



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

**FROM:** Krzysztof Mikrut, B.S, MT (ASCP)  
Technical Director, Coagulation Laboratory

Geoffrey Wool, M.D., Ph.D.  
Medical Director, Coagulation Laboratory

**DATE:** March 24, 2020

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

**SUMMARY**

**Normal range for the new lot of aPTT reagent will be 25.0-34.0 seconds.**

**New relationships between aPTT and anti-Xa levels:**

<b>Anti-Xa (U/mL)</b>	<b>aPTT (sec)</b>
0.3-0.7	61-90 sec
0.35	65 sec

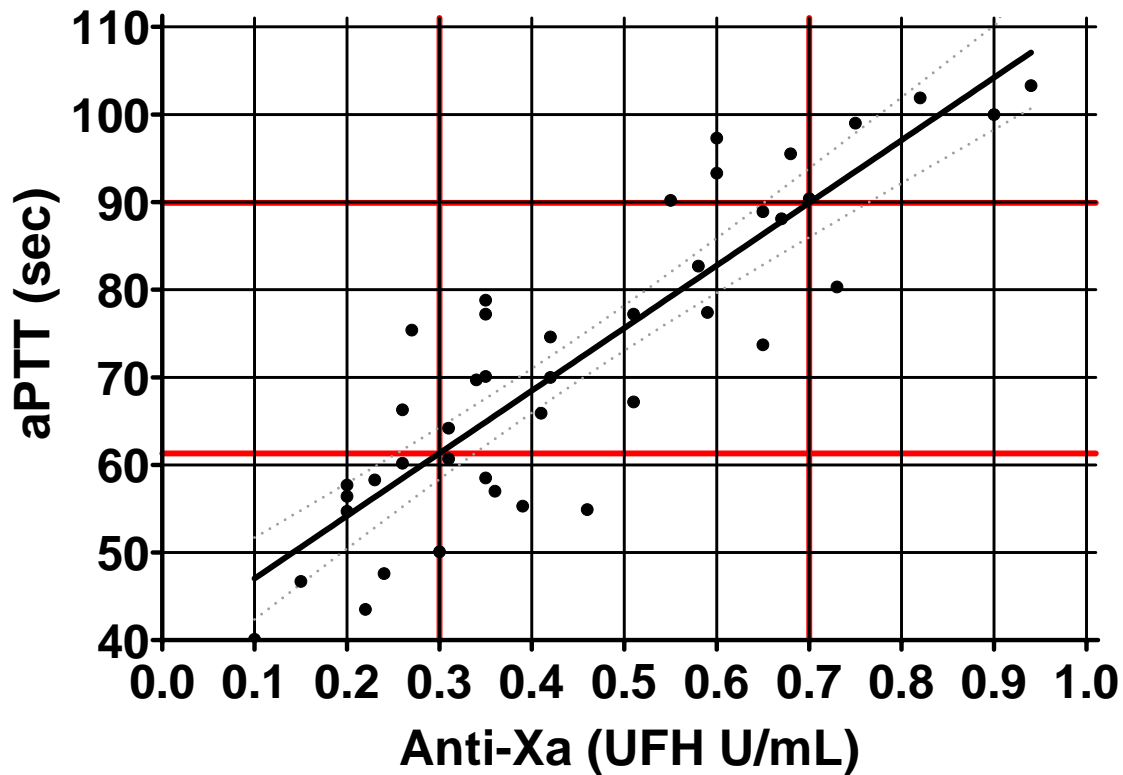
<b>aPTT (sec)</b>	<b>Anti-Xa (U/mL)</b>
50-70 sec	0.14-0.42

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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 4/1/2020 00:01. This change of reagent lot has resulted in ***change of the aPTT reference interval to 25.0-34.0 seconds.***

**Heparin Monitoring:** Using a new reagent lot for the aPTT, for 44 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. For example, an anticoagulation intensity goal range of 0.3-0.7 anti-Xa units will now correspond to aPTTs of 61-90 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 simply be too elevated to permit the aPTT to be used to follow heparin treatment. In such instances, the anti-Xa level may actually be required in order to follow heparin levels.

aPTT values over 100 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.