OHSU: DEPARTMENT OF PHARMACY SERVICES
Pharmacy Managed Anticoagulation Program Guideline

Pharmacy Procedure Overview for Pharmacy-Managed Anticoagulation Program

Purpose: To provide guidelines to pharmacists for independently dosing warfarin and other anticoagulants when delegated that authority by medical providers. The goals of the service include a standardized approach to anticoagulation management, optimization of patient outcomes and education, and reduction of adverse events.

Pharmacist Qualifications: Pharmacist must successfully complete the Departmental Anticoagulation Competency Assessment.

Policy/Procedure

I. Expectations of the Pharmacist
   1. Hospitalized patients shall be reviewed daily for anticoagulation therapies and all such therapies will be monitored per pharmacy standards for correct dosing (5 Rights), drug interactions, and other clinical issues involved in the provision of safe and effective pharmacotherapy.
   2. Upon receipt of an anticoagulation consult or order for pharmacy managed anticoagulation, the designated pharmacist for that unit shall immediately assume the responsibility for assuring the patient’s anticoagulant is dosed on a daily basis or as otherwise indicated per protocol.
   3. The pharmacist shall order baseline labs and monitoring (e.g. APTT, INR, or heparin/LMWH levels) if not already done.
   4. If warfarin is being used, the pharmacist shall initiate the Warfarin Monitoring Sheet and order doses if not already initiated by the MD.
   5. The pharmacist shall always notify the provider who consulted the pharmacy for anticoagulation management (or covering provider) when:
      - INR levels are > 5 or other measurements outside of anticipated parameters
      - aPTT values are >200 sec
      - Any time clinically significant signs of thrombosis or bleeding are reported
      - Any time he/she needs further clarification of the clinical status of the patient
   6. The pharmacist shall be expected to review all anticoagulation needs of their patients and discuss any [untreated] needs with the medical provider and document in the patient’s electronic medical record using an EPIC progress note.
   7. Nutrition will be notified of each patient’s warfarin initiation.
   8. Chart documentation will include an initial EPIC consult note and additional follow-up EPIC notes when significant issues occur. For follow up notes, the pharmacist will communicate any clinically significant issues to the medical provider verbally before leaving documentation. Examples of issues necessitating follow-up EPIC notes are, but not limited to:
      - Significant anticoagulant dose adjustment is needed to manage a drug-drug interaction
      - Pharmacist intervention to avoid a drug-drug interaction
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- Documentation of how interruption of anticoagulation will be handled for an invasive procedure
- When recommendations for anticoagulation reversal are requested

9. If a medical provider writes an order for anticoagulation on a pharmacist managed patient without writing an order to resume dosing responsibility, the pharmacist shall contact the medical provider to clarify who is managing the warfarin therapy and document this decision.

10. Pharmacist will provide dose and monitoring recommendations to the medical provider to aid in the completion of discharge and follow-up orders, but not write the discharge orders per se.

II. Expectations of the medical provider
1. Medical provider will maintain all ability to order anticoagulation if desired. However, they will be expected to write a Provider to Pharmacy order such as “Medical provider to manage/dose warfarin, heparin, etc, therapy” to indicate to the pharmacist that they are resuming dosing responsibility if previously delegated to the pharmacist.

2. Medical provider is still responsible for the overall anticoagulation needs of the patient; however, the pharmacist will assist the physician in this regard.

3. Medical provider will contact the pharmacist anytime there are clinical concerns or there is a need for further clarification on how the pharmacist is managing anticoagulation therapy for a patient.

4. Medical provider is expected to relate, verbal method [preferred], or via Progress Note to the pharmacist any clinical concerns they have that could contribute to the pharmacist’s clinical decision making.

5. Medical Provider will be responsible for writing anticoagulation and monitoring discharge orders.

III. Initiation of Therapy
1. The pharmacist will initiate warfarin or other anticoagulant therapy pursuant to provider orders which will be received as an anticoagulation consult.

2. Using the OHSU order set, the provider shall write an order that indicates Pharmacist to manage anticoagulation therapy or request an anticoagulation consult.

3. The provider consult order shall include the indication for anticoagulation therapy, the target INR or other monitoring range and the estimated duration of therapy.

4. If the pharmacist is unclear of the intent of the provider order, he/she shall contact the provider for clarification.

