The approval of betrixaban has given providers a therapeutic option to potentially reduce the risk of venous thromboembolism (VTE) events. In the Acute Medically Ill VTE Prevention with Extended Duration Betrixaban Study (APEX), extended prophylaxis of 35 to 42 days with betrixaban has been associated with significantly fewer VTE events compared with 6 to 10 days of enoxaparin in the modified intention-to-treat population, with a relative reduction of 25%. Additionally, safety outcomes in the APEX trial showed no significant differences in the rates of major bleeding with betrixaban (median duration of 36 days) compared with enoxaparin (median duration of 9 days). Overall, 0.57% of enoxaparin-treated patients and 0.67% of betrixaban-treated patients experienced major bleeding. Clinically relevant nonmajor bleeding (CRNM) occurred in 2.45% of betrixaban-treated patients and 1.02% of enoxaparin-treated patients. These cases mostly ranged from mild to moderate in severity (86%), and the majority (62%) did not require medical intervention or prolonged hospitalization.

Yet, there are challenges in providing the appropriate care, due in part to the lack of awareness, guidelines, and best practices for implementation of extended prophylaxis. Ensuring that patients undergo successful transitional care from the hospital setting to the post-discharge setting is integral to obtaining optimal outcomes and adherence. Transitional care encompasses accurate and complete patient identification, information exchange, medication reconciliation, use of electronic medical records (EMRs) and order sets, case management, early discharge planning, patient education, and an understanding of drug costs/availability before discharge. This article addresses various factors of transitional care and examines potential pathways for optimizing communication among various systems of care to ensure successful results.

**Patient Identification**

The first step toward implementing a successful transition of care is identifying patients who could benefit from VTE prophylaxis extending beyond hospitalization.

Various risk prediction scores have been developed to stratify VTE risk in hospitalized patients, each using different variables to...
determine the risk score. The American College of Chest Physicians (ACCP) recommends the Padua Prediction Score. Others include Geneva, IMPROVE, and IMPROVED-D. These risk assessment tools were primarily developed based on observational data, without any supporting evidence from the clinical trial showing net clinical benefit of extended VTE prophylaxis. Although their accuracy in identifying patients who would benefit from extended versus standard duration prophylaxis may be limited, these tools are potentially helpful for patient identification, according to stakeholders.

In the absence of consensus on the best risk assessment model, guidance for identifying high-risk patients eligible for extended VTE prophylaxis could be based on observational data, without any supporting evidence from the clinical trial showing net clinical benefit of extended VTE prophylaxis. Although their accuracy in identifying patients who would benefit from extended versus standard duration prophylaxis may be limited, these tools are potentially helpful for patient identification, according to stakeholders.

In the absence of consensus on the best risk assessment model, guidance for identifying high-risk patients eligible for extended VTE prophylaxis could be based on the analysis of the APEX trial that identified and investigated these patients as well as examination of known risk factors of VTE. Hospitalization due to a major medical illness is alone a major risk factor for VTE. See Figure 1 for more risk factors for VTE.

(Editors’ Note: See article on page S468 for a robust discussion of risk factors for VTE.)

**The Importance of Transitional Care**

The American Geriatrics Society defines transitional care as “a set of actions designed to ensure the coordination and continuity of healthcare as patients transfer between different locations or different levels of care within the same location.” Transitional care not only occurs when patients change settings (eg, from home to hospital), but also when providers/prescribers change (eg, from hospitalist to primary care provider [PCP]), and between different levels of care (eg, intensive care unit to medical ward). Transitions of care occur within settings, between settings, and between phases of care.

The many components of transitional care include coordination of care between healthcare professionals (HCPs), logistical arrangements, and patient/caregiver education. Effective transitional care is essential for patients who have complex needs, such as acute medically ill patients requiring extended thromboprophylaxis. Interestingly, an Agency for Healthcare Research and Quality (AHRQ) report, titled *Preventing Hospital-Acquired Venous Thromboembolism*, observed that poor transitional care often results in breakdowns in the delivery of optimal VTE prophylaxis.

**Barriers Associated With Transitional Care**

There are several barriers to optimal transitional care. Researchers for the Community Tracking Study interviewed hospitalists, chief executive officers (CEOs), and medical directors of health plans and hospitals. A total of 12 communities were represented in the report, which indicated the following:

- An increasing number of hospitalists practice in today’s healthcare environment. CEOs from 34 of 36 hospital systems reported growth in the number of hospitalists practicing in their institutions over the past 2 years or in the percentage of general medicine admissions covered by hospitalists. In 9 of the 12 markets, hospitalists cover ≥50% of admissions.
- Communication gaps between hospitalists and PCPs lead to decreased participation in patient care. Pham et al suggested that hospitalists and PCPs “increasingly work in distinct silos” and rarely communicate with each other.

