Thrombosis Clinic (PGY1 Rotation - Ambulatory Care I & II)

**Preceptors**
Sara Vazquez, PharmD, BCPS, CACP

**Supporting Staff**
Vicky DiGregorio, PharmD, CACP
Jacob Hampton, PharmD

**Duration:** 2 or 4 weeks

**Site Description**
The Thrombosis Center (TC) at University of Utah Health is a pharmacist-based anticoagulation management service located in the University of Utah Hospital. The TC provides antithrombotic therapy management for approximately 500 outpatients within U of U Health system via collaborative practice agreement with the referring provider. Patients are referred for treatment of acute thrombosis (deep vein thrombosis, pulmonary embolism, stroke) or prevention of thrombosis in high-risk conditions (atrial fibrillation, mechanical heart valve replacement, left ventricular assist device, thrombophilias, cancer, etc.).

**Role of the Pharmacist**
With every patient encounter, the pharmacist is responsible for assessing the safety and efficacy of anticoagulation therapy. This includes anticoagulation therapy drug selection and education (including the direct oral anticoagulants), managing drug-drug and drug-diet interactions, performing point-of-care INR testing and assessing time in therapeutic range (TTR) on warfarin, and if poor TTR, making recommendations for ways to improve anticoagulation therapy, which may include home testing or transitioning to a direct oral anticoagulant (DOAC). The pharmacist is also responsible for identifying, managing, and reporting medication interactions and/or adverse events.

**Rotation Description**
The resident will function as a clinical pharmacist in the TC. The daily patient schedule may include several different types of visits or encounters:
- For an initial therapy selection consult, the resident will review the patient’s history, perform clinical screening and medication reconciliation, discuss potential anticoagulant therapy options and education points for each drug with the patient/caregiver (warfarin, low-molecular weight heparins (LMWH), direct oral anticoagulants (DOACs)), initiate the chosen
anticoagulant, and coordinate a follow-up plan. The resident will communicate the anticoagulation plan back to the referring provider.

- For patients newly enrolled in the TC, if the initial anticoagulant therapy has already been initiated, the resident will review the patient’s history, perform medication reconciliation, and provide drug-specific education to the patient/caregiver.
- Follow-up visits for warfarin patients include performing a point-of-care INR fingerstick test and conducting a brief patient interview that includes assessing compliance to warfarin, dietary and/or medication changes, changes in health status, need for periprocedural planning, bleeding or thrombotic complications. The resident will communicate a plan for warfarin dosing and follow-up INR to the patient/caregiver. As the situation arises, the resident will create, communicate, and initiate an individualized periprocedural anticoagulation plan.
- Follow-up for non-warfarin anticoagulants (LMWH, DOACs) could include close follow-up during the first 3 months, then at least yearly follow-up as needed to assess appropriate medication dosing, compliance or need for medication refill, recent pertinent laboratory parameters, upcoming procedures and designing periprocedural anticoagulation plans, medication interactions, ED visits or hospitalizations, changes to health, bleeding or thrombotic complications.

Typical Daily/Weekly/Monthly Activities
Clinic patient schedule 8:30am – 4:30pm, Monday through Friday
Thrombosis Clinics meetings (teleconference) once monthly, noon-1pm

Expected Progression
First Day:
- Preceptor will orient resident to the clinic, health care professionals, and workflow. Preceptor will review learning activities and expectations with resident.
- Resident will come ready to discuss resident progress to date, areas of excellence and areas of improvement needed, and three goals for rotation.
- Prior to the first day the resident will have reviewed policies and resources for the rotation site (see Readings and Preparatory Work) and come prepared on the first day to discuss any questions from the reading.
- The resident is expected to be punctual, professional, and prioritize daily activities with a focus on exceptional patient care.

