LAC+USC MEDICAL CENTER POLICY

Subject:	Original Issue Date: 10/31/09	Policy # 919
ANTICOAGULATION MANAGEMENT PROGRAM	Supersedes: 11/21/18	Effective Date: 5/22/20

Departments Consulted:	Reviewed & Approved by:	Approved by:
Outpatient Clinics Labs and Pathology Adult Medicine Infection Control Pharmacy Services Cardiovascular Clinics Patient Safety Committee	Attending Staff Association Executive Committee Senior Executive Council	(Signature on File) Chief Medical Officer (Signature on File) Chief Executive Officer

GOAL

To provide anticoagulation-specific evaluation and monitoring to patients who require anticoagulation therapy in order to minimize toxicity, maximize efficacy and reduce hospitalization and other complications.

PURPOSE

To provide guidelines to standardize pharmacy response to requests for assistance in determining dosage, route and method of administration of intravenous, subcutaneous, and oral anticoagulants for inpatients requiring therapy.

To provide guidelines for monitoring anticoagulated patients to prevent hemorrhagic complications, side effects, and drug interactions that may require any dosage adjustment.

To provide guidelines for identification of and monitoring for possible heparin-induced thrombocytopenia and its sequelae.

To provide guidelines that will standardize pharmacy response to requests for assistance with reversal of anticoagulants.

To provide guidelines for provision of anticoagulation-specific patient education.

To provide procedures to safely initiate, maintain, and evaluate an individual patient's oral anticoagulant therapy.

To provide procedures to safely initiate, maintain, and evaluate individual patient's therapy with other parenteral anticoagulants (e.g. LMWH [enoxaparin], fondaparinux) as an alternative to chronic oral anticoagulation therapy or when bridging therapy is indicated.

To ensure an algorithm exists for the safe discharge of patients on anticoagulation who require transfer of care to the outpatient setting.

POLICY

The Inpatient Anticoagulation Service (IACS) acts as agents of the Medical Center Pharmacy and Therapeutics committees to implement the approved anticoagulation policies and procedures in conjunction with nursing and each individual patient's supervising physician. The Department of Outpatient Anticoagulation Service (OACS) team members are under supervision an involved physician who will direct, supervise, and monitor activities of the service to ensure the appropriateness, quality, and efficiency of the services provided for the patients.

Members of the IACS and OACS may perform drug-related patient assessments, provide education, order appropriate monitoring laboratory tests and determine dosage and management of anticoagulation therapy, within applicable laws, regulations, and standards.

RESPONSIBILITIES

1. Role of Pharmacy and the Anticoagulation Committee

A. Pharmacy will supply only oral unit dose products, pre-filled syringes, or pre-mixed infusion bags when these types of products are available.
B. Pharmacy will only accept orders for anticoagulation via approved, standardized order templates, provided in the electronic medical record (EMR), which have been created and implemented under the direction of the Anticoagulation Committee and with the Department of Health Services (DHS) where applicable.
C. The Anticoagulation Committee will meet regularly to evaluate anticoagulation safety practices and will take appropriate actions to improve anticoagulation practices in the inpatient and outpatient settings.
D. The Anticoagulation Committee will regularly measure the effectiveness of policies and procedures undertaken to improve patient safety with regard to anticoagulation administration and monitoring.
E. The Anticoagulation Committee will seek ongoing input from Laboratory Services, Nursing, Pharmacy, Dietary Services, the Patient Safety Committee, and Physician representatives who regularly prescribe anticoagulation in order to ensure that its policies represent the safest and most up-to-date utilization of anticoagulation medications.
F. The Medical Director of the Anticoagulation Committee will be available to Anticoagulation clinic providers as needed for telephone consultation regarding difficult clinical situations or questions on the policies and procedures related to anticoagulation.
G. The Medical Director of the Anticoagulation Committee will be available to risk management to review clinical cases wherein questions pertaining to the proper use and /or monitoring of anticoagulation arise.

2. Supervising Physician or Allied Health Professional's Role

A. A supervising physician or Allied Health Professional who wishes to refer a patient to the Inpatient Anticoagulation Service (IACS) or Outpatient Anticoagulation Service (OACS) for anticoagulant management must provide information regarding the indication for anticoagulation, target INR and/or aPTT/Anti-Xa where appropriate, and length of therapy.

