Society of Hospital Medicine

Facilitation of Anticoagulation for Safer Transitions Program Implementation Guide

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Introduction

Acute venous thromboembolism (VTE) is a frequently encountered, yet often challenging disorder for clinicians due to the potential serious nature of the disease process and the propensity for thrombus propagation or recurrence if not treated with optimal therapy for an adequate duration. Additionally, treatment of acute VTE in the hospitalized patient can be complicated by the inherent risk of associated anticoagulation therapy, which if not chosen wisely or administered correctly, may result in life threatening adverse events (ADEs).

AT LEAST 1 MILLION AMERICANS suffer from an acute VTE annually.[1]

Disease severity can range from an uncomplicated distal (calf) deep vein thrombosis (DVT) to a life-threatening pulmonary embolism (PE). The variability in disease state presentation may involve treatment in multiple clinical settings ranging from an outpatient medical practice to an intensive care unit. A conservative estimate of the resulting cost of care for acute VTE in the United States is 1.5 billion dollars per year.[2]

Transitions of care (ToC), defined as movement of patients between health care practitioners or settings, are pivotal events. If ToC processes are not well executed, this period can lead to many patient risks, including increased morbidity and mortality, rehospitalization, and significant healthcare costs. ToC processes are often performed poorly without adequate coordination leading to poor patient experience and adverse outcomes. The risk associated with ToC between the inpatient and outpatient setting is especially significant, with some studies finding up to one-fifth of patients experiencing an adverse event within two weeks of hospital discharge, many of which could be prevented or mitigated with timely intervention.[2] The inherently high-risk nature of VTE, compounded by the use of high-risk medications in

a variety of treatment settings, render this disorder an ideal condition for utilization of a systematic and comprehensive ToC process to enhance patient outcomes.

Anticoagulants, the foundational therapy for VTE, are commonly associated with medication errors and adverse drug events that may lead to life-threatening emergency hospitalizations.[3] Therefore, appropriate agent selection and comprehensive patient education interventions to ensure that patients understand their diagnosis and treatment plan, and the importance of medication adherence and follow-up are essential to ensure optimal treatment outcomes.

The Society of Hospital Medicine Facilitation of Anticoagulation for Safer Transitions (SHM FAST) Mentored Implementation program (henceforth stated as SHM FAST) provided hospitals with a stepwise approach to successfully develop and implement a ToC bundle and reliable processes for transitioning hospitalized patients diagnosed with acute VTE from hospital to home. The guide will review how to assess a hospital's performance related to acute VTE treatment and ToC as well as facilitate FAST team development, program implementation, and performance assessment of a comprehensive ToC program tailored to the VTE patient population.

The SHM FAST implementation guide was developed to provide guidance regarding how to assess current care and ToC processes for current patients, as well as support reliable implementation of key evidence-based interventions for VTE patients. This guide will provide examples of intervention components implemented in several of the seven hospitals that were enrolled in the SHM FAST Mentored Implementation program. The guide will also provide resource templates for facilitating improved ToC processes including patient education.

Potential benefits of implementing the SHM FAST program may include a reduction in the length of stay for acute VTE patients, a more streamlined discharge and ToC process, and reduction of anticoagulant-associated ADEs. Additionally, hospitals may be able to reduce VTE–related readmissions, and achieve program sustainability by modifying practice and improving care and patient outcomes.

Summary

Acute VTE is a common and potentially life-threatening disease entity, which if not treated appropriately can lead to adverse events, including:

- Death
- Recurrent thrombosis
- Bleeding

Background

VTE is a potentially life-threatening condition because of the high-risk nature of both the disease process as well as its treatment. More than one-half million hospitalizations are due to VTE per year.[3-5] The relative risk for re-hospitalization within six months is high at a rate of 2.7 for initial cases of DVT and 4.2 for PE.[3] Of those individuals that survive an acute event, approximately half will go on to develop chronic conditions and long-term sequelae, such as post-thrombotic and post-pulmonary embolism syndromes, resulting in a decreased quality of life and increased health care costs.[6-8]

While anticoagulants are a mainstay in VTE care, they have also been commonly implicated in ADEs and healthcare resource, leading to this class of medications consistently ranking in the top ten list of medications most frequently associated with medication errors, emergency department visits and hospitalization.[12,15-18]

The introduction of direct oral anticoagulants (DOACs) changed the landscape of VTE treatment. Compared to Vitamin K antagonists (VKAs), these medications do not require monitoring. The arrival of DOACs was supposed to herald a simplification of anticoagulation therapy; however, as detailed later in this guide, several issues have been encountered with this class of medications, which has prompted regulatory agencies such as the Joint Commission to mandate the implementation of processes for utilization of these drugs.[19]

Despite the high-risk nature of VTE and its treatment, well-defined ToC processes are often lacking for patients hospitalized with VTE.

The SHM FAST program is predicated on the experience and results of a ToC program implemented in the emergency department (ED) for patients diagnosed with an acute DVT at Thomas Jefferson University in Philadelphia, Pennsylvania. The purpose of the pilot program was to safely discharge patients with an uncomplicated DVT from the ED safely to home. Key stakeholders including pharmacists, ED and vascular medicine physicians, nurses, and social workers established a consensus-based clinical pathway that identified low-risk patients deemed suitable for the outpatient treatment of DVT. Most patients in the pilot project were discharged on a DOAC.

The program defined criteria for appropriate utilization of DOACs, provided standardized written educational materials for patients, provided instruction to confirm availability and accessibility of medications, and reviewed the process for conducting follow-up phone calls post-discharge (within 3-5 days of discharge and at day 30). Implementation of the program led to higher utilization of recommended baseline tests such as a complete blood count (CBC), comprehensive metabolic panel, and coagulation studies and decreased the rate of hospital readmission. Overall, 29% of the patients directly discharged from the ED met criteria for outpatient treatment.[20]

The pilot program and its outcomes were instrumental in informing the development of the SHM FAST program. Several of the key takeaways are referenced below.

Jefferson FAST Pilot Program:
Key Takeaways

- **Ongoing staff education is necessary to support patient enrollment into the FAST Protocol.**

  As the project continued, some ED providers forgot about the availability of the FAST program and the details for patient enrollment, despite the availability of program educational materials on the hospital intranet and on a pocket clinician guide. One of the contributing factors was turnover of the ED staff. This was rectified with program reminders during the ED staff monthly meetings.

  Some sites implemented order sets and/or clinical pathways that took human factors into consideration. For example, one site implemented an order set that automatically included their enhanced educational materials within the patient's discharge summaries, regardless of the discharging provider. This helped ensure FAST VTE patients would receive access to these new materials without relying on clinicians to provide separate materials.

- **Staff did not consistently verify drug affordability.**

  Although the protocol mandated the verification of drug affordability, this crucial step was not routinely performed by the staff. This practice was important because, when performed the FAST team sometimes found the patients could not afford the medication therapy.

  A patient's inability to afford their anticoagulation therapy was identified as a concern for various patients at several of the FAST sites. To mitigate the risk of lack of medication adherence, one site implemented an order set that informs case managers and social workers of the special needs of patients with VTE. The order set reminded social workers of the follow-up appointment requirements and provided guidance regarding how to connect patients with patient assistance programs prior to the day of discharge to increase the consistency of patient assistance applications.

- **Conducting the 2-day follow-up phone call was a tedious process.**

  It often took multiple attempts to successfully contact discharged patients via follow-up phone calls. The inability to reach patients for follow-up was attributable to many factors.

> Two-day follow-up phone calls are highly important to the ToC process but proved to be a challenge for some FAST sites due to lack of staff bandwidth. Several FAST sites enlisted the help of medical students and/or residents for this task, who were often assigned rotating shifts to contact patients more consistently. Still, many patients were difficult to reach within two business days post-discharge.

- **Many patients misunderstood the dosing instructions for the loading regimens of certain medications.**

  Patients either continued the loading regimen beyond the recommended time period or incorrectly truncated the duration of treatment.

- **There were various problems with medication adherence.**

  Patients were not, at times, clearly informed of what to do if they accidently missed a dose of their medication.

- **Many patients failed to disclose that they were taking other medications including NSAIDS.**

  Some patients failed to appropriately disclose they were using NSAIDs for pain control. Clinicians often had to list multiple herbal medications before the patient confirmed the use of these supplements. This oversight on the part of the patients appeared unintentional but it was not unusual to have to ask the same question in different ways before patients appropriately acknowledged use of these medications.

- **Many patients failed to comprehend the purpose of anticoagulation therapy even after multiple educational sessions.**

  Patients often appeared overwhelmed during the initial education session due to the complexity of the information. They appeared to exhibit better comprehension with repetition.

  The SHM FAST program is designed to guide clinicians through how to appropriately select an anticoagulant as well as provide a detailed blueprint on how to perform a comprehensive ToC process for patients hospitalized for VTE through the presentation of information in this implementation guide's chapters.

> One site noted that many of their patients had low health literacy levels or had limited English proficiency and a lack of well-translated materials. The site team created new educational materials discussing both VTE and anticoagulation therapy that was image-based, rather than text-based. These images better conveyed information regarding their treatment regardless of health literacy level and was able to be saved to their EHR system to be printed out alongside patient discharge instructions. The materials were included as modified patient handout resources in the EMR that could be printed out with patient discharge instructions.

CHAPTER ONE

Program Objectives

The main goal of the SHM FAST program is to improve patient safety and prevent potentially avoidable complications by enhancing good ToC and reducing discontinuity of care. In addition to providing a detailed blueprint for performing a ToC process for the VTE patient, this program is also designed to facilitate the anticoagulation management of this population.

Enhance Patient Empowerment

In general, most successful ToC programs promote patient empowerment. This process is best achieved by enhancing patient education and engaging patients as much as possible during hospitalization. For example, a requirement for the SHM FAST program is to schedule the follow-up visit before patient discharge. The local FAST team should engage the patient and make the appointment together. Additionally, the medical staff should review the transition record together with the patient to ensure that is accurate, address any discrepancies, and encourage questions. Such actions may empower patients to become active participants in their care rather than passive observers.

Reduce Discontinuity of Care

ToCs are pivotal points during which patients become vulnerable to medical errors. Such errors are generally due to a lack of proper communication among clinicians. In a single-center retrospective review, approximately 50% of patients experienced at least one medical error after discharge. In this study, patients who experienced a work-up error, which is defined as failure to follow-up on a recommended test or procedure, were 6.2 times more likely to be re-hospitalized.[21] A systematic review of observational studies highlighted the preponderance of deficits in communication during ToC showed that direct communication between hospitalists and primary care physicians occurred in just 3-20% of cases and that availability of discharge summaries at the first post-discharge visit occurred in just 12-34% of cases.

Furthermore, there was a noted lack of information contained within discharged summaries:

- **Diagnostic test results:** excluded from 33-63% of reviewed discharge summaries
- **Hospital course:** excluded from 7-22% of reviewed discharge summaries
- **Discharge medication:** excluded from 2-40% of reviewed discharge summaries
- **Test results pending at time of discharge:** excluded from 65% of reviewed discharge summaries
- **Follow-up plans:** excluded missing from 2-43% of reviewed discharge summaries.[22]

As described in this guide, the SHM FAST program reviews the utilization of standardized processes for both verbal and written communication between the hospitalist and next provider. Furthermore, if the comprehensive ToC bundle (the requirements of which are detailed in this chapter) is chosen for the program, the patient will receive similar interventions and educational efforts across both inpatient and outpatient settings, which will enhance continuity of care and thereby likely improve patient comprehension and adherence to the plan of care.

Facilitate Anticoagulation Management

The exact treatment of VTE will depend on the severity of clinical presentation. Whereas some patients may be treated with anticoagulation therapy alone, others may require procedures such as catheter-directed, pharmaco-mechanical thrombolysis in addition to anticoagulation therapy. Patients who require hospitalization for the VTE are not low-risk patients and are admitted because of co-existing medical problems that render its treatment more complicated. Depending on multiple factors including the severity of symptoms, renal and hepatic status, and concomitant medications, the initial therapy for VTE may involve the use of parenteral anticoagulant (with a rapid onset of action, sue as intravenous (IV) heparin or direct oral anticoagulant (DOAC). It is not intended to be overly prescriptive or provide detailed recommendations regarding drug selection, particularly in special populations, which is beyond the scope of this guide. Additionally, the guide was not developed to support the diagnosis of VTE. The purpose of the SHM FAST program is to facilitate the movement of VTE patients through hospitalization by providing a general guide on the appropriateness of drug selection and determining if the patient is clinically stable for discharge.

Provide a Detailed Blueprint for a ToC Process Tailored to the VTE Population

Although the SHM FAST program is not intended to serve as a treatment guide for VTE, one of its main objectives is to provide a comprehensive and detailed blueprint on how to transition the VTE patient from the hospital setting to home. This process will involve utilization of standardized methods for performing patient education and comprehension, tailoring the medication reconciliation method for the VTE population, guiding clinicians on which elements to incorporate into verbal handoffs and using transition records that succinctly and effectively address the needs of patients discharged on anticoagulation therapy. A hospital interested in implementing the FAST bundle of interventions should review its current state of practice as it relates to creating transitions of care for patients with VTE from the hospital to home. A potential implementation team should ask themselves if improving care for this patient population is a priority for hospital leadership and whether the team can garner the requisite institutional support to facilitate successful implementation. The team should also conduct a thorough inventory of current processes that are part of a standard transition of care for this targeted patient population. The team should determine if it has a thorough understanding of ToC and discharge processes, the medication reconciliation process, facilitation of follow-up care and patient education. A general understanding of how these core processes are facilitated, where opportunities reside for improvement and the tools, personnel and resources required to support improvement are crucial to beginning the FAST improvement effort. Completing a practice assessment, conducting interviews with relevant hospital stakeholders and engaging in key quality improvement processes like process mapping ToC processes to better understand potential failure points are essential activities to best understand the local environment for implementation.

Target Population

The VTE population itself is heterogeneous. The clinical presentation of VTE can range in severity from an asymptomatic calf vein thrombosis to sudden cardiac arrest. Depending on the severity of presentation, anticoagulation therapy may be started in the outpatient setting or in the emergency department (ED) without the need to hospitalize the patient. Furthermore, patients may develop a VTE during an admission for another indication, such as pneumonia or after surgery.

For the purpose of this project, ***primary VTE*** is defined as a thrombotic event that is the main reason for hospitalization and ***secondary VTE*** is defined as a thrombotic event that occurs in patients who are hospitalized for another indication. The SHM FAST program will oversee the ToC process for patients who are hospitalized for VTE that is classified as the primary diagnosis. The discharge destination will depend on the presence of co-morbidities and functional status. The SHM FAST program is designed to oversee the ToC process for patients discharged to home.

Project Scope and ToC Bundle Types

According to the literature, successful ToC programs are often comprised of multiple components and span across treatment settings by utilizing post-discharge phone calls and/or clinic visits in a systematic fashion.[23-26] Thus, when developing a ToC program for VTE patients, a hospital team may consider care or follow up that can be provided in the outpatient setting to maximize care for the discharged patient. Upon setting the scope for FAST project locally, the site leads must first decide whether the overall goal of the program is to provide a comprehensive ToC process, which would involve the extensive coordination of inpatient and outpatient care, or a more standard program that is scoped according to available resources with a more significant focus on inpatient care.

Performing the Transitions of Care Process for VTE Patients

Once the inpatient care team establishes the anticoagulation treatment plan, the enhanced ToC process for VTE can begin. Key components include the utilization of standardized scripts for patient education and comprehension, the implementation of checklists to ensure that all elements of the ToC process are complete prior to discharge, utilization of standardized scripts to perform the 2-day follow-up phone call as well as direct communication of the plan of care to the next provider.

Patient Education and Comprehension Assessment

It is essential to develop resources for patients that are authored at a health literacy level for all patients when developing the components for patient education interventions as part of a ToC program.

Effective education may be administered by any qualified health care practitioner, including nurses, advanced practice providers, pharmacists or medical trainees as long as there is an allowance for adequate time for education, the education is at an appropriate level of readability for the patient, and the education is reinforced on an ongoing, one-on-one basis with the patient. **A common finding is that a single educational effort, such as at the time of discharge from an ED or acute care hospital setting, is not likely to be as effective for patient adherence with the proposed treatment plan compared to repeated educational sessions.**

Teaching reinforcement for patients about their anticoagulation therapy has been shown in numerous publications to improve clinical outcomes, such as time in therapeutic range for warfarin therapy and a reduced incidence of anticoagulation- associated ADEs, including hemorrhagic and thrombotic events.

When developing a formalized education process for a ToC program for the hospitalized patient, several unique challenges are encountered and include the following issues:

- There is a need to effectively educate patients quickly due to finite time and a need to prioritize discharge to home.
- There are physical and emotional barriers to educating a patient with an acute medical problem in a hectic acute care setting.

Due to these challenges, simply handing a patient and/or caregiver written educational materials at the time of discharge is not sufficient for optimal education, comprehension and retention of the taught material. A formalized education program should be developed to address a plan for follow-up teaching reinforcement and an assessment of material comprehension. Any educational materials provided as part of the educational process, should ideally be provided in the patient's native language to assure achievement of material comprehension.

- **Determine Readiness for Discharge**

  The clinical evaluation of the patient to determine discharge readiness and the criteria to determine whether the patient is clinically stable for discharge is outlined in Table 1. However, the clinical evaluation alone is not sufficient to determine if the patient is ready to be discharged. The inpatient care team must

ensure that all elements of the ToC process are also complete before the patients is considered safe for discharge.

Table 1.
Clinical Assessment for Discharge Readiness

Establish an Outpatient Anticoagulation Plan of Care
Assess the patient's vital signs (during 50 feet of ambulation) • < 110 beats per minute or a difference of < 20 beats per minute from baseline during ambulation • Pulse oxygen saturation ≥ 88% • < 20 mm Hg decrease in systolic blood pressure during ambulation
Assess the patient's response to supervised ambulation (50 feet) • Lack of dizziness or lightheadedness • Lack of breathlessness • Lower extremity pain is well-controlled

- **Identify the Outpatient Provider**
  One of the first steps is to identify the outpatient care physician who will be responsible for overseeing the care of the patient after discharge. The post-discharge destination point may vary from one hospital to another. For example, one institution may utilize anticoagulation clinics for the outpatient care setting whereas other hospitals may use primary care practices. The discharge facilitator is responsible for verifying the outpatient care provider. In situations where a patient is uninsured, the discharge facilitator will work with case management to assist the patient with procurement of medical assistance. In this situation, the patient may be discharged to a health clinic. However, the same requirements for ensuring a safe discharge, from a clinical and non-clinical perspective, apply to this patient population.

- **Perform Patient Education and Comprehension**
  The patient must demonstrate an adequate understanding of his/her condition and treatment plan before discharge. Assessment of patient comprehension and health literacy should be evaluated utilizing a teach-back method by the educator(s), which allows individualized adjustment of the educational efforts by the educator to assure patient comprehension. If the patient does not exhibit an adequate understanding of the disease state and its therapy, a family member and/or caretaker must be educated and assessed for comprehension before the patient is discharged. If the family members/caretakers do not exhibit an adequate comprehension, the discharge should be delayed or the patient should be discharged to a tertiary care facility.