Week 1:
- Display professionalism towards all staff and patients.
• Prepare adequately for patient visits by reviewing the electronic medical record (EMR) for recent and future medical visits, medication changes, procedures, and recent anticoagulant dosing trends and plans as appropriate, as well as disease states pertinent to the individual patient.
• Demonstrate competency in performing the point-of-care INR test during the patient visit.
• Demonstrate competency for warfarin dose adjustment and timing of laboratory follow-up in patients with either therapeutic or slightly out of range INR.
• Check out to preceptor for all patient encounters for the first 1-2 days of clinic. After discussion with preceptor about progress, the resident may thereafter use personal judgement to check out to preceptor only in difficult or uncertain cases.
• Perform at least two initial or follow-up encounters for patients on a DOAC.

Week 2:
• Interact appropriately with each patient and their family members, obtaining sufficient history to make patient-centered recommendations.
• Demonstrate competency for warfarin dose adjustment and timing of laboratory follow-up in patients with more difficult patient scenarios, e.g., patients newer to warfarin or with significantly out-of-range INRs.
• Demonstrate the ability to discern abilities and limitations of current level of expertise and perform an increasing number of patient encounters independently without preceptor checkout.
• Perform a new patient education visit for warfarin or a DOAC.
• Perform at least four initial or follow-up encounters for patients on a DOAC.
• Independently manage the daily clinic patient schedule, seeing patients on time to the best of ability.
• Document assessment and plan in the chart with minimal errors in a timely manner.

Week 3:
• When performing new patient education visits (warfarin or DOAC), assess patient or caregiver’s baseline knowledge and tailor visit discussion and content accordingly.
• Begin to probe deeper during patient interviews to discern underlying or less obvious reasons for out-of-range INRs.
• Develop skills in shared decision-making regarding warfarin dosing plans, as well as anti-thrombotic therapy initiation or transitions.
• Independently seek out the clinic’s needs for DOAC follow-up encounters without prompting from preceptor.
• Work with preceptor to discuss approach to duration of therapy for a patient unprovoked VTE.
- Work with preceptor to develop a peri-procedural plan for a warfarin or DOAC patient.
- Report all adverse drug events according to the University of Utah Hospital protocols.
- Document assessment and plan in the chart without errors in a timely manner.

**Week 4:**
- Demonstrate competency and confidence in almost all warfarin dosing scenarios of varying complexity.
- Assess quality of patient’s warfarin therapy, and for those receiving suboptimal therapy suggest modes to optimize therapy (compliance aids such as pillbox/alarms/dosing calendar, engaging a caregiver, change in tablet strength, same daily dosing, home meter, telephone management, switch to DOAC).
- Independently manage the daily clinic patient schedule, adapting seamlessly to unexpected schedule changes such as walk-ins, patients who come early or late or visits that take longer than expected.
- Independently determine duration of therapy for a patient with unprovoked VTE.
- Independently develop peri-procedural plan for a warfarin or DOAC patient.
- Respond to any drug information requests from providers.
- All presentations and project documents or revisions will be due no later than the next to the last day of residency.

**RLS Goals and Objectives**
- **Goal R1.1:** In collaboration with the health care team, provide safe and effective patient care to a diverse range of patients, including those with multiple co-morbidities, high-risk medication regimens, and multiple medications following a consistent patient care process.
  - **OBJ 1.1.1 (Applying)** Interact effectively with health care teams to manage patients’ medication therapy.
  - **OBJ 1.1.2 (Applying)** Interact effectively with patients, family members, and caregivers.
  - **OBJ 1.1.3 (Analyzing)** Collect information on which to base safe and effective medication therapy.
  - **OBJ 1.1.4 (Analyzing)** Analyze and assess information on which to base safe and effective medication therapy.
  - **OBJ 1.1.5 (Creating)** Design or redesign safe and effective patient-centered therapeutic regimens and monitoring plans (care plans).
  - **OBJ 1.1.6 (Applying)** Ensure implementation of therapeutic regimens and monitoring plans (care plans) by taking appropriate follow-up actions.
- **OBJ 1.1.7 (Applying)** Document direct patient care activities appropriately in the medication record where appropriate.
- **Goal 2.2:** Demonstrate ability to evaluate and investigate practice, review data, and assimilate scientific evidence to improve patient care and/or the medication-use system.
  - **OBJ 2.2.5 (Creating)** Effectively develop and present, orally and in writing, a final project report.
- **Goal R3.1:** Demonstrate leadership skills.
  - **OBJ 3.1.2 (Applying)** Apply a process of on-going self-evaluation and personal performance improvement.
- **Goal R3.2:** Demonstrate management skills.
  - **OBJ 3.2.4 (Applying)** Manages one’s own practice effectively.
- **Goal R4.1:** Provide effective medication and practice-related education to patients, caregivers, health care professionals, students, and the public (individuals and groups).
  - **OBJ 4.1.2 (Applying)** Use effective presentation and teaching skills to deliver education.