B. The supervising physician or Allied Health Professional should initiate anticoagulant treatment first while waiting for initial evaluation by IACS or appointment with OACS if it is deemed necessary to begin therapy as soon as possible. For inpatients, he or she is required to input the initial order for anticoagulation along with the appropriate indication, to read the recommendations documented by the IACS in the electronic medical record for all therapeutic anticoagulation and to oversee the clinical interventions documented and adjustments made by pharmacy and implemented by nursing for heparin infusions. For outpatients and patients being transitioned from the inpatient to the outpatient setting, s/he is responsible to manage all aspects of the anticoagulation primarily until the patient is seen by OACS and thereafter to supervise the course of therapy.

    i. Supervising physicians or Allied Health Professional are expected to primarily prescribe and manage patients on direct oral anticoagulants (DOAC)s. They may refer to the OACS to provide a one-time educational session to such patients.

C. The supervising physician or Allied Health Professional serves as a consultant whenever necessary in situations which go beyond the intent of the protocol or beyond the scope of practice or experience of the Anticoagulation Care Provider (ACP).

D. The supervising physician or Allied Health Professional should review anticoagulation-related documentation in the EMR daily for inpatients and periodically for outpatients for quality of care and appropriateness of ongoing anticoagulation.

    ii. For inpatients, the supervising MD or Allied Health Professional should document ongoing need for treatment-dose or prophylactic dose anticoagulation, the need for procedures that require cessation of anticoagulation and the development of any complications related to anticoagulation and the approach to their management. These should be communicated to the IACS via the EHR.

E. For outpatients, the supervising physician or Allied Health Professional should provide recommendations pertaining to upcoming procedures, the peri-operative management of anticoagulants prior to and following invasive surgical, dental, or other procedures (including antibiotic prophylaxis); and communicate such information to the ACP.

F. The supervising physician or Allied Health Professional must provide all necessary background and clinical information to the ACP for optimal care of their patients including INR goals (for warfarin), comorbidities, bleeding risks, and duration of therapy.

3. Inpatient Anticoagulation Care Service (IACS)

A. The IACS is available for consultation and provision of services from 0700 to 1900 daily for non-parenteral anticoagulation and 24 hours daily for parenteral anticoagulation. The service may, on occasion, shift the available hours due to emergent events. All

requests for consultation or new provision of non-parenteral anticoagulation will be answered within 24 hours of receipt by the IACS. IACS will respond to parenteral anticoagulation orders 24 hours per day within 1 hour of placement in the EMR. However, **IACS will directly manage and make dose adjustments only for IV unfractionated heparin (provided it is ordered under the approved order set).** All heparin infusions with customized target ranges and/or scales will be the responsibility of the ordering provider. IACS will not monitor or provide recommendations for customized heparin infusions.

B. The IACS will provide daily monitoring and recommendations for anticoagulant therapy in select patients (those receiving intravenous anticoagulants except heparin, on oral anticoagulants, on therapeutic subcutaneous anticoagulants, and others as requested by the supervising physician team, nursing staff and/or pharmacy staff) to ensure therapeutic and safe anticoagulation control. Specific management of patients should be based on consideration of the risk to benefit of antithrombotic therapy in each individual patient.

C. At the written request of the supervising physician team (in the EMR or on an order form with the patient's name, date of birth and MRUN if EMR is down as per down-time policies) and oral confirmation of the request by placement of a management request on the IACS voice mail (extension 97606) or by direct request to the IACS member on duty, the IACS will assist in initiating anticoagulation therapy. The specific goals of therapy should be decided by the supervising physician in conjunction with the IACS member on duty.

D. The IACS will obtain daily notification of all patients on parenteral anticoagulant therapy with UFH, direct thrombin inhibitors (DTI), fondaparinux, and treatment dose LMWH, as well as those on oral anticoagulant therapy from the Inpatient Pharmacy. Patients who are actively receiving treatment with one or more of these therapies will automatically be followed by the IACS (except customized heparin per provider).

