Leveraging Healthcare Policy Changes to Decrease Hospital 30-Day Readmission Rates

ABSTRACT

Hospitalizations account for nearly one-third of the $2 trillion spent on healthcare in the United States annually. Nearly 20% of these hospitalizations are rehospitalizations occurring within 30 days of discharge. In 2008, there were 57,852 readmissions in Pennsylvania, amounting to approximately $2.5 billion in charges. Thirty-eight percent of these readmissions were related to complications or infections. From June 2004 through August 2009, 1,791 events of readmission to the emergency department within 48 hours were reported to the Pennsylvania Patient Safety Authority, 8% of which were Serious Events (indicating harm to the patient). In June 2008, the Medicare Payment Advisory Commission calculated the annual cost of readmissions to the Medicare program at $15 billion. The Obama administration's 2010 budget aims to reduce Medicare readmissions in order to fund healthcare reform. The Centers for Medicare & Medicaid Services posts hospital readmission rates for three conditions on its Web site. National readmission rates show a wide variance across states as well as variance between facilities within the same state. This high variance rate suggests that significant financial savings could be realized if best practices for preventing unnecessary readmissions were adopted. This article reviews both national policy related to readmissions and best practices that could help hospitals reduce readmission rates while simultaneously improving patient-centered care and patient safety. (Pa Patient Saf Advis 2010 Mar;7(1):1-8.)

Background Policy

Hospitalizations account for nearly one-third of the $2 trillion annual cost of healthcare in the United States.[1,2] In the majority of cases, hospitalization is necessary and appropriate. However, experts estimate that as many as 20% of hospitalizations are rehospitalizations within 30 days of discharge.[1,2] These rehospitalizations are costly, potentially harmful, and often preventable. The Pennsylvania Patient Safety Authority received more than 3,500 reports of hospital readmissions from June 2004 through August 2009. According to data from the Agency for Healthcare Research and Quality's (AHRQ) Healthcare Cost and Utilization Project (HCUP), in 2006, nearly 4.4 million hospital admissions, totaling nearly $30.8 billion, could have been potentially preventable with timely and effective ambulatory care or adequate patient self-management of the condition.[3] Additionally, nearly one in five Medicare admissions (18%) was for a potentially preventable condition.[3] More recently, in June 2008, the Medicare Payment Advisory Committee (MedPAC) calculated the annual cost of readmissions to the Medicare program at $15 billion.[4] In response to rising healthcare costs, the Obama administration's 2010 budget proposes a combination of incentives and penalties to reduce hospital readmission rates, thereby saving approximately $26 billion over 10 years to help pay for healthcare reform.[5]

On a national level, the Centers for Medicare & Medicaid Services (CMS) posts 30-day, all-cause, risk-adjusted readmission rates for three conditions on its Web site: (1) heart failure, (2) acute myocardial infarction, and (3) pneumonia. Participating hospitals are classified as "better than U.S. national rate," "no different than U.S. national rate," or "worse than U.S. national rate." Exclusionary criteria include patients readmitted for the purpose of planned cardiac treatment, patients who leave the hospital against medical advice, and hospitals with fewer than 25 cases. These measures are updated quarterly.[6] Historically, hospitals could only track readmissions back to their own facilities; collecting and sharing multihospital aggregate data may shed new light on the readmission issue. MedPAC has recommended that CMS confidentially report readmission rates and resource use around hospitalization episodes (30-day periods) to hospitals and physicians for two years. Beginning in the third year, providers' relative resource use should be publicly disclosed. To encourage providers to collaborate and better coordinate care, MedPAC believes that payments should be reduced for those hospitals with relatively high readmission rates for select conditions and favors shared financial accountability (gain sharing) between physicians and hospitals.[4]

Jencks et al. conducted a retrospective review of Medicare fee-for-service claims data from October 2003 to September 2004 to analyze Medicare 30-day readmission rates in an effort to describe patterns of readmissions and the relation of rehospitalizations to demographic characteristics of the patients and of the hospitals. Their findings revealed that nearly 20% of hospitalized Medicare beneficiaries were readmitted to the hospital within 30 days and 34% were readmitted within 90 days. Additionally, they found that nearly 69% of patients who had been admitted with a medical diagnosis and 53% of patients who had been admitted with a surgical diagnosis were either readmitted or had died within one year following the initial hospitalization. Surprisingly, *less than half of the Medicare patients who had been readmitted to the hospital within 30 days had visited an outpatient physician before the readmission*. It was estimated that only 10% of the readmissions were likely to have been planned, leaving 90% of the readmissions potentially preventable, at a cost of $17.4 billion to the Medicare program in 2004.[7]

The Table illustrates the high variability of readmission rates across states. This high variance rate suggests that significant financial savings could be

realized if best practices for preventing unnecessary readmissions were adopted.

