



**TO:** Medical Staff, House Staff, Patient Care Centers,  
and Outpatient Clinics

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**DATE:** March 3, 2022

**RE:** Change of aPTT heparin therapeutic range

**SUMMARY**

- 1. Normal range for the new lot of aPTT reagent is unchanged at 25-34 seconds.**
- 2. New relationships between aPTT and anti-Xa levels:**

<b>Anti-Xa (U/mL)</b>	<b>aPTT (sec)</b>
0.3-0.7	66-97 sec
0.35	70 sec

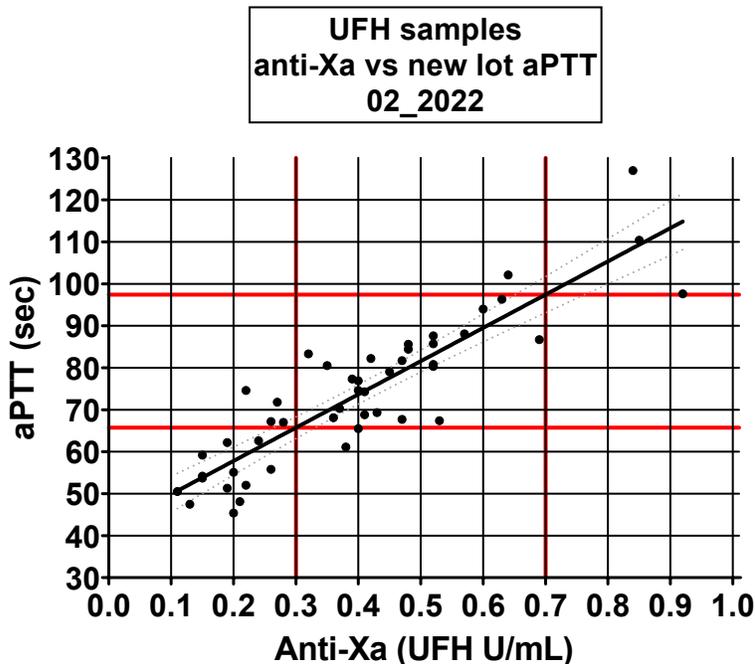
<b>aPTT (sec)</b>	<b>Anti-Xa (U/mL)</b>
50-70 sec	0.10-0.35

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The Coagulation Laboratory must reassess reference intervals for the activated PTT (aPTT) with the replacement of new reagent lots. This reagent lot change will take place at 03/08/22 at 00:01. This change of reagent lot has resulted in no change to the aPTT reference interval to 25.0-34.0 seconds.

**Heparin Monitoring:** Using a new reagent lot for the aPTT, for 48 patients currently receiving unfractionated heparin, we determined the population relationship between aPTT and heparin activity as determined by the “gold standard” of anti-factor Xa activity.

An anticoagulation intensity goal range of 0.3-0.7 anti-Xa units will now correspond to aPTTs of 66-97 seconds with this reagent lot. However, as is readily apparent from the graph below, for any *individual patient*, simply using an aPTT value directly obtained from the *population* linear regression relationship between aPTT and anti-Xa activity can potentially lead to under- or over-anticoagulation.



Accordingly, consideration should be given to performing an initial anti-Xa measurement in parallel with an aPTT measurement following heparin initiation, to verify that the desired intensity of heparin anticoagulation has been achieved.

Moreover, for the occasional patient with a lupus anticoagulant (LA) interfering with aPTT measurements, or a deficiency of an aPTT-dependent “contact factor” such as factor XII, the patient’s pre-heparin baseline aPTT may be too elevated to allow accurate measurement of heparin treatment. In such instances, the anti-Xa heparin level may be required for therapeutic monitoring.

aPTT values over 120 seconds will be called as critical values.

We recommend referring to UCM Policy PGP-23 (Adult Continuous Infusion Unfractionated Heparin (UFH)), for the details of heparin dosing and monitoring recommendations from UCM Pharmacy.

For questions, please contact Krzysztof Mikrut, Laboratory Manager, at 773-702-1315, or Geoffrey Wool, MD PhD, Medical Director, at 773-926-1455.