**Rotation Activities and Teaching Methods Linked to Objectives**

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<tr>
<th>Rotation Activity</th>
<th>Teaching Method(s)</th>
<th>Objective</th>
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| Conduct an initial anti-thrombotic therapy selection consult.  
- Perform a review of the patient’s history including concomitant disease states, prior thrombotic and bleeding events, current medications, laboratory results, and cost for potential therapy options.  
- Perform medication reconciliation during patient visit.  
- Provide education about appropriate therapy options.  
- Design a plan for initiating drug therapy including appropriate follow-up monitoring.  
- Communicate the drug therapy and monitoring plan to the patient/caregiver and the referring provider. | Coaching Facilitation | **OBJ 1.1.1 (Applying)** Interact effectively with health care teams to manage patients’ medication therapy.  
**OBJ 1.1.2 (Applying)** Interact effectively with patients, family members, and caregivers.  
**OBJ 1.1.3 (Analyzing)** Collect information on which to base safe and effective medication therapy.  
**OBJ 1.1.4 (Analyzing)** Analyze and assess information on which to base safe and effective medication therapy.  
**OBJ 1.1.5 (Creating)** |
| Conduct a new patient education visit.                                                                 | Coaching Facilitation | Design or redesign safe and effective patient-centered therapeutic regimens and monitoring plans (care plans). OBJ 1.1.6 (Applying) Ensure implementation of therapeutic regimens and monitoring plans (care plans) by taking appropriate follow-up actions. OBJ 1.1.7 (Applying) Document direct patient care activities appropriately in the medication record where appropriate. |
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| • Perform a review of the patient’s history including concomitant disease states, prior thrombotic and bleeding events, current medications, and laboratory results. |                        |                                                                                                                                                                                                 |
| • Perform medication reconciliation during patient visit.                                                   |                        |                                                                                                                                                                                                 |
| • Provide drug-specific education to the patient/caregiver.                                               |                        |                                                                                                                                                                                                 |
| • Document the education session in the EMR.                                                               |                        |                                                                                                                                                                                                 |
| Conduct a follow-up visit for a warfarin patient.                                                         | Direct instruction Modeling (for POC INR testing) Coaching Facilitation | OBJ 1.1.2 (Applying) Interact effectively with patients, family members, and caregivers. OBJ 1.1.7 (Applying) Document direct patient care activities appropriately in the medication record where appropriate. |
| • Perform point-of-care INR blood test.                                                                   |                        |                                                                                                                                                                                                 |
| • Conduct patient/caregiver interview to obtain appropriate information about medication compliance, dietary or medication changes, changes in health status, upcoming procedures, bleeding or thrombotic complications. |                        |                                                                                                                                                                                                 |
| • Assess the efficacy and safety of warfarin therapy via TTR, and                                         |                        |                                                                                                                                                                                                 |
formulate an alternative therapy plan as appropriate.
- Analyze the information obtained in the patient interview to design a warfarin dosing and monitoring plan.
- Communicate the dosing and monitoring plan to the patient/caregiver.
- Document the assessment and plan in the EMR.