In 2007, the Commonwealth Fund studied key indicators of health system performance, including Medicare 30-day readmissions in 2003, and found a two-fold variation in rates of hospital readmission within 30 days among Medicare beneficiaries, from 24% in Louisiana and Nevada to 13% in Vermont and Wyoming. Pennsylvania's Medicare 30-day readmission rate in 2003 was 20.1%, ranking 43rd of 50 states. If Pennsylvania's performance improved to the level of the best performing state on this indicator, 13,866 fewer readmissions would occur, saving the Medicare program nearly $164 million annually.[8]

More recently, Friedman et al. conducted a retrospective review of nearly 1.5 million adult surgery patients initially treated in 1,088 short-stay hospitals in 2004, all at risk for one of nine patient safety events (see the box "Nine Patient Safety Events").* Their findings showed that patients who experienced one of the nine patient safety events had a higher incidence of hospital 30-day readmissions than those who did not experience a patient safety event (11% versus 16%; risk adjusted result for readmission within one month 1.20 [$p < 0.01$]).[9] The connection between patient safety events and hospital readmissions, while not surprising, further complicates the preventable 30-day hospital readmission scenario. Furthermore, 30-day readmission rates have been considered a marker of low quality care and suboptimal patient safety.[10]

These recent studies have helped land 30-day readmissions on Medicare's program-integrity radar screen. In fact, CMS' program integrity contractors (recovery audit contractors) will continue postpayment audits to identify hospital readmissions within 30 days of a hospital discharge.[10] According to MedPAC's plan,[4] once 30-day readmission rates are systematically calculated and analyzed, financial penalties and incentives to reduce 30-day readmissions will follow.

The Pennsylvania Environment

In 2007, Governor Rendell introduced "Prescription for Pennsylvania," a statewide healthcare reform agenda focused on reducing costs, providing access to universal coverage, improving quality, and decreasing inefficiencies in the Pennsylvania healthcare system. His plan identified avoidable readmissions as an area ripe for both quality improvement and financial savings.[11]

In Pennsylvania, rates of hospital readmission (i.e., an acute care hospitalization for any reason which occurs within 30 days of the original hospitalization) are calculated for 21 medical and surgical conditions and are published by the Pennsylvania Health Care Cost Containment Council (PHC4).[12] Rates are calculated for all-cause readmissions and readmissions for complications or infections. They are categorized by condition into "significantly higher than the expected rate," "not significantly different than the expected rate," and "significantly lower than the expected rate." Exclusionary criteria include hospitals with less than five cases, nonadult cases, and missing or invalid discharge status, as well as patients who leave against medical advice.

Table. Rates of Rehospitalization within 30 Days after Hospital Discharge*

PERCENTAGE RANGE	NUMBER OF STATES IN RANGE
13.3% to 17.5%	13
17.6% to 19.1 %	14
19.2% to 20.1%	13, including Pennsylvania at 19.7%
20.2% to 23.2%	10

*The rates include all patients in fee-for-service Medicare programs who were discharged between October 1, 2003, and September 30, 2004.

Source: Jencks SF, Williams MV, Coleman EA, et al. Rehospitalizations among patients in the Medicare fee-for-service program. *N Eng J Med* 2009 Apr 2;360(14):1418-28.

In 2008, there were 57,852 readmissions for any reason in the categories covered by the report. These readmissions resulted in nearly $2.5 billion in charges and 350,000 additional hospital days. Thirty-eight percent (22,094) of the readmissions were for complication or infection, amounting to approximately $1.1 billion in charges and 157,000 additional hospital days.[13] For the 21 conditions for which readmissions are calculated, the overall Pennsylvania readmission rate was 18.9%; respiratory failure with mechanical ventilation was the highest at 27.6%, and vaginal hysterectomy was the lowest at 3%. (For a visual summary of the background information, see "Timeline of 30-day Avoidable Readmission Information," available on the Authority's Web site.)

Authority Data

The Authority received more than 3,500 reports related to readmissions from June 2004 through August 2009. However, this is just the "tip of the iceberg," as only readmissions associated with Incidents or Serious Events are reported in the Authority's database. For example, 1,791 events of "unplanned return to emergency department (ED) in 48 hours requiring admission" were reported between June 2004 and August 2009.

The Authority reviewed 392 events related to hospital readmissions reported from January through August 2009, 120 of which were reported as Serious Events (those events which harm patients) (31%) and 272 of which were reported as Incidents (near-misses) (69%). Common themes among the hospital readmission reports included ineffective communication

* Patient safety events, as specified in software in the public domain by AHRQ. The main data sources are seven state-wide databases of hospitalizations in 2004, maintained by HCUP. (Cited 2009 Sep 21; available from Internet: http://www.qualityindicators.ahrq.gov/.)