E. The IACS will assist the multidisciplinary team including nursing, dietary and physicians in the provision and documentation of anticoagulation education as created and approved by the Anticoagulation Committee. These resources include written handouts, a video that is available in English and Spanish for warfarin, a form for documentation on the EMR, and a handout to be given to the patient on discharge that covers the risks of anticoagulation, signs and symptoms of bleeding, reasons to contact a healthcare provider and importance of diet, follow-up and compliance.

F. The IACS will be responsible for monitoring anticoagulant therapy based on the indications, pre-identified therapeutic goals, laboratory test results, and other patient variables, as defined by this protocol and/or adjusted (by the primary team in concert with the IACS) in high risk patients to specific patient needs.

G. The IACS may order labs (e.g., aPTT, PT/INR, CBC, creatinine) that may be indicated to ensure safety of parenteral and/or oral anticoagulants. Pre-approved order sets such as the IV unfractionated heparin order set contain the appropriate laboratory orders.

H. The IACS will notify and/or consult with the supervising physician as needed for any INR, aPTT, ANTIXU, and/or ANTIXL associated with a significant increase in bleeding or clotting risk that have not yet been addressed by the supervising physician and/or the ACP.

I. Upon request, the IACS will make recommendations on patients requiring anticoagulation reversal for invasive procedures and recommend UFH, DTI, LMWH, fondaparinux or bridging therapy when indicated.
J. The IACS will notify the primary care provider of any anticoagulant related complications via appropriate documentation in the medical record.
K. The IACS will consult with the primary care provider or physician regarding persistently non-compliant patients and an appropriate action will be taken accordingly.

4. Outpatient Anticoagulation Care Service (OACS)

A. The OACS may initiate, manage and monitor oral and parenteral anticoagulant therapy in referred patients to ensure therapeutic and safe anticoagulation control in the outpatient setting.
B. The OACS will be responsible for adjusting warfarin or other parenteral anticoagulant therapy based on indications, pre-identified therapeutic goals, laboratory tests and other patient variables.
C. The OACS will order appropriate laboratory tests (i.e. PT/INR, anti-factor Xa, Hct/Hgb, CBC and serum creatinine) as needed, and, if indicated, schedule follow-up appointments, track compliance patterns, and ensure that the patient has an adequate supply of anticoagulants.
D. The OACS may order appropriate laboratory tests that may clarify the role of underlying conditions that may alter response to anticoagulation (e.g. TSH, Comprehensive Metabolic Panel).
E. The OACS may transition patients to non-face-to-face encounters if the patient has 3 consecutive therapeutic INRs while on a stable dose of Coumadin, is willing to receive instructions by phone and has a reliable, working phone number. Patients who are transitioned will register or sign in at the outpatient anticoagulation clinic, have their INR values drawn by venesection in the outpatient lab and then will be contacted during the afternoon of the same day by the OACS provider to discuss results and any management alterations.
F. The OACS will be responsible for maintaining a tracking system of all patients. An outpatient who misses an appointment (breaks an appointment) will be contacted by telephone or letter and reminded of strict compliance requirements. The patient will be rescheduled for an appointment on the next available day. If a patient cannot be reached by telephone, he or she will be notified by postcard to reschedule an appointment as soon as possible. If a patient misses three consecutive broken appointments (BAs), or does not respond after multiple requests, the patient may be considered for discharge from the OACS. The patient will be referred back to the primary care provider for further management of anticoagulation treatment.
G. The OACS will be responsible for maintaining records of patient's anticoagulation therapy, allergies, medical problems, other concurrent medications, and food intake. Progress notes will be documented in patients' medical records in the ORCHID EMR.
H. The OACS will provide education and instruction on warfarin and other anticoagulants including use of standardized educational materials.
    i. For patients transitioned to direct oral anticoagulants (DOACs), the OACS will provide a one-time educational visit to review the indication, bleeding risk,

medication education and complicating factors such as other medications or comorbidities.

ii. Patients treated with DOACs will subsequently be managed by the treating physician.

I. The OACS will notify and/or consult with the supervising physician as needed for any INR, aPTT, ANTIXU, and ANTIXL associated with a significant increase in bleeding (i.e. INR > 7) that have not yet been addressed by the primary care physician (PCP) and/or the ACP.

J. The OACS will refer a patient to his or her supervising physician, walk-in clinic, urgent care, or emergency room if findings suggestive of hemorrhage or thromboembolic episode.

