In the Clinic

Transitions of Care

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CME Objective: To review current evidence for the prevention, diagnosis, and treatment of transitions of care.

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“Transitions of care” refers to changes in the level, location, or providers of care as patients move within the health care system. One critical transition of care that has garnered great attention and is the focus of this review is the transition involving hospital discharge. Acute hospitalization represents a significant event in a patient’s life, and health care providers in partnership with patients need to address myriad issues related to the hospitalization and subsequent posthospitalization care for a safe transition out of the hospital. The care of the hospitalized patient has evolved over time, such that patients are sicker; length of stay has decreased; medical technology and knowledge have advanced; and new models of hospital-based care have evolved, such as the advent of hospitalists as the principal hospital-based providers. All of these factors have contributed to the complexity of coordinating transitions of care. In addition, as patients are discharged from a setting in which providers are available to address most health needs or questions on a continuous basis, patients and family members have good reason to wonder what will happen next. Recent research has highlighted the gaps in quality of hospital discharge transitions that may contribute to postdischarge complications. To address this problem, several federal, state, and local initiatives have prompted health care organizations and communities to identify, measure, and improve their care transition processes.

### Background

How frequent are adverse events that contribute to patient harm after hospital discharge, and which are most important?

A prospective cohort study published in 2003 found that 19% of patients discharged from a single U.S. academic medical center had an adverse event within 2 weeks of hospital discharge—one third of which could have been prevented and another third ameliorated. Injuries due to medications were most common, followed by procedure-related complications, infections, and falls (1). Similar results with respect to rate, preventability, and type of adverse postdischarge events were noted in a study at a Canadian academic medical center (2). Although many of the complications required no intervention, 49% of the patients who did have an adverse event required additional studies, evaluation by a physician in the clinic or emergency department, or readmission to the hospital. Systems issues, including communication of unresolved problems, patient education regarding medications and treatments, monitoring medication adherence and complications, and monitoring the status of patients soon after discharge, were noted as areas needing improvement (1).

Hospital readmission is viewed as one of the more undesired postdischarge events by patients, providers, and health systems. Patients are frustrated over the need for readmission, and providers fear that hospital-based treatments and interventions were ineffective. For health systems, readmissions are an inefficient and costly solution to problems often better managed in an alternative venue (the outpatient clinic) or prevented entirely through improved systems of care. Although many readmissions are unanticipated or unavoidable, recent work has highlighted disturbingly high hospital readmission rates.

A 2007 report by the Medicare Payment Advisory Commission showed that 17.6% of all Medicare admissions resulted in rehospitalization within 30 days, with 6% readmitted within just 7 days (3). A subsequent study using a Medicare database confirmed that nearly 1 in 5 Medicare patients were rehospitalized within 30 days of the index discharge (4). The Dartmouth atlas reported that readmission rates increased for many regions over the period 2004–2009 (5). These studies showed significant variation across hospital referral regions and between states and opened the door for subsequent analyses of what may be contributing to patients’ need for readmission to the hospital.

Important but less commonly reported measures that may reflect the quality of the hospital discharge include mortality, functional status, quality of life, and caregiver burden (6).

**What are the financial consequences of adverse events after hospital discharge?**

While difficult to quantify, the cost of adverse postdischarge events from the perspective of patients and their families include loss of potential earnings, co-pays for physician visits, rehospitalization, skilled nursing, transportation to appointments, or the need to care for their family member.

Adverse postdischarge events cost the U.S. health care system an estimated $12–$44 billion annually (7). The federal government intends to hold individual hospitals and health systems accountable for the quality and appropriateness of hospital discharges. The 2010 Patient Protection and Affordable Care Act specifies incentives and penalties based on readmission rates, including reductions in payments to hospitals with severity-adjusted readmission rates exceeding those expected for Medicare beneficiaries with congestive heart failure, pneumonia, or acute myocardial infarction. On 1 October 2012 (the beginning of fiscal year 2013), more than 2000 hospitals were notified of penalties for excessive readmission rates, ranging from 0.019%–1.00% of Medicare reimbursements. The Centers for Medicare & Medicaid Services (CMS) expects that hospitals will forfeit about $280 million in this first year of penalties. Starting in October 2013, the maximum penalty rate will double to 2% and top out at 3% in 2014 (8). Also beginning in fiscal year 2013, the Hospital Value Based Purchasing program from the U.S. Department of Health and Human Services (HHS) will reserve a portion of diagnosis-related group payments for hospitals showing high-quality practices at discharge, including enhanced communication and planning for postdischarge care.