Nine Patient Safety Events

1. Iatrogenic pneumothorax
2. Selected infections due to medical care
3. Postoperative hemorrhage or hematoma
4. Postoperative physiologic and metabolic derangements
5. Postoperative respiratory failure
6. Postoperative pulmonary embolism or deep vein thrombosis
7. Postoperative sepsis
8. Postoperative wound dehiscence after abdominopelvic surgery
9. Accidental puncture or laceration

Source: Friedman B, Encinosa W, Jiang HJ, et al. Do patient safety events increase readmissions? *Med Care* 2009 May;47(5):583-90.

among providers, between providers and patients, and between providers across healthcare settings and inadequate transitions of care, both within hospitals and between hospitals and community settings. The report narratives reveal the breadth of reasons why patients experience potentially preventable readmissions.

Ineffective Communication

Examples of ineffective communication among providers include the following:

> *A patient was admitted from a nursing home with a four-page list of medications. The admitting diagnosis was dehydration and vomiting. The triage nurse listed all medications on the ED triage form. The admitting nurse completing the medication reconciliation missed one page of the patient's nursing home medications. The admitting physician listed all of the medications in the [history and physical] but did not add to the ED physician orders to include any cardiac medications. At discharge, a covering physician who was sending the patient back to the nursing home reviewed the medication reconciliation list and did not order any cardiac medications. The nursing home considered the medications discontinued. The patient was [subsequently] readmitted to the hospital in congestive heart failure.*

> *Amylase/lipase [levels were] highly elevated, and the patient was discharged. The patient had to return to the ED; no phone call for critical value was received while the patient was registered in the ED.*

Examples of ineffective communication between providers and patients include the following:

> *The patient was admitted to the ED for an animal bite. Rabies prophylaxis was initiated in the ED. The patient was admitted. Later, the patient was discharged home without plan to continue rabies booster . . .*

> *Patient discharged; readmitted one week later. During the admission assessment, it was discovered that patient had [had] no anticoagulant education [during previous admission].*

> *The patient had a transurethral resection of the prostate and was ordered an antibiotic postoperatively. The patient never took the ordered medication, which contributed to a readmission due to back pain. The patient was found to have an UTI [urinary tract infection].*

An example of ineffective communication between providers across healthcare settings is as follows:

> *The patient met discharge criteria and was discharged to a personal care home after leg surgery. He fell at the personal care home and was sent back to the hospital [the next day]. The physician from the personal care home stated he did not think a return to the home should have occurred on a Saturday because the home did not have licensed staff on the weekend.*

Ineffective Transitions of Care

Examples of ineffective transitions of care within hospitals include the following:

> *A patient was transferred from the medical surgical unit to the inpatient rehab center in the mid-afternoon. The patient was sent to the ED that evening with shortness of breath and hypoxia. The patient was readmitted to facility secondary to the respiratory condition. The event was reviewed, and staff confirmed that the patient was receiving oxygen at 4L/min via nasal cannula prior to discharge. Oxygen was omitted on the transfer orders to the rehab facility.*

> *A patient was admitted to the ED with an overdose. The patient was treated and admitted to the intensive care unit (ICU). When stable, the patient was transferred to the inpatient mental health unit. The patient was in a gown at the time of transfer. The patient's belongings were searched. Later, the patient was found unresponsive on the floor of her room, with shallow respirations. 911 was called, and the patient was given Narcan® and transferred to the ED. The patient was treated and readmitted to the ICU.*

Examples of ineffective transitions of care between hospitals and community settings include the following:

> *A patient was transferred to long-term care from acute care without oxygen; oxygen saturation was 46% on room air. The patient had been on oxygen at the acute care facility. Rebreather mask and respiratory treatments were given; oxygen saturation was 87% after one hour. The patient became confused. The physician determined that the patient was medically unstable and gave orders to transfer the patient back to acute care. The patient was readmitted there. The patient was transferred to us [long-term care] again without oxygen and only partial medical records . . .*

> *A patient was seen in the ED for evaluation of syncope. Labs revealed blood urea nitrogen of 85 and creatinine of 5.2. . . CT [computed tomography] scan of the head was negative. Patient sent home alone [emphasis added]. The patient returned to*

the ED [one day later] in acute renal failure with rhabdomyolysis following a fall at home. The patient was unable to get up and was found by family on the floor. A large surface pressure ulcer was noted.

A patient was seen in the ED after a fall. The patient complained of knee pain and had x-rays done of the right knee and lower leg. The x-rays were normal. The patient was in pain and unable to ambulate. The patient was discharged and sent home by ambulance. The patient returned to the ED two days later with continued right leg pain and was x-rayed and found to have a fractured hip that required surgical care.

Of the 392 events related to hospital readmissions reported from January through August 2009, four root-cause analyses (RCAs) were completed and forwarded to the Authority, three of which indicated that "communication among staff members" was the root cause of the failure. If more RCA information related to readmissions were routinely submitted by facilities, the Authority would be better able to provide analysis of the causes of some of these events.

