

# HMC EM EVIDENCE-BASED CLINICAL ALGORITHM: UNFRACTIONATED & LOW-MOLECULAR-WEIGHT HEPARIN

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Authors: A Beadsworth (EM), M Zahid (Medicine), A Mahfouz (Cardiology), I Fawzy (Critical Care), H Al Thani (Vascular Surg.), S Thomas (EM)

Evidence basis:

- National Guideline Clearinghouse, US Agency For Healthcare Research & Quality. [www.guideline.gov](http://www.guideline.gov) (last updated May 2014)
- National Institute for Health and Care Excellence. [www.nice.org.uk](http://www.nice.org.uk) (Guidelines: CG144/June 2012; CG94/March 2010)
- UpToDate (accessed 9 March 2016)

This EBCA:

- has been endorsed by HMC EM and other consultants for education and assistance with clinical practice in HMC's EDs.
- is intended to complement any related multispecialty Clinical Practice Guideline prepared as per HMC policy.
- is not presented as the binding "standard of care" but is rather a reference tool to inform clinical judgment.

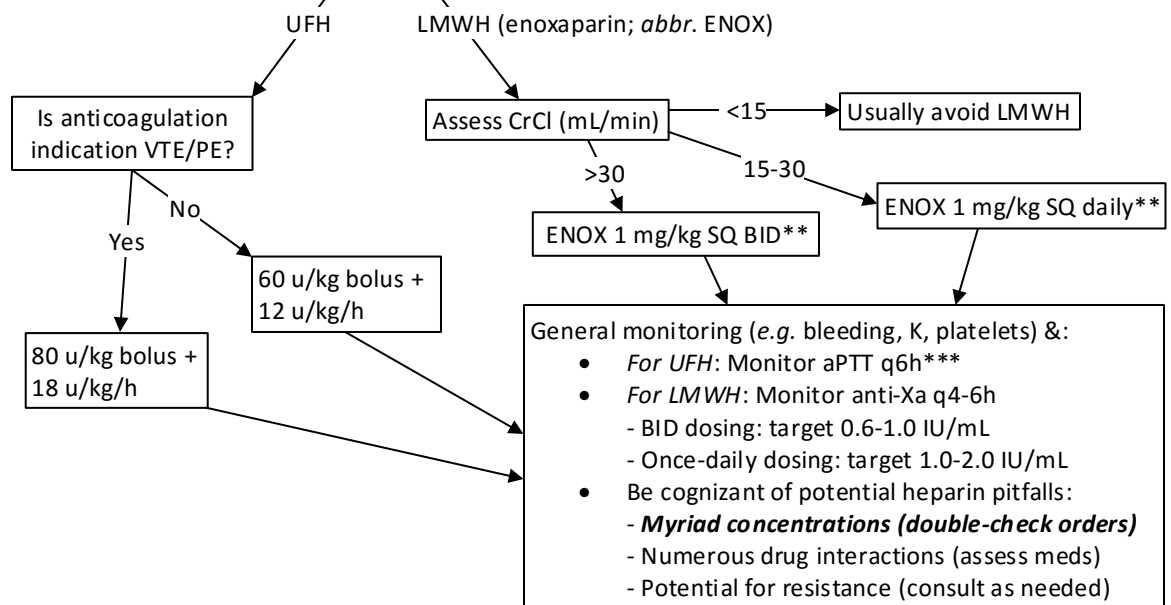
## Algorithm aim & applicability:

This EBCA applies to adults with normal baseline coagulation (e.g. aPTT) in whom evaluation has led to decision to administer unfractionated heparin (UFH) or low-molecular-weight heparin (LMWH). The EBCA guides therapeutic (not prophylaxis) ED use of UFH or LMWH, by EM physicians. This drug-focused EBCA for EM use is superseded by admitting service preferences or HMC corporate clinical practice guidelines.

Determine which heparin – UFH or LMWH – is appropriate.\* Regardless of choice, baseline K, coagulation parameters (PT, aPTT) and CBC/platelet count are needed. If LMWH is to be given, send Cr; if UFH is to be used then send baseline transaminases.

### \* UFH preferred over LMWH (partial listing)

- Acute limb ischemia
- Pending cardiac surgery
- Late-term pregnancy
- STEMI
- NSTEMI with PCI plan
- PE with plan for lysis
- CrCl <15 mL/min
- Some stroke cases (note that HGH Stroke Service may not desire a bolus; discuss dosing with them)
- Note: HIT/HITT is a risk with UFH or LMWH



### \*\*\*Heparin adjustment *must* be clarified with admitting service (preferences vary across HMC hospitals and services; information below is provided for EM general reference only)

Heart Hospital preference (aPTT times in seconds) for UFH heparin adjustment based on aPTT

- If aPTT <50: Bolus 60 u/kg and increase infusion rate by 4 u/kg/h
- If aPTT 50-64: Bolus 30 u/kg and increase infusion rate by 2 u/kg/h
- If aPTT 64.1-95: No change
- If aPTT 95.1-106: Decrease infusion rate by 2 u/kg/h
- If aPTT >106: Hold infusion 1 h and decrease infusion rate by 3 u/kg/h

HGH (most services) preference for UFH heparin adjustment based on aPTT

- If aPTT <35 (< 1.2x control): Bolus 80 u/kg and increase infusion rate by 2 u/kg/h
- If aPTT 35-45 (1.2-1.5x control): Bolus 40 u/kg and increase infusion rate by 4 u/kg/h
- If aPTT 45.1-70 (1.5-2.3x control): No change
- If aPTT 70.1-90 (2.3-3.0x control): Decrease infusion rate by 4 u/kg/h
- If aPTT >90 (>3.0x control): Hold infusion 1 h and decrease infusion rate by 3 u/kg/h

### \*\* LMWH dosing notes

- There is lack of consensus for dosing:
  - In patients age >75
  - In obese or very thin patients
  - For low (or very low) CrCl
  - Depending on anti-Xa levels

*Discuss above cases with the clinical service admitting the patient*

- Preservative-free preparation should be used in pregnant patients or cases where there is allergy risk