K. The OACS will manage patients who are recommended to be bridged with parenteral anticoagulants during initiation or interruption of warfarin or direct oral anticoagulants (DOACs) when planned invasive procedures require reversal of these agents. They will also recommend bridging if indicated when the INR is found to be subtherapeutic in high risk patients.

L. The OACS will consult with the primary care provider or supervising physician regarding persistently non-compliant patients for appropriate action to be taken.

M. The OACS will maintain up-to-date records of laboratory normal and therapeutic goal levels through regular contact with the clinical laboratory services and review of the laboratory newsletter.

PROCEDURE

A. IACS (Inpatient Anticoagulation Service)

1. Identification of appropriate inpatients:

All inpatients receiving therapeutic (treatment-level) doses of intravenous and approved parenteral anticoagulants (DTIs, fondaparinux) will be automatically referred to the IACS for monitoring and management recommendations per P&T Committee directive. Patients on fixed dose UFH and on warfarin will be monitored, with limited recommendations. Recommendations for dosing and/or monitoring of treatment-dose LMWH will be made upon request by PCPs. Heparin infusions ordered per pharmacy will be monitored and adjusted by pharmacy. Heparin infusion ordered per provider will be monitored and adjusted by the provider.

a. Supervising physicians may request a consultation to initiate or adjust anticoagulants for inpatients, by calling the IACS (extension 97606) and noting the request in the clinical notes or on a drug order form in the patient chart. However, it is the supervising physicians' responsibility to initiate appropriate anticoagulation as an EMR order in a timely manner and not to delay to allow for evaluation by the IACS.

b. Patients meeting any of the following criteria are recommended for consultation by the Service.

- Patients with suspected or documented pulmonary embolism or deep vein thrombosis.

- Patients receiving heparin who are to be converted to chronic oral anticoagulation (e.g. atrial fibrillation, mitral valve replacement)
- Patients unresponsive to warfarin or in cases where warfarin is contraindicated (e.g. pregnancy, liver metastasis with increased baseline INR).

c. Patients with hypercoagulable states, heparin-induced thrombocytopenia, bleeding diatheses or other high-risk hematologic issues should receive consultation by hematology for approval of IACS recommendations. Similarly, patients who are on dual antiplatelet therapy along with systemic anticoagulation should receive consultation and monitoring by cardiology along with IACS.

d. Patient receiving warfarin or other anticoagulant infusions will be identified by the service on a regular basis for quality assurance purposes.

2. Initial assessment of inpatients:

a. Upon request by a supervising physician to monitor anticoagulant therapy, the IACS will obtain and record the patient's height and weight.

b. The ACP will review the patient's chart and/or consult with the PCP to identify if any of the following relative contraindications to anticoagulant therapy places the patient at risk of serious hemorrhagic complications during treatment. An appropriate reduction in the initial dosing should be discussed with the PCP, preferably before therapy is initiated for:

- Coagulation defects
- History of hepatic cirrhosis
- History of renal dysfunction
- Inaccessible ulcerative lesions
- History of cerebral vascular hemorrhage
- History of any identifiable source of bleeding
- Malignant hypertension
- Recent surgery of eye, brain, or spinal cord
- Acute pericarditis
- Recent major surgery within 7 days
- Prior oral anticoagulation therapy within 4 days
- 70 years of age or older

3. Initiating intravenous anticoagulant therapy:

Continuous Unfractionated Heparin: See LAC DHS Policy and Procedures for IV Unfractionated Heparin in Adults, APPENDIX A

a. When heparin is administered intravenously and continuously, programmable infusion pumps will be used in order to provide consistent and accurate dosing.

b. Loading Dose: The IACS will determine the loading dose based on the indication for anticoagulation and whether a bolus is requested by the ordering MD. If so, the IACS will verify that the amount of loading dose ordered was appropriate and does not exceed the maximum dose for that indication.

c. Initial Maintenance dose: The initial continuous infusion heparin dose is determined by the patient's actual body weight and the presence of an acute thromboembolic

or thrombogenic event. Continuous infusions of anticoagulants should be started immediately following the IV loading dose (if given) via programmable infusion pump.