Barriers to Successfully Reducing Hospital Readmissions

Clearly, hospital readmissions are costly, and both federal and state agencies are interested in reducing 30-day readmission rates in an effort to save healthcare dollars. With policy makers focused on reducing healthcare costs and improving patient safety, 30-day readmission rates are an area of improvement that no Pennsylvania facility can afford to ignore.

One major barrier to reducing hospital readmissions is misalignment of financial incentives. While reducing readmissions saves money for insurers and payers, there is no financial incentive for hospitals to decrease utilization. The current fee-for-service payment system not only encourages patient admissions, it also encourages silos among healthcare providers, creating barriers to effective communication and care coordination across care settings.

An anecdotal example from Pennsylvania follows:

An elderly patient fell going up some outdoor concrete steps with his wife, hitting his head. He complained of dizziness. He was taken to his local hospital, where he was given a CT scan and admitted on the service of his primary care physician, a cardiologist. The wife understood that he had "blood in his brain." His primary physician discontinued his Coumadin® and started aspirin. His wife did not know why he had been on Coumadin. He continued to complain of dizziness. He was discharged back to the skilled nursing facility in his retirement community.

After discharge from the skilled nursing facility, he got dizzy and fell again. He was readmitted to the hospital on the service of his cardiologist with a "fracture of the pelvis," according to his wife. She was unaware of the treatment recommended by the orthopedic consultant. He was discharged back to the skilled nursing facility. A nursing assistant helped him out of bed, and he complained of pain in his groin. She called the geriatrician, who sent him back to the ED of the hospital.

The emergency physician confirmed that the pain was from the fracture, which remained stable, and sent him back to the skilled nursing facility with confirmation that weight bearing as tolerated was appropriate. Later, he was found to have a high blood sugar (about 500 mg/dl) and was sent back to the ED, where he was noted to also be dehydrated. He was readmitted to the service of his cardiologist, who changed his diabetes medications. He was sent back to the skilled nursing facility but returned to the hospital the next day, again with high blood sugar. The cardiologist had dictated a note to the geriatrician, but the note had not arrived, and the patient had been put on the same diabetes medication regime that he had been on previously. The patient went on to develop decubiti that took months to heal. He eventually became a permanent resident of the skilled nursing facility within the retirement community.

In the above example, each facility appropriately cared for the patient and treated his medical condition, yet the over-arching care plan failed. Because there is no payment structure to absorb the cost of care plan management across care settings, this important task is frequently missed or poorly performed.[4,7] In the U.S. healthcare environment, few built-in safeguards identify and rectify failures spanning more than one healthcare setting. In Pennsylvania, the Authority is unlikely to receive reports referencing fragmented care, because no mechanism exists to track readmissions across facilities. Nonetheless, poorly executed transitions in care, whether interhospital transfers or transfers between healthcare settings, can negatively affect patients' health and well-being and often result in avoidable readmissions to the hospital.

Success Stories

National Success: Reducing Readmissions by Improving Transitions in Care Collaborative

In fall 2009, the Institute for Healthcare Improvement began a four-year multistate initiative to measurably reduce hospital readmissions. The Reducing Readmissions by Improving Transitions in Care Collaborative focuses on creating an ideal transition for patients from hospital to home. The aim of this collaborative is to reduce 30-day readmission rates by 30% and increase patient and family satisfaction with optimal transitions and coordination of care. This collaborative focuses on four major areas of risk reduction: (1) performing enhanced admission assessments, (2) providing effective teaching and enhanced learning, (3) conducting real-time patient- and family-centered handover communication, and (4) ensuring posthospital care follow-up.[14] This initiative is one of

several successful care models designed to reduce hospital 30-day readmission rates.

National Success: Project Reengineered Discharge (RED)

A randomized controlled trial in a general medical service at an urban, academic, safety-net hospital to test the effects of interventions designed to minimize hospital utilization after discharge showed that participants in the discharge intervention group (n = 370) had a lower rate of hospital utilization than those receiving usual care (n = 368) (0.314 versus 0.451 visit per person per month; IRR 0.695 [95% CI, 0.515 to 0.937]; p = 0.009).[15] Interventions included a nurse discharge advocate (DA) who worked with patients in the hospital to arrange follow-up appointments, confirm medication reconciliation, and conduct patient education using "teach-back" methodology for patient-centered education. The nurse DAs also used an individualized instruction booklet (an after hospital care plan), a copy of which was sent directly to the primary care provider at discharge. A clinical pharmacist was an integral part of the discharge team, as well, and called the patient two to four days after discharge to reinforce the discharge plan and to review medications with the patient. Key success factors in the handoff between hospital and home were (1) using a plan that the patient understood, (2) putting it in writing, and (3) bridging gaps between the hospital doctors and the patient's doctor in the community. Project RED showed that bundled interventions including patient-centered education, comprehensive discharge planning, and postdischarge reinforcement worked to decrease postdischarge hospital utilization (combination emergency room admissions and hospital readmissions) within 30 days of discharge by approximately 30%.[15]

