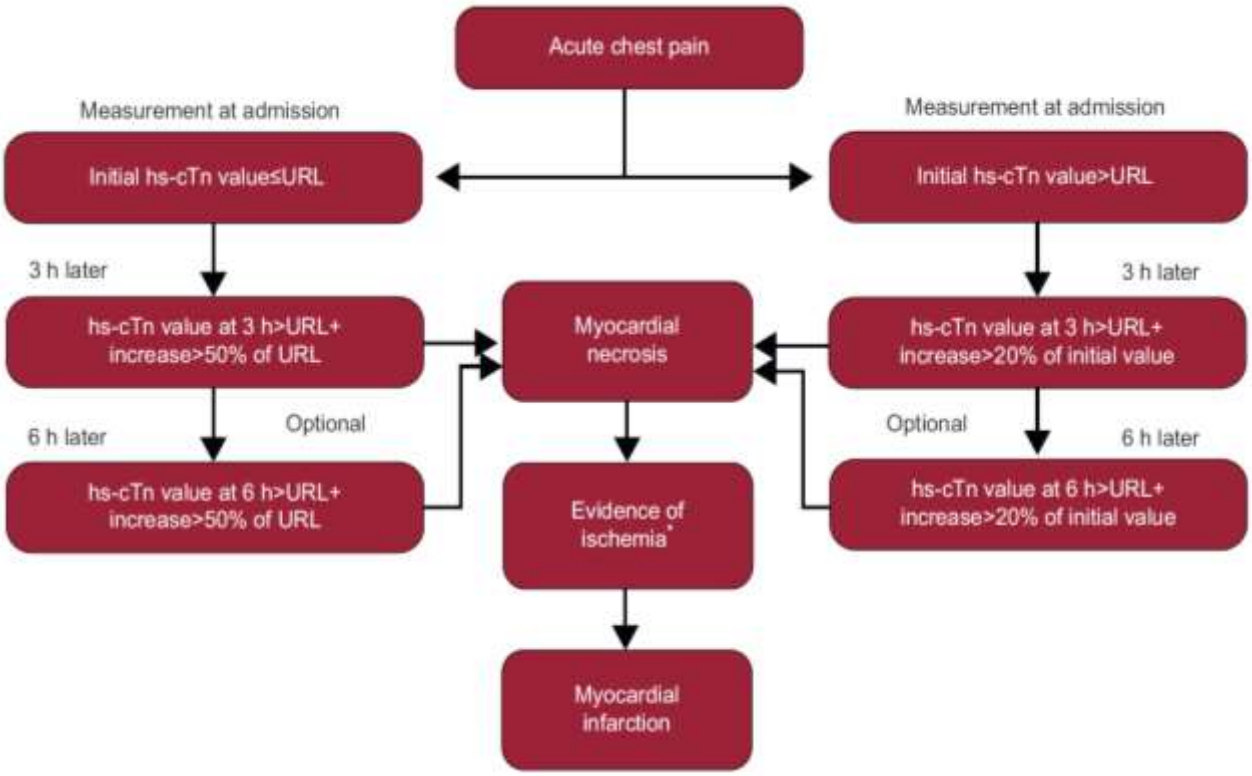
Recommendations for Reporting and Interpreting hs Troponin T in Labrador-Grenfell Health

The electrochemiluminescence immunoassay of high sensitive troponin T has been established in laboratory services at LGH in 2012. Test reporting and interpretation were reviewed recently. Below are updates for the appropriate use of this test:

1. **Reporting unit is changed from µg/L to ng/L**. For example, if a result is 1.0 µg/L, the report will now show 1,000 ng/L. Results will be reported to one decimal point.
2. **hs troponin T > 14 ng/L** (the upper reference limit, **99th percentile**) is still used to indicate the possibility of myocardial infarction.
3. Due to the release kinetics of cardiac troponin T, an initial test result < 99th percentile within the first hours of onset of symptoms does not rule out myocardial infarction with certainty. For rapid and early rule-out of myocardial infarction, repeat the test at appropriate intervals: **3 and 6 hours (optional) after initial assessment**.
4. **Delta change** between hs-Tn T results in serial samples will be calculated and reported as both absolute and percent values, providing that the time difference between samples is ≤ 15 hours.
5. Suggested rule-in criteria:
    - Any initial result is > 14 ng/L and increases > 20% of initial value at serial measurements. **Or**
    - When initial result is ≤ 14 ng/L, any result > 14 ng/L, and increases 7 ng/L at serial measurements.



Rapid early rule-in of AMI with high sensitive cardiac troponin
URL: upper reference limit

6. Published clinical studies have shown elevations of cardiac troponin T can be seen in patients with other clinical conditions, such as pulmonary embolism, arrhythmias, myocarditis, renal or heart failure.
7. The following interpretive comments will be reported where appropriate:

CONDITION	COMMENT
hs-Tn T < 5 ng/L	Undetectable result indicates acute myocardial injury is highly unlikely.
hs-Tn T ≥ 5 ng/L to ≤ 14 ng/L	Normal result indicates low risk for adverse coronary outcome. Where clinically indicated, test should be repeated after 3 h before rule-out of acute myocardial injury.
hs-Tn T > 14 ng/L	Elevated result indicates increased risk for adverse coronary outcome. Where clinically indicated, test should be repeated after 3 h before rule-in of acute myocardial injury.
Delta Change Included	If initial result is high on early presentation, a delta > 20% in serial samples collected 3 h apart is indicative of possible acute myocardial injury. If initial result is normal, a delta of up to 7 ng/L is considered within normal limits, greater change indicates possible acute myocardial injury. In late presenters, a decreasing delta may indicate acute myocardial injury. Reported delta values are between this sample result and the last recent sample result.

References:

1. Thygesen K, et al: the study group on biomarkers in cardiology of the European Society of Cardiology on acute cardiac care. How to use high-sensitivity cardiac troponins in acute cardiac care. Eur Heart J 2012;33:2001-6
2. ACCF 2012 expert consensus document on practical clinical considerations in the interpretation of troponin elevations. Journal of the American College of Cardiology 2012;60: 2427-2444
3. Reichlin T, et al: Utility of absolute and relative changes in cardiac troponin concentrations in the early diagnosis of acute myocardial infarction. Circulation 2011; 124: 136-145
4. Roche troponin T hs STAT package insert, 2013-08, V8
5. EH laboratory communication for implementation of new high sensitivity troponin I assay across province