d. A baseline aPTT and anti-Xa will be ordered within 24 hours before initiation of infusion. The timing of the initial aPTT or anti-Xa will depend on the type of intravenous anticoagulation used and whether or not a bolus dose has been administered.
e. The IACS may consult with hematology if patients have disseminated intravascular coagulation, antithrombin III deficiency, recent exposure to direct oral anticoagulants (DOACs) or other coagulopathies that may impact the target aPTTs or ANTIXU concentrations.
f. Patients with suspected heparin induced thrombocytopenia will be managed in consultation with the Hematology Service.
g. IACS will not take responsibility for managing and initiating non-standard targets or dose adjustments that are recommended by the ordering provider (i.e. not available as a preset target or adjustment). In such cases, the ordering provider will be notified that they must follow-up results and make all dose adjustment orders independently in the ORCHID system.

Management of Therapeutic Anticoagulation in Adults: APPENDIX B

Low Molecular Weight Heparin

a. The ACP may recommend giving LMWH in patients who require full, therapeutic doses of anticoagulants.
b. Dosing is based on body weight, age, and renal function.
c. A baseline serum creatinine level will be drawn within 24 hours before or 10 hours after the initial dose is given.

Argatroban (or similar drug)

a. Use of Argatroban or drug equivalent must be approved by hematology for treating HIT.
b. Initial dosing is dependent upon patient weight and hepatic function.
c. A baseline liver function test and aPTT must be drawn within 48 hours prior to initiation of infusion

Fondaparinux (or similar drug)

a. Use of fondaparinux is restricted to hip fracture patients requiring DVT prophylaxis while awaiting surgery.
b. Other use of fondaparinux must be approved by hematology.
c. Dosing is dependent upon indication, patient weight and patient renal function.
d. A baseline serum creatinine level must be drawn within 24 hours prior to initiation of injection.

5. **Conversion from continuous IV Unfractionated Heparin to subcutaneous Heparin or Low Molecular Weight Heparin:**

a. Once the patient is stable on a continuous infusion of UFH achieving aPTTs in the desired range, the total 24-hour heparin dose can be calculated.
b. From the 24-hour anticoagulant requirement, half the total daily dose will be given subcutaneously every 12 hours.
c. The LMWH dose is calculated based on the patient's weight and renal function, to be administered every 12 or 24 hours, depending on the LMWH used. The UFH drip is discontinued with the first subcutaneous injection.

6. **Conversion from continuous IV Heparin to oral Warfarin:**

a. Warfarin should be initiated as soon as it becomes apparent that oral anticoagulation will be necessary. Therapy should be started prior to discontinuation of the heparin infusion.
b. An INR should be drawn within 24 hours before warfarin therapy is initiated and daily thereafter as the warfarin doses are adjusted.
c. If the INR is within normal range, the patient may be started on warfarin.
d. The intensity of the INR goal of therapy will depend on the medical condition, indication for use and will be determined in consultation with the supervising physician.
e. It is hospital policy to administer warfarin at 1800 hours. If the patient is taking iron salts, zinc salts, aluminum salts, or magnesium salts by mouth at 1800 hours, the warfarin dose should be rescheduled for 2100 hours to optimize absorption of the warfarin.
f. Heparin and warfarin should be continued together for at least 5 days, and until the INR has been at or above 2.0 on two consecutive days, in patients with acute thromboembolic or thrombogenic disorders.
g. Warfarin will be ordered daily by the provider according to established monitoring procedures. A reminder is also noted in the computerized Medication Administration Record.

7. **Patient Monitoring:**

a. The following laboratory results will be monitored while receiving continuous anticoagulant infusions or subcutaneous injections:

Unfractionated Heparin

- Activated factor X inhibition concentrations (ANTIXU) for all intravenous heparin.
- Partial Thromboplastin Time (aPTT) will be ordered in patients where an accurate anti Xa level cannot be obtained.
- Hematocrit and hemoglobin
- Platelets
- Serum creatinine
- Bilirubin

Argatroban (or similar drug)

- Partial Thromboplastin Time (aPTT) for all intravenous anticoagulation.