- **Confirm Medication Affordability and Availability**
  The discharge facilitator should confirm the medication is available at the outpatient pharmacy and that the patient can pick up the medication after discharge. This step should occur as soon as the outpatient treatment plan is defined in order to avoid any delays in discharge that may occur if a medication is either unaffordable or inaccessible.

  This process involves ordering the prescription ahead of time and calling the pharmacy to ensure that it is affordable and available. Furthermore, the patient must verify that he/she has the capability of physically picking up the medication or will have a family member procure the drug after discharge. An alternative and more ideal process involves utilizing on-site pharmacies that can deliver all of the medications to the patient's hospital room prior to discharge (a process termed "Meds-to-Beds"). This would allow for a more streamlined process for drug acquisition that would ensure that a patient has all of the medications in his/her possession prior to discharge. Ideally, the project leadership committee would investigate whether a "Meds-to-Beds" process is feasible prior to program implementation.

Medication nonadherence can result in poor clinical outcomes and significant costs. Subtherapeutic anticoagulation can contribute to complications including recurrent VTE or post thrombotic syndrome. One of the FAST implementation sites leveraged their robust Meds to Beds programs to improve outcomes for FAST patients discharged to home. The program has proven to be an important facilitator in improving medication adherence, reducing out-of-pocket costs and reducing readmissions.[59]

- **Address All Medical Needs of the Patient Prior to Discharge**

  Although the SHM FAST program is designed to facilitate the ToC process for patients discharged on anticoagulation, other medical needs should not be overlooked. Patients who are treated holistically are more likely to follow through with the proposed treatment plan. For example, if the patient requires home oxygen but the oxygen supplies are not delivered to his/her home prior to discharge, the patient may lose focus on the anticoagulation therapy and have more trouble adhering to the anticoagulation plan of care. Furthermore, if outpatient clinicians plan on billing for ToC services, they must oversee the entire care of the patient for the first 30 days of treatment after discharge.

- **Arrange for Follow-Up**

  Prior to discharge, the inpatient care team is responsible for scheduling an appointment with the physician who will assume the responsibility of anticoagulation care for the patient. This face-to-face encounter (either in person or via telehealth) should be scheduled for ≤ 7 days after discharge. The seven- day mark was chosen because of the high-risk nature of anticoagulation therapy and the lessons learned from the FAST pilot project. As discussed above, the scheduling process should ideally involve the patient to support patient empowerment rather than simply reporting the appointment in the transition record. By also engaging the patient in the scheduling process, the likelihood of the patient successfully following up with the outpatient provider is increased because issues such as scheduling conflicts and transportation issues are more likely to be identified.

- **Create a Transmission Record and Share Plan of Care with Next Provider**

  Patient empowerment is facilitated by actively engaging the patient in his/her care rather than treating the patient as if they are merely an observer. This is accomplished by educating the patient, encouraging questions, as well as closely reviewing the discharge summary with the patient to ensure accuracy and address questions/concerns rather than just handing the discharge instructions to the patient at the time of discharge.

A transition record must be given to all patients at the time of discharge and be directly sent (either via fax, email, or internal message system) to the physician who will assume the care of the patient in the outpatient setting. The contact information of the clinician or medical team who are responsible for the care of the patient after discharge should be clearly indicated in this document along with the date, time and location of the outpatient follow-up visit.

Ideally, a "to-do" list should be provided for the next clinician, which would include following up on pending results and abnormalities as well as ordering any additional laboratory studies (such as a CBC to monitor the hemoglobin). The anticipated treatment duration for the VTE should also be specified in this document.

The specific VTE diagnosis should be included in the transition record along with a medication list that clearly specifies which drugs are new or old as well as highlights any changes to chronic medications. The medication list should also provide a straightforward explanation of the loading doses or lead-in therapy for the DOACs, specify if the anticoagulant needs to be taken with a meal, review any dietary and potential

medication interactions, and specify when the anticoagulant should be exactly taken after discharge.

A list of medications to avoid (such as NSAIDs or herbal medications) should also be provided. If the patient is discharged on a low-molecular-weight heparin (LMWH) to warfarin bridge, specific instructions on when to discontinue the LMWH should be included in the discharge summary along with the date and location of the next INR draw. The goal INR should also be specified in the transition record. The clinician responsible for reviewing the INR results should also be listed and the patient should be instructed to contact this clinician in 24 hours if he/she does not receive verification from the clinician that these results were reviewed. Results of relevant laboratory results (such as the CBC, troponin, BNP and comprehensive metabolic panel) and radiographic results (such as the lower extremity venous doppler ultrasound, echocardiogram and CT scan of the chest) should also be included. If the patient is discharged on warfarin, the 5 most recent INR results should be included in the transition record. Furthermore, a list of pending results should be provided (such as thrombophilia testing).

The transition record should also include a list of red flags (such as signs or symptoms of major bleeding as well as a recurrent VTE) that should prompt a patient to seek medical advice. The elements of the transition record are outlined in the appendix.

There is often very limited direct communication between hospitalists and primary care physicians. Patients receiving anticoagulant therapy require effective transitional care. The FAST implementation sites prioritized better collaboration and coordination to effectively foster the electronic exchange of information and shared accountability between the sender and receiver and to improve transitions of care.[61, 62]

Electronic Medical Record Interventions and Modifications

The Electronic Medical Record (EMR) can be an effective tool in supporting improved care for patients in the hospital. While not a complete solution for process improvement, it can provide the information and resources that clinicians need to make better care decisions and implement processes that translate into better outcomes of care. Standardized order sets (SOSs) are clinical decision support tools that aim to help physicians prescribe appropriate treatments using a pre-defined set of applicable drugs and recommended dosages, based off evidence-based guidelines for a specific disease area. SOS have the potential to reduce medication errors, reduce unnecessary clarification calls between physicians and pharmacists, increase the use of evidence based care, and increase efficient workflow. Additionally, the creation and use of order sets can provide an opportunity to educate physicians on best practices, or to provide reminders on appropriate prescribing and treatment. Several of the FAST sites developed and or implemented order sets to improve ToC for their FAST patients. They identified key considerations to enhance the value of the order sets. They engaged hospital leadership and a diverse team of stakeholders to solicit feedback about how care transitions for are facilitated for the management of acute VTE disease are facilitated to accuratley represent workflow in the design of the order set. Additionally, they socialized the order set, its role and when to use it to support reliable use and uptake of the order set. They also provided training in advance of go-live so that frontline clinicians had the skill and familiarity they needed to successfully use the order set.[60]

- An Information Technology (IT) Project Manager is an essential element of the SHM FAST team. The IT team adds great value as many modifications to the electronic medical record (EMR) may be necessary for the successful completion of this project Examples of needs for IT support include:
  - Order set build into the EMR
  - Report generation
    - Base line data
    - Implementation data
    - Phone call tracking
  - Medication reconciliation
  - Lists to improve compliance after discharge
  - Modification of current processes
  - Discharge templates

- The IT Project Manager should be a part of the FAST team from the start of the project to assist with project goals and timelines. Often a rate limiting step in a project may be the IT development and integration of FAST processes into the EMR. The IT manager can help set clearly defined and attainable goals based on his team's workload.
- Implementation of FAST usually starts at the unit level and this serves as a nucleation site as processes are developed, assessed, and modified based on available data. Many times, the healthcare system that the FAST team works within cannot allow a build to be fully deployed at an individual unit, floor, or hospital within the system. Clarifying the scope of IT allowable parameters early in the development of FAST may ensure the success of the program.
- Universal education is an essential part of FAST. Many of the ongoing changes in personnel within a healthcare system involve onboarding new nurses, pharmacists, residents and students and necessitate a standardized approach to education. IT may be able to assist with the development of a "living and breathing" manual for education by clarifying processes and creating a centralized area for information to be located.
- Creating the linkage between the inpatient and outpatient service is paramount to the success of a safe transition. IT support becomes an essential component of this transition. When both inpatient and outpatient providers use the same system, IT may ensure a seamless linkage. However, not all inpatient systems communicate directly with outpatient practices, and optimization around this communication may be simplified greatly with IT support.
- A discharge checklist should be created to ensure the key components of FAST are incorporated into the daily workflow. This checklist may be created using the IT resources available at your institution. By using an automated checklist reduction in variability at discharge could be avoided. An example could include a final list prior to discharging the patient that must be satisfied ensuring a safe and seamless transition.

Additionally, the non-clinical elements of the ToC process that must be verified include:

- Confirmation of insurance coverage for all medications as well as accessibility of medications after discharge
- Delivery of all necessary durable medical equipment to a patient's home prior to discharge
- Verification of adequate patient/family comprehension as previously discussed
- Creation of a transmission record that addresses all concerns for VTE and anticoagulation
- Verification of successful transmission of the discharge summary to the next provider and successful execution of direct clinician-to-clinician communication to the next provider.

The discharge facilitator of the inpatient medical team is responsible for ensuring that all of these elements are completed prior to patient discharge. These elements are discussed in their respective sections.

Overview of SHM FAST Bundles

We acknowledge that not all hospital systems will possess the same resources. Therefore, we describe two bundles that may be implemented to develop the SHM FAST program locally: the standard and comprehensive TOC bundles. The comprehensive ToC bundle requires a reliance on more extensive outpatient resources while the standard ToC bundle is a less resource-intensive, more streamlined ToC bundle. The differences between these two bundles will largely depend on the resources the care team can access in the outpatient setting for their patient and whether the outpatient care team can facilitate key roles as described later in this guide.

Both bundles have the same requirements for the inpatient care team, mandating the utilization of the following:

- A VTE order set
- Checklists for oral anticoagulation readiness, appropriateness for DOAC therapy and discharge readiness
- Standardized scripts for patient education, the 2-day follow-up phone call and verbal hand-off

- An enhanced medication reconciliation process tailored for anticoagulation therapy
- A standardized process for transitioning records

Utilization of the comprehensive ToC bundle also requires the discharge of patients to outpatient practices that can satisfy all requisite criteria for such a program. The outpatient team facilitating the comprehensive ToC bundle will utilize the tools and resources provided by the SHM FAST program to deliver the following services in addition to the inpatient services described above:

- Providing a 2-day follow-up phone call
- Performing a face-to-face (or telehealth, as applicable) encounter ≤ 7 days after discharge
- Overseeing the entire care of the patient for at least 30 days after discharge
- Performing a 30-day follow-up phone call

The expectations for the SHM FAST program for both the inpatient and outpatient care teams are reviewed in Table 2.

If the comprehensive bundle is selected, the ideal ToC process would involve the completion of identical tasks by both the inpatient and outpatient care teams. This would ensure that patients are exposed to the same interventions and educational efforts on multiple occasions, which would likely increase the likelihood of achieving better patient comprehension and medication adherence. This, in turn, could reduce the risk of complications such as re-thrombosis and/or major bleeding. Under the comprehensive ToC bundle, the inpatient and outpatient teams would essentially be considered one larger team, performing similar tasks but in different settings as outlined.

As highlighted in Table 2, the outpatient care team engaged in the comprehensive ToC process is expected to assist patients with all aspects of patient care. The nuance is that the medical responsibilities of the outpatient care team are not limited to VTE and anticoagulation therapy but span across the entire medical treatment of the patient for the first thirty days after discharge. For example, if a patient informs the outpatient care team that certain durable medical equipment such as home oxygen was not delivered to the house, it is the outpatient care team's responsibility to assist the patient with obtaining the home oxygen equipment. Thus, an integral first step involves defining the exact scope and structure of the ToC process and determining whether the site has access to required outpatient resources.

Table 2. Checklist for a Comprehensive ToC Bundle

Impatient Care Team Responsibilities	Outpatient Care Team Responsibilities
☐ Develop and utilize VTE order set	☐ Perform 2 day follow-up phone call
☐ Employ checklist for oral anticoagulation readiness	☐ Utilize standardized script for 2 day follow-up phone call
☐ Utilize checklist for DOAC appropriateness	☐ Perform face-to-face evaluation < 7 days after discharge
☐ Use standardized script for Teach Back method for patient education	☐ Perform enhanced medication reconciliation during face-to-face encounter
☐ Perform enhanced medication reconciliation	☐ Use standardized script for Teach Back education during face-to-face encounter
☐ Employ standardized discharge readiness checklist	☐ Oversee all aspects of patient care for 30 days after discharge
☐ Utilize standardized transition record	
☐ Hospitalist directly communicates plan of care to next provider using standardized script	☐ Perform 30 day follow-up phone call
	☐ Utilize standardized script for 30 day phone call

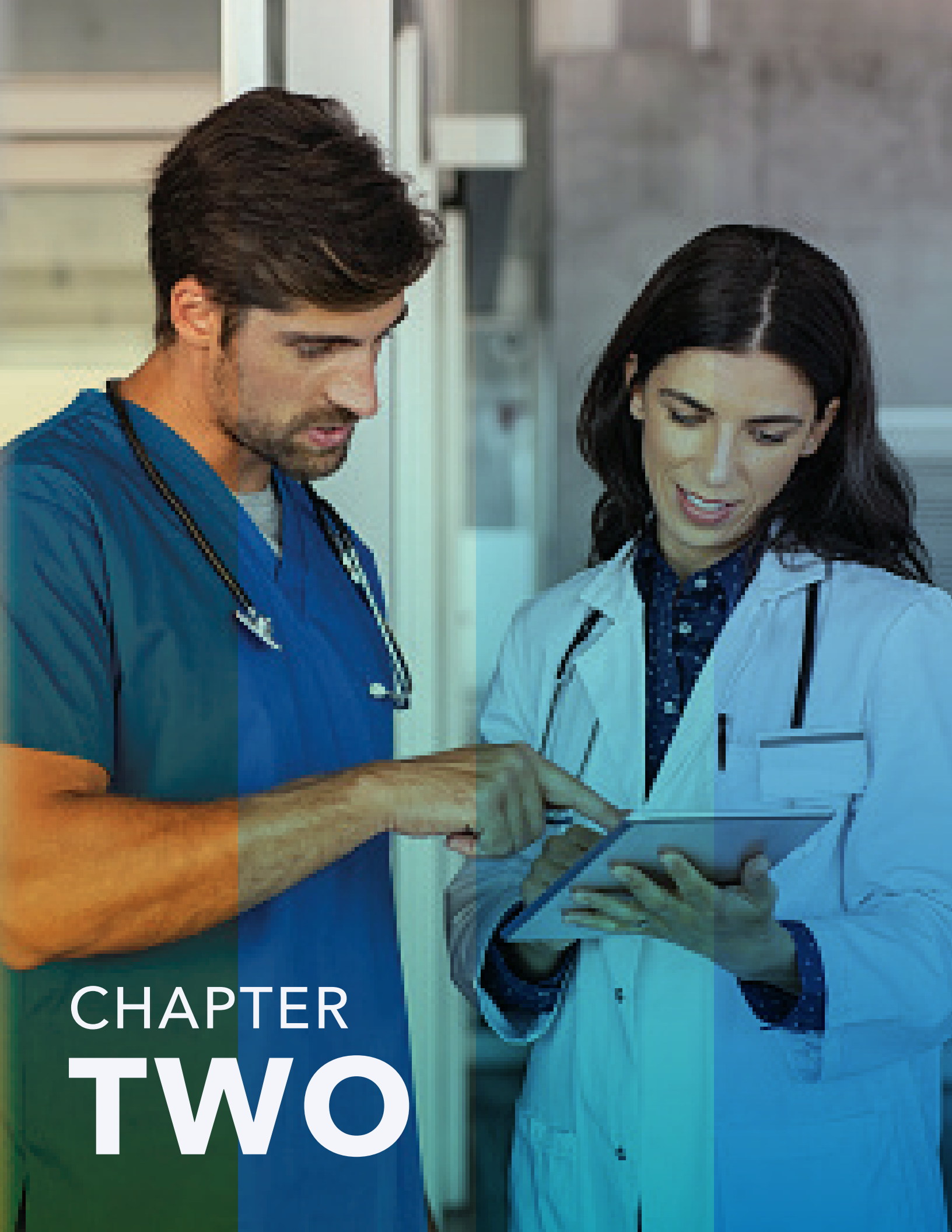
In order to make this determination, the site leads will first need to ascertain if their hospital is currently implementing or is able to begin implementing the core components contained Table 2. The hospital should evaluate its willingness and ability to implement or improve core functions already being conducted as specified in the standard ToC bundle. To determine if a comprehensive ToC bundle is feasible, the site leads should begin by addressing the following questions:

- Which ToC processes currently exist for other patient populations in our hospital?
- Do our patients belong to only a small group of primary care practices or are they scattered across multiple offices or health systems?
- If our patients belong to a small group of primary care practices, do these offices already utilize ToC processes for their discharged patients? If they do not utilize such services, are they able to implement them as part of the FAST program?
- Does our health system utilize anticoagulation clinics? If so, are they already involved in ToC processes?
- Does our health system utilize ambulatory care clinics on a routine bases for follow-up?

By addressing such questions, the site leads will begin to gauge which ToC bundle is likely feasible for implementation at the institution. It is important to reiterate that the comprehensive bundle must include engagement of both the inpatient and outpatient care teams to realize the objectives described above, and that additional inquiries not listed above may need to be made to confirm that all requirements can be satisfied for such a program.

Summary

ToC are pivotal events when patients are often vulnerable to medical errors. Most successful ToC programs are comprised of multiple components across multiple settings that involve follow-up phone calls and other outpatient interventions. The overall goal of the SHM FAST program is to improve patient safety, decrease the risk of preventable errors, reduce discontinuity of care, and enhance patient empowerment. Anticoagulants are commonly implicated in medication errors and the SHM FAST program is designed to facilitate the management of VTE by providing a general guide on improving TOC processes. Prior to beginning implementation the FAST program at their sites, site leads should determine whether they will implement the comprehensive ToC bundle or the standard ToC bundle. Hospitals implementing the SHM FAST program should anticipate collecting and reviewing data to assess program performance and to continue ensuring feasibility of their selected bundle.



CHAPTER TWO

Obtaining Institutional Support

Obtaining support from an individual in a leadership role within your institution is critical to the successful implementation, maintenance, and sustainability of the SHM FAST program. The effectiveness of the program can be dependent upon the degree of hospital administration's support to endorse improving ToC for this patient population as an institutional priority and providing the requisite hospital resources to facilitate implementation of the interventions. The ability to garner institutional support may assist your team with allocating time to train clinicians or obtaining new resources such as patient navigators to support good discharges of care.

> You should secure a firm written commitment from a member of the C-Suite who will serve as the Executive Sponsor. This individual may have experience overseeing or supporting quality improvement initiatives. Their role is to support the frontline team in overcoming core impediments during the life of the project. The team should regularly share data and outcomes with your Executive Sponsor to foster engagement and a tangible connection to the ongoing project.

