

**WHITING FORENSIC HOSPITAL  
OPERATIONAL PROCEDURE MANUAL**

<b>SECTION III:</b>	STRUCTURES WITH FUNCTIONS
<b>CHAPTER 11:</b>	Nursing
<b>PROCEDURE 11:</b>	<b>Nursing Services</b>
<b>Governing Body Approval:</b>	May 1, 2018
<b>REVISED:</b>	

**VALUE**     The Nurse Executive ensures that each patient is assessed by a Registered Nurse and receives quality nursing care and treatment based on the Standards of Practice and Care defined by Whiting Forensic Hospital (WFH) which reflect and support the American Nurses Association and other evidence-based practices.

**GOAL**       To provide quality nursing care, 24 hours a day, 7 days a week to all patients.

**POLICY**

A.     The Nurse Executive

The Nurse Executive a Registered Nurse qualified by advanced education in Psychiatric Mental Health Nursing and management experience in a psychiatric hospital and exercises leadership through membership at the highest level of Governance in WFH. The Nurse Executive:

1. Ensures continuous and timely availability of nursing services to patients.
2. Ensures that nursing standards of patient care and standards of nursing practice are consistent with current nursing research findings and American Nurse's Association Professional Standards (refer to *Nursing Policy and Procedures Manual*).
3. Implements the findings of current research from nursing and other literature into the policies and procedures governing the provision of nursing care (refer to Nursing Policy and Procedure Manual).
4. Ensures that nursing staff carry out all applicable patient care processes and organizational functions as described in the Nursing Policy and Procedure Manual and the Operational Procedure Manual.
5. As Professional Discipline Chair, supervises the Directors of Nursing concerning matters of professional nursing practice.
6. Is assisted by the Chiefs of Patient Care Services to act on improving nursing performance.
7. Actively participates in the hospital's Governing Body, Operations Council and other hospital leadership groups.

8. Collaborates with the Chief Medical Officer (CMS), Division, and Department Directors at WFH in designing and providing patient care services.
9. Has access to the Executive Committee of the Medical Staff.
10. Participates with the Hospital's Operations Council in providing for a sufficient number of appropriately qualified nursing staff.
  - a. to assess all the patients' nursing needs;
  - b. to plan and provide nursing interventions;
  - c. to promote wellness and recovery through skill building;
  - d. to alert other professionals to the condition of the patient.
11. Establishes standards of nursing practice (see *NCP Manual* and *Nursing Policy and Procedures Manual*).
12. Approves all nursing policies and procedures.
13. Chairs the Nursing Executive Committee (NEC), whose membership consists of all Directors of Nursing for the Hospital, Director of General Medical Services.
14. Develops and revises the Hospital Plan for Providing Nursing Care in collaboration with the Nursing Executive Committee (NEC).
15. Ensures nursing representation on all major Hospital committees.

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<b>SECTION XI:</b>	<b>GUIDELINES FOR ORDERING MEDICATION AND SUBSTANTIAL RISK IN DRUG USE</b>
<b>Chapter 11.2</b>	Anticoagulation Therapies
<b>Revised:</b>	4/4/18, 5/20/22
<b>Pharmacy, Nutrition &amp; Therapeutics Approval:</b>	10/19, 6/15/22

**POLICY:**

**Anticoagulation therapy can be used as therapeutic treatment for a number of conditions, the most common of which are atrial fibrillation, deep vein thrombosis, pulmonary embolism, and mechanical heart valve implant. However, it is important to note that anticoagulation medications are more likely than others to cause harm due to complex dosing, insufficient monitoring, and inconsistent patient compliance.**

Whiting Forensic Hospital provides individualized quality anticoagulation management, monitoring, and education for the patients at WFH, and works to reduce the likelihood of patient harm associated with the use of anticoagulation therapy. This policy has potential to positively impact the safety of patients on this class of medications and result in better outcomes.

**PROCEDURE:**

1. WFH uses approved protocols and evidence based practice guidelines for the initiation and maintenance of anticoagulation therapy.

WFH obtains approved drug products and uses only oral unit-dose products & prefilled syringes, when these types of products are available. Premixed infusion bags are not allowed at the hospital.

Warfarin is a narrow therapeutic index medication affected by many factors including age, diet and other medications. The Warfarin Protocol (appendix 1.) is intended to guide oral anticoagulation therapy in our patient population and is based on the recommendations from the American College of Chest Physicians.