**Barriers Between Hospitalists and PCPs**

In her roundtable presentation on transitional care, Claudette McPherson, BSN, observed that lack of communication between hospitalists and PCPs is a common barrier to effective transitional care. “Within hospital settings, hospitalists are increasingly replacing PCPs in the day-to-day management of patients,” McPherson noted. To that point, Joshua D. Lenchus, DO, BSpPharm, observed that there
is often a disconnect between hospitals and PCPs regarding patient status and records. "Today, [often] PCPs have no idea that their patients are even in the hospital. Patients enter the hospital, and they are treated by specialists (eg, infectious disease, cardiology), and PCPs do not find out until later after discharge," said Lenchus. A literature review of studies citing communication between hospitalists and PCPs found that:

- Direct communication between hospitalists and PCPs rarely exists.
- Three percent of PCPs reported having discharge discussions with hospitalists.
- Less than 20% of PCPs reported being notified about discharges.

Discharge summaries were received by PCPs within 1 week of discharge approximately 15% of the time and within 4 weeks approximately 50% of the time. In many instances, key information was missing from discharge summaries, such as primary diagnosis, presenting symptoms, results from diagnostic testing, follow-up recommendations, patient age, hospitalist name, and applicable patient/family counseling.

According to McPherson, ineffective transitional care can result in unnecessary adverse events (AEs) and higher hospital readmission rates and costs. "One study found that 80% of medical errors were secondary to miscommunications during the handoffs between medical providers."9

Staffing within departments in hospital settings can also be problematic. McPherson observed that patients commonly have up to 4 to 6 different nurses in a 48-hour period. Likewise, multiple pharmacists could also be rounding and dispensing medications. In addition, hospitalists also work in shifts. A patient could have one hospitalist in the morning and another in the evening. The stakeholders agreed that these staffing challenges are even more apparent on weekends and holidays, at which time hospitals typically decrease staffing.

Transitional Care: How It Should Be Done

Transitional care should complement primary care, ensure healthcare continuity, and avoid preventable negative outcomes as patients move from one level of acuity to another, among multiple providers/prescribers, and across settings.10 McPherson suggested the use of evidence-based transitional care models, such as care transitions interventions (CTIs), to improve transitional care for patients dealing with complex medical issues. In this type of model, patients/caregivers are encouraged to assert a more active role during phases of care changes. In a study reported by Coleman et al, patients with complex care needs who were assigned CTIs had significantly lower rehospitalization rates at 30 days.11 McPherson also stressed the need for multidisciplinary communication, collaboration and coordination that enables the electronic exchange of information, shared accountability between the sender and the receiver of the information, and transitional care order sets, which allow for the standardization of transition plans, procedures, and forms.

Following are key steps in the successful implementation of transitional care for patients receiving extended prophylaxis for VTE (Figure 2)12-16:

**FIGURE 2.** Key Steps in Transitional Care for Successful Implementation of Extended VTE Prophylaxis12-16

- **Information Exchange:** Information exchanges between providers, departments, and institutions must be accurate and complete. Without effective communication, strong transitional care is not possible.
- **Medication Reconciliation:** Comparing a patient’s medication orders with all medications that the patient has been taking helps to avoid medication errors (eg, omissions, duplications, dosing errors, and drug interactions) and it should occur at every transition in care.
- **Use of Electronic Medical Records and Order Sets:** Clinicians have access to essential information related to a patient’s care in real time with the use of order sets via electronic medical records.
- **Care Management:** Ensuring attention to practical issues, such as education of the patient/caregiver, availability of anticoagulant medications for at-home use, and arrangements for follow-up care, care management provides continuity of care for both patients and clinicians.
- **Discharge Planning:** Early discharge planning is associated with improved outcomes after the discharge date. Planning and initiating the discharge process at admission decreases the likelihood of important information being missed or forgotten.
- **Understanding Drug Costs and Coverage:** Assessing drug costs and insurance coverage at discharge is essential toward ensuring patients continue prophylaxis, particularly since prior authorization may be required. Contacting the admitting facility via phone or email to ensure that the needed products are on formulary can help secure a smooth transition.

VTE indicates venous thromboembolism.
Accurate and Complete Information Exchange. When considering the needs of patients receiving anticoagulant therapy, Deitelzweig et al highlighted the importance of effective transitional care. 12 Accurate and complete information exchange among transferring and receiving providers/prescribers was essential and necessary to quality care. 12 Gary L. Johnson, MD, MS, MBA, agreed, noting that “communication has to improve across the continuum of care; however, this is not something that providers/prescribers are reimbursed for in the current healthcare setting.”