**Who is at risk for adverse events after hospital discharge, and how should physicians identify them?**

Multiple social and environmental factors related to both the patient and health care system contribute to adverse postdischarge events. Predicting which patients are at risk is complex—in 1 study, hospital-based providers, including attending physicians, residents, interns, case managers, and bedside nurses, were unable to accurately predict which of their general medicine patients would be readmitted within 30 days (9). A reliable method to predict risk for postdischarge complications would be helpful, but validated, reliable, and generalizable risk stratification models are lacking. A recent systematic review concluded that while some models may be useful in certain settings, most available risk prediction models perform poorly (10). The LACE index has been proposed as a risk model and incorporates length of stay, Acuity of admission, Comorbidity, as measured by the Charlson comorbidity index, and Emergency department use to identify patients with a high predicted risk for readmission or death (11). It identifies patients who may benefit from more intensive postdischarge management. Another risk assessment tool, the “8Ps” (see the Box: The 8Ps Risk Assessment Tool) identifies patient factors linked to high rates of adverse events after discharge. Each of the risk categories requires a different set of interventions—some may be implemented by the hospital staff, and others require ongoing supportive care after hospital discharge. For example, a patient prescribed multiple high-risk medications may benefit from counseling and follow-up contact from a pharmacist. Prior hospitalization has been shown to be the single most predictive risk factor for subsequent rehospitalization, and these patients may benefit from intensive case management support (12). Other “P”-based risk factors that have been suggested include lack of Primary care or Public support.

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**The 8Ps Risk Assessment Tool**

- Problem medications (e.g. warfarin, insulin, digoxin)
- Polypharmacy
- Psychological conditions (e.g. depression)
- Principal diagnosis (e.g. cancer, stroke, diabetes, COPD, congestive heart failure)
- Poor health literacy
- Patient support (the absence of social support, either formal or informal)
- Prior hospitalizations (in the past 6 months)
- Palliative care

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Medication-related adverse events after discharge warrant particular attention. One study found that among patients who had implantation of a drug-eluting stent, 16% did not fill their clopidogrel prescription on the day of discharge. These patients were found to have 50% increased risk for death or myocardial infarction, with a large proportion occurring in the first 30 days after hospital discharge. Health systems should identify patients needing high-risk medications before discharge, reconcile their discharge medication with regard to accuracy, develop innovative practice solutions to educate these patients, and ensure that they have access to these medications after discharge.

What factors contribute to adverse events caused by poorly coordinated transfers of care out of the hospital to home?

Because inpatient care is increasingly provided by hospitalists at many U.S. hospitals (14), direct involvement of primary care physicians has become less common and the coordination of care more complex (15). The discharge summary is the usual method of communicating the hospital course from one provider to another, and although standards of required elements have been defined by the Joint Commission, content, timeliness, availability, and quality vary widely.

In a systematic review evaluating discharge summaries, availability at the first postdischarge visit was found to be low (12%–34%), and the summary often lacked important information, such as diagnostic test results (33%–63% of the time) or pending results transmitted at the time of discharge. A recent qualitative study of Medicare patients readmitted within 30 days of discharge found that more than half of follow-up care visits approximately 25% of the time (16).

Discharge summaries may also lack important patient-specific information (social–emotional status, preferences, and needs). In addition, fragmented communication at the time of discharge, such as unclear information transmitted in illegible handwriting, incomprehensible information due to abbreviations unknown to primary care physicians, and excessive information without prioritizing relevant aspects of the hospitalization, all contribute to poorly coordinated discharge. A recent qualitative study of providers, patients, and family members reported that hospitals should take an inventory of their commitment to the hospital discharge process and the quality of information transmitted at the time of discharge. Examples of underlying discharge barriers included lack of time, work pressure, work routines, priority on providing undervalued administrative discharge tasks relative to providing urgent clinical care, and lack of knowledge and understanding between hospital and primary care providers (17). Health care organizations should evaluate their culture of readiness for improvement in these areas.

Care coordination problems are compounded when patients are unable to see ambulatory care providers in a timely manner due to such patient factors as severity of illness, transportation or financial concerns, provider availability or access, or insufficient information and education at discharge. A study of Medicare patients readmitted within 30 days of discharge found that more than half had no billing encounter with an outpatient care provider, suggesting an opportunity to support patients’ clinical needs to preclude readmission (4).

Diagnostic test results pending at the time of discharge create an important potential safety problem if care transitions are not well-coordinated.
At 2 tertiary care academic hospitals, 40% of patients had pending results on 1 or more tests at the time of discharge; of these, 10% potentially required a clinical intervention. A survey of inpatient and primary care physicians found that one third of physicians did not know the test had been ordered and 60% were unaware of the result (18).

Problems completing planned diagnostic tests or evaluations after discharge may also create patient safety problems. One study found that 27% of patients discharged from a medical or geriatric service had further diagnostic procedures (e.g., endoscopies), subspecialty referrals, and laboratory tests (e.g., anticoagulation monitoring) recommended, but 36% were not completed. Two factors were determined to be main contributors: increased time to first postdischarge follow-up visit with the primary care provider, and availability of the discharge summary recommending further workup (19).

What factors may contribute to adverse events when patients are discharged from a hospital to another health care facility?

Increasingly, patients requiring ongoing facility-based care are being transitioned to an acute rehabilitation hospital or skilled nursing facility. A poorly coordinated exchange of information contributes to high rates of medication-related adverse events (20) and duplication of testing. Variability in the quality of hospital staff preparation and communication of the discharge information to nursing facilities and the timing of transfers (i.e., sudden transfers or those occurring at night or on weekends) have been identified as primary reasons for poor information exchange (21). One study found that discharge summaries sent to postacute care facilities often missed important information, such as the list of preadmission medications, reasons for changes to medications at discharge, pending test results, and postdischarge follow-up plans (22).