Failure to obtain institutional support can prove to be a significant impediment to program success. Your efforts in securing support and buy-in from senior personnel will likely prove pivotal in moving past the obstacles that so often threaten the success and sustainability of any improvement project. A team that has successfully secured meaningful and verifiable support will realize accessibility to resources as well as the authority to implement new processes and policies associated with the program.

> One of the FAST implementation sites is exploring the opportunity to expand the FAST program implementation to 12 additional hospitals in the health system. A key best practice to support spread of the program is to identify champions at the various hospital sites that will advocate for institutional support to support and advance implementation.

An effective process for securing this individual's support is to demonstrate the parallel between your hospital's operational and strategic goals and the program you wish to implement. In meeting with your administration official, it is important to articulate that the SHM FAST program could prove beneficial for the management of acute VTE at your facility since suboptimal management of VTE can lead to increased morbidity and mortality. Additionally, a review of the complexity of anticoagulant use in patients and the frequent association with medication errors and ADEs is important. Reviewing the risks of recurrent VTE and its association with an increased cost of care resulting from disease state sequelae and mortality could also be a poignant part of your discussion. Your ability to present recent data from an intended implementation unit associated with these core care challenges may prove compelling in making the case for securing institutional support.

You may reference other ToC models addressing conditions such heart failure, which have been shown to enhance clinical outcomes with a reduction in readmissions and reduced financial penalties with 30-day readmissions. Many hospitals have ToC programs with resources currently in place. Discussing

the potential to leverage these resources and minimize costs for the hospital may be helpful in making your case for support.

Several key talking points should be shared with the Executive Sponsor and include the following:

- VTE is a major cause of morbidity and mortality of relevance for intensivists and hospitalists.[27]
- Several potential barriers to optimal VTE performance exist, including underestimation of the risks posed by VTE, overestimation of the risk of bleeding complications and a lack of familiarity with clinical guidelines.[28]
- Anticoagulant drugs are among the most common medications that cause adverse drug events (ADEs) in hospitalized patients.[29]
- Standardized ToC processes for patients with VTE have not yet been developed at the time of writing.
- The Joint Commission's National Patient Safety Goal 3.05.01 now requires the improved use of DOACs through the utilization of protocols and evidence-based guidelines for initiation or maintenance of a DOAC to facilitate anticoagulation safety. This necessitates a broader clinician education program and standardized practices to improve outcomes for patients placed on this class of medications.

Obtaining institutional support is essential when implementing a new improvement initiative. It is also essential to understand your local implementation environment better. Three core processes include completing a current practice assessement, engaging your team in a process mapping exercise and articulating goals to inform your improvement effort at your hospital.(Note to design team: move up sections: current practice assessment; text starting with process mapping and smart goals section starting with Figure 3.

Opportunities for Improvement

The opportunities to improve upon the management of acute VTE disease begins with identifying the deficits of care as defined in the preceding section. Reliance on a sound, standardized ToC program, is essential to remedy the identified deficits. Despite the high risk of adverse events associated with anticoagulants as well as the fact that these medications are listed as problem drugs in certain risk models used to predict re-admission[37], there is an overall lack of well-designed studies investigating ToC programs for patients discharged specifically on anticoagulants. Some studies have enrolled patients into their ToC programs based on the presence of multiple medications, utilization of high risk medications such as anticoagulants, or high-risk conditions.[38-42] One cannot ensure a seamless transition to the next level of care, typically the outpatient setting, without a standardized ToC process that clearly defines the roles of all providers, and specifically addresses the nuances and potential dangers of anticoagulation therapy. This is best accomplished by creating and implementing a comprehensive ToC program that is specifically designed for the VTE patient.

Large-scale, well-designed studies do not exist for such a process in this specific patient population and VTE guidelines do not provide detailed methods on how to implement a comprehensive ToC program tailored to the nuances of anticoagulation therapy. A close review of your process map and baseline data should clearly define your hospital's opportunity for improvement. Successful ToC programs support patient empowerment, which are accomplished by educating the patient and actively engaging the patient as much as possible during his/her hospitalization.

While all patients are discharged from the hospital with discharge instructions, key elements of the ToC process are often missing or the discharge summary is often lengthy and confusing to patients, with pertinent information often buried within non-relevant text. Thus, another opportunity involves creating a discharge summary that is succinct, yet useful for the patient and specifically addresses the concerns of anticoagulation therapy. Often, patients are advised to make the appointment with their outpatient clinician after they are discharged from the hospital, which is often not achievable within the recommended time window due to difficulties with scheduling.

> The SHM FAST program assures scheduling of such appointments is completed prior to patient discharge to assure timely outpatient follow up, and requires the inpatient team to directly communicate the plan of care to the next provider prior to discharging the patient.

As noted above, one major deficit is a lack of follow up once the patient is discharged from the hospital, but before he/she is evaluated by the outpatient clinician. Thus, another opportunity involves bridging this gap. As discussed in Chapter 1, a 2-day follow-up phone call to enrolled patients will be required in order to participate in the SHM FAST program. This phone call will ensure that patients acquired their medications, are taking the anticoagulant appropriately, and provides an opportunity to address additional questions or concerns, re-educate the patient on the signs and symptoms of VTE and bleeding, as well as reinforce the importance of following up with the next provider.

In summary, the opportunities for improvement center on addressing the deficits in care by:

- Supporting patient empowerment through patient education and active engagement
- Creating a succinct discharge summary that specifically addresses the nuances and challenge sof anticoagulation therapy
- Consistently scheduling the follow-up appointments prior to discharge
- Directly communicating the plan of care to the next provider
- Calling patients shortly after discharge to ensure that they acquired their medications, provide reeducation, address any additional questions or concerns, and reinforce the importance of following up with the next provider
- Providing outpatient clinicians with the same educational tools that are used in the inpatient setting to send consistent messages to the patient

Current Practice Assessment

Hospital teams interested in implementing the FAST program should complete a focused self-assessment to analyze their organizational context, baseline system processes, relevant clinical practices, existing resources, barriers to change, and improvement efforts to date.[40]

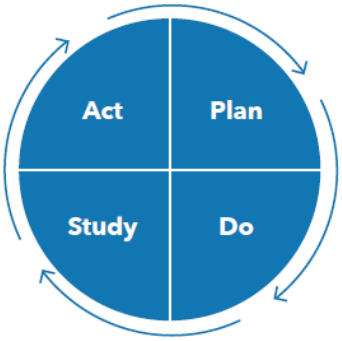
Process Mapping

To better understand the current process for facilitating ToC at your institution, it is valuable to first develop a high-level diagram of all the core steps and processes currently employed when facilitating a transition of care for a hospitalized VTE patient. Examining all steps and processes along with the order in which they occur and the team members who facilitate them can help increase understanding of the current state and may inform future states.

When creating a process map, site teams should:

1. **Identify a care segment that has need for improvement.**
2. **Facilitate conversations with clinicians and staff members who are involved in the identified process(es).** This step will provide their input while learning who is performing these processes, when they are performed, and any contingencies or variations in the overall process.
3. **Develop a draft of the process map.** This draft should leave room for adjustments and redesign.
4. **Observe processes to validate the accuracy of the process map.** This draft should be validated by observing real-world scenarios to ensure team members have accurately captured the processes and their variations. The project team should explore where there are specific failure points and begin to ideate ways to correct the deficit between what the team currently does and what the team deems to be the most optimal process.
5. **Make any additional changes based on observation.** After the team completes this exercise, they may need to adjust the original draft based on their observations. After changes are made, the team may opt to digitize the process map for ease of use.

Table 3. Model of Improvement and Plan Do Study Act (PDSA) Cycle



Plan Do Study Act Cycle

Developing SMART Goals

Prior to implementing the SHM FAST program, it is crucial to delineate the goals and steps needed to act to avoid preventable errors and oversights that may lead to failure. The team needs clear direction for its efforts, and this can be reinforced with specific aims and setting goals with a timeline. Setting goals will help the team stay focused and communicate with stakeholders. The use of SMART goals methodology will establish goals that will create verifiable trajectories towards a certain objective, with clear milestones and an estimation of the goal's attainability. SMART goals for the SHM FAST program must have the following criteria:

S – Specific
When setting a goal, be specific about what you want to accomplish. Think about this as the mission statement for your goal. This is not a detailed list of how you are going to meet a goal.

M – Measurable
What metrics are you going to use to determine if you meet the goal? This makes a goal more tangible because it provides a way to measure progress. If it's a project that's going to take a few months to complete, then set some milestones by considering specific tasks to accomplish.

A – Achievable
This focuses on how important a goal is to you and what you can do to make it attainable and may require developing new skills and changing attitudes. The goal is meant to inspire motivation, not discouragement. Think about how to accomplish the goal and if you have the tools/skills needed. If you do not currently possess those tools/skills, consider what it would take to attain them.

R – Relevant
Relevance refers to the need to identify something that complements the broader clinical goals of the project.

T – Time-Bound
Providing a target date for completion of deliverables is imperative. Ask specific questions about the goals and deadline and what can be accomplished within that time. If the goals and will take 18 months to complete, it is useful to define what should be achieved halfway through the process.

With establishment of the SMART goals, the introduction of the Model for Improvement is a simple yet powerful tool for accelerating the SMART goals for the SHM FAST program for improving the care of patients with VTE. This model has been successfully used by health care organizations to improve patient care processes and outcomes. There are three questions to be addressed using this model which include the following:

- What is the aim of implementing the SHM FAST program?
- Which changes are you implementing using SHM FAST?
- How will you know if the implemented change resulted in improvement in the care of patients with VTE?

In order to test our Model for Improvement in the hospital care setting, the Plan- Do-Study-Act (PDSA) cycle will be used to evaluate the change in the real work setting by planning it, trying it, observing the results, and acting on what is learned (Figure 2). This is the scientific method adapted for action-oriented learning. As with all scientific methods, documentation of each stage of the PDSA cycle is important to support scientific quality, local learning and reflection and to ensure knowledge is captured to support organizational memory and transferability of learning to other settings. The Combining Model of Improvement and the PDSA cycle has been advocated by some ToC programs to improve the likelihood of success for implementation of quality improvement projects.[77]

Examples of Using SMART Goals:

Model for Improvement and the PDSA Cycle

Completion of the Post Discharge Outreach Telephone Script

- **SMART Goal:**
  Within 18 months, 90% of discharged patients will receive a follow-up phone call by a clinical team member within 2-business days post-discharge utilizing a standardized script that covers medication adherence, adverse effects, follow-up plans, and clinical conditions. Calls should be documented within a patient's chart. This will be carried out by recruiting residents to the project who will take ownership of performing and documenting follow-up calls.
  - **Specific:** The goal outlines what needs to be accomplished, when it should be accomplished by, and who is responsible for carrying out the task.
  - **Measurable:** The goal specifies that within 18 months, 90% of patients should have a documented follow-up phone call completed within 2-business days post-discharge.
  - **Achievable:** This is dependent upon hospital resources and staffing. For this example, we can assume the hospital has adequate staffing and bandwidth to achieve this goal.
  - **Relevant:** The follow-up phone call utilizing a standardized script is an important part of the ToC process.
  - **Time-Bound:** This will be completed in 18 months.
- **Model for Improvement:**
  - **What is the aim of implementing this improvement idea?**
    One major goal is to complete telephone contact with the patient two business days post-discharge.
  - **What change are you implementing?**
    The team plans to increase the number of patients who receive a follow-up phone call within two business days post-discharge. The team also plans to standardize the script and documentation procedure utilized during calls.
  - **How will you know if the implemented change resulted in improvement?**
    The care team will document any complications from the use of anticoagulants, readmissions to the hospital and comprehension of the plan of care for the treatment of VTE that were identified as a result of the follow-up phone calls.
- **Plan-Do-Study-Act**
  The care team will be educated on the use of the Post-Discharge Outreach Telephone Script. Patients will be called on Day 2 and Day 30 following discharge from the hospital. The Post-Discharge script data will be reviewed for completion, accurate documentation, complications, and hospital readmissions. If any discrepancies are noted, changes will be appropriately made. Once all goals have been clearly defined and shared with all key stakeholders, the next step of the planning stage is to outline the details of project

implementation by addressing the following questions:

- Which hospitalists or hospital units will be participating in the project?
- When will the project begin and end?
- Which member of the treatment team will be performing a specific task? For example, who will be responsible for educating the patient and family members on VTE by employing the Teach Back method?
- Who will be responsible for directly communicating the plan of care to the next provider?
- What is the process for confirming achievement of these specific tasks?
- Who will collect data to monitor the impact of the project?
- How often will you share this data and how will this information be transmitted?

Once all relevant questions have been addressed, all key stakeholders should be educated about the intervention before it is executed. During the education phase, feedback and additional input should be welcomed to avoid preventable obstacles to project implementation.

Assemble the Core FAST Project Site Team

The core FAST project site team (hereinafter referred to as 'core site team') should represent multiple disciplines involving both clinical and non-clinical personnel.

The core site team members are expected to perform the following tasks:

1. **Determine the overall scope and structure of the ToC program.** As previously stated, members of the core site team are responsible for determining whether the comprehensive ToC bundle or standard ToC bundle will be implemented as part of their implementation of the SHM FAST program. Selecting the appropriate bundle involves identifying current ToC processes, examining patient needs, and determining which currently-existing resources may be used for either a standard or comprehensive ToC bundle.

2. **Regularly meet with the Executive Sponsor to share data and review barriers and facilitators to implementation progress.**

3. **Identify members of the inpatient care team.** The inpatient care team is responsible for implementing the ToC interventions and reliably utilizing key resources that are provided in the FAST implementation guide. Additionally, the core site team must identify which inpatient clinicians currently perform transition of care related tasks and determine which team members are best suited to perform the key roles and responsibilities described in this guide.

4. **Meet regularly with the inpatient and outpatient care team members of the program.** These meetings allow the core site team to review program status, discuss facilitators and barriers and to allow for collaboration between disciplines on the FAST team. Meetings should include members of all disciplines and should be interspersed with smaller, department-specific meetings. For example, the lead nurse may meet with the nurse members of the inpatient care team to obtain feedback, which can then be reported to the larger core site team.

The core site team members:

1. **Lead Hospitalist**
   Ideally, the lead hospitalist has both experience caring for the VTE caring for the VTE population, quality improvement expertise and oversight quality improvement expertise and oversight of ToC for hospitalized patients. To provide leadership to the core site team, the lead hospitalist will:

   - **Support implementation planning by:**
     - Assessing facilitators and barriers to successful project implementation on an ongoing basis
     - Establishing concrete and realistic goals for the other team members along with corresponding timelines
     - Determining if any institution-specific guidelines for the management of VTE and/or institutional policies exist that specifically address the goals of the National Patient Safety Goals or the requirements of other regulatory agencies

- Determining if opportunities exist to improve the current medication reconciliation process

- **Monitor project progress by:**
  - Overseeing day-to-day implementation efforts
  - Continuously monitoring the data
  - Meeting regularly with the physician team leaders of the inpatient care team to obtain real-time project feedback

- **Maintain team engagement by:**
  - Establishing the frequency and agenda of team meetings
  - Recruiting additional personnel and resources as needed

- **Socialize the project at their institution by:**
  - Engaging senior leadership to support program goals
  - Regularly engaging hospitalists in implementation of the FAST protocol
  - Educating the physician leaders of the inpatient care team on all the tools and resources that will be used for the SHM FAST program

2. **Lead Pharmacist**

The lead pharmacist is a critical team member that will advise the appropriate selection and utilization of all classes of anticoagulants for the SHM FAST program participants. The pharmacist should be an integrated member of the core team, working closely with the lead nurse, hospitalist and outpatient clinician to also provide guidance on how to effectively facilitate the medication reconciliation process as well as implement best practices for discharging patients on anticoagulation therapy. To provide leadership to the pharmacy team, the lead pharmacist will:

- **Assist with FAST team formation and socialization by:**
  - Selecting a pharmacist who will be a member of the inpatient care team
  - Educating the pharmacist of the care team on all the tools and resources that will be used for the SHM FAST program
  - Meeting regularly with the care team pharmacist to obtain real-time project feedback

- **Assist with actionable goal setting by:**
  - Determining which safeguards currently exist to minimize inappropriate anticoagulation usage
  - Determining if a "Meds-to-Beds" approach is feasible for implementation
  - Identifying the current medication reconciliation process and assessing if this process can be enhanced to better meet the needs of the VTE population

3. **Lead Nurse**

Nurses are vital members of the medical team who often have the most direct patient and family contact. Depending on hospital resources, nurses may be responsible for educating patients and family members as well as executing the discharge process by providing the discharge summary to patients. To provide leadership to the nursing team, the lead nurse will:

- **Assist with FAST team formation and socialization by:**
  - Determining if the team nurses can perform certain key roles, such as patient education
  - Educating the nurses of the care team on all the tools and resources that will be used for the SHM FAST program
  - Meeting regularly with the care team nurses to obtain real-time project feedback

4. **Lead Outpatient Clinician**

If a comprehensive ToC bundle is selected for implementation, the core site team will need to include a lead outpatient clinician. This team member is responsible for overseeing all members of the outpatient care team to ensure that all key roles of the ToC process are being properly performed once the patient is discharged from the hospital.

The outpatient care team is responsible for accomplishing key tasks and fulfilling key roles that are similar to those responsibilities of the

inpatient care team, which include utilizing standardized scripts to perform patient education along with completing the post-discharge medication reconciliation process that is tailored to the VTE population.

To provide leadership to the outpatient team, the lead outpatient clinician will:

- **Assist with actionable goal setting by:**
  - Collaborating with the other members of the project leadership committee to ensure that the outpatient center can fulfill all criteria for a comprehensive ToC bundle that are set forth in Table 2
  - Streamlining the scheduling process for the follow-up appointment. Ideally, one central phone number without utilization of prompts will be provided to the inpatient care team so follow-up appointments can be scheduled efficiently
  - Providing the contact information of all outpatient physicians. Ideally, the personal cell phone numbers of these clinicians are provided to the inpatient care team to help facilitate the direct communication process between inpatient and outpatient providers
- **Assist with FAST team formation and socialization by:**
  - Reviewing key outpatient role assignments of the members of the outpatient are team
  - Systematically ensuring that all key roles are consistently being accomplished by the outpatient care team members
  - Regularly obtaining real-time feedback from the outpatient care team members

5. **Information Technology Specialist**
   An IT specialist or project manager is a vital member of the site team and can represent several disciplines, including nursing informatics or data analytics. The IT specialist may also have another role on the site team, such as being the nurse or pharmacy lead, depending on their discipline and/or team size. To provide technical support to the site team, the IT specialist can expect to:

   - **Assist with performance reporting by:**
     - Generating reports outlining the tools and resources that are currently being used prior to program implementation for medication reconciliation, patient and staff education, and discharge planning
     - Regularly disseminating QI performance reports, tracking the metrics and performance measures as outlined
     - Querying the electronic medical record to obtain baseline and implementation data
   - **Optimize usage of currently existing EMR platforms by:**
     - Incorporating project tools, such as patient education materials, comprehension assessment tools, order sets and checklists into the hospital's intranet system or EMR.
     - Integrating the VTE-specific standardized transition record, which may also be referred to as a discharge summary into the EMR system, which may also include modifying current processes to incorporate documents recommended for the FAST program into the existent electronic system.