The Enoxaparin Protocol (appendix 2.) is intended to guide low molecular weight heparin therapy our patient population and is based on manufacturer recommendations for the specific condition(s) being treated and on the recommendations from the American College of Chest Physicians.

The Rivaroxaban Protocol (appendix 3.) is intended to guide therapy in our patient population based on manufacturer recommendations for the specific condition(s) being treated and on the recommendations from the American College of Chest Physicians.

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2. Before starting patients on anticoagulation therapy, the patient's baseline coagulation status is assessed; for all patients receiving warfarin therapy, a current INR is used to adjust this therapy. The baseline status and current INR are documented in the medical record.
3. WFH uses evidence based resources and guidelines to manage potential drug-drug and drug-food interactions for patients receiving anticoagulants
4. WFH has written guidelines addressing the need for baseline and ongoing laboratory tests to monitor and adjust anticoagulant therapy.
5. WFH uses approved protocols and evidence-based practice guidelines for reversal of anticoagulation and management of bleeding events related to each anticoagulant medication.
6. WFH provides education to patients and families specific to the anticoagulant medication prescribed, including the following:
  - a. Adherence to medication dose and schedule
  - b. Importance of laboratory testing
  - c. Potential drug–drug and drug–food interactions
  - d. The potential for adverse drug reactions
7. The safety of medication management is monitored on an ongoing basis via specific protocols & Adverse Drug Reaction and Medication Event Reporting processes.

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**APPENDIX 1**

**WARFARIN PROTOCOL**

**Warfarin Anticoagulation Management**

- 1. The Appropriate Dose for Initiation of Warfarin**
  - a. The initiation of oral anticoagulation therapy with doses between 5 and 10mg for the first 1 or 2 days is suggested for most individuals.
  - b. Subsequent dosing should be based on INR response.
  - c. A Warfarin monitoring form should be completed

Following the administration of warfarin, an initial effect on PT/INR usually occurs within the first 2 or 3 days, depending on the dose administered, and an antithrombic effect occurs within the next several days.

A loading dose of warfarin (i.e. >20mg) is not recommended.

- 2. Anticoagulation in the Geriatric Population**
  - a. In the elderly, for patients who are debilitated, malnourished, have congestive heart failure, or have liver disease a starting dose of 5mg or less is suggested.
- 3. Frequency of Monitoring Oral Anticoagulation Therapy**
  - a. Baseline and periodic laboratory values include PT/INR, and CBC.
  - b. A baseline INR should be available and INR monitoring should begin after the initial 2 or 3 doses of oral anticoagulation therapy and be daily until the INR has stabilized in the therapeutic range.
  - c. For patients who are receiving a stable dose of oral anticoagulants, monitoring at an interval of no longer than every 4 weeks is suggested.

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**4. Therapeutic Goals**

<b>Indication</b>	<b>Target INR (goal)</b>
<b>Prophylaxis for VTE</b>	2.5 (2-3)
<b>Atrial Fibrillation</b>	2.5 (2-3)
<b>Acute Myocardial Infarction</b>	2.5 (2-3)
<b>Valvular Heart Disease</b>	2.5 (2-3)
<b>Prosthetic tissue heart valve</b>	2.5 (2-3)
<b>Prosthetic mechanical heart valve**</b>	3 (2.5-3.5)

\*\* a target INR of 2.5 (2-3) is appropriated for patients who have a mechanical bileaflet valve in the aortic position, normal cardiac chamber size, and no other risk factors for stroke

**5. Management of Dosing when the INR is Above the Therapeutic Range**

- a. For patients with INRs above the therapeutic range but less than 4.5 who have no significant bleeding, lower the dose or omit the dose, monitor more frequently, and resume therapy at a lower dose when the INR is in the therapeutic range. If only minimally above the therapeutic range, no dose reduction may be required.
- b. For patients with INRs greater of 4.5-10 who have no significant bleeding, omit the next 1 or 2 doses, monitor more frequently, and resume therapy at a lower dose when the INR is in the therapeutic range.

Alternatively, omit a dose and administer vitamin K1 (1-2.5mg *orally*), particularly if the patient is at increased risk of bleeding.