Local Success: Geisinger Health System

Geisinger Health System (Danville, Pennsylvania) has realigned financial incentives for care, thereby minimizing variance and reducing costs by implementing a medical home concept. The medical home concept focuses on personal care coordination by shifting from episodic acute care to a continuous, comprehensive team approach to care, called ProvenHealth Navigator, which uses financial incentives to alter the care model. Payments are made to physicians for a variety of actions that contribute to a more cohesive treatment process, including seeing patients more often, seeing them during off-hours, and playing a more direct role in coordinating care throughout the system. Internists, surgeons, and specialists are paid for adherence to evidence-based medical guidelines in the treatment of chronic diseases and other illnesses. Additionally, physicians are rewarded for collecting and managing patient data, which allows trends to be identified and analyzed. Simultaneously, Geisinger has changed the way it charges payers. For example, for a number of surgeries, costs are bundled into a single flat fee. If the patient experiences complications or needs additional treatment within 90 days, the system covers the costs. This innovative financial architecture has resulted in a decrease in the system's readmission rate by 44% as well as the decline of overall treatment costs.[16,17]

Planning for the Future

A 2009 Cochrane systematic review to determine the effectiveness of in-hospital discharge planning of patients moving from hospitals to outpatient settings failed to show an associated reduction in readmission rates. Specifically, the review pooled data from seven randomized controlled trials that recruited elderly patients with a medical condition and reported readmission rates at up to three months of discharge from the hospital. The review failed to detect a difference between those allocated to discharge planning and the control group, with respect to hospital readmission rates (OR 0.91, 95% CI to 0.67 to 1.23).[18] However, as the above examples illustrate, other studies have shown significant reductions in 30-day readmission rates, as well as cost savings, associated with a variety of enhanced discharge processes, most of which used a combination of enhanced in-hospital communication *plus* improved discharge processes, postdischarge care coordination, and restructured financial incentives.

The State Action on Avoidable Rehospitalizations (STAAR)* Initiative identified several potential reasons for high hospital readmission rates, including the following: quality of care issues in the initial hospitalization, lack of access to physicians to receive follow-up care following the initial hospitalization, hospital admission norms that discourage treatment in other care settings, home healthcare access and quality, effective discharge planning, breakdowns in transitions of care between settings, and nursing home access and quality.[19] Hospitals can assess the characteristics of their readmission population to determine which of these factors may be influencing their readmission rate and to determine how many of their readmissions are potentially preventable.

Strategies to Reduce 30-Day Hospital Readmission Rates

The STAAR Initiative reviewed the medical literature and identified five promising, evidence-based strategies to reduce readmissions:[19]

1. **Comprehensive discharge planning with timely communication.** Thorough preparation of the patient and family for discharge is important. Having a strong transition plan, prompt postdischarge communication, and follow-up care can significantly reduce rehospitalizations.[20]
2. **Postdischarge support.** Early, post-acute follow-up care by transition coordinators, coaches, telephone nurses, or clinicians has been shown to reduce readmissions.[21-23]
3. **Multidisciplinary, team-based management.** Multidisciplinary heart failure management programs have shown a decrease in hospital

* An initiative of the Commonwealth Fund and the Institute for Healthcare Improvement, launched May 1, 2009.

admissions.[24] For example, the Program for All-Inclusive Care for the Elderly (PACE) provides comprehensive, interdisciplinary care through an adult day-care center coupled with PACE teams that provide care in the hospital, nursing home, or home, as needed.[25]

4. **Patient education and self-management support.** Developing a commonly understood care plan that contains instructions for medications, diet, activity level, and identification of signs of disease progression is a critical part of the discharge process. Providing the patient with a nurse educator for one hour as an adjunct to the normal discharge process can reduce the risk of rehospitalizations or death.[26]

5. **Remote monitoring.** Remote monitoring uses a variety of modalities to track patients' health and well-being in order to identify early signs of clinical deterioration. Used in conjunction with other support systems, remote monitoring can help patients remain in their homes and avoid rehospitalizations.[19]

In light of impending national- and state-level policy changes, Pennsylvania hospitals can and should evaluate their 30-day readmission rates and formulate both short- and long-term plans to reduce these rates while simultaneously working toward improving integrated, patient-centered care. Following is a list of potential strategies that hospitals can implement now, and into the future, depending upon available financial and human resources.