- Hematocrit and hemoglobin
- Platelets
- Serum creatinine
- Bilirubin

Low Molecular Weight Heparin

- Hematocrit and hemoglobin
- Platelets
- Serum creatinine (for use in the Cockroft-Gault Creatinine Clearance estimation)
- ANTIXL test, if indicated by patient's clinical status

Fondaparinux (or similar drug)

- Hematocrit and hemoglobin
- Platelets
- Serum creatinine
- Bilirubin

b. The following precautions should be followed for any patient receiving anticoagulation therapy:

- Intramuscular injections should be avoided.
- Non-steroidal anti-inflammatory analgesics, anti-platelet agents, and aspirin at doses greater than 81 mg per day should be limited. Consider concurrent GI prophylaxis when used.
- Avoid unnecessary venipunctures and arterial punctures. Prolonged pressure should be applied to the site of puncture.
- Avoid constipation.
- Avoid anticoagulation for 12 to 24 hours following placement or removal of an epidural catheter, placement of an internal pacemaker, or performance of cardiac catheterization unless otherwise directed by a hematologist and/or cardiologist on the case.
- A list of patients on warfarin will be generated and picked up by Dietary Service daily.
- IACS will automatically consult Hematology in the event that ongoing anticoagulation is requested by the primary team in patients with platelets < 50,000 or in whom anemia requiring red cell transfusion has developed.
- IACS will automatically notify the primary team for a drop in platelets by more than 50%. If no alternative etiology is identified and anticoagulation is continued, IACS will automatically consult Hematology for assistance in evaluating for heparin-induced thrombocytopenia (HIT).
- If HIT is definitively diagnosed, IACS will also notify the blood bank, in order to reduce the use of inappropriate platelet transfusions.

c. Reversal of anticoagulation (Guidelines for Anticoagulation Reversal in Adult patients, APPENDIX C)

- Reversal strategies should be addressed in consultation with the Hematology service, which is available 24 hours daily
- In the event of life-threatening hemorrhage among patients treated with warfarin, the preference is use of 4-factor PCC as FDA-indicated for this purpose if available.
- Elevated INR without hemorrhage does not require reversal; however, high risk patients may benefit from vitamin K.

B. OACS (Outpatient Anticoagulation Service)

1. Upon establishment of selected patients on oral warfarin and/or parenteral anticoagulants for the OACS, the ACP will adjust and monitor warfarin as outlined by the most recent, approved Standard Operating Policies and Procedures. The OACS's responsibilities will include:

   a. Initial Work-up for patients being initiated on warfarin in the outpatient setting:
      - Obtain documentation of referrals or discharge papers from providers referring patients to the OACS.
      - Obtain patient demographics (including current telephone number and address), past medical and medication history, meal pattern, social history for OACS records, and baseline laboratory tests.
      - Ascertain from the supervising physician indication for use, therapeutic goal and estimated duration of anticoagulant therapy.
      - Determine current warfarin dose and tablet size based on the indication for therapy and other patient specific variables.
         - ❖ Provide counseling on warfarin and stress the importance of avoiding drug and diet interactions.
         - ❖ Schedule follow-up appointments and laboratory tests, using algorithms provided in the most recent, approved Standard Operating Policies and Procedures.

   b. Maintenance of Warfarin Therapy:
      After the patient has been initiated on warfarin therapy, the OACS will continue to:
      - Assess INR values to achieve and maintain therapeutic goals.
      - Assess subjective and objective evidence of therapy including:
         - ❖ Current dose of warfarin
         - ❖ Symptoms of disease exacerbation
         - ❖ Suspected adverse effects of warfarin
         - ❖ Development of other significant problems
         - ❖ Changes in other medications, nutritional intake, tobacco or alcohol use
      - Determine current dose or necessary interventions based on subjective and objective data.
      - Reinforce importance of compliance and avoidance of diet and drug interactions while maintaining a consistent lifestyle.
      - Schedule follow-up OACS appointments and order laboratory testing.
      - Document subjective, objective, assessment, and current plan in Affinity
      - Order initial warfarin prescription and authorize appropriate refills.

c. Monitor other parenteral therapy (LMWH or fondaparinux) if applicable
   - Monitor for bleeding or thromboembolic complications.
   - Monitor platelet counts for possible HIT associated with subcutaneous heparin, LMWH or fondaparinux therapy.
   - Notify supervising physician immediately if HIT is suspected and pursue appropriate workup.
   - Order initial prescription and authorize refills if needed
   - Provide counseling for parenteral anticoagulants if applicable

d. Reversal of anticoagulation
   - Elevated INR values should be addressed based on the most recent, approved Standard Operating Policies and Procedures for Outpatient Anticoagulation
   - Patients with evidence of acute bleeding on anticoagulation should receive emergent medical treatment