Design a peri-procedural anticoagulation plan.
- Determine the bleeding risk associated with the procedure and patient.
- Determine the thrombotic risk associated with the procedure and patient.
- If applicable, design a plan for discontinuing anticoagulation pre-procedure.
- If applicable, employ a bridging strategy using heparin or LMWH.
- Design a plan for re-initiating anticoagulation post-procedure.
- Coordinate a plan for follow-up monitoring.
- Communicate the plan to the patient/caregiver, proceduralist, and referring provider.
- Document the assessment and plan in the EMR.

base safe and effective medication therapy.
OBJ 1.1.5 (Creating)
Design or redesign safe and effective patient-centered therapeutic regimens and monitoring plans (care plans).
OBJ 1.1.6 (Applying)
Ensure implementation of therapeutic regimens and monitoring plans (care plans) by taking appropriate follow-up actions.
OBJ 1.1.7 (Applying)
Document direct patient care activities appropriately in the medication record where appropriate.

OBJ 1.1.1 (Applying)
Interact effectively with health care teams to manage patients’ medication therapy.
OBJ 1.1.4 (Analyzing)
Analyze and assess information on which to base safe and effective medication therapy.
OBJ 1.1.5 (Creating)
Design or redesign safe and effective patient-centered therapeutic regimens and monitoring plans (care plans).
OBJ 1.1.7 (Applying)
Document direct patient care activities appropriately in the medication record where appropriate.
Conduct a follow-up encounter for a non-warfarin anticoagulant (LMWH or DOAC).

- Follow-up call
- Review progress notes from recent clinic visits/ED visits/hospitalizations, assess for upcoming procedures, reviewing medications, review appropriate laboratory parameters, and need for medication refill.
- Call the patient/caregiver to inquire about medication compliance, appropriate dosing, and any other changes that may not have been reflected in the EMR.
- Document the assessment and plan in the EMR.

| Coaching | Facilitation | OBJ 1.1.2 (Applying) | Interact effectively with patients, family members, and caregivers. |
| OBJ 1.1.3 (Analyzing) | Collect information on which to base safe and effective medication therapy. |
| OBJ 1.1.4 (Analyzing) | Analyze and assess information on which to base safe and effective medication therapy. |
| OBJ 1.1.6 (Applying) | Ensure implementation of therapeutic regimens and monitoring plans (care plans) by taking appropriate follow-up actions. |
| OBJ 1.1.7 (Applying) | Document direct patient care activities appropriately in the medication record where appropriate. |

Submit an adverse event report.

| Coaching | Facilitation | OBJ 1.1.4 (Analyzing) | Analyze and assess information on which to base safe and effective medication therapy. |

Use and incorporate feedback from preceptors to continuously improve patient care interactions and dosing/monitoring decision-making.

| Coaching | Facilitation | OBJ 3.1.2 (Applying) | Apply a process of ongoing self evaluation and personal performance improvement. |

Manage the patient schedule efficiently.

| Coaching | Facilitation | OBJ 3.2.4 (Applying) | Manages one’s own practice effectively. |
Readings and Preparatory Work
- Review the Outpatient Thrombosis Service Collaborative Practice Agreement.  
- Review the Thrombosis Service Anti-thrombotic Therapy Guideline, with special emphasis on warfarin maintenance dosing and monitoring.  
- Review the Thrombosis Service Direct Oral Anticoagulation Resources.  
  https://pulse.utah.edu/site/throserv/Pages/DOAC.aspx
- Also, an electronic folder will be maintained containing readings that include but is not limited to current guidelines for review and topic discussion throughout the experience.

Orientation Materials
Your preceptor will meet with you on the first day of rotation to make an individual orientation plan with you.

Project Description
Conduct a practice-based project, topic tailored to resident’s interest and needs of the Thrombosis Service.

Evaluations
Evaluations will be documented in PharmAcademic™. At the midpoint of the rotation, the preceptor will evaluate the resident. At the end of each rotation, the resident will self-evaluate, the preceptor will evaluate
the resident, and the resident will evaluate both the preceptor and the learning experience.