Immediate

Environmental Scan[4,10,14,18]

- Collect monthly data related to readmission rates to track organizational performance, and compare performance data with national and state benchmarks available online from http://www.hospitalcompare.hhs.gov and http://www.phc4.org.
- Develop a plan related to the proposed or potential financial impact of the alternatives being discussed for Medicare readmissions (e.g., financial incentives, disincentives, bundling).
- Survey community healthcare resources including primary care physicians, home healthcare services, assisted living, and nursing home or long-term care facilities. Does each of these facilities send patients to the hospital? Are they associated with a portion of the readmissions? Is there a way to collaborate with these entities to improve care transitions across healthcare settings?

In-Hospital Assessment: Enhanced Admission Assessments[10,14,20]

- Ask patients about previous admissions; document any admission occurring within 30 days of a previous hospital discharge (from your facility or from another facility). If the patient was previously admitted within the past 30 days, ask questions to determine the reason for the readmission. Did the patient:
  - — Understand discharge instructions?
  - — Take medications correctly?
  - — Have adequate home resources?
  - — Follow self-care instructions?
  - — Understand the signs of clinical deterioration to report to the primary physician?
  - — Seek medical follow-up after discharge from the hospital?
- Consider a dedicated transitional coach to perform enhanced admission assessments, focusing on post-discharge needs as soon as possible.[15]
- Include the patient and family in the discharge process, and be vigilant in assessment of the support systems available in the postacute care setting.
- Perform a thorough physical and cognitive functional health status assessment to identify the appropriate postacute care setting for the patient.
- Refer the patient to appropriate community resources (e.g., home care, assisted living, long-term care).
- Provide evidence-based and error-free care for the patient in the hospital.

In-Hospital Assessment: Effective Teaching and Enhanced Learning[14]

- Identify the "learners" on admission by asking, "Who will be helping you when you leave the hospital?" Realize that the patient's visitors may not be the designated "learners."
- Use customized, individualized discharge instructions that incorporate health literacy principles, written at a literacy level that does not exceed patient comprehension.[10,14] Health literacy principles include using simple one-to-two syllable words written in a font size of 14 points, short four-to-six word sentences, and short two-to-three sentence paragraphs without medical jargon and with abundant white space.
- Use a "teach-back" method to ensure patient understanding of discharge and follow-up care instructions. Ask patients in a nonjudgmental way to discuss what they have learned, identify gaps in understanding, and offer additional instruction as needed.
- Develop a plan of care that follows the patient home and/or to the next care setting.

In-Hospital Assessment: Real-Time Patient and Family Centered Handover Communication[4,10,14,15,23]

- Reconcile the patient's medication on admission to the hospital and at each transition of care (in-hospital and across care settings).
  - — If the patient's prescription medications have changed, clearly document and instruct the patient about the changes, identifying those medications and doses that the patient should take now.

  - If the patient's medications have been held during the hospital admission, clarify if and when those medications should be continued.
  - Assess whether a home care nurse or transitional care nurse or coach should reconcile the medications during a home visit with the patient after discharge.
- Send the patient home with a copy of the plan of care, and share the care plan with the primary physician, home healthcare agency, or long-term care facility that will be accepting the patient into care.
- For dialysis patients, send a copy of the plan of care, including the reconciled medication list, to the nephrologist at the dialysis center.
- Improve coordination of care between hospitals and primary care physician offices, home healthcare agencies, assisted-living facilities, or other outpatient settings by faxing or e-mailing discharge summaries directly to primary care offices, mailing discharge packets, or using a community discharge planner to facilitate the timely transfer of discharge information.
- Make the initial outpatient appointment for the patient before he or she leaves the hospital. A primary care physician should see patients with a significant chronic disease within one week of discharge.
- Speak with the "emergency contact" listed in the patient record, and give an accurate, up-to-date report of the patient's condition.

Posthospital Care Follow-Up[4,14-16,19]

- Consider implementing a follow-up telephone call from a pharmacist, nurse, or transitional care staff member one to three days after discharge from the hospital to confirm understanding of all discharge instructions and prescribed medications.
- Establish an emergency call number at the hospital to help patients until their primary care physicians take over.
- Assess the patient's home environment to evaluate self-reported ability to manage healthcare needs independently, and refer supplemental services as needed.

Future

- Investigate relationships with primary care physicians, home care agencies, or other community service providers to establish collaboration across the care continuum.[4,14,16]
- Work toward establishing an integrated system of care across multiple care settings with shared accountability for patient-centered care and the ability to communicate, review each other's work, and collaborate to deliver consistently high-quality, patient-centered care.
- Establish data collection criteria and share readmission information within the community of providers.
- Consider establishing a common care plan used across care settings, and shared patient educational materials, as well as a nurse who travels to outpatient physician settings to facilitate transfers of care and information.
- Investigate integrated electronic health records and remote monitoring technology to share real-time clinically relevant patient medical information across the care continuum.

(A recently released guide from the Health Research and Educational Trust provides an overview of strategies and interventions hospitals can implement during hospitalization, at discharge, and postdischarge. The guide is available online at http://www.hret.org/hret/programs/content/Readmission_Guide.pdf.)

