the post–acute care provider has the medication list and other key transition information (the responsibility of a nurse or unit clerk). Instead of giving the medication list and instructions only to the patient and telling the patient to take it to the next provider in the continuum of care, the hospital staff must provide the discharge information directly to the post–acute care provider.

The suite of Project RED interventions requires the involvement of multiple departments within a hospital. Initially, turnover in project leadership at Valley Baptist Medical Center–Brownsville slowed improvements in processes of care and had a significant negative impact on the hospital's ability to implement and monitor the Project RED interventions. Implementation efforts stumbled until a strongly committed project leader moved into the position and brought all of the departments together. The hospital project began to make progress in late 2009 when leadership roles were stabilized. As a result, most of the improvement in hospital readmissions from the home setting occurred in approximately the last 15 months of the project. The development of strong, effective project leadership and team members was also a contributing factor in the hospital's superior performance compared with other participating hospitals. The hospital initially implemented six components of Project RED in the target population of heart failure patients, and then incrementally rolled out additional interventions and expanded the interventions to additional patient populations through the end of the project. The successful facility-wide expansion of the Project RED interventions beyond the initial target population was another important reason why the hospital outperformed other participating hospitals in the community.

The Project RED components became so much a part of the hospital's processes that nine of the 11 components (numbers 1, 2, 3, 4, 5, 7, 9, 10, and 11) were permanently integrated into the hospital's patient care planning process. Nurses educated patients on all aspects of their care throughout their hospital stay, including the patient's diagnosis, medications, and test results; signs and symptoms of deterioration and how to avoid an exacerbation were also included in patient education prior to discharge.

Ongoing work. Although the formal project has concluded, the hospital continues to implement process changes to further reduce readmissions and improve performance. New interventions implemented since the end of the project include

- a palliative care program to address end-of-life issues.
- coordination of outpatient dialysis needs by an on-site social worker.
- a weekly readmission project report to hospital management.
- continuing quarterly workgroup meetings with post–acute care providers that the TMF team had previously convened and facilitated.
- screening in the ED by certain skilled nursing facilities and long-term acute care hospitals prior to admission.

- redesign of patient follow-up phone calls to make interventions sustainable. The hospital has contracted with a call center that conducts calls to all Medicare Part A patients. All other patient follow-up calls are conducted internally by the hospital.

Recent data show that use of these strategies leads to sustainable advances. The Program for Evaluating Payment Patterns Electronic Report (PEPPER) is an online resource that, according to its Web site (http://pepperresources.org), "provides hospital-specific Medicare data statistics for discharges vulnerable to improper payments." PEPPER calculates rates using all discharges from the hospital and is not limited to beneficiaries residing in the hospital's referral region. We used PEPPER to obtain Valley Baptist Medical Center–Brownsville's most recent available 30-day readmission rate, which was 16.4% (77 of 469) in the third quarter of 2012.

The hospital has also been accepted for participation in the CMS Community-Based Care Transitions Program (CCTP), a demonstration project conducted under the authority of Section 3026 of the Patient Protection and Affordable Care Act.[1] The CCTP funds will be used by the hospital to adopt the Care Transition Intervention, an additional program to enhance the discharge experience for patients at high risk for readmission.[8] This intervention provides the hospital with a care transition coach who will support the patient with one in-hospital visit, one visit at home, and three follow-up phone calls in the 30 days after hospital discharge. Valley Baptist Medical Center–Brownsville is working on the CCTP demonstration project with seven other hospitals in the region to spread the success of the QI initiative described here as well as to further reduce its own readmission rate.

In summary, Project RED was an effective model for reducing hospital readmissions. Mutually beneficial outcomes for patients and providers resulted from employing new strategies for effective communication with patients, recognizing and addressing typical patient responses, improving patient and family engagement in their health care, and developing effective patient self-management skills prior to hospital discharge. Strong and effective leadership of the project team, development of an interdisciplinary QI team, support from top hospital administrators (including the chief executive officer and chief nursing officer), aggressive expansion of interventions to new patient populations, and concurrent monitoring of 30-day readmissions and the effectiveness of interventions were all crucial to the successful implementation of the Project RED interventions and to the degree of

improvement the hospital achieved. Concurrent monitoring of 30-day readmissions provided feedback on the success of the interventions and allowed modifications to the project more quickly than would have been possible if the hospital had relied solely on the reports we provided (based on CMS data but having a six-month data lag).