Assemble the Inpatient Care Team

The inpatient care team is responsible for the hands-on execution of the medical management of the hospitalized patient. Members of the inpatient care team are responsible for executing the key roles required for successfully completing the ToC process by utilizing the checklists and standardized scripts provided by the SHM FAST program. The exact composition of the inpatient care team will likely differ among hospitals because of differences in resources.

The process of assembling the inpatient care team for the SHM FAST program begins by first taking an inventory of the current clinical and non-clinical staff who are engaged in the care of the hospitalized patient along with reviewing their responsibilities. Some institutions, for example, may primarily employ advanced practice providers (such as nurse practitioners or physician assistants) while others rely on medical trainees (such as medical residents and students) who are supervised by hospitalists. In other institutions, the hospitalists may be the only members of the care team who medically manage the patient.

The level of pharmacy support will also likely vary from hospital to hospital. Whereas some hospitals may employ pharmacists who round with the inpatient teams and are more thoroughly involved with medication reconciliation, other institutions may not have the resources to use pharmacists in such capacities. Nurses are vital team members who have the most interaction with patients and family members. In some hospitals, these team members may be asked to educate patients as well as review the transmission record with the patient at the time of discharge.

Lastly, the roles of case managers may also slightly vary among institutions. Case managers are responsible for assisting patients with procuring medical supplies, such as durable medical equipment, prior to discharge. These personnel may also assist the uninsured patients with applying for medical assistance or other medical programs. However, some hospitalists may also involve case managers with prior authorizations for medications.

The project team is responsible for performing a pre-implementation evaluation of the current organization and structure of the inpatient care team as well as review the job descriptions of the team members by addressing the following questions:

- Do hospitalists currently work with other clinical personnel such as advanced practice providers or medical trainees?
- What level of pharmacy support currently exists in the hospital?
- Who currently performs the medication reconciliation process? How involved are pharmacists in this process?
- Who is currently responsible for educating patients on their medical conditions and treatment?
- Who creates the transmission record and who is currently responsible for transmitting this record to the next provider?
- Who reviews the transmission record with the patient at the time of discharge?

- How involved are nurses in patient education and other processes?
- Are there any processes currently in place to ensure that patients will be able to obtain their medications after discharge? In other words, what processes currently exist to ensure that a patient's medications are affordable and accessible? If such processes exist, who is responsible for performing them?
- Do hospitalists or other team members verbally communicate the plan of care to the outpatient clinicians?

In addition to addressing the above questions, the project team will also identify the local practice patterns of VTE at the institution. In some institutions, hospitalists may routinely consult a specialist to provide further assistance with the evaluation and treatment of VTE. These specialists include hematology, vascular medicine, vascular surgery, pulmonary medicine, interventional cardiology, cardiothoracic surgery, and interventional radiology physicians. Whereas some of these specialists may be consulted to provide further assistance with the medical management of VTE, others may be consulted for procedure-related services, such as the deployment of inferior vena cava (IVC) filters or performance of catheter-directed thrombolysis procedures. Furthermore, some hospitals may utilize pulmonary embolism response teams, which include a combination specialist, to further assist the primary team with the management of VTE.

By addressing the questions above and identifying the current state of treatment of VTE at the institution, the project team will have a better idea on how to assign the key roles of the SHM FAST program to the inpatient care team members.

Assign Roles and Responsibilities to the Inpatient Care Team

The members of the inpatient and outpatient care teams will have overlapping key roles that are considered fundamental to ensuring that patients with VTE are safely transitioned out of the hospital.

Since not all hospitals will have the same resources, different members of the care teams may be assigned the same roles in different health systems. For example, the utilization of the standardized script for patient education may be performed by medicine residents in academic centers. However, not all health systems employ these physicians. In this case, either a hospitalist, advanced practice provider (such a nurse practitioner or physician assistant), nurse or pharmacist in other hospitals may accomplish this key role. These key roles, along with the scripts and checklists for accomplishing these responsibilities, are reviewed in much more detail.

Facilitation and Procurement of Anticoagulation Management

One of the objectives of the SHM FAST program is to facilitate the management and procurement of anticoagulation. The hospitalist is responsible for overseeing the facilitation of VTE treatment by utilizing the checklists provided by the program to safely guide the patient through their hospitalization. If a thrombosis specialist is also consulted, the hospitalist will confer with them to determine the outpatient anticoagulation regimen. Furthermore, the team pharmacist will also assist the hospitalist in accomplishing this task by assessing for medication and dietary interactions that may influence drug selection.

Medication Reconciliation

An estimated 60% of all medication-related errors occur at times of a care transition.[30] Performing an accurate medication reconciliation during any transitional care time is vital to reducing the risk of medication discrepancies and the potential for therapeutic errors that may be harmful to the patient.

As previously discussed, the project team is responsible for determining whether a standardized, systematic medication reconciliation process exists at the institution prior to implementing the SHM FAST program. If such a process does not exist, the site team should identify the best approach for improving its medication reconciliation practice and how the SHM FAST program will inform those improvements. Once a standardized, systematic process for medication reconciliation has been established, it should then be further tailored to identify potential medication interactions that are specific to anticoagulants and thrombosis.

Key Role Assignment for Medication Reconciliation

The medication reconciliation process is typically performed by an interdisciplinary team, including the admitting physician, an advanced practice provider, or, in academic centers, an initial list of home medications is compiled by a patient care technician, with a complete medication history performed by medical residents, followed by with a pharmacist verifying the information as part of the medication reconciliation process.

However, some hospitals may not have adequate resources to provide support for an interdisciplinary team to verify other staff's medication histories, and the medication reconciliation process may be limited to the admitted provider's history with pharmacy staff medication reconciliation.

Although the specific team members may vary at different facilities, the medication reconciliation is essentially the formalized process in which healthcare providers work together with patients, families and care providers to ensure accurate and comprehensive medication information is communicated consistently across transitions of care.[65] This list is to be compared with the list of medications ordered by a physician at admission at all interfaces of care within the hospital.[66]

Alternatively, a pharmacist and/or a pharmacy technician certified to complete medication reconciliation may also perform this process. However, some hospitals may not have adequate resources to provide pharmacy support for a thorough medication reconciliation.

> One SHM FAST site reported utilizing pharmacy interns under close supervision of a pharmacist for carrying out medication reconciliation procedures. Increasing the number of team members who are able to perform an enhanced medication reconciliation process can reduce the incidence of patients who do not receive adequate medication reconciliation during holidays, evenings, and weekends.

Patient Education

Patient education serves as the foundation for facilitating patient empowerment and is integral to reducing the risks of medication errors, which are commonly associated with anticoagulants. A standardized education process should begin at the time of admission and be a continuous process throughout a patient's hospitalization, rather than an isolated event.

The educator should utilize the Teach-Back method or other enhanced form of patient education and assess a patient's understanding of the disease process and treatment plan through implementation of the SHM FAST tools. If the patient does not exhibit an adequate understanding of the treatment plan despite several educational attempts, a family member or caregiver should be educated and assessed for comprehension. The patient should not be discharged to home unless either the patient or family member/caregiver have demonstrated a reasonable understanding of the treatment plan.

Key Role Assignment for Patient Education

Depending on hospital resources, the patient educator may be the nurse, pharmacist, a medical trainee (such as a student or resident) or the hospitalist. The patient educator may help develop and execute various programs. They should be well-versed in the patient education techniques and locally available resources. Furthermore, the patient educator should identify opportunities to modify resources or enhance techniques to improve patient comprehension and outcomes.

> Several SHM FAST sites reported discovering currently existing educational materials at their institutions that were not currently in use, including videos they were able to play in patient rooms and online tools they were able to connect patients with for at-home use. Discovering these under-utilized tools and resources allowed them to broaden their educational techniques quickly and cost-effectively.

Discharge Facilitation

Discharge facilitation involves multiple tasks, including scheduling follow-up appointments with the appropriate clinicians prior to patient discharge, completing any prerequisite authorizations for drug approval, and creating and transmitting the transition record to the appropriate outpatient clinicians. As previously discussed, patient empowerment will likely be enhanced if the medical team creates opportunities for the patient to be an active participant in their care rather than a passive observer. For example, rather than scheduling the follow-up appointment without conferring with the patient, this process would ideally involve scheduling the visit with the patient together at the bedside. Rather than handing the discharge summary to the patient at the time of discharge, the transmission record would ideally be reviewed with the patient to ensure its accuracy and assess patient comprehension.

> Several sites reported creating or modifying an order set to take a systematic approach to discharge facilitation. Order sets allowed for standardization of language used in discharge care summaries and minimize error of omission. Site teams also used order sets to help assist with medication procurement and follow-up care by building in reminders to apply patients for applicable patient assistance programs and/or schedule appointments.

Identify the Outpatient Care Setting for the Comprehensive Transitions of Care Bundle

Because the comprehensive ToC bundle requires additional outpatient support and follow-up for 30 days post-discharge, the site team will need to identify an outpatient care setting that best addresses the needs of the VTE patient population. Several options exist for the post-discharge destination point for patients diagnosed with VTE and are described below. Some of these options may be better suited to manage this patient population than others. This section will first review potential outpatient care settings and then explore the process of selecting the most ideal post-discharge destination point.

Potential Outpatient Care Settings

- **Anticoagulation Clinics:** The role of anticoagulation clinics is being redefined in the era of direct anticoagulant therapy. These clinics are ideal post-discharge destination points for the VTE population if they can satisfy all the criteria listed in Table 2. Patients will continue all of their treatment post-discharge care at these clinics for the first 30 days post-discharge. Following the 30-day post-discharge period, patient care can be transferred to the primary care physician. The anticoagulation physician may continue to manage the patient's anticoagulation therapy regimen but transfer all other aspects of care to the primary care physician.

- **Ambulatory Care or Post-Discharge Clinics:** Some health systems may not have anticoagulation clinics and will utilize ambulatory care clinics to facilitate ToC. These offices are generally staffed by general practitioners and sometimes employ the services of medical residents. Some health systems may also rely upon post-discharge clinics that are staffed by hospitalists. Ambulatory and post-discharge clinics are considered hybrid models which oversee the ToC process for patients who have limited access to primary care. These clinics may already possess the infrastructure needed to incorporate the tools of the SHM FAST program, such as staffing to complete 30-day follow-up phone calls.

- **Anticoagulation Specialist Practice:** Depending on local practice patterns, some inpatient teams may utilize anticoagulation consultants, such as hematologists or vascular medicine experts, to co-manage VTE patients on a consistent basis. These clinicians assist the hospitalists in choosing specific anticoagulant regimens and may also support the follow-up care of the patient. If the hospital is not associated with anticoagulation or ambulatory care clinics, patients may be advised to follow-up with these specialists. If the offices of these specialists possess the infrastructure to incorporate the SHM FAST interventions such as enhanced patient education methods or 30-day follow-up phone calls, they may potentially be utilized for the comprehensive ToC bundle.

- **Primary Care Physician Practice:**
  Many primary care clinicians support ToC processes for their patient population and have a framework that is complementary to the FAST project and can be used in tandem with the FAST resources. The primary care physician is likely to be most familiar with the patient due to the pre-existing relationship and can often provide helpful information to the inpatient care team. The primary care physician may also be able to help identify potential barriers to outpatient treatment, such as the patient's history of medication adherence, social support status, and other co- morbidities that may affect treatment decisions regarding the anticoagulation plan of care. This clinician should be contacted at time of the patient's admission to inform them of the patient's admission and to acquire additional information that may be helpful while providing medical management.

Choose the Outpatient Care Setting for the Comprehensive ToC Bundle

For the FAST program to be considered comprehensive, all criteria listed in Table 2 should be fulfilled. If the institution appears to be able to satisfy all the criteria for a comprehensive ToC bundle, the outpatient care setting must then be selected, among the options discussed in the preceding section, which will serve as the post discharge destination point on a consistent basis.

Some outpatient settings may be preferable for overseeing the care of the VTE population after discharge. There are several characteristics of an ideal outpatient setting for the SHM FAST program that utilizes the comprehensive ToC bundle. One of the main objectives of any successful ToC program is to develop processes that foster a consistent, streamlined approach that will minimize discontinuity of care. It is unlikely that most outpatient settings will satisfy all the criteria listed in Table 2. If there are competing options for the post-discharge destination point within a health system, the setting that possesses the most amount of the characteristics listed in Table 2 should be chosen for the comprehensive ToC bundle.

Anticoagulation clinics, if existent within the health system, may be ideal outpatient settings for the SHM FAST program if they satisfy all the criteria listed. The clinicians and staff of an anticoagulation clinic are likely to be more familiar with the nuances of anticoagulation therapy compared to general practitioners. Thus, these clinics would ideally be chosen for the comprehensive ToC bundle.

If anticoagulation clinics do not exist within the health system, the alternatives are an ambulatory care clinic, anticoagulation specialist office, or primary care practice. The FAST team is responsible for reviewing the requisite criteria in Table 2 as well as the ideal characteristics of Table 4 to choose the outpatient setting that will be best suited to care for the VTE population. Overall, the practice that allows for optimization of a streamlined process for patient scheduling, clinician-to-clinician communication, transmission of medical records and utilization of the SHM FAST toolkits should be chosen as the outpatient setting of the comprehensive ToC bundle.

The selection of the outpatient care team for the comprehensive ToC bundle may also influence the structure of the inpatient care team. For example, if anticoagulation or ambulatory care clinics do not exist within the health system, a primary care practice may be selected for the outpatient care team. In some hospitals, the patients of specific primary care physicians may be assigned to specific hospitalist teams or wards. Thus, the selection of the inpatient care team for project implementation may be affected by which outpatient care team is selected for the program.

Table 4. Characteristics of an Ideal, Post-Discharge Destination Point for VTE Patients

- Outpatient care team can assist patients with all medical issues for the first thirty days after discharge
- Outpatient care team already performs ToC services for its patients
- Outpatient care team possess expertise in anticoagulation therapy
- Clinicians of the outpatient care team have already evaluated and treated the patient during the index hospitalization
- The office is affiliated with the hospital and shares the same electronic medical record system
- The office has 24-hour on-call service for patient questions and emergencies
- The office has streamlined process for scheduling follow-up visits
- Clinicians of the outpatient team can be directly contacted by the inpatient care team at any point during patient care
- The transition record is available in the shared electronic medical record. Alternatively, the office has the capability of receiving and processing the transition record in a timely manner (i.e. before the 2-day phone call)

Key Considerations in Assembling Your Outpatient Team

Upon identifying an outpatient setting to implement the FAST program, outpatient team members must be selected. Team members should discuss prior experiences and challenges in implementing transitions of care programs or quality improvement initiatives to improve care outcomes for VTE patients and how they anticipate the implementation of the SHM FAST program may improve these experiences. Key strategies to maximize project success may include:

- **Fostering an open dialogue from the project's onset and throughout all phases of project implementation.**
  Although the success of the SHM FAST program is predicated on team members performing well-defined tasks that involve utilization of standardized materials, it is important to discuss the feasibility of performing such tasks and whether minor adjustments to the proposed processes are possible to enhance the probability of successfully completing these interventions.

- **Identifying potential barriers to project implementation and sustainability ahead of time if possible and during project execution.**
  As described in the preceding chapters, the execution of a comprehensive ToC process can be time-consuming. It is important to identify any potential contributors to an increased workload. For example, the hospitalist would ideally communicate the plan of care to the next provider at the time of discharge. If the hospitalist faces systemic barriers to improving communication, the possibility of project fatigue may be significant.

- **Establishing well-defined goals, roles and expectations.**
  It is extremely important to clearly define and document what the team's project objectives are as well as the core role of each team member. Each team member should have a clear understanding of what they are responsible for as part of the team. Clearly defining roles and responsibilities at the onset of the project allows the team to maximize efficiency, minimize redundancies and will also minimize the risk of burnout.

- **Sharing key outcomes and progress made during project implementation.**
  Create the time and space to articulate project outcomes and key updates of progress against goals to enhance team engagement and to socialize the impact of the project locally.

- **Regularly identifying opportunities for process improvement.**
  In addition to sharing positive outcomes, it is equally important to share what is not going well and to readily identify opportunities for process improvement. Facilitating thoughtful discussions about what may need to be adjusted or improved will allow the entire team to openly share frustrations but also identify real time solutions.

- **Regularly reviewing project data.**
  All project team members should review data outcomes together to better understand how the project is being implemented and where there are opportunities to modify the intervention to improve outcomes.
- **Utilizing previously or currently utilized resources.**
  Lastly, the team may wish to identify strategies and resources from previous to maximize success and reduce burden amongst team members.
- **Selecting team members based on past experiences, compatibility with the team, and interest in the project.**
  If outpatient team members and/or outpatient care teams have previously collaborated on a similar project, it may be helpful to obtain feedback about their work. Selecting team members and/or outpatient care teams that are known to be approachable and collaborative may help increase team cohesiveness. To increase effective communication between inpatient and outpatient providers, collaborating with hospitalists with known successful working relationships and good team dynamics with outpatient practices may be effective.

Assign the Key Roles to the Outpatient Team Members of the Comprehensive ToC Bundle

The outpatient care team of the comprehensive ToC bundle will share similar responsibilities as the inpatient care team. The lead outpatient clinician is responsible for assigning the key roles to the most qualified team members as well as supervising the staff to ensure that these responsibilities are accomplished. The specific outpatient setup will likely also differ among hospital systems. For example, an ambulatory care clinic may employ medical trainees whereas primary care practices may use advanced practice providers. The project leadership committee led by the outpatient clinician will also perform an inventory of the outpatient resources as done for the inpatient team. After performing the pre-implementation inventory of the outpatient resources, the lead outpatient clinician will assign the following roles:

- **Appointment Scheduling**
  The inpatient care team ideally will use a single, direct number for scheduling (without utilization of prompts) to streamline this process. The patient scheduler may be a single person or group of receptionists. The schedulers should be educated on the mandatory requirement of evaluating the SHM FAST patients ≤ 7 days after discharge.

> One SHM FAST team had great success working with a scheduler to make sure that patients without a primary care physician and/health insurance coverage were scheduled at their community care clinic for a post-discharge follow-up visit. This process allowed the hospitalist team to ensure patients were seen by a clinician post-discharge and allowed for clinic staff to begin the process of applying the patient for any applicable patient assistance programs, which saved time at clinic visits and lead to increases in follow-up.

- **Post-Discharge Phone Call**
  Depending on the available resources, the lead clinician will assign this task to either a nurse, advanced practice provider, medical trainee or attending physician. This person will use the standardized script to perform this role.
- **Face-to-Face Encounter**
  This role may either be fulfilled by a medical trainee, advanced practice provider, or attending physician. During the face-to-face encounter, the clinician employs a standardized method or other selected enhanced patient education process to re-educate the patient and assess for patient implementation efforts.
- **30-Day Phone Call**
  This role may be accomplished by a nurse, medical trainee, advanced practice provider, or attending physician. During the call, the clinician should ask the patient about his/her symptoms, medication procurement status and medication compliance, and overall health status.

