Bon Secours Richmond
Pharmacy & Therapeutics Committees

To: All Pharmacists
From: Marshall Pierce
Subject: Lovenox Injection Updated Dosage Scale
Date: 1/8/2002

The pharmacy will stock Lovenox in 30, 40, and 60 mg syringes. Order sets or PCOs are available for doses of 30, 40, 60, 70, 80, 90, 100, 110, 120, 150 mg q12h SC.

MEC has approved the following:

- TREATMENT: Standardized weight adjusted dosing of enoxaparin by pharmacy is recommended for *treatment* of DVT, unstable angina, Non-Q Wave MI and other indications requiring 1 mg/kg (LMWH during transition to or from oral anticoagulation). Weight adjusted dosing will decrease the potential for incorrect dosages and wastage. Pharmacists will write an order in the chart when adjusting the dose.

Weight (kg)	Protocol Dose	Syringes to Use	
25-35 kg	30 mg	30 mg	
36-45 kg	40 mg	40 mg	
46-55	**50 mg**	**60 mg**	**THIS IS NEW**
56-65 kg	60 mg	60 mg	
66-75 kg	70 mg	30 & 40 mg	
76-85 kg	80 mg	40 mg & 40 mg	
86-95 kg	90 mg	30 & 60 mg	
96-105 kg	100 mg	40 & 60 mg	
106-115 kg	110 mg	30 & 40 & 40 mg	
116-135 kg	120 mg	60 & 60 mg	
136-150 kg	150 mg	60 & 60 & 30 mg*	

* The Cardiology section at SMH does not want doses above 120 mg for their patients unless explicitly ordered.

- PROPHYLAXIS: Unfractionated heparin (5000 units q8 SC) is recommended to replace enoxaparin (autosubstitution) for medical and general surgery patients requiring DVT *prophylaxis*, except for orthopedic surgery, acute spinal cord injury, and trauma (example automobile accident) with risk of venous thromboembolism. Unfractionated heparin is as safe and effective as LMWH, but is substantially less expensive than enoxaparin ($0.72 versus $15.67 per day).

- Nurses should combine the contents of multiple Lovenox syringes into one syringe before injecting the patient.

Risk Factors for DVT that may require prophylaxis: age ≥40, prolonged immobility or paralysis, prior VTE, cancer, major surgery (particularly those involving abdomen, pelvis, or lower extremities), obesity, varicose veins, CHF, MI, stroke, fractures of pelvis, hip, or leg; indwelling femoral vein catheter, inflammatory bowel disease, nephrotic syndrome, estrogen use, hypercoagulable states (protein C resistance or deficiency, antithrombin III deficiency, protein S deficiency, dysfibrinogenemia, disorder of plasminogen or plasminogen activation, antiphosphlipid antibodies, and lupus anticoagulant, heparin induced thrombocytopenia, hyperhomocystinemia, and myelproliferative disorders). Risk factors are cumulative.

Procedure:

1. Determine the indication for enoxaparin, call the physician if chart documentation is lacking.
2. Obtain the patient's weight if necessary.
3. Determine which agent (heparin or enoxaparin) is to be administered.
4. Use the table above to determine the patient's weight adjusted dose of enoxaparin. The goal is to have the dose administered within 15% of 1 mg/kg.
5. Write an order in the chart for the appropriate heparin depending on indication:
   a. Treatment: Lovenox _____ mg q12 h SC, MEC approved weight adjusted dosing protocol.
   b. Prophylaxis: Heparin 5000 units q8h SC, MEC approved autosubstitution for enoxaparin .
6. Enter Lovenox orders using the order sets to avoid drug wastage and increased cost.

File: PT/lovenoxmem

Chest Guidelines 1998 for Prevention of Venous Thromboembolism	
General Surgery	
Low Risk: Uncomplicated minor surgery in patients less than 40 years old with no clinical risk factors	Early Ambulation
Moderate Risk: General surgery (Major or minor surgery) in patients 40-60 years old without additional risk factors, or Major Surgery in patients < 40 years old with no risk factors, or Minor surgery in patients with risk factors	LDUF (5000 units q12h), LMWH 40 mg qd, IPC, ES
High Risk: Major surgery in patients > 60 years old without additional risk factors or Major surgery in patients 40-60 years old with additional risk factors	(LDUFH (q8h), LMWH, IPC) ± ES
Very High Risk	
Major surgery in patients > 40 years old plus prior VTE or malignant disease or hypercoagulable	(LDUH (q8h), LMWH 40 mg qd) with IPC
Elective major lower extremity orthopedic surgery, or hip fracture	(Warfarin INR 2-3, LMWH 30 mg q12h, adjusted dose heparin) with (IPC or ES)
Elective neurosurgery	(IPC ± ES), LMWH , LDUFH, (IPC ± ES) ± (LMWH or LDUFH)
Acute spinal cord injury	LMWH
Trauma with risk for VTE	LMWH, IPC
Medical Conditions	
High Risk MI	LDUF, Adjusted Dose Heparin
High Risk General medical patients with risk factors for VTE such as CHF or pulmonary infection	LDUH, LMWH
Very High Risk Ischemic stroke and lower extremity paralysis	LDUH, LMWH

LDUFH: Low Dose Unfractionated Heparin, **LMWH:** Low Molecular Weight Heparin, **IPC:** Intermittent Pneumatic Compression, **ES:** Graded Compression Elastic Stockings