5. For patients already receiving warfarin therapy upon admission, the outpatient dosing regimen shall be continued if the pre-admission INR was stable within the last week.

6. Warfarin or the other anticoagulants shall be initiated as soon as possible per provider orders and optimal overlap between heparin or LMWH and warfarin will be ordered as clinically indicated.
7. Initial consultation by the pharmacist shall be performed within 24 hours and initial dose will be ordered by treatment team.

IV. Dosage Adjustment
1. Pharmacist-managed anticoagulation patients will be evaluated daily and the warfarin or other anticoagulant dose changed based upon the INR or other monitoring parameter(s). Monitoring is routinely performed with AM labs and results available by early afternoon. Dosage adjustments will be in accordance with the respective “anticoagulant dosing protocol.”
2. Pharmacist-managed warfarin therapy orders must be written or entered into EPIC daily by the pharmacist before 17:00.
3. Pharmacist may use their clinical judgment to determine the dose of warfarin if the INR is within +/- 0.1 from the protocol cutoff values or when the patient’s condition requires individualized warfarin therapy.
4. Potential drug-drug interactions, drug-food interactions, and drug-disease interactions will be considered when ordering the anticoagulant dose.
5. INR trends will be monitored by the pharmacist as the effect of warfarin on the INR will become apparent in two to three days.

V. Monitoring and Lab Tests
1. The pharmacist will review the baseline lab tests ordered by the medical provider.
2. The pharmacist will review the APTT/INR results ordered per anticoagulant protocol.
3. Nursing staff will monitor for signs and symptoms of bleeding, (i.e., stool color, emesis color and skin).
4. Patient medication profiles will be reviewed on a daily basis to screen for the initiation or discontinuation of medications which interact with anticoagulants which may impact anticoagulant dosing or monitoring.
5. Out of normal laboratory parameters will be paged by the RN to the triage emergency pharmacy pager, #15803. These values will be managed per section VI below.
6. The medical provider will be notified if bleeding develops, if the INR is >5, or if other monitoring values are outside of anticipated parameters.

VI. Management of Critical values
1. Upon receipt of critical value from the patient’s nurse the pharmacist carrying the emergency pharmacist pager (#15803) will gather the following information in addition to the value:
   i. Patient name and MR#
   ii. Last dose and time of warfarin OR
   iii. What time was the heparin infusion stopped, and what rate was it running when the aPTT was drawn. Any signs or symptoms of bleeding: change in neurologic status, acute flank, abdominal, groin or head pain.
2. This information is then paged out to the appropriate decentralized pharmacist if they are on site if not they are managed per protocol by the person carrying the emergency pharmacist pager.
3. If the patient requires a physical exam/assessment the MD should be paged immediately so that you may discuss a “critical value” with them. If no assessment is required but an intervention or antidote should be administered then it should be ordered via Epic, along with any necessary labs. Once the appropriate intervention or antidote is ordered page this information to the covering physician (verify the MD covering the patient/team with Operator if unsure)

4. Write appropriate significant event note in patient chart.

VII. Patient Education

1. Prior to discharge, anticoagulant patients will receive educational materials including medication therapy information, drug interaction information, and food-anticoagulant interaction information, importance of adherance to therapy, importance of adherance to lab tests and monitoring, and potential adverse drug reactions. If the patient mental status not sufficient to receive information, a family member or other caregiver will be given anticoagulation education.

2. Pharmacists will be responsible for education on the following topics:
   - Name, strength, dose, and description of anticoagulant
   - Indication for anticoagulation therapy
   - Goals of anticoagulant therapy and desired INR or other monitoring test range
   - Understanding of disease state
   - Potential drug-drug interactions
   - Over-the-counter medications to avoid
   - Natural supplements
   - Potential drug-food interactions
   - Signs and symptoms of embolic events and what to do
   - Signs and symptoms of bleeding and what to do
   - Importance of laboratory blood tests
   - Importance of compliance with treatment and physician appointments after discharge.
   - Contact for questions and follow-up

3. Documentation of patient education will be done in the patient’s care plan via a Care Plan Note.

4. If pt was on drug prior to this hospital admission, pharmacist will still visit with patient to assess sufficient level of knowledge with anticoagulation

5. Patients going to skilled nursing facilities, assisted living, or other non-home studies will be evaluated for ability to learn, teaching doen as possible and appropriate with subsequent documentation of level of success as judged by the pharmacy practitioner.