Understanding Challenges of Transitions of Care

A standardized ToC process clearly articulates core interventions and the practitioners responsible for key processes to ensure a good ToC to the next care setting. Successful ToC programs support patient empowerment, which is accomplished by educating and actively engaging the patient as much as possible during their hospitalization. While all patients are discharged from the hospital with discharge instructions, key elements of the ToC process are often missing, or the discharge summary is lengthy and confusing to patients with pertinent information often buried within non-relevant text.

After reviewing the traditional management and modern-day care for facilitating ToC for VTE patients, there are deficits in ToC processes for both VTE and for other diagnoses. The following are the key deficits that may lead to poor ToCs:

- Lack of meaningful patient education that verifies patient understanding of their disease state
- Inconsistency when providing care plan to hospitalized patients and/or to the next provider
- Failure to schedule follow-up appointments prior to discharge
- Lack of patient engagement, activation, or empowerment
- Omission of detail and key follow-up items in discharge summaries
- Failure to transfer discharge summary to the outpatient clinician prior to the follow-up visit
- Failure to confirm that patients have successfully obtained their medications after discharge
- Inability to connect with patient to ensure they are following through with their plan of care after discharge prior to being evaluated by the outpatient clinician

Understanding Challenges of Anticoagulation Therapy

Prior to the introduction of the DOACs and LMWH, the diagnosis of VTE resulted in a hospital admission that required the initiation of IV heparin with subsequent conversion to oral warfarin therapy. IV heparin is typically dosed via an algorithm with a weight-based loading dose followed by an hourly infusion rate. An activated partial thromboplastin time (aPTT) is obtained every six hours with heparin dosing adjustments via an algorithm until the therapeutic range is achieved. Use of intravenous heparin is care intensive and often requires frequent dosage adjustments and laboratory monitoring to achieve goal aPTT values.

The efficacy of intravenous heparin in treating VTE is optimally achieved by reaching a therapeutic (1.5-2.0 times normal) in the first 24 hours of therapy. The heparin infusion is continued along with daily warfarin dosing until a therapeutic international normalization ratio (INR) between 2 to 3 for two consecutive days is achieved. This conventional approach to anticoagulation management has multiple challenges. As noted, this requires 5 to 7 days of hospitalization. With warfarin therapy, given the more rapid depletion of factor VII, which prolongs INR, and the slower depletion of factor II (which leads to antithrombosis) it is recommended that a 5 day minimum overlap of intravenous heparin and warfarin therapy. It is often difficult to achieve a therapeutic aPTT at 24 hours due to various physiologic and logistical concerns. Monitoring and making dose adjustments for conventional anticoagulation therapy requires frequent blood draws that are timed correctly and are not drawn from the arm where heparin is infusing; these also can lead to bleeding issues, hematomas, pain, and patient dissatisfaction. Transitions of care challenges include scheduling INR testing, securing a follow-up appointment with a PCP or anticoagulation clinic, and communicating the plan of care to the outpatient treating clinicians.

Discharge planning requires patient and family education on the purpose and risks of anticoagulation, including action steps if the patient experiences bleeding complications or medication reactions occur such as warfarin induced skin necrosis. Warfarin is also associated with multiple drug and dietary interactions that can lead to deviations in INR values and varying anticoagulation intensities. Because of these factors, patients require focused warfarin-specific education prior to discharge, which can be provided by the bedside nurse or another clinician and usually consists of preprinted materials.

Low Molecular Weight Heparins

The introduction of LMWHs offered an easier approach to VTE treatment. LMWHs are administered subcutaneously once or twice daily, dosed by actual body weight and do not require aPTT monitoring due to more predictable pharmacokinetic and pharmodynamics properties. As with heparin therapy, after the first 24 hours of LMWH administration, warfarin is introduced and dosed daily until the achievement of a therapeutic INR between 2 to 3 for two consecutive days. This therapeutic intervention offers the opportunity of early home discharge for patients on subcutaneous LWMH with bridging to warfarin in the outpatient setting, which potentially may reduce the length of stay. In this case, patients require teaching on two anticoagulants: both warfarin and LWMH, as well as subcutaneous administration

technique. Challenges with LMWH include correct dosing, patient or family member teaching and comfort with subcutaneous injections, and risk for injection site hematomas. Similar challenges exist with care transitions as with intravenous heparin to warfarin bridging, including coordinating INR testing, providing patient and family education, scheduling follow up appointments and communicating care plans to longitudinal providers.

Introduction of DOACS

The availability of the DOACs were a major change in the treatment of VTE and are now considered the first-line therapy for most patients. These agents do not require routine laboratory monitoring, have fewer drug-drug interactions, have no food restrictions and are dosed once or twice daily. DOACs are non-inferior to the standard therapy listed above but more importantly are associated with a lower risk for major bleeding. Despite the aforementioned innovations with DOACs, there are challenges related to these agents in VTE treatment. These agents either require a loading dose regimen or lead-in therapy with IV heparin or LMWH before initiating the maintenance dose of the DOAC. In the case of apixaban, the dose is 10 mg, twice daily for the first 7 days followed by 5 mg, twice daily. Rivaroxaban also has a loading dose regimen. It should be taken with a meal for adequate availability. Dabigatran and edoxaban both require parenteral lead-in therapy. The dosing of the DOAC class of medications can be complex due to indication – specific dosage regimens, which can cause confusion and medication errors, as noted. In a retrospective cohort analysis, inappropriate DOAC dosing occurred in 25% of hospitalized patients.[31] Another retrospective cohort evaluation showed that 60% of prescribed courses of DOACs were inappropriately utilized in outpatient clinics.[32] In special populations, such as extremes of weight (BMI > 40 kg/m^2 or weight >120 kg), hepatic or renal dysfunction such as dialysis patients, there are limited recommendations for safe DOAC usage since, since these patient populations were generally excluded from the clinical trials. There are additional complexities regarding general DOAC dosing. There is a need for dosing adjustments for special patient populations due to varying dosage schedules that are indication specific, e.g. an apixaban dosage reduction is recommended for elderly patients being treated for atrial fibrillation if certain criteria are met (regarding body weight and renal function). However, similar dosing changes are not recommended for the management of VTE patients.

Despite these issues, DOACs, when utilized appropriately, can simplify the treatment of VTE and may facilitate outpatient management potentially reducing the length of stay or avoid hospitalizations altogether. However, the 30- and 90- day readmission rates as well as emergency room visits related to bleeding were similar between the DOAC and warfarin groups.[33]

In summary, there are multiple challenges associated with the use of modern-day anticoagulation therapy which can be compounded by the absence of robust, standardized and rigorous ToC processes and programs:

- Variations in dosing recommendations of the same medication for different cardiovascular indications
- Unclear role of DOACs in special populations, such as morbidly obese or severely underweight patients and subpopulations of cancer
- A lack of well-designed studies addressing the systematic utilization of anticoagulation clinics for managing DOAC therapy
- A lack of well-designed studies addressing ToC processes for anticoagulation management

In addition to the aforementioned challenges of traditional therapy involving heparin and warfarin as well as DOAC therapy, an enormous obstacle is the ability to operationalize the management of VTE and merge this process with an effective and efficient ToC program designed to address the nuances of anticoagulation therapy. In order to further understand these challenges, a review of the deficits in providing a safe ToC for patients with VTE must be better understood.

Understanding Challenges of ToC for patients discharged on ACT

Despite the high risk of ADEs associated with anticoagulants as well as the fact that these medications are listed as problem drugs in certain risk models used to predict re-admission[34], there is an overall lack of well-designed studies investigating ToC programs for patients discharged specifically on anticoagulants. Some studies have enrolled patients into their ToC programs based on the presence of multiple medications, utilization of high-risk medications such as anticoagulants, or high-risk conditions,[35-39] however, at the time of writing, large-scale, well-designed studies do not exist for such a process in this specific patient population. Additionally, VTE guidelines do not provide detailed methods on how to implement a comprehensive ToC program tailored to the nuances of anticoagulation therapy.

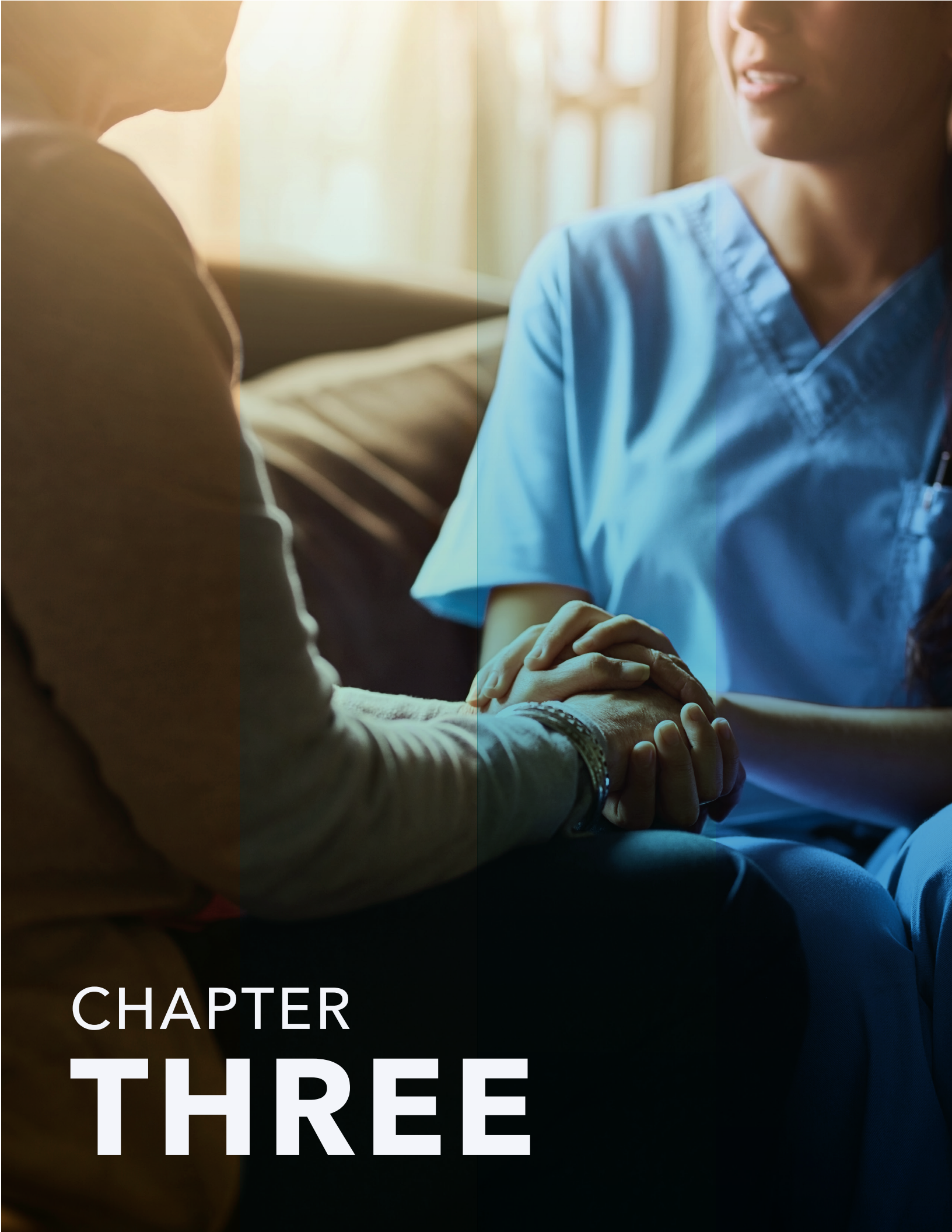
After reviewing the traditional management and modern-day care for facilitating ToC for VTE patients, there are deficits in the care of this patient population similar to deficits in ToC processes for other diagnoses. The following are the key deficits in ToC specific to VTE:

- Variation in selecting the appropriate anticoagulant and dosing schedules for the agent
- Failure to regularly schedule the outpatient INR laboratory testing for warfarin therapy
- Challenges in ensuring patients can acquire the anticoagulant medication after discharge

Translating Best Practices into a Reliable Standard of Care

Several societies have issued general guidelines on the management of acute VTE. Whereas some provide additional information regarding the nuances of the DOACs, these guidelines do not provide a detailed blueprint on how to use these medications in more specific settings and patient populations. Certain regulatory agencies, such as the Joint Commission, now mandate that hospitals employ formal processes to oversee the management of DOACs. Thus, one primary objective regarding anticoagulation management is to integrate the general VTE guidelines with the intuitional processes designed for overseeing the management of anticoagulation therapy.

As discussed in Chapter 1, the SHM FAST program is not intended to serve as a guide for anticoagulation selection. Rather, its main objective is to enhance the ToC process for patients whom are diagnosed with VTE and are treated with anticoagulation therapy. This enhancement is best accomplished by tailoring all aspects of the transitional care of the patient, including the medication reconciliation process, patient education and clinician communication, to specifically address the nuances of VTE and its treatment. It is designed to facilitate, through a structured and systematic approach, the movement of the VTE patient through the hospitalization by mandating that certain requirements are satisfied as early as possible during the admission while also providing a general guide to assist hospitalists with drug selection and determine discharge readiness. Regarding anticoagulation selection, the SHM FAST program will provide a general guide, which will be summarized as tables, regarding which anticoagulant to initiate at the time of admission and whether it is acceptable to use a DOAC for the acute (first 5-10 days of treatment) and short-term (3-6 months of treatment) phase of treatment.



CHAPTER THREE

Optimizing Care for the DVT/PE Patient

As previously discussed, the DOACs have changed the landscape of VTE treatment over the past several years and data has begun to emerge that this class of medications are often inappropriately prescribed. Although the risks of bleeding associated with the DOACs are lower compared to warfarin, bleeding remains a concern for these medications, particularly if they are being inappropriately utilized.

The optimization of treatment for the VTE population involves the utilization of the most up-to-date treatment guidelines (as well as any institutional guides) in combination with transitional care services that are specifically tailored for the VTE population. Essentially, it involves the implementation of a system of "checks and balances" by multiple team members that would ensure that anticoagulants are properly being prescribed and that patients are being adequately educated about the disease process and its treatment.

Initiation of Treatment

Anticoagulation therapy should be initiated if VTE is considered a high-probability or after it is diagnosed. The initiation of anticoagulation treatment is often performed by an emergency department (ED) physician or member of the inpatient care team, such as the hospitalist, medical trainee, or advanced practice provider. If the ED physician starts VTE treatment, it will be the responsibility of the inpatient team to determine whether to continue the therapy that was started by the ED staff.

When choosing the initial therapy, several factors, as outlined in Table 5, must be considered to determine if the patient should be started on parenteral anticoagulation (such as IV heparin or LMWH) or whether it is reasonable to start a DOAC, such as apixaban or rivaroxaban, edoxaban and dabigatran cannot be used as initial therapy because they require a 5-day lead-in treatment with a parenteral anticoagulant. All DOACs are eliminated to varying degrees by the kidneys and all of these medications, except dabigatran, are also metabolized the hepatic cytochrome p-450 system. LMWH is also eliminated by the kidneys. Thus, if patients are diagnosed with acute renal or hepatic failure, the DOAC class of medications should generally be avoided. If the renal status is unstable, LMWH should also not be used and IV heparin should be initiated. Ideally, a VTE order set should be routinely used to guide the initiation of anticoagulation therapy. Table 6 outlines the required elements of the order set. A comprehensive metabolic panel (CMP) should be routinely ordered to determine the renal and hepatic status of the patient.

Table 5.
Candidates for Parenteral Anticoagulation (IV Heparin or LMWH) as Initial Therapy

Unstable Pulmonary Embolism
Pulmonary Embolism Associated with Right Ventricular Strain
Extensive Lower Extremity Deep Vein Thrombosis Associated with Significant Swelling and/or Pain
Acute Kidney Injury or Unstable Kidney Function
Acute Hepatitis or Decompensated Liver Function
Possible Upcoming Surgical Procedure
Elevated Risk for Bleeding • Recent (< 15 days) Major Bleeding Major Surgery (< 15 days) • Major Trauma (< 15 days) • Recent (< 15 days) Hemorrhagic or Ischemic Stroke • Recent Use of Systemic Thrombolysis (< 30 days)
Inability to Swallow Medications
Pregnancy

A complete blood count (CBC) should be ordered to determine the hemoglobin (Hgb) and platelet count. If the Hgb is below 10 g/dL, the patient may be experiencing occult blood loss which may need to be further investigated. Furthermore, if the patient is markedly anemic, it may guide the hospitalist to initiate an intravenous heparin infusion, which has a shorter half-life and may be stopped quickly in the event that the patient continues to experience a decreasing Hgb during the admission. The CBC will also determine the platelet count. If this count is below 100 B/L, which may be a risk factor for bleeding, the inpatient care team may decide to start IV heparin, as well.

The coagulation panel of the VTE order set may screen for a lupus anticoagulant or a bleeding diathesis as well as serve as baseline tests in the event that IV heparin is started, which requires adjustment to achieve a therapeutic activated partial thromboplastin time (aPTT). The presence of hematuria on the urinalysis (UA) may be a marker for future genitourinary (GU) bleeding and may indicate the presence of a GU malignancy. Thus, a UA should also be a part of the VTE order set and should be investigated if abnormal.

Lastly, pregnancy is a contraindication to the use of DOACs, as well as VKAs and should also be included in the order set. In addition to the aforementioned laboratory and urine tests, the VTE order set should also include a brain natriuretic peptide (BNP), troponin, and transthoracic echocardiogram for patients who are admitted for a pulmonary embolism (PE). The presence of right ventricular dysfunction on these studies is a marker for increased mortality in this patient population. In this event, a shorter-acting anticoagulant (such as IV heparin or LMWH) may need to be first used in the event that the patient experiences clinical deterioration that may warrant more aggressive therapy, such as a catheter-directed thrombolysis procedure of the pulmonary embolism. As shown in Table 5, other factors should also be considered when starting anticoagulation therapy. If, for example, the patient is diagnosed with an extensive lower extremity DVT, a shorted-acting anticoagulant should be chosen first in the event that a decision is made to surgically intervene. Also, if the patient experienced recent bleeding, a parenteral anticoagulant should be selected in case the patient experiences a recurrent bleeding event shortly after starting treatment.

Table 6.
Order Set for Venous Thromboembolism (VTE)

Complete Blood Count (CBC)
Comprehensive Metabolic Panel (CMP)
Prothrombin Time (PT)
Activated Partial Thromboplastin Time (aPTT)
Urinalysis
Stool for Occult Blood (if hemoglobin < 10 g/dL)
Pregnancy if applicable
Transthoracic Echocardiogram for Pulmonary Embolism
Brain Natriuretic Peptide (BNP) for Pulmonary Embolism
Troponin for Pulmonary Embolism

In addition to the above factors, there are specific nuances, as outlined in Table 7, regarding the DOACs that may render this class of medications inappropriate for initial therapy or in general. As previously discussed, all DOACs are eliminated to varying degrees by the kidneys and all of these medications, except dabigatran, are metabolized by the hepatic cytochrome p-450 system. Thus, medications that may either induce or inhibit the cytochrome p-450 system may interfere with all of these medications except dabigatran. However, all of the DOACs interact with the p-glycoprotein system.