Note: For patients with mild to moderately elevated INRs who have no major bleeding, it is suggested to administer vitamin K1 orally rather than subcutaneously

- c. For patients with INRs of greater than 10 who have no significant bleeding, discontinue warfarin therapy and administer vitamin K1 (5-10mg *orally*) with the expectation that the INR will be reduced in 24-48 hours. Monitor the patient more frequently and use additional vitamin K1 if necessary. Restart warfarin therapy at a lower dose when the INR is in the therapeutic range.
- d. In patient with serious bleeding and elevated INRs, discontinue warfarin therapy. Administration of vitamin K1 10mg by slow IV infusion supplemented with 4-factor prothrombin complex concentrate in an *acute*

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**care setting. Patients must be transferred to the Emergency Department for treatment.**

**6. Management of Dosing when an Invasive Procedure is Required**

- a. For patients with a low risk of thromboembolism, stop warfarin therapy approximately 5 days before surgery, allow INR to return to near normal values, briefly use postoperative prophylaxis ( if the intervention increases the risk of thrombosis) with a prophylactic dose of LMWH and simultaneously begin warfarin therapy.
- b. For patients with a moderate to high risk of thromboembolism, stop warfarin therapy approximately 5 days before surgery, allowing the INR to return towards normal at the time of surgery and begin therapy with LMWH as the INR falls (approximately 3 days preoperatively); stop therapy 12-24 hours before surgery with the expectation that the anticoagulant effect will have worn off by the time of surgery. Then commence LMWH and warfarin postoperatively.

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**APPENDIX 2**

**ENOXAPARIN PROTOCOL**

**Enoxaparin Anticoagulation Management**

**1. The Appropriate Dose for Initiation of Enoxaparin**

**Abdominal surgery - Postoperative deep vein thrombosis; Prophylaxis:**  
40 milligrams subcutaneously once daily, with first dose given 2 hours prior to surgery, and continued for 7 to 10 days

**Arthroplasty of total knee - Postoperative deep vein thrombosis; Prophylaxis:**  
30 milligrams every 12 hours beginning 12 to 24 hours after surgery and continued for 7 to 10 days.

**Deep venous thrombosis, in combination with warfarin:**  
1 milligram/kilogram every 12 hours OR 1.5 milligrams/kilogram every 24 hours Enoxaparin should be continued for at least 5 days and until INR of 2 to 3 has been achieved.

**Deep venous thrombosis, in patients with restricted mobility from acute illness; Prophylaxis:**  
40 milligrams subcutaneously every 24 hours. The usual duration of administration is 6 to 11 days.

**Total replacement of hip - Postoperative deep vein thrombosis; Prophylaxis:**  
30 milligrams subcutaneously every 12 hours beginning 12 to 24 hours after surgery and continued for 7 to 10 days. Patients may begin therapy with 40 milligrams every 24 hours beginning 9 to 15 hours prior to surgery. Following the initial phase of thromboprophylaxis, extended prophylaxis with enoxaparin 40 mg subcutaneously once daily for 3 weeks is recommended for a total duration of therapy of approximately 4 weeks

**Ischemic Prophylaxis:**  
1mg/kg subcutaneously every 12 hours for 2-8 days, until clinical stabilization

**2. Dosage in Renal Failure (CrCl less than 30 mL/min)**

**Prophylaxis in Abdominal Surgery:** 30 milligrams subcutaneously once daily

**Prophylaxis in Knee Replacement Surgery:** 30 milligrams subcutaneously once daily

**Prophylaxis in Hip Replacement Surgery:** 30 milligrams subcutaneously

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once daily

**Prophylaxis Is Medical Patients during Acute Illness:** 30 milligrams subcutaneously once daily

**Treatment of Deep Vein Thrombosis:** 1 milligram/kilogram subcutaneously once daily

**3. Baseline and Ongoing Laboratory Studies:**

Baseline and periodic laboratory values include a CBC

Unlike conventional unfractionated heparin, low-molecular-weight heparins (LMWH) cause only a slight increase in PTT and thrombin. Activated clotting time (ACT) of enoxaparin is also poorly correlated to the anti-Xa levels. When LMWHs are used for treatment, monitoring plasma anti-factor Xa concentrations may be useful in select populations. These include:

Patients with renal insufficiency, Patients on long-term therapy with LMWH, Pregnant patients, Patients with extremes of body fat, Patients with a high risk of bleeding or recurrent thrombosis.