Also problematic is the high frequency with which patients with indwelling devices are transferred to other facilities (23). Insufficient communication around indications and anticipated duration of use for these devices puts patients at risk for complications, including catheter-associated urinary tract infections, central line-associated bloodstream infections, and venous thromboembolism. Infections are a leading cause of hospital readmission among patients at skilled nursing facilities (24, 25), and even if these patients do not require readmission, managing these infections can lead to unintended consequences. For example, while health care facilities need to implement appropriate infection control measures, prolonged or inappropriate contact precautions may lead to less attention given to patients, causing isolation and functional or clinical decline (24).

Background... Hospital discharge can be a perilous process. Many patients have unintended adverse events after discharge, with an estimated 20% of patients being readmitted to the hospital within 30 days. Because patients are transitioning from not only their location of care but also from most of their health care providers, it is critical to ensure that the quality and timeliness of communication among health care providers are monitored and improved. Determining which patients will have adverse postdischarge events is difficult, but risk assessment tools have been developed to help providers address specific barriers before discharge. Patients often continue their recovery out of the hospital, and thus it is imperative that the posthospital health care providers are aware of ongoing needs to ensure a smooth recovery and timeliness of follow-up care without duplication of effort.

CLINICAL BOTTOM LINE

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Hospital Discharge

Who should be involved in discharge planning and how and when should it be done?

Preparing for hospital discharge should involve an interdisciplinary team, including the patient and family members. Combined into a “discharge transitions bundle,” key processes and steps include medication reconciliation, patient and family engagement with such interactive methods as “teach-back” (Figure 1) (26), timely and accurate transmission of information to the patient and providers at the next site of care, and outreach to the patient soon after discharge (Figure 2).

When a patient is discharged home, which services should be considered and how should care be coordinated with outpatient care teams?

Home care service providers are often responsible for completing critically important care that was started in the hospital, such as the administration of intravenous antibiotics. Skilled home care providers can also evaluate a patient’s safety, vital signs, oral intake and diet, medication adherence, and pain control; clarify instructions; and reinforce education provided in the hospital.

Patients may be eligible for many home care services through Medicare Part A or private insurance, including intermittent skilled nursing care; physical, speech–language, or occupational therapy; medical social services; and use of an intermittent home health aide. Further, patients may receive certain medical supplies, such as wound dressings, durable medical equipment, and injectable osteoporosis drugs. Eligibility for skilled home care services requires physician certification that the patient is homebound and under the care of a doctor who oversees and regularly reviews the established care plan.

It is critical that the home care providers communicate closely with the outpatient team about the patient’s progress and about any significant clinical needs that warrant intervention. For example, the outpatient physician can help arrange home care services that may not have been requested before discharge, appropriately manage medications (e.g., discontinuing low-molecular-weight heparin injections once the patient is therapeutic on warfarin), and facilitate removal of peripherally inserted central catheters or other indwelling devices when therapy is no longer required.

Patients may choose their own home health agency. To assist, CMS has established a Web site to help beneficiaries better understand home care, what they can expect, the types of services offered, and quality ratings for home care agencies. Providers and patients can find home care quality and satisfaction reports at www.medicare.gov/HomeHealthCompare.

How should families prepare for a patient’s discharge from the hospital?

Establishing a patient– and family-centered approach to hospital transitions is essential and should be a priority for every health system. Smooth transitions start with partnerships among health care providers, patients, and their families to facilitate education and active participation in postdischarge planning. Unfortunately, this is not always well-executed (27). Ineffective communication by hospital staff may contribute to poor transitions and may involve multiple problems, including failure to identify and accommodate the appropriate timing.
and settings for effective communication. For example, acutely ill patients may receive sedating medications or other treatments that interfere with effective communication. Thus, it is imperative that the healthcare team identify the appropriate timing for important conversations on transition planning and family members to participate, because they are often active participants in postdischarge care.

A qualitative study by Hesselink and colleagues (28) illustrates that a standard discharge consultation with patients and family members is often not done at all. Discharge information is provided piecemeal between other care activities. This increases the risk for discharging uninformed patients because they are not aware of the importance of the information and are unable to remember it. To improve the discharge

Figure 1

Figure 2
Key process steps in discharge planning and transitioning patients to primary care ("Discharge Transitions Bundle").
Minimal Required Information To Be Provided to Patients and Families at Hospital Discharge

Reason for hospitalization (in medical terminology and lay language; information further explained and elaborated by the use of pictures and images)
Self-care instructions (e.g., on wound care) explained in writing and by pictures and images
Pertinent tests and treatment rendered during hospitalization
Signs and symptoms to watch out for, with instructions on what to do if such events occur
List of tests and studies that require further follow-up as an outpatient
List of medications, noting any changes from admission and the reason for that change
Contact information (who is primary contact person and available at what time) for hospital-based providers and primary care physician
Instructions for primary care physician follow-up, including appointment time and location if already arranged
Home care services arranged

process, essential information should be provided to patients and families before discharge (see the Box: Minimal Required Information To Be Provided to Patients and Families at Hospital Discharge).