Elements of success. Valley Baptist Medical Center–Brownsville consistently took four actions that contributed to its success and that other participating hospitals did not do as well. They had nothing to do with the Project RED interventions per se, but rather with how effectively the hospital team implemented the interventions. The hospital

- had strong project team leadership and hospital leadership support.
- spread the interventions throughout the facility, adding new Project RED interventions and expanding them to new patient populations after achieving an initial improvement.
- engaged with post–acute care providers in the community.
- conducted concurrent monitoring of the Project RED interventions.

As noted above, the suite of Project RED interventions requires the involvement of multiple departments within a hospital. But it should be emphasized that the active engagement and involvement of the nursing leadership and bedside clinicians are crucial factors in the successful implementation of these interventions. Nurses played the primary role in developing more effective patient-centered care through this project.

Establishing a QI team that welcomes the perspective of the bedside nurse is crucial. Patients and caregivers will not be well prepared to manage a patient's needs in the critical first 30 days after hospital discharge unless the nurse's perspective is included in the development of care processes. Preparation of the patient and caregiver for self-management after discharge is a cornerstone of Project RED and has significant implications for nursing practice, including the development and implementation of staff and patient education tools and resources.

In addition, the inclusion and engagement of post–acute care providers resulted in greater success than implementing Project RED in the hospital alone would have done. Comparing the change in 30-day readmission rates from the post–acute care settings shows that the home health, inpatient rehabilitation, and skilled nursing facilities in the hospital community achieved improvement at rates equivalent to and sometimes greater than those for the patients discharged to home with no other services. These providers may have achieved greater success because they are smaller organizations and have fewer components

to coordinate in the implementation of process changes. This finding highlights the opportunity that hospitals such as Valley Baptist Medical Center–Brownsville have in working with community providers to continue making improvements in the care they offer all patients. ▼

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REFERENCES

1. Centers for Medicare and Medicaid Services. *Community-based care transitions program fact sheet.* Baltimore, MD; n.d.; http://www.cms.gov/Medicare/Demonstration-Projects/DemoProjectsEvalRpts/downloads/CCTP_FactSheet.pdf.

2. Medicare Payment Advisory Commission (MEDPAC). Payment policy for readmissions. In: *Report to the Congress: promoting greater efficiency in Medicare.* Washington, DC; 2007. p. 103-20.

3. Centers for Medicare and Medicaid Services. *Outcome-based quality improvement (OBQI) manual.* Baltimore, MD; 2010 Aug. https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HomeHealthQualityInits/downloads/HHQIOBQIManual.pdf.

4. Jack BW, et al. Developing the tools to administer a comprehensive hospital discharge program: the ReEngineered Discharge (RED) program. In: Henriksen K, et al., eds. *Advances in patient safety: from research to implementation* (Rockville, MD: Agency for Healthcare Research and Quality; 2008. Vol. 3 (performance and tools). http://www.ncbi.nlm.nih.gov/books/NBK43688.

5. Institute for Healthcare Improvement. *Plan-Do-Study-Act (PDSA) worksheet.* Cambridge, MA; 2011. www.ihi.org/knowledge/Pages/Tools/PlanDoStudyActWorksheet.aspx.

6. Kaiser Permanente. *SBAR toolkit.* Institute for Healthcare Improvement; 2011. http://www.ihi.org/knowledge/Pages/Tools/SBARToolkit.aspx.

7. Code of Federal Regulations. 42 CFR part 480—acquisition, protection, and disclosure of quality improvement organization information.

8. Care Transitions Program. *Program Structure.* Division of Health Care Policy and Research, University of Colorado Denver School of Medicine. n.d. http://www.caretransitions.org/structure.asp.