**4. Strategies to reverse or minimize anticoagulant effects**

For patients whose last dose of enoxaparin was less than 8 hours prior, protamine 1mg for each mg of enoxaparin by slow IV injection, administered in an **acute care setting. Patients must be transferred to the Emergency Department for treatment.**

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**APPENDIX 3**

**DIRECT-ACTING ORAL ANTICOAGULANTS (DOACs)**

**Table for dosing based on indication**

Indication	Rivaroxaban (Xarelto) dosing	Apixaban (Eliquis) dosing	Dabigatran (Pradaxa) dosing	Edoxaban (Savaysa) dosing
Atrial fibrillation, Nonvalvular	Oral: 20mg once daily with food	Oral: 5mg twice daily	Oral: 150mg twice daily	Oral: 60mg once daily
DVT/PE treatment	Oral: 15 mg twice daily with food for 21 days followed by Oral 20 mg once daily with food	Oral: 10 mg twice daily for 7 days followed by 5 mg twice daily	Oral: 150 mg twice daily <sup>a</sup>	Oral: 60mg once daily >60kg <sup>a</sup> Oral: 30mg once daily ≤60kg <sup>a</sup>
PCI	Oral: 15mg once daily with food	Oral: 5mg twice daily	Oral: 110mg or 150mg twice daily	Oral: 60mg once daily
Postoperative DVT ppx	Total hip arthroplasty: Oral 10 mg once daily for 35 days <sup>b</sup> Total knee arthroplasty: Oral 10 mg once daily for 12 days <sup>b</sup>	Total hip arthroplasty: Oral 2.5mg twice daily for 30-35 days <sup>c</sup> Total knee arthroplasty: Oral 2.5 mg twice daily for 10-14 days <sup>c</sup>	Total hip arthroplasty Initial: 110mg <sup>d</sup> one-time dose, then continue maintenance dose of 220 mg once daily for a minimum of 30 to 35 days. Total knee arthroplasty Initial: 110mg <sup>d</sup> one time dose, then continue maintenance dose of 220 mg once daily for a minimum of 10 to 14 days.	Not recommended for use

a After at least 5 days of initial therapy with a parenteral anticoagulant, transition to oral in stable patient

b Beginning at least 6 to 10 hours after surgery once hemostasis is established

c Beginning 12 to 24 hours postoperatively once hemostasis is established

d Initiated 1 to 4 hours after surgery and hemostasis or when dabigatran is not initiated on day of surgery

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**Table for renal adjustments**

Indication	Rivaroxaban (Xarelto) dosing	Apixaban (Eliquis) dosing	Dabigatran (Pradaxa) dosing	Edoxaban (Savaysa) dosing
CrCl >95mL/min	No dose adjustment necessary	No dose adjustment necessary	No dose adjustment necessary	Use is not recommended <sup>a</sup>
CrCl 50-95mL/min	No dose adjustment necessary	No dose adjustment necessary	No dose adjustment necessary	No dose adjustment necessary
CrCl 30-50mL/min	15mg once daily with food	See footnote c	No dose adjustment necessary	Oral: 30 mg once daily
CrCl 15 to ≤30mL/min	15mg once daily with food	See footnote c	Avoid Use Oral capsule: 75 mg twice daily <sup>b</sup>	Oral: 30 mg once daily
CrCl <15mL/min	Avoid Use	No dose adjustment necessary	Avoid use	Avoid use

<sup>a</sup> Due to increased risk of ischemic stroke compared to warfarin

<sup>b</sup> Nonvalvular atrial fibrillation (to prevent stroke and systemic embolism\*\*

<sup>c</sup> Apixaban renal adjustment in Nonvalvular A fib only:

- Serum creatinine <1.5 mg/dL: No dosage adjustment necessary unless ≥80 years of age and body weight ≤60 kg, then reduce dose to 2.5 mg twice daily.
- Serum creatinine ≥1.5 mg/dL and either ≥80 years of age or body weight ≤60 kg: 2.5 mg twice daily.