How should discharges on weekends or when access to primary care for follow-up is limited be handled?
Because staffing and services are frequently limited on weekends, hospitals and health care providers should ensure that discharge needs are thoroughly addressed during weekdays before the weekend discharge. Providing appropriate clinical services on holidays and weekends on a limited basis and offering a home visit to the patient, while awaiting usual home care services, should also be considered. Rarely, it may be prudent to delay discharge until care transitions can be better coordinated with a full complement of care providers, including the primary care providers and family members (29).

In a prospective cohort study of patients discharged from 1 academic medical center, patients who lacked timely follow-up from a primary care physician (defined as within 4 weeks of discharge) had a 10-fold increased risk for readmission for the same condition (30).

When access to primary care is limited, some organizations have established creative models as a bridge, such as a discharge or transitions clinic. These clinics, which are often staffed by hospitalists or nurse practitioners, can see patients within days of their discharge to assess clinical status, address new problems, reconcile medications, discuss test results, and through enhanced relationships and communication with hospital-based providers, patients who are not doing well (31, 32).

How is care best coordinated when a patient is discharged?
Effective coordination of care starts in the hospital with interdisciplinary rounds. Hospital-based providers should strive to complete a quality discharge summary within 24–48 hours of the patient’s discharge and confirm with the providers at the next setting (i.e., primary care or skilled nursing facility) that the discharge information has been received. Until a universally accessible electronic medical record system connects all care providers throughout the spectrum of care settings, health care providers will need to use a combination of methods to communicate essential discharge information. These include secure e-mails, telephone calls, electronic medical record–based notification applications, and discharge summary transmission via fax or U.S. mail.

A recent systematic review on interventions to improve hospital discharge to primary care found that medication reconciliation, use of electronic tools to generate discharge summaries and communicate information to other providers, and shared responsibility for patient follow-up effectively reduced rehospitalizations and improved patient satisfaction (33).

The same principles apply to coordinating care for patients discharged to skilled nursing facilities. An academic medical center employed onsite geriatricians and advanced nurse practitioners in privately operated skilled nursing facilities and was able to reduce their 15-day readmission rates throughout the first 5 years of their program (34). The skilled nursing facility program attributed its successes to having access to the hospital’s electronic medical records, such as discharge summaries and laboratory and study results, and through enhanced relationships and communication with hospital-based providers.

Timely follow-up with clinical care providers after hospital discharge is imperative; hospitals should attempt to arrange follow-up appointments before discharge, which may reduce readmissions and emergency department visits.
When applicable, end-of-life treatment preferences must also be conveyed at discharge. The Physician Orders for Life Sustaining Treatments (POLST) form is a portable medical order that indicates the patient’s preferences to have cardiopulmonary resuscitation attempted, receive artificial nutrition by tube, be administered antibiotics, and specify the extent of medical treatments. Health care providers carry out these orders regardless of the setting or situation. The POLST program exists or is being developed in 39 states (36) and has been shown to achieve a high rate of care consistent with patient wishes (37).

What are the most effective ways to ensure safe, appropriate medication reconciliation?
The Joint Commission designation of medication reconciliation—maintenance and communication of accurate patient medication information across settings—as one of its National Patient Safety Goals highlights the importance of this aspect of the discharge process. Effective medication reconciliation must be patient-centered, clinically relevant, and include a comprehensive review of all current medications to ensure that medications being added, changed, or discontinued are accounted for and an accurate list is maintained across settings (see the Box: Suggested Format for the Discharge Reconciled Medication List). This list must be available to the patient or family member and all providers involved in the patient’s care (38). Interventions in the postdischarge period should also be considered, where home care providers and ambulatory based nurses, pharmacists, and primary care physicians continue appropriate medication reconciliation with the patient. A recent systematic review of hospital-based medication reconciliation processes reported that interventions, such as the use of pharmacists, information technology, staff education and feedback, and a standardized medication reconciliation tool, reduced medication discrepancies and preventable adverse drug events but showed inconsistent benefit in overall health care use (39).

Despite ongoing efforts to improve medication reconciliation, the implementation of an effective medication reconciliation program remains challenging in most health systems, and medication-related problems continue to be among the most common adverse postdischarge events (40). Many institutions have enlisted the help of clinical pharmacists to facilitate medication reconciliation; these studies have shown mixed results with respect to health care use, such as return visits to emergency departments and rehospitalizations. Pharmacist involvement in the assessment of medication appropriateness, medication reconciliation, screening for adherence concerns, patient counseling, and postdischarge phone calls may reduce the rate of medication-related complications, such as preventable adverse drug events (41–43). Each organization should consider how these health care providers can optimally support the medication reconciliation process.