Conclusion

All-cause readmission rates highlight the importance of understanding factors that influence rehospitalization. There is extensive literature on rehospitalization related to medical conditions; less so for studies analyzing the multiple diseases and processes that contribute to hospital readmissions.[7] A review of the literature and success stories points toward two major processes that, if improved, can help decrease 30-day readmission rates: (1) improved communication among providers within and across care settings and (2) enhanced transitional care processes including postdischarge intervention. Additionally, financial incentives and disincentives have proven effective in decreasing avoidable readmissions, and both federal and state policymakers have focused on restructuring hospital payments as one way to reduce avoidable readmissions. Geisinger Health System is one example of a Pennsylvania healthcare system that has reduced hospital readmissions by restructuring both its payment and clinical care models.

Improving healthcare delivery means eliminating barriers between silos of service and information that have dominated healthcare to create a seamless, human-centered, and more cost-effective delivery system.[16] The risk reduction strategies in this article allow facilities to begin gradually reducing readmissions with simple, cost-effective strategies and move to more fiscally challenging strategies as the financial incentives to do so evolve.

Notes

1. Fazzi R, Agoglia R, Mazza G, et al. The Briggs National Quality Improvement/Hospitalization Reduction Study. *Caring* 2006 Feb;25(2):70-5.
2. Alliance for Health Reform. Covering health issues 2006-2007 [online]. 2007 Feb 21 [cited 2009 Jul 17]. Available from Internet: http://www.allhealth.org/sourcebooktoc.asp?SBID=1.
3. Jiang HJ , Russo CA, Barrett ML. Nationwide frequency and costs of potentially preventable hospitalizations, 2006. HCUP Statistical Brief #72. 2009 Apr [cited 2009 Nov 16]. Available from Internet: http://www.hcup-us.ahrq.gov/reports/statbriefs/sb72.pdf.
4. Medicare Payment Advisory Commission. Report to Congress: reforming the delivery system [online]. 2008 Jun 13 [cited 2009 Aug 7]. Available from Internet: http://www.medpac.gov/documents/Jun08_EntireReport.pdf.