Medication Reconciliation. In 2011, The Joint Commission incorporated medication reconciliation into its National Patient Safety Goals. 13 The Joint Commission defines medication reconciliation as “the process of comparing a patient’s medication orders to all of the medications that the patient has been taking.” 13,14 The goal of medication reconciliation is to avoid medication errors (eg, omissions, duplications, dosing errors, and drug interactions). According to The Joint Commission, medication reconciliation should occur at every transition in care. Data from the Institute for Healthcare Improvement has shown that the implementation of medication reconciliation at all transitions in care (ie, admission, transfer, and discharge) decreases the occurrence of unnecessary adverse drug events. 15 In a study reviewing 1045 home medications by pharmacy personnel, investigators observed discrepancies in 27.8% of entries. 13 The most common discrepancies included dose optimization (45.5%), added therapies (27.6%), and discontinued therapies (11.7%); other discrepancies were reported in 15.2% of entries. 13 Medication reconciliation is an essential function of pharmacy departments and underscores the need for clinical pharmacy interventions, the stakeholders agreed.

Electronic Medical Records and Order Sets. EMRs and order sets can also play an important role in the improvement of transitional care. An order set is a preassembled template of orders that standardizes and accelerates the ordering process for a common clinical scenario. According to McPherson, clinical order sets serve as a guide for clinicians to safeguard compliance with recommended standards. Moreover, when order sets are embedded into EMRs, medications, and laboratory tests, clinicians are given integral information related to the patient’s care in real time. Figure 3 provides a visual example of an order set.

Care Management. When patients are admitted to inpatient units, care management provides continuity of care. 12 When patients transition to at-home or long-term care, care management ensures attention to practical issues (eg, education of the patient/caregiver, availability of anticoagulant medications for at-home use, and arrangements for follow-up care). 12 Frank P. Hull, MD, suggested that care management needs to continue after patients are discharged from the hospital. He noted that payer care management “take the lead” after discharge to ensure continuity of care.

Early Discharge Planning. Early discharge planning is defined as “interventions initiated during the acute phase of an illness or injury to facilitate the transition back to the community as soon as the event is stabilized.” 16 A systematic review and meta-analysis examined the effectiveness of early discharge planning in acutely ill or injured hospitalized patients. 16 According to the investigators, early discharge planning was associated with improved outcomes after the discharge date. 16

Stakeholders discussed the need for discharge planning to occur sooner rather than later. McPherson commented, “We must start planning ahead. We need to start the discharge process at admission so that nothing is missed or forgotten.”

Understanding Drug Costs/Availability Before Discharge. McPherson stressed the need to assess insurance coverage and the
ability of patients to pay for discharge prescriptions before they are discharged. "In my experiences, betrixaban for example, requires prior authorization from most plans; therefore, patients should never be discharged with just a prescription," said McPherson.

Initiatives such as "meds to beds," in which outpatient prescriptions are delivered to patients’ bedsides before discharge, and coupons/vouchers may help decrease out-of-pocket drug costs. Tania Ahuja, PharmD, proposed that when patients are transferred to other facilities, "soft" handovers can ensure that gaps in therapy do not occur. "We contact the admitting facility via phone call or email to ensure that the needed products are on formulary," she said.

Patient Adherence and Educational Campaigns

Studies of patient adherence to prescribed antithrombotic products largely consist of adherence rates within clinical trials. Results from a 2017 study have shown that adherence rates are independently associated with anticoagulation control, with poorer control in those with self-reported changes in adherence since their previous visit. Stakeholders concurred that adherence rates with thromboprophylaxis are generally poor. Factors that influence adherence to prescribed therapies include frequency of dosing, knowledge of the prescribed drug, prior authorization requirements, out-of-pocket costs, and medical literacy.

Results from a recent study evaluating adherence to VTE prophylaxis in hospitalized patients showed that 12.7% of medication doses were not administered. The findings also indicated that nonadministration of subcutaneous anticoagulants was roughly twice as likely than other medications, suggesting that patients may prefer oral formulations to those injected subcutaneously. Additionally, Ralph J. Riello III, PharmD, pointed out that when injectable VTE prophylactic agents are administered, it may occur after 11 PM and before 6 AM, or designated "quiet hours.” "At my institution, as the patient’s perception of their ‘Quiet Healing Environment’ is directly tied to CMS reimbursement via the Patient Centered Experience of Care domain and a national poor medical need content to roundtable group (RJR); supervision (FPH, JDL, PPD).

A conflict of interest with the subject matter of this supplement.

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Address correspondence to: pdobesh@unmc.edu.

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