University Health™	**POLICY#: 3.1**
SUBJECT: High Risk – Anticoagulation Safety	**Effective: 10/01/13**
APPROVED BY: Pharmacy and Therapeutics Committee	Page 1 of 5

Purpose: To provide safe and effective anticoagulation therapy for UH patients

Policy: Upon order of a physician, heparin low molecular weight heparin (LMWH) and/or oral warfarin therapy will be administered according to the following protocol.

Procedure:

I. Heparin Therapy
   a. Indication for use will be documented in the chart. Indications include:
      i. Deep vein thrombosis
      ii. Pulmonary embolism
      iii. Venous thrombosis
      iv. Atrial fibrillation with embolism
      v. Unstable angina
      vi. Peripheral arterial embolism
      vii. Aortic and/or mitral valve replacement
   b. Patients with the following contraindications should not receive heparin therapy:
      i. Hypersensitivity to heparin/LMWH
      ii. Active bleeding
      iii. Severe thrombocytopenia
      iv. Heparin-induced thrombocytopenia
   c. The following clinical information should be documented in the chart prior to initiation of therapy:
      i. Patient age, weight, height, and gender
      ii. Medical and medication history pertaining to anticoagulation of the patient
      iii. Indication and duration for heparin therapy
      iv. Laboratory baseline values
         1. PT/INR, aPTT, CBC, platelet count
      v. Order for no IM injections while on heparin therapy
   d. Laboratory monitoring and dosing adjustments
      i. Repeat aPTT 6 hours after the start of the heparin infusion and 6 hours after each dose adjustment.
      ii. Adjust bolus and infusion according to protocol.
      iii. After two consecutive therapeutic aPTT values, order daily am aPTT.
   e. Physician notification
      i. The physician must be notified if patient experiences any bleeding.

ii. The physician must be notified in the event of significant adverse effect to heparin therapy or if aPTT is greater than 120.
iii. The physician should also be notified if the therapy is not consistent with the duration of therapy as documented in the chart.

f. Pharmacy is responsible for reviewing the orders for all heparin therapy.
g. All heparin preparations shall be of concentrations and volumes approved by the P&T committee.
h. All heparin infusions will be administered via programmable infusion pumps.
i. A prescriber's order is required for the use of all heparin products including heparin flush solutions.

II. Low molecular weight heparin

a. Indication for use will be documented on the chart. Indications include:
   i. Deep vein thrombosis
   ii. Pulmonary embolism
   iii. Venous thrombosis
   iv. Atrial fibrillation with embolism
   v. Prophylaxis of stroke in post MI patient
   vi. Unstable angina
   vii. Peripheral arterial embolism
   viii. Aortic and/or mitral valve replacement
b. Patients with the following contraindications should not receive LMWH therapy:
   i. Hypersensitivity to heparin/LMWH
   ii. Active bleeding
   iii. Severe thrombocytopenia
   iv. Heparin-induced thrombocytopenia
c. The following clinical information should be documented in the chart prior to initiation of therapy:
   i. Patient age, weight, height, and gender
   ii. Medical and medication history pertaining to anticoagulation of the patient
   iii. Indication and duration for heparin therapy
   iv. Laboratory baseline values
      1. PT/INR, aPTT, CBC, platelet count
   v. Order for no IM injections while on heparin therapy
d. Laboratory monitoring and dosing adjustments

i. No routine monitoring is necessary for standard LMWH therapy (prophylaxis or treatment doses)
ii. For specialized populations, (renal failure, pregnancy, morbidly obese, patients less than 90% of ideal body weight) a single anti-Xa level should be measured 3 to 4 hours after the first LMWH dose.

e. Physician notification
   i. The physician most be notified if patient experiences any bleeding.
   ii. The physician should also be notified if the therapy is not consistent with the duration of therapy as documented in the chart.
f. Pharmacy is responsible for reviewing the orders for all LMWH therapy.
g. A prescriber's order is required for the use of all LMWH products.

III. Warfarin therapy

a. Indication for use will be documented in the chart. Indications include:
   i. Deep vein thrombosis
   ii. Pulmonary embolism
   iii. Venous thrombosis
   iv. Atrial fibrillation with and without embolism
   v. Unstable angina
   vi. Artificial cardiac valve replacement
   vii. Selected cancer patients
   viii. Other warranted indications
b. Clinical information which must be documented in the chart prior to initiation of therapy:
   i. Indication
   ii. Duration
   iii. Therapeutic range
   iv. Patient age
   v. Medication history including previous anticoagulation therapy
   vi. Nutritional status
   vii. Concurrent disease states
c. Monitoring
   i. International Normalized Ration (INR) is used to monitor and modify doses of warfarin.
   ii. Baseline PT/INR must be obtained for all patients before initial dose or dosing change is ordered

iii. For new patients, INR should be monitored daily until therapeutic for 2 consecutive days. Subsequently, INR should be measured 2-3 times weekly for two weeks, then weekly if stable.

d. General information
   i. Warfarin may be started on the first day of heparin/LMWH therapy
   ii. When converting from heparin/LMWH, warfarin may be overlapped.
   iii. Warfarin will be dispensed one dose at a time and administered at 4PM daily unless specifically indicated otherwise.

e. Patient education
   i. A pharmacist will provide patient education on the safe and effective use of warfarin therapy. Each patient will be educated based upon the patient's level of comprehension. Documentation of the education session and comprehension will be documented in the chart. Patient education will include the following:
      1. Medication name, strength and description
      2. Daily dosage and administration times
      3. How to handle missed doses
      4. Purpose of the medication and how it works
      5. Dietary and medication interactions
      6. Recognition of signs of bleeding and appropriate procedures to follow
      7. Importance of compliance with medication regimen and clinic appointments
      8. Keeping ID indicating warfarin use
      9. Importance of alerting prescriber when pregnant, if appropriate
   ii. Nutritional services may be consulted for additional education

f. Outpatient anticoagulation therapy management
   i. An anticoagulation service will be provided within the University Health Shreveport Medicine Clinic.
      1. Patients may be referred to this service through the electronic health record
      2. Policies and protocols for this anticoagulation service will be reviewed by the P&T Committee on an annual basis.

ii. Physicians who choose to manage their own patient's anticoagulation therapy will be required to submit a clinic-specific policy to the P&T committee for approval on an annual basis.

IV. Anticoagulation therapy outcome measures

a. The following criteria will be evaluated for at least 12 randomly selected patients per quarter. A summary will be presented to the P&T committee every 6 months.

i. INR is in therapeutic range for patient's condition
ii. There are no bleeding episodes
iii. There are no thrombotic complications
iv. Interventions with physicians regarding patient therapy
v. Number of patients with INR greater than 6.0
vi. Number of patients with INR less than 1.5