As outlined in Table 7, DOACs should generally be avoided if a patient is also taking medications that are strong inhibitors or inducers of the cytochrome p-450 or p-glycoprotein systems. If a patient is taking such medications, the inpatient team should likely consult with the pharmacy department and/or an anticoagulation specialist prior to using a DOAC. As previously discussed, some guidelines suggest caution with the use of DOACS in patients who are either markedly overweight or underweight.[54] Furthermore, the absorption of these medications may be altered in patients who have undergone extensive gastric or intestinal surgeries, including gastric bypass procedures. Since these medications are mostly absorbed in the gastric and proximal intestine, they should be avoided in patients with jenunostomy tubes.

Although some guidelines now support the use of the DOACs in patients with cancer, there is an elevated risk of bleeding with this class of medications in cancer subpopulations, such as those with a gastrointestinal (GI) or genitourinary (GU) malignancy, which may make these patients prone to GI and GU bleeding respectively. Also, if a ureteral stent was recently deployed, patients may also be prone to major GU bleeding, particularly if there is ongoing hematuria, with the use of DOACs, as per the clinical experience of the authors of this guideline. Lastly, there is growing evidence that patients with antiphospholipid antibody syndrome have a higher risk of thromboembolic complications if treated with rivaroxaban compared to warfarin. Table 5 reviews the aforementioned factors that may render the usage of DOACs, either as initial therapy or for long-term treatment, problematic. The inpatient team should consider avoiding the DOACs if the factors listed in Table 7 are present or consider consulting with a pharmacist and/or anticoagulation specialist before selecting a DOAC for use. Of note, chronic dialysis is not a contraindication to the use of certain DOACs, such as apixaban, in patients who have not recently experienced renal decompensation during the index hospitalization however other DOACS, such as dabigatran should be avoided since it is predominantly eliminated renally, as well as rivaroxaban due to lack of clinical data in patients with a creatinine clearance < 15 ml/minute.

Table 7.
Patient Populations in Which DOACs Should Be Cautiously Used for Initial Acute VTE Treatment

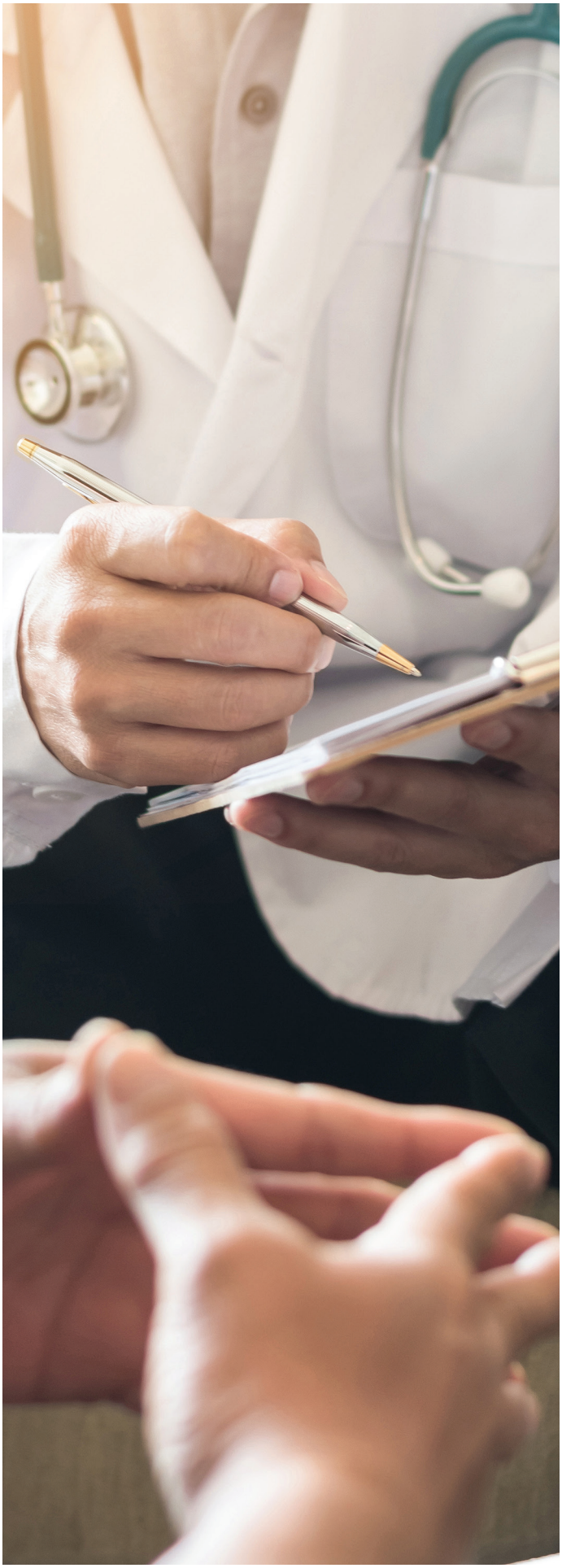
Acute Renal Injury or Unstable Kidney Function
Acute Hepatitis or Decompensated Liver Disease
Low Body Weight (< 60 Kilograms)
Obesity (> 120 Kilograms or Body Masslindex ≥ 40)
Jejunostomy Tube Feeding
History of Gastric Bypass Surgery
Concomitant Usage of Strong P-Glycoprotein and/or Cytochrome P450 Inhibitors/Inducers
Malignancy Involving the Gastrointestinal or Genitourinary Tract*
Recent (< 15 days) Deployment of a Ureteral Stent (particularly with ongoing hematuria)
Antiphospholipid Antibody Syndrome

** Low-molecular-weight heparin is the preferred outpatient regimen*

The inpatient care team should likely consider consulting the pharmacist and/or anticoagulation specialist before selecting a DOAC in chronic dialysis patients. As described above, anticoagulation therapy may be started by the ED physician or inpatient team. If the ED physician has already started the patient on treatment, it will be the responsibility of the inpatient care team to determine whether the initial anticoagulant choice was appropriate. Members of the inpatient team include hospitalists, advanced practice providers (such as nurse practitioners or physician assistants), or medical trainees. The inpatient team leader, who is the hospitalist, is ultimately responsible for ensuring that the chosen initial therapy is appropriate after reviewing the above factors and tables.

Transition to an Oral Anticoagulant

As described above, there may be situations during which a short-acting parenteral anticoagulant should be considered for initial therapy. If the patient is first started on IV heparin, ultimately, the inpatient team will need to eventually transition the patient onto an oral anticoagulant. At times, the reason for selecting a parenteral anticoagulant may have resolved. For example, a patient may have been initiated on IV heparin due to acute kidney injury related to dehydration, which resolved during the hospitalization. In this situation, it would be reasonable to transition the patient onto a DOAC as long as the patient does not possess other factors that are listed in Table 7. However, the patient may continue to exhibit contra-indications or concerns for DOAC therapy. In this situation, the inpatient team should transition the patient onto a VKA. Furthermore, there will be situations during which a LMWH may be chosen for the long-term management of VTE and used after discharge. As described above, there are concerns about using DOACs in certain cancer subpopulations, such as those with a GI or GU malignancy. As long as the renal function is stable and acceptable, a LMWH may be preferred for this group of patients on the basis of several trials showing better efficacy with LMWH compared to VKA in cancers patients. If the patient is initiated on intravenous heparin, the inpatient care team will assess the patient's candidacy for oral anticoagulation therapy on a daily basis by referring to the aforementioned stables. If, for example, there is no evidence of active bleeding, the clinical conditions have stabilized, there is no plan for any procedures, and the patient is able to swallow medications the patient should be transitioned onto an oral anticoagulant. If there are contra-indications or concerns for DOAC therapy, as listed in Table 7, the patient should likely be transitioned onto a VKA, unless he/she has a GI or GU malignancy. The inpatient care team member, such as the advanced practice provider, medical trainee, or hospitalist will be involved in this decision. However, the hospitalist team leader is ultimately responsible for referring to the above tables in order to ensure that an appropriate anticoagulation regimen has been chosen.



Understanding Transitions of Care Processes and Deficits

The FAST program examines four components of a successful ToC process: discharge and transition of care communication, medication reconciliation, patient education, and follow-up phone calls. The following section will address the importance of these four domains, along with examples of how participating FAST program sites began to address these deficits.

1. **Discharge and transition of care checklist**
   a. **Summary:** reviewing and completing a comprehensive discharge and transition of care checklist will allow the care team to assess whether key elements have been included as part of the patient hand-off. These key elements include date, time, and location of scheduled follow-up visits, after-hours contact information in case of emergency, and detailed information and instructions regarding medication procurement and dosing. Patient charts may be assessed to determine the consistency in including these key elements in discharge summaries and hand-off documentation prior to implementation. An example check list is included in the appendix.

   b. **Deficits:** Discharge to home and/or an outpatient setting should be a standardized, evidence-based process to optimize patient outcomes post-discharge. The day of discharge can be overwhelming for patients and their caregivers. Additionally, unsafe discharge practices can also lead to inaccurate information being transmitted from inpatient to outpatient provider.[34, 41]

2. **Enhanced medication reconciliation**
   a. **Summary:** Performing accurate and timely medication reconciliation plays a vital role in preventing hospital readmission or ED revisits. When medication reconciliation is not performed consistently and accurately, medication-related problems are likely to occur at the transition of care point.[40-42]

   b. **Deficits:** Inconsistencies in collecting and documenting medication history can lead to medication-related errors and adverse events. Chart audits suggest that over half of medication reconciliation errors occur at the time of transition.[42] Inconsistencies and inaccuracies during medication reconciliation can be attributed to several factors, such as inconsistent documentation, inaccurate patient reporting, and inadequate staffing, particularly on nights, holidays, and weekends.

> FAST program sites have found success in building medication reconciliation into their VTE-related order sets to ensure providers complete this task at various stages in the patient's stay. Additional sites have obtained additional pharmacy support for completing medication reconciliation.

3. **Comprehensive patient education**

   a. **Importance:** It has been shown that patients who adequately understand their course of treatment, follow-up plans, and medication information are 30% less likely to be readmitted to the hospital.[43] Ample, comprehensive patient education can empower patients to continue their treatment plan after discharge and take ownership of their care. Patient education sessions can also provide opportunities for providers to assess patient readiness, understanding, and socioeconomic factors.

   b. **Deficits:** It may be difficult to successfully educate patients on the day of discharge due to an overwhelming amount of information and follow-up tasks. A lack of consistency amongst various providers may also lead to conflicting information and confusion, which can decrease adherence.[44] Hospitals also rely only on limited nursing or pharmacy teams to provide patient education. These teams may have limited hours that they are able to provide education, so patients who are discharged during off-peak hours such as nights and weekends may miss education sessions entirely. Additionally, staff members may not be prepared to provide tailored education depending on a patient's first language, literacy level, or social determinants of health.

> Previous sites were able to identify constraints in their patient education processes. A common limitation identified by implementation sites is that they only provided patient education on the day of discharge. Site teams reported issues with patients fully comprehending information given on the day of discharge, spurring the team to begin a new protocol to provide VTE and anticoagulation therapy-related education one to two days prior to discharge to allow patients to have adequate time to process this new information and ask any follow-up questions of their care team members.

4. **Follow-up phone calls**
    a. **Importance:** Follow-up phone calls should be performed after the patient is discharged from the hospital to ensure comprehension of their treatment plan, validate adherence to their medication, and to provide opportunity for the patient to provide self-reported outcome measures, such as ED utilization and hospital readmission. This will ensure continuity of care as patients transition from inpatient to outpatient provider. Additionally, the provider can assess factors such as nonadherence, clinical status, and comprehension of treatment plan and next steps.

    b. **Deficit**: Due to limited resources and staffing, providers may be unable to complete a follow-up phone call to their patients within 2-3 business days of discharge. Some hospital systems may outsource these calls. These third-party organizations often utilize algorithms to determine which at-risk patients are eligible to receive a phone call, decreasing continuity of care for many patients.

> Site teams found success in recruiting residents and/or interns who were interested in quality improvement projects to complete these follow-up phone calls. Teams assigned this task to residents on a rotating basis or utilized an on-call system to alert residents when there were calls that needed to be completed.

5. **Staff education about transitions of care processes**
    a. **Importance:** At times, patients, staff, and/or outpatient partners may be apprehensive to incorporate new transition of care processes into their workflow due to concerns about time, effort, cost, or change. It is recommended to engage staff members throughout the project lifecycle by providing formal and informal training opportunities, explaining the benefits to both patients and the practice, and providing recognition for staff dedication and work. This will allow staff members to understand the importance of transition of care processes for their patients and feel a sense of ownership over the project.

    b. **Deficit:** Time, high patient loads, and short staffing can significantly reduce the amount of time team members can spend educating both themselves and other staff members about any newly implemented transitions of care processes. Some staff members, such as nurses, may be unable to attend meetings or trainings that are not directly connected to providing patient care on their assigned units.

> Several teams began to incorporate their new transition of care processes directly into incoming residents' and nurses' hospital onboarding trainings. This allowed them to ensure new team members would automatically be educated on the new protocol without requiring an additional meeting away from their regular working hours. This also ensures sustainability by building these new processes into standardized workflow.

Identify Metrics to Measure Outcomes

To better understand opportunities for improving ToCs for VTE patients in the local hospital, the implementation team should review patient volume data for acute VTE and conduct an analysis to review length of stay and 30-day readmision rates. These metrics will help to determine how your institution is performing relative to other facilities. An analysis of the 30-day readmission rate for VTE-related complications or ADEs is instrumental in determining any opportunities for improvement since they may have resulted in financial penalties from Medicare or commercial insurers. Your institution's current system processes should be reviewed to determine if the acute VTE patient population is managed in an efficient and standardized manner within your institution with attention to detail on the following areas:

- **Patient Assessment, Risk Stratification and Treatment for Acute VTE**
  Determine if your institution utilizes a standardized order set for management of acute or if there institutional-endorsed guidelines for management of acute DVT and acute PE. If so, these guidelines may be readily accessible to the staff. Additionally, it is recommended to determine if there a standardized medication reconciliation process with inclusion of a process to identify patients at high risk for ToC-associated medication errors.
- **Patient Education and Comprehension Assessment**
  Identify any standardized patient educational materials and determine if there is an outlined process for assessment and documentation of patient comprehension. Determine if there is a process for identifying high-risk patients to receive a more intensive educational program prior to discharge.
- **Discharge and Transition of Care Process**
  Your site may utilize a formalized discharge process to ensure safe discharge of patients discharged on anticoagulation therapy. If so, establish if this process outlines a clear plan of care at the time of discharge and ensure these care plans are shared with the next level of care provider.
- **Medication Reconciliation and Anticoagulant Procurement**
  Establish which, if any, fail-safe processes are in place to assure that patients are discharged with an adequate supply of medication. Similarly determine any processes in place that ensure patients are scheduled a follow-up appointment with their designated provider.
- **Post-Discharge Patient Tracking Process**
  Determine how patients are tracked after discharge and establish if patients are contacted to assure adequate follow-up.

The project team should review responses to these prompts and use the data to inform opportunities for improvement. An analysis and a preparation of a summative report of the findings with an outline of opportunities will augment the Case for Change and solidify the aims for improvement. These key performance metrics will also provide focus on ongoing data collection and analysis during implementation of the SHM FAST program.

Improved efficiencies and clinical outcomes because of process improvement may lead to financial opportunities for the institution. For example, a reduction in the hospital length of stay and/or readmission rate may be a top priority for administrators, depending upon your hospital's current occupancy rates, reimbursement, and payor mix.

Another consideration when evaluating your current system is where and when patients are typically referred for their follow-up care. The Center for Medicare and Medicaid Services (CMS) offers some financial incentives for well-documented and comprehensive ToC services that are designed to reduce hospital readmission rates within 30 days of discharge. If this is a potential area of interest to the executive sponsor as well as other administrators and your current outpatient practices are billing and capturing reimbursement for ToC services, please refer to The Billing for Transition of Care Services section in this chapter, which will outline the necessary components to achieve reimbursement for these services.

Existing Performance Metrics

- **Summary of Recommended Baseline Performance Metrics**

  Reviewing baseline performance metrics is recommended to identify areas of focus that will either improve process efficiencies, ensure standardized care measures, decrease costs, reduce financial penalties for pay-for-performance indicators and potentially serve as areas for potential revenue generation.

  Once the annual patient volume for acute VTE is determined, a further analysis of the length of stay and 30-day readmission rates should be conducted. These metrics will help to determine how your institution is performing relative to other facilities. An analysis of the 30-day readmission rate for VTE-related complications or adverse events is instrumental in determining any opportunities for improvement, since they may have resulted in financial penalties from Medicare or commercial insurers.

  Your institution's current system processes should be reviewed to determine if the acute VTE patient population is managed in an efficient and standardized process at your facility, with assessment of the following areas:

Table 8.
General Baseline Performance Metrics

General Patient Volume
Annual Admissions
Average Length of Stay
Number of 30-Day Readmissions
VTE-Related Patient Volume
Annual VTE Admissions per primary ICD-10 coding for DVT/PE
Average Length of Stay
Number of 30-Day Readmissions

- **Patient Assessment, Risk Stratification and Treatment for Acute VTE**
  - Is there a standardized order set for management of acute VTE?
  - Are there institutional-endorsed guidelines for management of acute DVT and acute PE? If so, are these guidelines readily accessible to the staff?
  - Is there a standardized medication reconciliation process with inclusion of a process to identify patients at high risk for ToC-associated medication errors?
- **Patient Education and Comprehension Assessment**
  - Are there standardized patient educational materials with an outlined process for assessment and documentation of patient comprehension?
  - Is there a process for identifying high-risk patients to receive a more intensive educational program prior to discharge?
- **Discharge and Transition of Care Process**
  - Is there a formalized discharge process to ensure safe discharge of these patients?
  - Is there a clear plan of care outlined at the time of discharge and has this care plan been shared with the next level of care provider?

- **Medication Reconciliation and Anticoagulant Procurement**
  - Is there a fail-safe process in place to assure that patients are discharged with an adequate supply of medication and are scheduled a follow-up appointment with their designated provider?
- **Post-Discharge Patient Tracking Process**
  - Is there a process in place to track patients after discharge, and does someone contact these patients to assure adequate follow-up?

The project team should review responses to these questions and use the data to inform opportunities for improvement. An analysis and a preparation of a summative report of the findings with an outline of opportunities will augment the case for change and solidify the aims for improvement, as well as the key performance metrics to focus on for ongoing data collection and analysis during implementation of the SHM FAST program.

Improved efficiencies and clinical outcomes as a result of process improvement may lead to financial opportunities for the institution. For example, a reduction in the hospital length of stay and/or readmission rate may be a top priority for administrators, depending upon your hospital's current occupancy rates, reimbursement and payor mix.