Which interventions can prevent hospital readmission?
A systematic review to evaluate the preventability of hospital readmissions found that rates ranged widely, from 5%–79%, with a median of 27% considered avoidable (44). A recent systematic review evaluating interventions designed to reduce readmissions

Suggested Format for the Discharge Reconciled Medication List

New medications—started during hospital stay that should continue after discharge (including information about the reason and intended duration for each new medication)
Continued medications—include medications patient was taking before hospitalization that should continue after discharge
• Medications that should be continued, but dose and/or frequency or other directions have changed (include information about the reason for the change and intended duration of the change)
• Medications that should be continued and the dose, frequency, and other directions remain the same
Discontinued medications—include medications that the patient was taking before the hospital stay that he or she should stop taking

reported that most interventions were not studied in isolation and often involved a combination of pre- and postdischarge components. Common elements across studies included providing a patient-centered discharge instruction sheet and a postdischarge telephone call. There was no single intervention that reliably reduced 30-day readmission rates. The authors concluded that bundling groups of interventions was likely to have the most benefit (7).

The following 3 highly successful, multicomponent care transition models have been described.

In a randomized, controlled study done in a large integrated delivery system in Colorado, patients with 1 of 11 conditions were randomized to receive usual care or a care transitions intervention with 5 components: 1) medication self-management, 2) a patient-centered record owned and maintained by the patient, 3) timely follow-up care with an ambulatory provider, 4) a list of common symptoms that may indicate a worsening condition, along with instructions on how to respond to them, and 5) utilization of a “transitions coach” to conduct a home visit and assist patients with their self-management skills. The intervention resulted in a significant reduction in 30- (8.3% vs. 11.9%) and 90-day (16.7% vs. 22.5%) readmission rates and lower hospital costs at 180 days ($2058 vs. $2546) (45).

In another trial, patients older than 70 years who were being discharged from a medical/surgical cardiac service were randomly assigned to receive a nurse-implemented comprehensive discharge planning tool or usual care. Those with medical diagnoses in the intervention group had a lower rate of readmission during the first 6 weeks after discharge (10% vs. 23%) (46). In a follow-up randomized trial, advanced practice nurses assisted with discharge planning and home follow-up. Patients who were assigned to the nurse-administered intervention were less likely to be readmitted and time to first readmission was increased compared with control patients (47).

The third trial, the Reengineered Hospital Discharge Program (Project RED), studied the impact of an intervention that included use of a nurse discharge advocate to arrange follow-up appointments, conduct medication reconciliation, and utilize a personalized instruction booklet to provide patient education and communicate with the primary care provider; a clinical pharmacist contacted the patient 2–4 days later to highlight the recent discussions with the nurse discharge advocate and review medications. Patients assigned to the intervention group had lower rates of hospital utilization defined by readmissions and return visits to the emergency department within 30 days leading to lower overall costs incurred by the patients in the intervention group (48).

Of note, Project RED excluded patients admitted from or discharged to skilled nursing facilities. The study was also done at an urban safety net hospital, the average age of patients enrolled in the study was 50 years, and the mean length of stay was 2.6–2.8 days.

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**Hospital Discharge...** An interdisciplinary group of care providers along with the patient and family should communicate and coordinate the care needs for the discharged patient. Each discipline can offer specific risk-mitigating interventions that should be discussed with the patient and family to ensure that care is coordinated and follow-up is established. While most patient-centered interventions should be started in the hospital, ongoing assessment and adjustments to the care plan can and should take place in the home with home care service providers and the outpatient team. Communication of information about the patient’s health condition and treatments should incorporate appropriate health literacy tools and utilize such methods as “teach-back” to enable providers to assess knowledge and skill gaps requiring additional and ongoing reinforcement. Interventions aimed at reducing risk for adverse postdischarge events are often not effective in isolation but need to be bundled in a consistent manner by the health system.
What measures do stakeholders use to evaluate the quality of care for transitions of care? How are these measures reported, and how are regulations enforced?

The most widely used metric to assess the quality of the hospital discharge has been the 30-day readmission rate. Although many suggest that a shorter duration (7 or 14 days) might better reflect the quality of the discharge, transition improvement trials, demonstration projects, and federal reporting programs have established the 30-day window as the benchmark. The CMS publically reports 30-day readmission rates for U.S. hospitals and levels financial penalties for hospitals with excess readmission rates for certain conditions. To avoid penalizing hospitals for factors outside their control, CMS has adjusted for hospital case-mix and allowed for certain patient-level exclusions, including “left against medical advice,” discharged to another acute care facility, or died in the hospital (49). Some stakeholders have taken a firmer stance in measuring 30-day readmission rates. The National Committee for Quality Assurance has developed an all-cause readmissions measure in which all commercial and Medicare readmissions for patients older than 18 years of age, regardless of whether they were planned or unplanned, are included in this quality metric (www.qualitymeasures.ahrq.gov/content.aspx?id=34747).

The Hospital Consumer Assessment of Health care Providers and Systems report provides hospitals with patient survey results regarding the quality of discharge and communication with health care providers (www.hcahpsonline.org/home.aspx). The Joint Commission requires hospitals and health systems to ensure that medication reconciliation is conducted and monitored across settings of care for patients (www.jointcommission.org/standards_information/npsgs.aspx).