**Baseline and Ongoing Laboratory Studies**

- CBC, aPTT, PT, serum creatinine, and liver function tests prior to initiation, when clinically indicated, and at least annually while on treatment
- Routine coagulation testing is not required or necessary for DOACs.
- Most used coagulation tests (PT, INR, aPTT) cannot definitively exclude the presence of clinically relevant serum concentrations. A prolonged PT suggests clinically relevant serum concentrations are present, but normal PT and aPTT values using standard reagents cannot rule out the presence of a DOAC.
- If available, the preferred test to rule out clinically significant serum concentrations and quantify anticoagulant effect is anti-factor Xa activity calibrated specifically for identified agent (undetectable anti-factor Xa activity likely excludes clinically relevant drug concentrations). An anti-factor Xa assay calibrated for low molecular weight heparin can rule out clinically relevant drug concentrations but is not useful for quantification

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### Discontinuation prior to surgery

- Rivaroxaban should be discontinued 24 hours before major surgery
- Apixaban should be discontinued 48 hours before major surgery
- Dabigatran is recommended to be discontinued 48–72 hours prior in normal renal function (CrCl > 50 mL/minute)
  - In moderate renal impairment (CrCl of 30–49 mL/minute), discontinue 72–96 hours before high risk procedure
- Edoxaban should be discontinued 24 hours before major surgery

### Reversal of Anticoagulation

- Andexanet Alfa (Coagulation Factor Xa (FXa) recombinant, inactivated-zhzo) is indicated for patients in life-threatening bleeding associated with factor Xa inhibitors
  - Life-threatening bleeding associated with **rivaroxaban**: An initial 400-800mg IV bolus followed by a continuous IV infusion of 4-8mg/min for up to 120 minutes
  - Life-threatening bleeding associated with **apixaban**: An initial 400-800mg IV bolus followed by a continuous IV infusion of 4-8mg/min for up to 120 minutes
  - Life-threatening bleeding associated with **edoxaban** (off-label use): IV: 800 mg IV bolus administered at a rate of ~30 mg/minute, followed within 2 minutes by an IV infusion of 8 mg/minute for up to 120 minutes
- Life-threatening bleeding associated with **Pradaxa**: Praxbind IV 5 g (as 2 separate 2.5 g doses no more than 15 minutes apart)
- **Reversal agents must be administered in an acute care setting. Patients must be transferred to the Emergency Department for treatment.**

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**NPSG.03.05.01:** Reduce the likelihood of patient harm associated with the use of anticoagulant therapy.

Note: This requirement does not apply to routine situations in which short-term prophylactic anticoagulation is used for preventing venous thromboembolism (for example, related to procedures or hospitalization).

**Program:** Hospital

**Chapter:** National Patient Safety Goals

**Introduction:** Improve the safety of using medications.

**Rationale:**

**Elements of Performance:**

1. The hospital uses approved protocols and evidence-based practice guidelines for the initiation and maintenance of anticoagulant therapy that address medication selection; dosing, including adjustments for age and renal or liver function; drug-drug and drug-food interactions; and other risk factors as applicable.

2. The hospital uses approved protocols and evidence-based practice guidelines for reversal of anticoagulation and management of bleeding events related to each anticoagulant medication.

3. The hospital uses approved protocols and evidence-based practice guidelines for perioperative management of all patients on oral anticoagulants.

Note: Perioperative management may address the use of bridging medications, timing for stopping an anticoagulant, and timing and dosing for restarting an anticoagulant.

4. The hospital has a written policy addressing the need for baseline and ongoing laboratory tests to monitor and adjust anticoagulant therapy.

Note: For all patients receiving warfarin therapy, use a current international normalized ratio (INR) to monitor and adjust dosage. For patients on a direct oral anticoagulant (DOAC), follow evidence-based practice guidelines regarding the need for laboratory testing.

5. The hospital addresses anticoagulation safety practices through the following:

- Establishing a process to identify, respond to, and report adverse drug events, including adverse drug event outcomes

- Evaluating anticoagulation safety practices, taking actions to improve safety practices, and measuring the effectiveness of those actions in a time frame determined by the hospital

6. The hospital provides education to patients and families specific to the anticoagulant medication prescribed, including the following:

- Adherence to medication dose and schedule

- Importance of follow-up appointments and laboratory testing (if applicable)

- Potential drug-drug and drug-food interactions

- The potential for adverse drug reactions

7. The hospital uses only oral unit-dose products, prefilled syringes, or premixed infusion bags when these types of products are available.

Note: For pediatric patients, prefilled syringe products should be used only if specifically designed for children.

8. When heparin is administered intravenously and continuously, the hospital uses programmable pumps in order to provide consistent and accurate dosing.