Another consideration when evaluating your current system is where and when patients are typically referred for their follow-up care. The Center for Medicare and Medicaid Services (CMS) offers some financial incentives for well-documented and comprehensive ToC services that are designed to reduce hospital readmission rates within 30 days of discharge.

The project team will perform an analysis to determine if the hospital has appropriate processes in place for the management of VTE and VTE-related ToC services by referring to Table 9. The analysis will determine if VTE order sets are currently being used and if there are processes in place to guide clinicians on the appropriate selection of anticoagulation therapy.

In addition, the team will assess whether hospitalists use any guidelines to determine discharge readiness, which may potentially reduce the length of stay for VTE

Table 9.
Current System Performance Metrics

Currently Available (Check for Yes)	**Current Availability at Your Facility**
	An Acute VTE order set
	Admission and discharge medication reconciliation process with assessment of patients to identify those at high-risk for medication errors after discharge
	Acute VTE protocols/guidelines
	VTE guidelines/protocols readily available to medical staff
	Staff VTE educational materials
	Staff VTE educational materials readily available
	Formalized patient VTE educational materials, which include an assessment of patient comprehension, that are written at the 6th grade level and in the patient's primary language
	Formalized patient VTE educational materials are being used on a consistent basis by pre-defined staff
	A standardized discharge summary for VTE
	A Standardized communication process to the next provider
	A dedicated process to assure outpatient medications are readily available at the time of patient discharge
	A process where patients are routinely discharged with a scheduled follow-up appointment
	A patient tracking process after discharge
	Designated staff tasked with contacting patients after discharge to answer patient questions, triage issues and assure follow up with next level of care provider
	Optional Practice Performance Metric: Outpatient practices currently meet criteria to bill reimbursement for ToC Services

patients. Furthermore, an assessment of the current methods of patient education will be performed that will specifically address whether patient education occurs on a routine basis, identify the educators, determine if comprehension assessments exist for VTE and anticoagulation, and analyze whether the educational materials are presented at the 6th grade level.

An evaluation of the current ToC processes should also be performed, including an assessment of the medication reconciliation process, the personnel responsible for performing this duty, and if this process is successfully completed at the time of admission and discharge. In addition, the project team will determine if the discharge summaries are succinct and adequately address VTE therapy as well as determine if the follow-up appointments are routinely scheduled prior to patient discharge.

Lastly, an analysis will be performed to determine if there is a tracking process in place within the health system to assure that prescribed outpatient anticoagulants are covered under prescription plans and are readily available to patients at the time of discharge. In summary, you should determine if your institution utilizes the following:

- An enhanced medication reconciliation process for VTE patients using a VTE order set
- Specific script for patient education and comprehension assessment utilizing the Teach Back method that is written at the 6th grade level
- Checklist for discharge readiness
- Checklist for appropriate drug selection
- Script for the 2-day follow-up phone call script for the recommended elements of the transmission record

Other Optional Outcome Measures

Other additional outcomes measures that could be collected for assessment include the financial impact of the program on the inpatient and outpatient clinical practices and patient satisfaction with the program.

Assessment of pay for performance measures related to the VTE-associated 30-day readmission rates is an important indicator for determination of improved outcomes, with success being measured by a reduction in 30-day readmission rates and decreases in associated financial penalties. Enhanced revenue, with an increase in volume of outpatient visits or higher reimbursement for services are positive indicators to gauge program success and sustainability. Charge captures for ToC billing services, specifically CPT codes 99495 and 99496, will highlight revenue enhancements related to one and two week outpatient follow-up visits, respectively.[45]

A provider's perceptions regarding the value of the transition of care program is also valuable to determine their ongoing willingness to support and participate in the program. Their degree of satisfaction can be evaluated via a survey distributed by electronic or conventional mail. The survey elements can be tailored to your specific institution's interests, an example of a survey tool is included in this guide's appendices for your convenience.

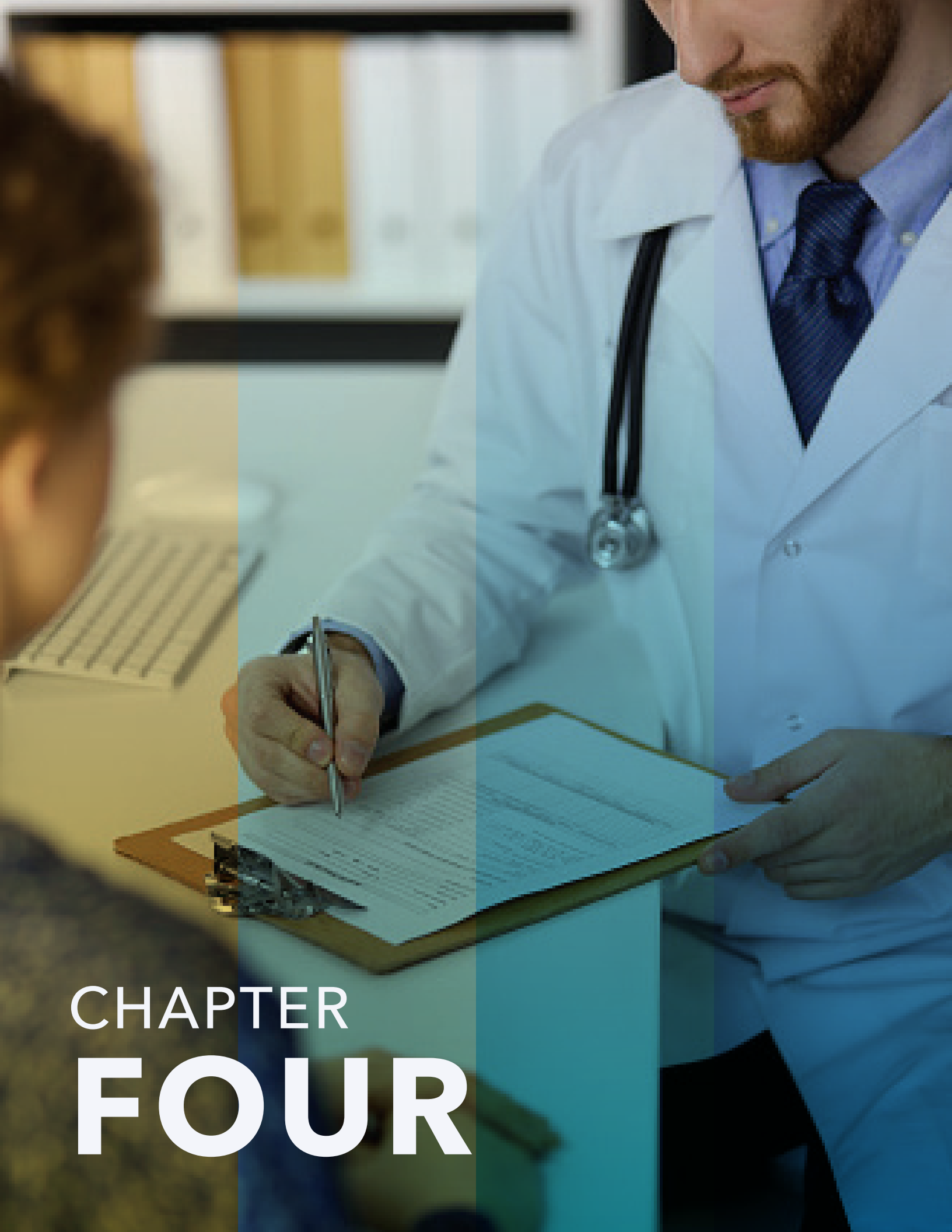
- **Culture of Safety**
  If your institution is interested in delving further into anticoagulation-associated safety measures, a link to a general comprehensive assessment tool related to anticoagulation management from the Institute for Safe Medication Practice's (ISMP) Medication Self Assessment for Antithrombotic Safety, which includes elements to assess an institution's anticoagulationrelated protocols and guidelines, medication education program for patients as well as adverse event reporting systems.[46]

- **Additional Resources**
  General indicators related to patient safety, such as Leapfrog or CMS Stars Scores can provide some information regarding your institution's current standing regarding patient safety and where your facility's performance stands in comparison to other institutions.[47]

In summary, the recommended key indicators to review to determine success of your ToC program includes the following:

- Completion of all recommended checklists
- Completion of the post-discharge phone call that utilizes that standardized script
- Hospital length of stay
- 30-day hospital readmission rate related to VTE, such as recurrent thrombotic events and bleeding, which will be determined from the information obtained during the 30-day follow-up phone call

An analysis of this collated information will be useful for determining the impact of your program on VTE-related metrics such as hospital length of stay and 30-day readmission rates as well as determine the feasibility of using the recommended checklists of the SHM FAST program.



CHAPTER FOUR

Implementation Challenges

Site teams may encounter several challenges and impediments when formulating, implementing, or sustaining new quality improvement efforts at their institutions. Diligent and thoughtful planning and meaningful stakeholder engagement to mitigate impediments to the program may assist the team in implementation and sustain the process and culture changes realized through the program.

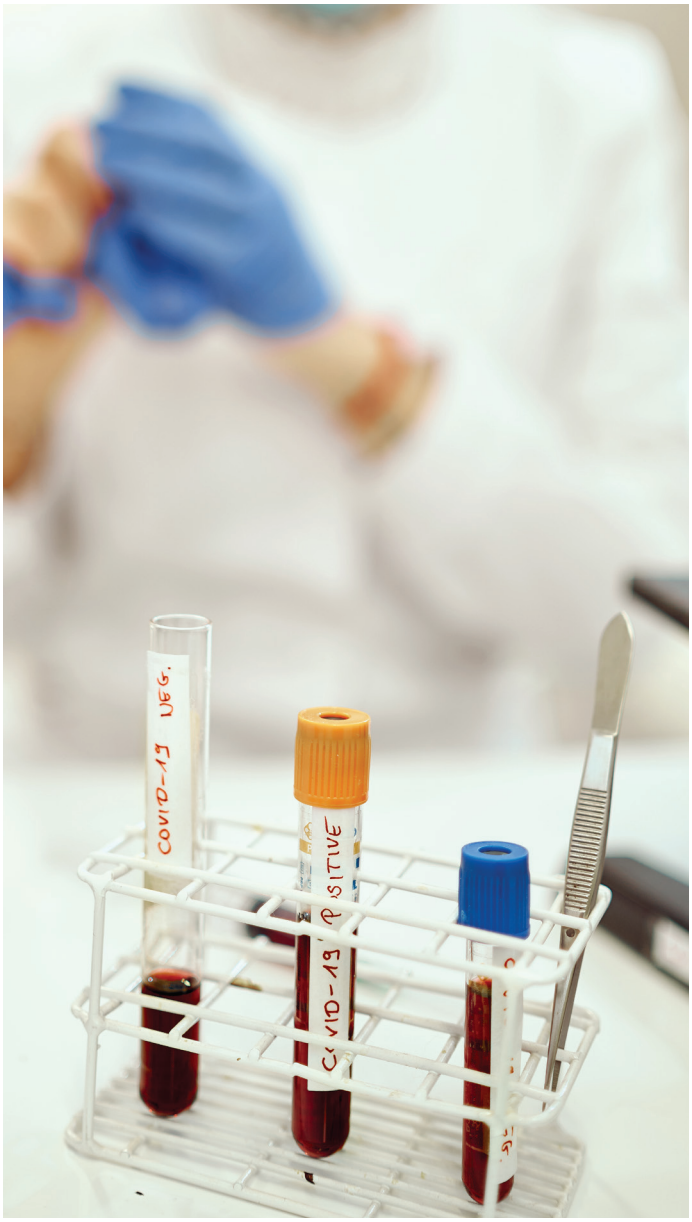
COVID-19

The global COVID-19 pandemic significantly impacted healthcare institutions worldwide.

Frontline staff suddenly had to treat acutely ill patients with a noval virus they were not familiar with treating. There were severe staff shortages, redeployments, conversion of hospital units and hospitals stretched beyond physical capacity. Previous improvement initiatives and priorities were displaced and abandoned and frontline staff experienced record burnout.

Additionally, clinicians had to appropriately address the inherent risk of VTE associated with COVID-19.[52] Key challenges in treating the hospitalized patient with COVID have included how best to identify the optimal anticoagulation dosing. While studies have provided varied outcomes, the use of prophylatic anticoagulation may be warranted for hospitalized patients with COVID-19.[53]

In the SHM FAST Mentored Implementation program, the participating hospitals included COVID-19 patients who met the criteria for inclusion in the program. They received the selected interventions with the objective of creating good transitions to home.



Lack of institutional support

As previously stated, obtaining institutional support is critical when implementing a quality improvement project. While some barriers and challenges may

simply require patience and ingenuity from the site team, others may require financial support, technology support, or adequate staffing. A lack of institutional support can prevent the site team from being able to utilize IT support when making changes to order sets or data collection tools; it can also prevent adequate staffing coverage from being allocated to implement new processes.

In addition to obtaining a signed letter of support from their hospital administration prior to implementing any FAST interventions, some FAST teams made sure to continuously update their hospital administration on their successes throughout the project to ensure continued and sustained support for their work. Doing this made sure institutional support was sustained despite hospital-wide challenges and changes to administrative staff.

Limited Resources

Some institutions may have more available resources than others; regardless, resources for implementing new quality improvement processes are often finite and require site teams to think creatively with available tools and team members. Some sites may be unable to make drastic changes to order sets due to IT turnaround times, while others may experience nursing shortages that will prevent them from being able to roll out new processes on their selected units.

Several SHM FAST sites engaged medical students, residents, and interns, including pharmacy interns who had an interest in QI work. These trainees provided daily support for several processes, such as data collection, patient education, and medication reconciliation. Pharmacy interns can have a positive impact on the delivery of care relative to medication reconciliation for hospitalized patients.[64] Additionally, these trainees often volunteered to step up into a leadership position upon completion of the project to ensure sustainability and growth.

Two-day Follow-up Calls

Preliminary data review and monthly discussions with site teams demonstrated difficulty with successfully completing follow-up phone calls to discharged patients within two business days. Some sites were limited by hospital-wide policies that outsourced all follow-up calls to offsite call centers, which prevented their ability to make any changes to the timing of the calls, the number of attempts made, and the script that was used. Others simply lacked staffing to ensure all patients were called in a timely manner or to allow providers to attempt to reach the patient multiple times. It is important to note that many site teams did provide calls to patients; however, they often noted that the calls took place up to a week post-discharge, rather than just two business days.

Additionally, as more patients rely on cell phones, it was noted that many patients are apprehensive about answering phone calls from an unknown phone number or a hospital-affiliated phone number. Additionally, patients and caregivers are often fatigued or busy after discharge and may miss phone calls with no clear method of being able to make a return call.

Some SHM FAST sites were developing ways to reach patients using other methods, such as text messaging or messages sent through secure patient portals. These methods allow the patient to easily identify who is contacting them and gives them more autonomy over their follow-up communication. One quality improvement study articulated the benefits of automated text messages including cost-effectiveness and a lower number of patients lost to follow up.[63] Other sites were working on ways to communicate the importance of the follow-up phone call with patients during education and to pre-emptively provide the patient with hospital contact information before discharge, so that the patient is comfortable answering a phone call from a foreign phone number.

Translating Best Practices into a Reliable Standard of Care

Several societies have issued general guidelines on the management of acute VTE. Whereas some provide additional information regarding the nuances of the DOACs, these guidelines do not provide a detailed blueprint on how to use these medications in more specific settings and patient populations. Certain regulatory agencies, such as the Joint Commission, now mandate that hospitals employ formal processes to oversee the management of DOACs. Thus, one primary objective regarding anticoagulation management is to integrate the general VTE guidelines with the intuitional processes designed for overseeing the management of anticoagulation therapy.

As discussed in Chapter 1, the SHM FAST program is not intended to serve as a guide for anticoagulation selection. Rather, its main objective is to enhance the ToC process for patients whom are diagnosed with VTE and are treated with anticoagulation therapy. This enhancement is best accomplished by tailoring all aspects of the transitional care of the patient, including the medication reconciliation process, patient education and clinician communication, to specifically address the nuances of VTE and its treatment. It is designed to facilitate, through a structured and systematic approach, the movement of the VTE patient through the hospitalization by mandating that certain requirements are satisfied as early as possible during the admission while also providing a general guide to assist hospitalists with drug selection and determine discharge readiness. Regarding anticoagulation selection, the SHM FAST program will provide a general guide, which will be summarized as tables, regarding which anticoagulant to initiate at the time of admission and whether it is acceptable to use a DOAC for the acute (first 5-10 days of treatment) and short-term (3-6 months of treatment) phase of treatment.

Appendices

1. Transmission Record Sample
2. Patient PASS: Discharge Education Tool
3. Checklist: Discharge Facilitator
4. SHM FAST: Post-Discharge Outreach Telephone Script
5. SHM FAST: 30-Day Post - Discharge Outreach Telephone Script/Documentation Form

1. Transmission Record Sample

Admission date: _____

Discharge date: _____

Diagnosis: _____

- ☐ Lower extremity deep vein thrombosis (DVT)
- ☐ Pulmonary embolism (DVT)
- ☐ Upper extremity deep vein thrombosis (DVT)

Date of starting blood thinner medication: _____

Doctor who took care of me while hospitalized: _____

Doctor who will take care of me after discharge:

CALL THIS DOCTOR IF YOU HAVE ANY QUESTIONS OR PROBLEMS

- Name: _____
- Phone number: _____
- Office location: _____
- You have an appointment to see this doctor on _____ at ____ : ____ am/pm

For Your Doctor:

- Anticipated treatment duration: _____
- Recommended follow-up tests: (such as CBC or creatinine on (MM)/(DD)/(YY) if indicated)

  _____
- Pending results: (list pertinent tests such as hypercoagulable tests)

  _____
- Suggested additional work-up: (such as colonoscopy, etc.)

  _____

  ☐ Potential needs for longer term/extended/indefinite treatment

CONTINUED...

When Should I Call Someone Or Get Help?

Call your doctor or get medical help right away if you develop **SIGNS AND SYMPTOMS OF A BLOOD CLOT** such as:

- Chest pain
- Shortness of breath
- Coughing blood
- Leg pain
- Leg swelling
- Leg redness

Call your doctor or get medical help right away if you develop **SIGNS AND SYMPTOMS OF BLEEDING** such as:

- Blood in your stools or dark/black stools
- Red/pink urine or cannot pass urine
- Recurrent and prolonged nosebleeds
- Menstrual or vaginal bleeding that is heavier than normal
- Coughing up or vomiting blood or vomit that looks like coffee grounds
- Unexpected pain or swelling in joints
- Unexpected headaches, dizziness or weakness

Information About Blood Clots And Blood Thinners

Blood clots are serious and life-threatening.

Blood thinners are very effective in treating blood clots and can prevent new blood clots from developing as well as greatly lower the chances of dying from a blood clot.

Taking your blood thinner incorrectly can increase your risk of developing a new blood clot and/or bleeding. Missing doses of your blood thinner can increase your risk of developing a new blood clot. Taking extra doses of your blood thinner can increase your risk of bleeding.

