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DynaLIFE MEDICAL LABS

Laboratory Bulletin

Date: **November 3, 2020 [Update to November 2, 2020 Lab Bulletin]**
To: **Edmonton Zone – Physicians, Nurses, Laboratory Directors, and Managers**
From: **Alberta Precision Laboratories (APL) and DynaLIFE Medical Labs**
Re: **Implementation of high sensitivity troponin testing in Edmonton Zone**

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Key Message:

- Effective **November 9th, 2020 at 10:00 AM**, high sensitivity troponin I (hsTnI) will be implemented across multiple hospital sites in the Edmonton Zone.
- The changes will involve new units (ng/L), 99th percentile upper reference limits, reporting limits, delta values, and interpretative comments (see Table 1; click here for more details: hsTnI Survival Guide).
- Reporting is consistent with clinical practice guidelines and is supported by a joint Alberta Health Services (AHS)/APL working group representing Cardiology, Emergency Medicine, and Laboratory Medicine within Edmonton Zone*.
- Hospital sites using conventional troponin assays will remain the same, except for the units. These sites will transition to ng/L to standardize with the Edmonton Zone (Table 1).
- DynaLIFE base laboratory will also transition to a new hsTnI assay and will report values using ng/L and a new 99th percentile upper reference limit (Table 1).

Why this is important:

- Implementation of hsTnI will allow use of a rapid chest pain pathway in the Emergency Department to rapidly rule-in / rule-out acute myocardial infarction (AMI). (Figure 1, and pathway details in the hsTnI Survival Guide).
- These changes will assist clinicians with evidence-based interpretation of troponin results and guide optimal patient management in conjunction with a multi-disciplinary chest pain pathway.

Background:

- Evidence supports Beckman hsTnI assay use in rapid diagnostic decisions for patients presenting with chest pain and shows excellent clinical sensitivity at low levels to rule out AMI. Studies further support serial troponin measurements to calculate delta values at 0 and 3h intervals to rule in or exclude AMI (Figure 1).
- While hsTnI has shown improved diagnostic performance compared to conventional troponin assays, hsTnI results should not be used alone to exclude all AMI presentations.
- Additionally, elevated hsTnI may not always represent AMI and could be due to other causes of myocardial injury. Therefore, clinical judgment is essential to ensure safe patient management.
- To support appropriate interpretation of troponin results across Edmonton Zone, all troponin results will be reported in **ng/L**. A comment will be appended with the result to identify method used. Different methods produce different values and are not interchangeable. Troponin should only be compared with the same method.

- For hospital sites using hsTnI, the delta value will be calculated automatically as the absolute difference between a previous troponin on the same patient using the same method within the past 6 hours.
- For sites using the conventional troponin method, do not use the rapid chest pain pathway as it is only designed for sites using the Beckman hsTnI assay.
- For troponin collected in the outpatient/community setting, elevated troponin levels will be phoned to the ordering provider based on the following criteria:
    - Hospital sites using Beckman hsTnI: >100 ng/L
    - Hospital sites using Siemens Stratus conventional troponin: >150 ng/L
    - DynaLIFE base lab using Siemens Atellica hsTnI: >45 ng/L

Action Required:

- Be familiar with laboratory reporting changes and different troponin methods used across sites. Do not interpret results across sites with different methods. Results can differ significantly.
- Hospital users of the Beckman hsTnI assay should be familiar with the Edmonton Zone rapid chest pain pathway and interpretative comments (hsTnI Survival Guide).

Inquiries and feedback may be directed to:

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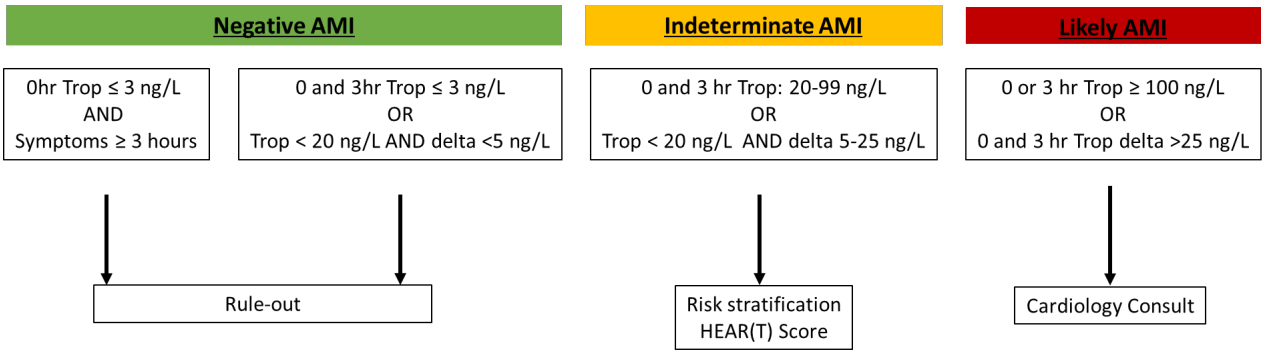
Table 1

New reporting scheme for in-hospital and community hsTnI in Edmonton Zone

Troponin Testing Site	High sensitivity troponin?	99th percentile upper limit		Reporting Limits		Delta values
		Current (µg/L)	New (ng/L)	Current (µg/L)	New (ng/L)	
University of Alberta	Yes Method: Beckman hsTnI	≤0.15	<20	0.10 to 27	3 to 27,000	Yes See hsTnI Survival Guide
Royal Alexandra Grey Nuns Misericordia Sturgeon Leduc Northeast Strathcona Westview		≤0.04		0.04 to 27		Yes See hsTnI Survival Guide
Devon East Edmonton Fort Saskatchewan Redwater	No Method: Siemens Stratus Conventional Troponin I	≤0.15	≤150	0.10 to 27	100 to 27,000	Not calculated
DynaLIFE base lab	Yes Method: Siemens Atellica hsTnI	≤0.15	≤45	0.10 to 25	3 to 25,000	Not calculated

Figure 1

The new reporting scheme supports the following chest pain pathway which outlines the risk management of patients presenting with suspected AMI to acute care setting (see hsTnI Survival Guide for more details)



References

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2. Greenslade, J., et al., Evaluating Rapid Rule-out of Acute Myocardial Infarction Using a High-Sensitivity Cardiac Troponin I Assay at Presentation. Clinical chemistry, 2018. 64(5): p. 820-829.
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