5. Office of Management and Budget. President Obama's fiscal 2010 budget [online]. [cited 2009 Aug 7]. Available from Internet: http://www.whitehouse.gov/omb/fy2010_key_healthcare.
6. Centers for Medicare & Medicaid Services (CMS). CMS expands information for consumers about outcomes of care in America's hospitals [fact sheet online]. 2009 Jul 9 [cited 2009 Aug 7]. Available from Internet: http://www.cms.hhs.gov/apps/media/press/factsheet.asp?Counter=3478&intNumPerPage=10&checkDate=&checkKey=&srchType=1&numDays=3500&srchOpt=0&srchData=&keywordType=All&chkNewsType= 6&intPage=&showAll=&pYear=&year=&desc=&cboOrder=date.
7. Jencks SF, Williams MV, Coleman EA, et al. Rehospitalizations among patients in the Medicare fee-for-service program. *N Eng J Med* 2009 Apr 2;360(14):1418-28.
8. Cantor JC, Schoen C, Belloff D, et al. Aiming higher: results from a state scorecard on health system performance [online]. 2009 Oct [cited 2010 Jan 19]. Available from Internet: http://www.commonwealthfund.org/Charts-and-Maps/State-Scorecard-2009/DataByState/State.aspx?state=PA.
9. Friedman B, Encinosa W, Jiang HJ, et al. Do patient safety events increase readmissions? *Med Care* 2009 May;47(5):583-90.
10. Atlantic Information Services. CMS targets readmission through payment, audits; 'coaching' model reduces rates [online]. Rep Medicare Compliance 2008 Jun 30 [cited 2009 Aug 7]. Available from Internet: http://www.cfmc.org/files/rmc063008.pdf.
11. Rendell EG. Governor's Office of Health Care Reform. Prescription for Pennsylvania [strategic plan online]. 2007 Jan [cited 2009 Oct 2]. Available from Internet: http://www.gohcr.state.pa.us/prescription-for-pennsylvania/Prescription-for-Pennsylvania.pdf.
12. Pennsylvania Healthcare Cost Containment Council. [Web site]. [cited 18 Sep 2009]. Harrisburg (PA). Available from Internet: http://www.phc4.org.
13. Pennsylvania Health Care Cost Containment Council. Hospital performance report 2007—key findings [online]. [cited 2009 Aug 8]. Available from Internet: http://www.phc4.org/reports/hpr/08/docs/hpr2008keyfindings.pdf.
14. Nielson GA, Rutherford P, Taylor J. Transforming care at the bedside how-to guide: creating an ideal transition home for patients with heart failure. 2009 [cited 2009 Sep 15]. Available from Internet: http://www. ihi.org/IHI/Topics/MedicalSurgicalCare/MedicalSurgicalCareGeneral/Tools/TCABHowToGuideTransitionHomeforHF.htm.
15. Jack B, Chetty V, Anthony D, et al. A reengineered hospital discharge program to decrease rehospitalizations: a randomized trial. *Ann Intern Med* 2009 Feb 3;150(3):178-87.
16. Menninger B. Reinventing healthcare delivery: innovation and improvement behind the scenes. California Healthcare Foundation Issue Brief 2009 Sep;1-14.
17. Steele GD, Bothe A, Paulus R. Geisinger links quality with reimbursement: coronary artery bypass graft surgery. PA PSRS Patient Saf Advis [online] 2007 Dec [cited 2010 Jan 5]. Available from Internet: http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2007/dec4(4)/Pages/109a.aspx.
18. Shepperd S, Parkes J, McClaran JJM, et al. Discharge planning from hospital to home. *Cochrane Database Syst Rev* 2004; (1):CD000313.
19. Hines S. State action on avoidable rehospitalizations (STAAR): a tool for state policy makers [online]. [cited 2010 Jan 18]. Available from Internet: http://www.ihi.org/nr/rdonlyres/6900f685-6510-44a3-8f3f-b143acee7cd0/0/staar_a_tool_for_state_policy_makers.pdf.
20. Phillips CO, Wright SM, Kern DE, et al. Comprehensive discharge planning with postdischarge support for older patients with congestive heart failure: a meta-analysis. *JAMA* 2004;291(11):1358-67.
21. Naylor MD, Brooten DA, Campbell RL, et al. Transitional care of older adults hospitalized with heart failure: a randomized, controlled trial. *J Am Geriatr Soc* 2004 May;52(5):675-84.
22. Naylor MD, Brooten D, Campbell R, et al. Comprehensive discharge planning and home follow-up of hospitalized elders: a randomized clinical trial. *JAMA* 1999 Feb 17;281(7):613-20.
23. Coleman EA, Parry C, Chalmers S, et al. The care transitions intervention: results of a randomized controlled trial. *Arch Intern Med* 2006 Sep;166(17):1822-8.
24. Rich MW. Heart failure disease management: a critical review. *J Card Fail* 1999 Mar;5(1):64-75.
25. Boult C, Kane RL, Brown R. Managed care of chronically ill older people: the US experience. *BMJ* 2000 Oct;321(7267):1011-4.
26. Koelling TM, Johnson ML, Cody RJ, et al. Discharge education improves clinical outcomes in patients with chronic heart failure. *Circulation* 2005 Jan;111(2):179-85.

PENNSYLVANIA PATIENT SAFETY ADVISORY

This article is reprinted from the Pennsylvania Patient Safety Advisory, Vol. 7, No. 1–March 2010. The Advisory is a publication of the Pennsylvania Patient Safety Authority, produced by ECRI Institute and ISMP under contract to the Authority.

This publication is disseminated via e-mail. To subscribe, go to https://www.papsrs.state.pa.us/Workflow/MailingListAddition.aspx.

To see other articles or issues of the Advisory, visit our Web site at http://www.patientsafetyauthority.org. Click on "Patient Safety Advisories" in the left-hand menu bar.

THE PENNSYLVANIA PATIENT SAFETY AUTHORITY AND ITS CONTRACTORS

PATIENT SAFETY AUTHORITY
An Independent Agency of the Commonwealth of Pennsylvania

The Pennsylvania Patient Safety Authority is an independent state agency created by Act 13 of 2002, the Medical Care Availability and Reduction of Error ("Mcare") Act. Consistent with Act 13, ECRI Institute, as contractor for the Authority, is issuing this publication to advise medical facilities of immediate changes that can be instituted to reduce Serious Events and Incidents. For more information about the Pennsylvania Patient Safety Authority, see the Authority's Web site at http://www.patientsafetyauthority.org.

ECRI Institute
The Discipline of Science. The Integrity of Independence.

ECRI Institute, a nonprofit organization, dedicates itself to bringing the discipline of applied scientific research in healthcare to uncover the best approaches to improving patient care. As pioneers in this science for nearly 40 years, ECRI Institute marries experience and independence with the objectivity of evidence-based research. More than 5,000 healthcare organizations worldwide rely on ECRI Institute's expertise in patient safety improvement, risk and quality management, and healthcare processes, devices, procedures and drug technology.

Institute for Safe Medication Practices
a nonprofit organization

The Institute for Safe Medication Practices (ISMP) is an independent, nonprofit organization dedicated solely to medication error prevention and safe medication use. ISMP provides recommendations for the safe use of medications to the healthcare community including healthcare professionals, government agencies, accrediting organizations, and consumers. ISMP's efforts are built on a nonpunitive approach and systems-based solutions.