DO NOT stop taking your blood thinner unless you talk to your doctor. If you are about to run out of your blood thinner, call your doctor to refill the medication. Do not wait.

Tell your doctor immediately if you are scheduled for a medical or dental procedure. Do not stop taking your blood thinner unless you are told to do so from your doctor who is treating your blood thinner.

It is important to delay pregnancy and avoid hormone therapy such as estrogen. If you are planning on becoming pregnant, please inform your doctor.

What Should I Do if I Forget to Take a Dose?

- DO NOT double your dose. Call your doctor for further instructions.
- DO NOT take the following medications/substances while you take your blood thinner (unless you speak to your doctor):
  - Non-steroidal medications (NSAIDs) such as aspirin, ibuprofen, Advil, Motrin, Aleve, Naproxen or Mobic (not all NSAIDs were listed)
  - Herbal medications
  - Alcohol

CONTINUED...

Medication List:

STOP taking the following medications: _____

CONTINUE taking the following medications: _____

START taking the following medications: _____

Blood thinner (name, dose, and frequency): _____

Take your next dose of "Anticoagulant _____" on (MM)/(DD)/(YY) at ___ : ___ am/pm when you get home.

More Information about your Blood Thinner

Eliquis™ (Apixaban)

Can be taken with or without food. You do not need to change your diet with this medication. This is a twice a day medication, taken every 12 hours.

For Loading Doses: _____

Your blood thinner dose will change as described below:

Take "DOAC " dose, frequency until (MM)/(DD)/(YY). (last time at ___ :___ am/pm on (MM)/(DD)/(YY).

On (MM)/(DD)/(YY)., take "DOAC " dose, frequency beginning at ___ :___ am/pm.

Take two 5 mg tablets in the morning and two 5 mg tablets 12 hours later in the evening. Continue to do this until (MM)/(DD)/(YY).

On (MM)/(DD)/(YY), begin taking one 5 mg tablet in the morning and in the evening one 5 mg tablet 12 hours later.

If patient is taking strong P-gp inhibitor and strong inhibitor of CYP3A4, reduce dose 2.5 mg daily.

Xarelto™ (Rivaroxaban)

Needs to be taken with food. You do not need to change your diet with this medication. If you miss a dose, please contact your doctor. Do not double the next dose.

For Loading Doses: _____

Your blood thinner dose will change as described below:

Take "DOAC " dose, frequency until (MM)/(DD)/(YY) – last time at ___ : ___am/pm on (MM)/(DD)/(YY).

On (MM)/(DD)/(YY), take "DOAC " dose, frequency beginning at ___ :___ am/pm.

Take one 15 mg tablets in the morning with food and one 15 mg tablets again in the evening, 12 hours later, with food. On (MM)/(DD)/(YY), begin taking one 20 mg tablet at the same time every day with food.

CONTINUED...

Pradaxa™ (Dabigatran)

Can be taken with or without food. You do not need to change your diet with this medication. Do not crush or chew this medication. This is a twice a day medication, 12 hours apart. If you miss a dose, please contact your doctor. Do not double the next dose.

On (MM)/(DD)/(YY), take one 150 mg tablet in the morning and 12 hours later, one 150 mg tablet in the evening.

Lead-In Therapy:

Take "Parenteral Drug " dose, frequency until (MM)/(DD)/(YY) – last time at ___ : ___ am/pm on (MM)/(DD)/(YY).

On (MM)/(DD)/(YY) at ___ : ___ am/pm, start "DOAC X" dose, frequency and stop taking "Parenteral Drug ." Do not take "DOAC " and "Parenteral Drug " at the same time.

Savaysa™ (Edoxoban)

Can be taken with or without food. You do not need to change your diet with this medication. This is a once daily medication. If you miss a dose, please contact your doctor. Do not double the next dose.

On (MM)/(DD)/(YY), take one 60 mg tablet daily. Decrease dose to 30 mg PO qDay when coadministered with certain P-gp inhibitors.

Lead-In Therapy:

Take "Parenteral Drug " dose, frequency until (MM)/(DD)/(YY) – last time at ___ : ___ am/pm on (MM)/(DD)/(YY).

On (MM)/(DD)/(YY) at ___ : ___ am/pm, start "DOAC X" dose, frequency and stop taking "Parenteral Drug ." Do not take "DOAC " and "Parenteral Drug " at the same time.

Coumadin™ (Warfarin)

Warfarin is monitored by a blood test called an INR. It is very important to monitor your warfarin levels. If you do not properly monitor your INR it could lead to bleeding, a new blood clot or death.

You will need to follow up with (insert provider name and number) on (MM)/(DD)/(YY). You will need to have an INR blood test checked on (MM)/(DD)/(YY). If you do not hear from your doctor within 24 hours of having the INR drawn, you must contact (insert provider's office name and office number). Medications can affect Warfarin levels. You should always notify your doctor of any changes to your medication, if your diet changes a lot or if you become sick and have trouble eating. Your diet and medication changes can affect Warfarin. Foods rich in Vitamin K can decrease the effects of Warfarin and put you at risk for DVT/PE blood clot. You do not need to avoid foods that contain Vitamin K, but will need to keep a consistent diet.

Foods high in Vitamin K include:

- Broccoli
- Brussels Sprout Cabbage Cauliflower Collard Greens Endive
- Green Tea Kale
- Mustard Greens Seaweed Soybeans/Soybean Oil Spinach
- Tofu
- Turnip Greens

You should avoid missing doses. If you miss a dose, please contact your doctor. Never double your dose.

CONTINUED...

General Instructions for Injectables

You should rotate the sites of the injection. This means, if you used the right side of your abdomen for the first injection, move to the left side of the abdomen for the next injection. Wash and dry your hands before the injection. You will then clean the abdomen skin with either an alcohol pad or soap and water. Let the skin air dry. Tap the syringe to get rid of the air. Next, if necessary, waste some of the medication to get your proper dose. Then, gently pinch the skin where you are going to give yourself the medication. You will insert the needle at a 90-degree angle and inject the medication. Remove the needle straight out without bending or twisting. Do not rub the area where you just gave the medication. If there is any leakage, you may gently dab that area. If you should develop a large bruise, please call your doctor.

Lovenox™ (Enoxaparin)

Once a Day

Inject your belly with the syringe once a day (every 24 hours)

Your dose is: _____

The syringe you have been prescribed is: _____

On (MM)/(DD)/(YY), inject (insert dose) into your belly the same time every day (every 24 hours).

Lovenox™ (Enoxaparin)

Twice A Day

Inject your belly with the syringe twice a day (12 hours apart).

Your dose is: _____

The syringe you have been prescribed is: _____

On (MM)/(DD)/(YY) inject (insert dose) into your belly in the morning and inject (insert dose) into your belly 12 hours later, in the evening.

Arixtra™ (Fondaparinux)

Inject your belly with the syringe once daily (every 24 hours).

The syringe you have been prescribed is: _____

On (MM)/(DD)/(YY) inject (insert dose) into your belly the same time every day (every 24 hours).

Unfractionated Heparin

This medication is taken twice daily (every 12 hours).

This medication is based on your weight and will need to be drawn from a vial prior to injection.

Your dose is: _____

On (MM)/(DD)/(YY) inject (insert dose) into your belly in the morning and inject (insert dose) into your belly 12 hours later, in the evening.

CONTINUED...

Bridge Therapy:

You will take both "Parenteral Drug _____" and "Vitamin K Antagonist."

Take "Parenteral Drug _____" dose, frequency until you are instructed to stop this medication. Do not stop "Parenteral Drug _____" until you are told to do so.

Take your next dose of "Parenteral Drug _____" dose, frequency on (MM)/(DD)/(YY) at ___ : ___ am/pm.

Take "Vitamin K Antagonist" dose, frequency.

Take your next dose of "Vitamin K Antagonist" on (MM)/(DD)/(YY) at ___ : ___ am/pm. Check INR (lab test for warfarin) on (MM)/(DD)/(YY) at ___ : ___ am/pm.

If you do not receive a phone call regarding your results within 24 hours of getting your lab drawn, call Dr. _____ for your tests results and further instructions.

Vitamin K Antagonist Information:

List last 5 INR results and last five warfarin doses if available.

Check INR (lab test for warfarin) on (MM)/(DD)/(YY) at ___ : ___ am/pm.

If you do not receive a phone call regarding your results within 24 hours of getting your lab drawn, call Dr. _____ for your tests results and further instructions.

2. Patient PASS: Patient Preparation to Address Situations *(after discharge)*

I was in the hospital because: _____

If I have the following problems:

1. _____
2. _____
3. _____
4. _____
5. _____

I should:

1. _____
2. _____
3. _____
4. _____
5. _____

My appointments:

1. _____
   On: (MM)/(DD)/(YY) at ___ : ___ am/pm.
   For: _____
2. _____
   On: (MM)/(DD)/(YY) at ___ : ___ am/pm.
   For: _____
3. _____
   On: (MM)/(DD)/(YY) at ___ : ___ am/pm.
   For: _____
4. _____
   On: (MM)/(DD)/(YY) at ___ : ___ am/pm.
   For: _____

Key questions I need to ask my doctor(s) about at my visit:

1. _____
2. _____
3. _____
4. _____
5. _____

Other Instructions:

1. _____
2. _____
3. _____

Important contact information:

My primary care doctor: _____

My hospital doctor: _____

My pharmacy: _____

Other:

I understand my treatment plan. I feel able and willing to participate actively in my care:

_____

Patient/Family/Caregiver Signature _____

Provider Signature _____ ____/____/____
DATE

** Adapted from A Transition REcord and Discharge Patient Education Tool from the SHM Boost Implementation Toolkit; Society of Hospital Medicine (SHM). (2015). Overview project BOOST implementation toolkit. Retrieved from https://www.hospitalmedicine.org/globalassets/professional-development/professional-dev-pdf/boost-guide-second-edition.pdf.*

3. Checklist: Discharge Facilitator

- ☐ Identify outpatient clinician
  - Name: _____
  - Phone number: _____
  - Fax number: _____
  - Address: _____
- ☐ Educate patient and/or caretaker on VTE and anticoagulation
- ☐ Assess patient and/or caretaker comprehension of VTE and anticoagulation
- ☐ Confirm affordability of anticoagulant
- ☐ Confirm ability of patient to acquire anticoagulant after discharge
- ☐ Confirm outpatient pharmacy has anticoagulant in its possession or deliver outpatient anticoagulant to patient
- ☐ Arrange all homecare needs
- ☐ Schedule the follow-up appointment (≤ 7 days of discharge)
  - Date of follow-up visit: (MM)/(DD)/(YY)
  - Time of follow-up visit: (MM)/(DD)/(YY)
- ☐ Arrange for follow-up laboratory testing if necessary
  - ☐ Not applicable
  - ☐ Lab draw:
    - ☐ CBC: (MM)/(DD)/(YY) at _____
    - ☐ Creatinine: (MM)/(DD)/(YY) at _____
    - ☐ LFT panel: (MM)/(DD)/(YY) at _____
    - ☐ INR: (MM)/(DD)/(YY) at _____
- ☐ Transmit discharge summary
- ☐ Directly communicate plan of care at time of discharge
- ☐ Educate patient and or caretaker on VTE and anticoagulation

4. SHM FAST: Post-Discharge Outreach Telephone Script

Patient's Name: _____

Medical Record #: _____

Phone # _____

Alternative Phone or Caregiver: _____

Date of Discharge: (MM)/(DD)/(YY)

Documentation Form

Date for 2-Day Phone Call: (MM)/(DD)/(YY)

(MM)/(DD)/(YY) / Initials

Attempt 1: _____

Attempt 2: _____

☐ Completed

☐ Unable to reach: _____

Hello, my name is _____ and I am a _____ at _____. I am calling to see how you have been doing on your blood thinning medication since you left the hospital and will be happy to answer any questions you might have regarding your blood clot or medication. Is now a good time to talk, or is there another time that is more convenient?

List alternative date / time for requested call back: _____

Have you picked up your medication from the pharmacy?

☐ Yes: _____

☐ No: (If no, what is the reason and what can I do to assist you in getting your medication?)

_____

If no, triage to the designated clinician for further assistance and an evaluation.

Referred to: _____

CONTINUED...

Each provider should confirm actual dose of medication the patient reports they are taking and compare with prescribed dose to confirm that the patient is taking the medication correctly.

What is the medicine you are taking?

☐ Eliquis™ (Apixaban)
- ☐ Confirm taking twice a day and date for dose change from loading dose to maintenance. (10 mg = 2 tablets, 5 mg = one tablet)

☐ Pradaxa™ (Dabigatran)
- ☐ Confirm taking twice a day and not opening, chewing or crushing capsule.

☐ Savaysa™ (Edoxoban)
- ☐ Confirm taking once daily.

☐ Lovenox™ (Enoxaparin)
- ☐ Confirm taking once or twice daily subcutaneously into abdominal area or outer thigh and rotating injection sites. If discarding excess please confirm proper technique.

☐ Arixtra™ (Fondaparinux)
- ☐ Confirm taking once daily subcutaneously into abdominal area or outer thigh and rotating injection sites.

☐ Heparin
- ☐ Confirm taking twice daily subcutaneously into abdominal area or outer thigh and rotating injection sites.
- ☐ Confirm drawing up proper dose from vial.

☐ Xarelto™ (Rivaroxaban)
- ☐ Confirm taking either 15 mg twice daily with a meal or 20 mg once daily with a meal, depending upon discharge dosage plan.

☐ Coumadin™ (Warfarin)
- ☐ Confirm taking once daily, review tablet strength and planned number of tablets for discharge dose.
- ☐ Confirm INR test has been drawn or will be drawn within the next few days and name of provider patient is to follow up with regarding warfarin monitoring. Review with patient need to avoid large amounts of green leafy vegetables and maintaining consistent dietary intake of Vitamin K.

Tell me about any problems you have had taking the medication.

_____

_____

_____

CONTINUED...

Have you had any side effects or signs of bleeding / bruising from the anticoagulant (blood thinning) medication?

☐ No

☐ Yes

Has there been any signs of black tarry stools, red blood in the stool, red or pink urine, nosebleeds or coughing up blood, vomiting with a coffee ground appearance, large bruises, bruises at injection sites or bruises in multiple or unusual sites?

☐ No

☐ Yes

If yes, please describe:_____

If yes, was the bleeding severe enough to stop your medicine or see a doctor?

_____

_____

Has the bleeding stopped?

☐ No

☐ Yes

If ongoing problems, triage to the designated clinician for further assistance and an evaluation.

Referred to: _____

Have you returned to an emergency room because of the blood clot or problems with the medicine?

☐ No

☐ Yes

If yes, when? _____

If yes, what happened? _____

_____

_____

Have you been admitted to a hospital because of the blood clot or problems with the medicine?

☐ No

☐ Yes

If yes, when? _____

If yes, what happened? _____

_____

_____

CONTINUED...

Did you receive information about your blood clot and about the medication you were sent home on?

☐ No

☐ Yes

Would you like some additional information or do you have any questions?

☐ No

☐ Yes

If yes, what provide details: _____

If yes, triage to the designated clinician for further follow up: _____

Do you have a follow-up appointment scheduled for your blood clot or have you already had a follow-up appointment?

☐ No

If no, what happened and how can I help? _____

_____

_____

☐ Yes

If yes, when is/was the follow-up appointment? (MM)/(DD)/(YY)

Have you missed any doses of your blood thinning medication?

☐ No

☐ Yes

If yes, what provide details: If yes, how many and why (vomiting, indigestion, etc.)?

_____

_____

_____

Are you having any worsening symptoms (such as leg swelling, chest pain, shortness of breath)?

☐ No

☐ Yes

If yes, triage to the designated clinician for further assistance and an evaluation. For sever symptoms refer to the nearest emergency department.

Referred to: _____

CONTINUED...

Tell me about which medication you take for headache or pain.

_____

_____

_____

Have you taken any herbal medications?

☐ No

☐ Yes

Remind patient herbal products and alcohol use are not recommended with anticoagulation.

List any of above non - prescription or herbal medications and number of doses patient reports taking:

_____

_____

_____

Date for follow-up appointment: (MM)/(DD)/(YY)

Provider: _____

Date for 30-day Phone Call: (MM)/(DD)/(YY)

5. SHM FAST: 30-Day Post - Discharge Outreach Telephone Script/Documentation Form

(MM)/(DD)/(YY) / Initials

Attempt 1: _____

Attempt 2: _____

☐ Completed

☐ Unable to reach: _____

Hello, my name is _____ and I am a _____ at _____. I am calling to see how you have been doing on your blood thinning medication over the past month and will be happy to answer any questions you might have regarding your blood clot or medication. Is now a good time to talk, or is there another time that is more convenient?

List alternative date / time for requested call back: _____

How have you been doing on your blood thinning medication?

☐ No

☐ Yes

What is the name of your medication and how have your been taking it?

_____

Have you had any issues with taking the medication?

☐ No

☐ Yes

If yes, please describe? _____

_____

_____

If yes, triage to the designated clinician for further assistance and an evaluation.

Referred to: _____

Have you missed any doses of your blood thinning medication?

☐ No

☐ Yes

If yes, how many? _____

CONTINUED...

Are you having any worsening symptoms (such as leg swelling, chest pain, shortness of breath)?

☐ No

☐ Yes

If yes, triage to the designated clinician for further assistance and an evaluation. For sever symptoms refer to the nearest emergency department.

Referred to: _____

Have you seen your doctor and had any follow up lab work and testing within the past month?

☐ No

☐ Yes

If yes, describe? _____

Have you had any difficulty getting your medication refilled from the pharmacy?

☐ No

☐ Yes

If yes, what is the reason and what can I do to assist you in getting your medication?

_____

_____

If yes, triage to the designated clinician for further assistance and an evaluation.

Referred to: _____

How long do you expect to be taking a blood thinning medication? _____

☐ Unsure/I do not know

Have you had any side effects or signs of bleeding / bruising from the anticoagulant (blood thinning) medication?

☐ No

☐ Yes

If yes, please describe: _____

_____

If yes, did you miss any doses of your medicine or get any treatment?_____

_____

Has the bleeding stopped?

☐ No

☐ Yes

If ongoing problems, triage to the designated clinician for further assistance and an evaluation.

Referred to: _____

CONTINUED...

Have you returned to an emergency room because of the blood clot or problems with the medicine?

☐ No

☐ Yes

If yes, when? _____

If yes, what happened? _____

_____

_____

Have you been admitted to a hospital because of the blood clot or problems with the medicine?

☐ No

☐ Yes

If yes, when? _____

If yes, what happened? _____

_____

Do you have any questions or would like any additional information about your blood clot and your medication?

☐ No

☐ Yes

Would you like some additional information or do you have any questions?

☐ No

☐ Yes

If yes, provide details: _____

If yes, triage to the designated clinician for further follow up: _____

Would you like to schedule a follow up appointment to go over any concerns or questions related to treatment of your blood clot?

☐ No

☐ Yes

If yes, please arrange a follow up appointment: _____

Date for follow-up appointment: (MM)/(DD)/(YY)

Provider: _____

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