To better assess key processes surrounding hospital discharge, the National Quality Forum has endorsed a metric called the “timely transmission of transition record.” The measure would track the percentage of discharge transition records provided to the next “site provider” within 24 hours of hospital discharge (www.qualityforum.org/News_And_Resources/Press_Releases/2012/NQF_Endorses_Care_Coordination_Measures.aspx). Similar to this measure, stage two of the meaningful use criteria for adopting electronic health records provides credit toward incentive payments for providers sending an electronic summary of care record for a percentage of hospital discharges. As a result, providers have additional financial motivation to enhance their electronic record transmission process in a timely manner (www.cms.gov/Regulations-and-Guidance/Legislation/EHR_IncentivePrograms/Stage_2.html).

How can hospitals and health care providers work together with community-based organizations and the patient’s support network to facilitate a smooth patient transition after discharge?

The Community-based Care Transitions Program (CCTP), a component of the Partnership for Patients initiative, identifies hospitals having high readmission rates that are then eligible to partner with community-based organizations to apply for funding and implement an evidence-based care transitions model to reduce readmissions. At the time of this writing, funding has been approved for 47 sites that have created hospital–community organization partnerships to implement, test, and evaluate these transitions programs (47). The Joint Commission has developed an all-cause readmissions measure (www.jointcommission.org/standards_information/npsgs.aspx). The measure would track the percentage of discharge transition records provided to the next “site provider” within 24 hours of hospital discharge (www.qualityforum.org/News_And_Resources/Press_Releases/2012/NQF_Endorses_Care_Coordination_Measures.aspx). Similar to this measure, stage two of the meaningful use criteria for adopting electronic health records provides credit toward incentive payments for providers sending an electronic summary of care record for a percentage of hospital discharges. As a result, providers have additional financial motivation to enhance their electronic record transmission process in a timely manner (www.cms.gov/Regulations-and-Guidance/Legislation/EHR_IncentivePrograms/Stage_2.html).

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measure the effect of new transitions programs. The CCTP awardees have established partnerships with diverse organizations, including the Area Agency on Aging, local hospitals, pharmacies, medical plans, federally qualified health centers, skilled nursing facilities, rehabilitation centers, home health agencies, hospice agencies, and Medicare’s Quality Improvement Organizations, to address care transitions needs for high-risk Medicare beneficiaries. In addition to the CCTP, the Partnership for Patients initiative provides resources and support through Hospital Engagement Network (HEN) organizations. The 26 HEN organizations represent national, regional, state, and local systems that identify successful strategies to reduce hospital readmissions and helps disseminate these ideas to hospitals and health care providers (http://partnershipforpatients.cms.gov/about-the-partnership/hospital-engage-ment-networks/thehospitalengagementnetworks.html).

The CMS Center for Medicare and Medicaid Innovations has several demonstration and pilot programs that aim to better understand how health care delivery can be improved. Many of these programs call for the creation of partnerships across health care organizations, community organizations, and health care providers. Improving care transitions is a key goal of the demonstration programs, and 30-day readmission rates will be reported (www.innovations.cms.gov/initiatives/index.html). Many of these innovative programs are ongoing, and any that show positive results will be expected to share their findings and help disseminate best practices.

What are some other innovative practice solutions that effect a successful transition from the hospital?

Better Outcomes by Optimizing Safe Transitions (BOOST) provides a mentored implementation program for hospitals to analyze and redesign their systems of care used in care transitions (50). Currently, there are over 100 BOOST sites throughout the United States and Canada. Similarly, the State Action on Avoidable Rehospitalizations initiative has brought together 148 hospitals across 4 states to collaborate and share best practices on reducing readmissions (51).

At the state level, the Michigan Transitions of Care Collaborative (M-TC²) was created to engage both hospitals and physician organizations in improving care transitions and reducing readmission rates. Supported by Blue Cross Blue Shield of Michigan, M-TC² has implemented the BOOST principles while also taking advantage of existing state-wide efforts to assist hospitals and physician organizations in improving population health management through creation of robust advanced medical homes and organized systems of care. Blue Cross Blue Shield of Illinois has similarly funded the Preventing Readmissions through Effective Partnerships initiative, which has enrolled 27 hospitals across Illinois in Project BOOST.

There is significant interest in the use of telemonitoring technology to facilitate smooth transitions in which patients receive ongoing support in their homes through virtual communication with health care providers. Results have been mixed, with some studies suggesting benefit in populations with certain conditions (e.g. heart failure) (52), whereas other studies have been unable to demonstrate reduced readmissions or improved mortality rates after hospital discharge (53, 54). The field of telemedicine continues to advance.

in technology and should be considered by health care organizations for patients appropriate for this intervention.

Homeless persons are a particularly challenging population and require innovative solutions for effective transitions from the hospital back to the community. Medical respite programs aimed to assist homeless patients may help them recover from their acute illness and reduce the likelihood of being readmitted to the hospital (55). Support for such programs has been obtained through both public and private funding sources.

What do professional organizations recommend regarding transitions of care?

In 2007, several professional societies, including the American College of Physicians, Society of General Internal Medicine, the Society of Hospital Medicine, established the standards needed to address quality gaps in transitions of care and the components necessary to address these standards (56).