C. Anticoagulation Therapy Education:

1. IACS will assist in the provision of patient education utilizing standardized handouts, verbal instruction and/or approved videos and will document this in the medical record.
2. Inpatient nursing is expected to document patient education as well as discharge planning with respect to follow-up appointments and committee-approved handouts given for anticoagulation.
3. OACS will provide patient education on anticoagulation therapy using standardized educational materials and will document these interactions in the medical record.
4. In-service education will be provided to inpatient and outpatient medical, nursing and pharmacy staff by the IACS and the Medical Director of Anticoagulation on an as-needed basis, including when significant changes to policies occur.

D. Patient Charting:

1. The Inpatient Anticoagulation Service will continue to follow patients for as long as they receive intravenous anticoagulant infusions.
   - All consultations and encounters will be documented electronically in the patient's medical record, which is accessible to the OACS.

E. Discharge from the Hospital

1. All patients discharged from LAC inpatient services on anticoagulation will receive a follow-up appointment including date, time and location and phone number, for anticoagulation monitoring with either their supervising physician, or Allied Health Professional or an OACS clinic
   - Patients who require but have not completed bridging therapy will continue the appropriate bridging as described in the most recent, approved OACS Standard Policies and Procedures.

- Patients newly initiated on oral anticoagulation with warfarin for whom an OACS appointment cannot be obtained within 5 business days must be monitored by their supervising physician until the appointment occurs.
- All patients leaving the inpatient unit will be provided anticoagulation education including but not limited to information regarding dietary and drug/supplement interactions, dosing, importance of compliance and signs/symptoms requiring urgent or emergent medical attention.
- Patients requiring OACS follow-up at the outlying CHC clinics who have not previously established care will first be seen by primary care at those clinics within the requisite follow-up time and referred to OACS by the supervising physician.

F. Discharge from the IACS/OACS:

1. Patients will be discharged from the IACS for the following reasons:
   - Completion of anticoagulant therapy.
   - Patient stabilized on chronic anticoagulant therapy in anticipation of discharge.
   - Anticoagulant therapy downgraded to prophylaxis without anticoagulant infusion.
   - Anticoagulation held indefinitely for/following a procedure, with no resumption date set.
2. Patients will be discharged from the OACS for the following reasons:
   - Non-compliance.
   - Physician notification.
   - Completion of warfarin therapy or parental anticoagulant therapy.

RESPONSIBILITY

Attending Staff
Nursing Staff
Pharmacy Staff

DOCUMENTATION

Attending Staff Manual
Medical Center Policy and Procedures

REFERENCES

1. Antithrombotic and Thrombolytic Therapy, 9th Edition: American College of Chest Physicians (ACCP) Guidelines. Chest 2012;141:2 Supplement.
2. Antithrombotic Therapy for VTE Disease: Chest Guideline and Expert Panel Report. Chest 2016;149(2):315-352.
3. Joint Commission of Healthcare Organizations, Requirement 3E**, National Patient Safety Goals**, 2010.

4. Witt DM, Sadler MA, Shanahan RL, et al. Effect of a centralized clinical pharmacy anticoagulation service on the outcomes of anticoagulation therapy. Chest 2005;127:1515-1522.
5. Hall D, Buchanan J, Helms B, et al. Health care expenditures and therapeutic outcomes of a pharmacist-managed anticoagulation service versus usual medical care. Pharmacotherapy 2011;31:686-94.

ATTACHMENTS

The following Department of Health Services attachments are references for the aforementioned policy:

1. Attachment A – DHS - Unfractionated Heparin Infusion in Adults - Policy and Procedure
2. Attachment B – DHS - Management of Anticoagulation in Adults – Practice Guideline
3. Attachment C – DHS - Anticoagulant Reversal in Adult Patients – Practice Guideline
4. Attachment D – DHS - Perioperative Management of Patients on Oral Anticoagulants – Practice Guideline

REVISION DATES

February 11, 2014; November 21, 2018; May 22, 2020