UK HealthCare - Generation 5 Troponin T

Cutoffs	**Elevated 5th Gen Troponin T is defined as greater than the 99th% URL, and is gender specific:** **Female: >13 ng/L** **Male: >18 ng/L** **Significant delta (or significant serial change) is validated at an absolute increase or decrease of >=10 ng/L if 2nd sample is drawn between 2 and 6 hours of baseline.**
Intended Use	The clinical utility of this immunoassay is in *exclusion of myocardial injury*. Serial troponin measurements are highly recommended for the exclusion of acute coronary syndromes. A Trop T value greater than the reference interval with a dynamic pattern (rise or fall >= 10 ng/L for serial samples drawn between 2-6 hours) highly suggests acute cardiac injury. *Acute cardiac injury does not equate to acute myocardial infarction*. Additional clinical criteria are necessary for the diagnosis of acute myocardial infarction. It is important to note that the majority of this literature is specifically in patients presenting with chest pain and a suspected acute coronary syndrome (ACS). There is very limited data in the diagnostic ability of the 5th gen Troponin T in patients who have presented primarily for a non-ACS presentation given the frequent release of cardiac biomarkers with any acute illness (~60-70% of non-ACS patients have an elevated 5th gen Troponin T). In non-ACS presentations, elevated Troponin values are associated with increased mortality; however, there is limited data regarding the interpretation or clinical utility of serial measurements or the specific cardiovascular risk.

Practical Considerations for Use of Next Generation Troponin Testing	• Troponin T results will be reported new units, ng/L and will be in whole numbers (as opposed to decimals for the current 4th Gen Troponin T assay).
	• Given the purpose of this assay is to assess for myocardial injury, serial troponin measurements will be the default order.
	• Given the difference in interpretation and release pattern for Troponin T based on the clinical indication, all 5th Generation Troponin T assays will require a clinical indication be selected:
	  ✓ Suspected ACS is in the differential for the primary presentation.
	  ✓ Non-ACS presentation…Troponin being ordered for prognostic purposes.

Gen 5 TnT Assay Enhancements and Key Points	• Green top tube, can be combined with other lab tests (i.e. BMP, CMP, etc..).
	• Validation of delta values is only for serial specimens collected between 2 and 6 hours. Samples drawn at less than 2 hours or greater than 6 hours from the initial sample will not report out a delta given limited available data regarding utility.
	• Definitions based on 4th Universal Definition of Myocardial infarction document:
	  ✓ Elevated Troponin (>99th% of URL) with no significant delta: *Chronic myocardial injury*
	  ✓ Elevated Troponin (>99th% of URL) with a significant delta but without other evidence of ischemia (ischemic symptoms, ECG changes, or imaging findings): *Acute myocardial injury*
	  ✓ Elevated Troponin (>99th% of URL) with a significant delta and other evidence of ischemia: *Acute myocardial infarction*
	  • Classification of the type of acute myocardial infarction should be done only after defining acute myocardial infarction by UDMI

UK HealthCare Optimal Clinical Care Pathway for the evaluation of chest pain	
References	Elecsys Troponin T Gen 5 STAT Package Insert (2017-03, V 1.0). Fourth Universal Definition of Myocardial Infarction (2018). J Am Coll Cardiol 2018;Aug 2018, 25285; DOI:10.1016/j.jacc.2018.08.1038. Reichlin T et al. Two-hour Algorithm for triage toward rule-out and rule-in of acute myocardial infarction using high-sensitivity cardiac Troponin T. Am J Med. 2015;128:369-79.