The American College of Cardiology, in partnership with the Institute for Healthcare Improvement, provides information on strategies to reduce cardiovascular-related hospital readmissions (www.h2hquality.org/), and the Association of American Medical Colleges, in partnership with University HealthSystem Consortium, has developed Best Practices for Better Care, in which medical schools and teaching hospitals participate and commit to improving patient care and medical education on such topics as reducing hospital readmissions for high-risk patients (https://www.aamc.org/initiatives/bestpractices/commitment/180550/reduce_readmissions.html).

Other guides on improving care transitions have been developed by the National Transitions of Care Coalition (www.ntocc.org), Care Transitions Program (www.caretransitions.org/), Transitional Care Model (www.innovativecaremodels.com/care_models/21/key_elements), and Institute for Healthcare Improvement’s State Action on Avoidable Rehospitalizations program (www.ihi.org/offerings/Initiatives/STAAR/Pages/default.aspx). These organizations provide information on their care transition improvement programs, how to implement their model, and how to access a community of organizations and individuals utilizing these practices.

Practice Improvement...

Research studies, learning collaboratives, and professional medical societies have established best practices to assist hospitals and health systems in tracking and improving their care transition processes. Regulatory agencies and other key stakeholders increasingly use financial mechanisms to incentivize or penalize hospitals and health systems to improve process and outcomes measures related to care transitions. To develop their improvement efforts, hospitals can align themselves with providers, external care facilities, and other organizations based in the community to help patients navigate the health system. In the era of payment reform and payment models in which health care organizations are reimbursed for episodes of care, innovative practice solutions in which payers, hospitals, and providers partner to assist patients could help improve care transitions, reduce risk for adverse postdischarge events, improve patient satisfaction, and potentially realize cost benefit.

CLINICAL BOTTOM LINE
In the Clinic Tool Kit

Transitions of Care

PIER Module
http://pier.acponline.org/physicians/ethical_legal/el755/el755.html
http://pier.acponline.org/physicians/diseases/d1057/d1057.html
PIER modules on ethics and palliative care and drug prescribing in the older patient from the American College of Physicians (ACP).

Patient Information
http://pier.acponline.org/physicians/ethical_legal/el755/el755.html
Access the patient information material that appears on the following page for duplication and distribution to patients.
www.ntocc.org/WhoWeServe/Consumers.aspx
Information for patients and families on improving transitions of care from the National Transitions of Care Coalition.
www.medicare.gov/campaigns/caregiver/caregiver.html
Resources on caring for someone with a chronic illness, caregiver support, and Medicare home health coverage, from the Centers for Medicare & Medicaid Services (CMS).
www.cancer.gov/cancertopics/pdq/supportivecare/transitional_care/Patient
Patient summary on transitional care planning for adults with cancer, adapted from a summary by cancer experts for health professionals, from the National Cancer Institute.
www.acponline.org/patients_families/end_of_life_issues/
Series of brochures on end-of-life care transitions, from ACP.

Clinical Guidelines
www.ncbi.nlm.nih.gov/pmc/articles/PMC2710485/
2009 transitions of care consensus statement from several societies, including ACP, Society of General Internal Medicine, and Society of Hospital Medicine (SHM).
www.healthcare.gov/compare/partnership-for-patients/safety/transitions.html
Roadmap to Better Care Transitions and Fewer Readmissions, a program from HHS to reduce preventable hospital readmissions within 30 days of discharge.

Diagnostic Tests and Criteria
www.hospitalmedicine.org/ResourceRoomRedesign/RR_CareTransitions/html_CC/06Boost/07_Boost_Tools.cfm
Patient PASS, a transition record from SHM to prepare for successful discharge.
www.hospitalmedicine.org/ResourceRoomRedesign/RR_CareTransitions/html_CC/06Boost/02_TARGET.cfm
TARGET, a geriatric evaluation form to address risk during transitions of care, from SHM.

Quality-of-Care Guidelines
Patient safety information related to adverse events after hospital discharge from the Agency for Healthcare Research and Quality of HHS.
www.aoa.gov/AoARoot/AoA_Programs/HCLTC/ADRC_caretransitions/index.aspx
Information on evidence-based care transition models from the Aging & Disability Resource Centers program, a project funded by the Administration on Aging and CMS.
www.hospitalmedicine.org/ResourceRoomRedesign/RR_CareTransitions/CT_Home.cfm
The BOOSTing Care Transitions resources from SHM help providers optimize the discharge process.
www.bu.edu/fammed/projectred/index.html
The project RED (Re-Engineered Discharge) tool kit includes 5 tools that provide step-by-step instructions as a springboard for hospitals to proactively address avoidable readmissions.
THINGS YOU SHOULD KNOW ABOUT TRANSITIONS OF CARE

What are transitions of care?
- When patients move from an inpatient setting to an outpatient setting. Often the transition is from hospital to home.
- The transition can be hard on patients and their families and other caregivers as they adjust to new routines and responsibilities.
- Careful planning and coordination and effective communication can ease the transition.

Who should be involved in discharge planning?
- Patient.
- Hospital staff (nurses, therapists, and doctors involved in patient care).
- Primary care doctor.
- Home care nurse
- Pharmacist (for prescription information).
- Family and any other caregivers.

What are the risks of transitions of care?
- Patients are at risk for complications after hospital discharge, such as needing rehospitalization due to medication errors, inadequate medical follow-up, and other medical management problems.

What can improve transitions of care?
- Anticipate the hospital discharge and discuss with your hospital-based health care providers about when you’ll be going home and what to expect.
- A discharge instruction to patients outlining important, understandable, and well-structured information about diagnosis (reason for hospitalization), a reconciled medication list, a follow-up appointment plan with their primary care provider, test and study results that need further follow-up, list of warning signs with instructions on what to do, and whom to contact in case questions arise after going home.
- Timely communication between the hospital doctors and your primary care doctors.
- Access to resources for posthospital care.
- A visit with your primary care physician soon after discharge, which allows him or her to assess your progress, provide any needed treatment, and answer questions about your care.

For More Information
www.caregiver.org/caregiver/jsp/content_node.jsp?nodeid=2312
A guide on hospital discharge planning for families and caregivers from the Family Caregiver Alliance.
http://nextstepincare.org/
http://nextstepincare.org/Caregiver_Home/What_Do_I_Need/
www.caretransitions.org/caregiver_resources.asp
Web sites to help caregivers and health care providers work together towards achieving safe transitions of care.

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CME Questions

1. A 67-year-old woman is admitted to the hospital with pneumonia. Blood cultures are obtained and she is started on parenteral antibiotics. She clinically improves over the next 2 days, and is to be discharged from the hospital to complete a course of oral levofloxacin.

On the morning of discharge, the physician receives a call from the microbiology lab that one of the two sets of blood cultures is growing gram-positive cocci in chains. The physician felt that the cultured organism likely represented *Streptococcus pneumonia* from her community-acquired pneumonia, and discharged the patient.

Two weeks later, the patient is readmitted to the hospital with fever, chills, and general malaise. She states that she completed the course of oral antibiotics, but started to feel sick again. Upon evaluation of the patient’s medical records, the admitting physician discovers that the blood culture result from the previous hospitalization was finalized as *Enterococcus faecalis*, and resistant to fluoroquinolones. The patient did not see her primary care physician since leaving the hospital, and the discharge summary was completed 1 week ago, which was sent to the primary care physician’s electronic medical record inbox.

Which of the following discharge process improvement efforts is the best strategy to reduce the risk for this type of postdischarge event?

A. Discharge patients only after all culture results and sensitivities are finalized
B. Tell patients with pending culture results to call the hospital 72 hours after discharge for results
C. Complete discharge summaries immediately and highlight any pending test results, recommend timely postdischarge appointments with primary care physicians, and communicate this information to patients and PCPs
D. Have patients follow up with the primary care physician within 30 days of hospital discharge

2. An 83-year-old man with a history of coronary artery disease is admitted to the hospital with shortness of breath. An echocardiogram reveals a reduced left ventricular ejection fraction, which is new for the patient. He is diagnosed with congestive heart failure and started on appropriate medications.

Medicare is his primary insurance. He is able to drive and carry out all activities of daily living. He lives with his wife and daughter.

Which of the following characteristics is most likely to contribute to this patient’s risk for adverse postdischarge events?

A. His age
B. His home family support
C. His insurance status
D. His congestive heart failure

3. A 45-year-old woman is admitted to the hospital with symptoms of poorly controlled diabetes. Her blood glucose level in the emergency department was 558 mg/dL, and her hemoglobin A1C is 12.2%. She is started on an insulin drip and intravenous fluids, and quickly improves. Over the prior 6 months, her primary care physician has discussed the need to start insulin, which she is now willing to accept. She has never taken insulin before.

She lives with her husband near her primary care physician’s office. She works as an administrative assistant and has commercial insurance.

What is the best approach to help this patient become familiar with the administration and use of her new insulin regimen?

A. Refer her to her insurance company’s diabetes educator
B. Provide instructions on how to use the insulin and have her demonstrate what she needs to do

4. A 72-year-old man with a history of hypertension, diabetes, and atrial fibrillation maintained on warfarin is admitted to the hospital and found to have an acute myocardial infarction. He undergoes coronary reperfusion therapy, and receives two coronary stents.

At the time of discharge from the hospital, the patient is given prescriptions for his new medications and is instructed to resume his previous home medications.

Four weeks later, the patient presents to the emergency department with new onset of slurred speech and right facial droop. His admission labs reveal an international normalized ratio of 1.0.

When asked about his warfarin, the patient states that he discontinued that medication after he read on the Internet that taking warfarin in combination with clopidogrel could increase his risk for bleeding.

Which of the following approaches would be most likely to prevent this type of postdischarge event?

A. Provide a reconciled discharge medication list, along with medication education and the support of a clinical pharmacist for high-risk patients
B. Provide patients with Web sites that post only reliable information
C. Ensure that the patient’s primary care physician receives a discharge summary, including an updated medication list
D. Make sure the patient fills all prescriptions in the hospital before discharge

Questions are largely from the ACP’s Medical Knowledge Self-Assessment Program (MKSAP, accessed at http://www.acponline.org/products_services/mksap/15/?pr31). Go to www.annals.org/intheclinic/ to complete the quiz and earn up to 1.5 CME credits, or to purchase the complete MKSAP program.