

DATE:	2021 October 4
TO:	Lethbridge and Area Physicians, Nursing Staff and Laboratory Staff
FROM:	Clinical Biochemistry, South Sector, Alberta Precision Laboratories (APL)
RE:	Change in Chemistry Analyzers at Chinook Regional Hospital (CRH)

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Key Message

- Effective **OCTOBER 13, 2021**, the newest generation of Roche Chemistry analyzers (Cobas® Pro) will be implemented in the CRH hospital laboratory to replace the aging Siemens Vista® chemistry analyzers.
- The new Chemistry analyzers allow adoption of provincially harmonized reference intervals for a number of routine chemistry tests.
- New tests NT-proBNP and High Sensitivity Troponin T assays will replace current BNP and Troponin I at CRH
- High Sensitivity Troponin T will replace the conventional Troponin I assay, thus Troponin I will no longer be available at CRH. Sites referring testing to CRH will also receive High Sensitivity Troponin T.

Reportable ranges and Interpretation

- Interpretive comments will be provided for all High Sensitivity Troponin T results, as shown in the Appendix.
- Lower and upper reportable limits of certain analytes will be affected. Please contact your local laboratory with any questions. Specifically, High Sensitivity Troponin T and NT-proBNP cut points are as follows:

Analyte	Detection Limit	Reference Interval	Critical Value														
hsTroponin T	3 ng/L	14 ng/L (99 th Percentile)	52 ng/L *														
NT-proBNP	5 ng/L	<table border="1" style="width: 100%;"> <thead> <tr> <th>Age Range</th> <th>Result (ng/L)</th> </tr> </thead> <tbody> <tr> <td>< 1 year</td> <td>54 - 556</td> </tr> <tr> <td>1 – 2 years</td> <td>39 - 578</td> </tr> <tr> <td>2 – 6 years</td> <td>20 - 565</td> </tr> <tr> <td>6 – 12 years</td> <td>10 - 340</td> </tr> <tr> <td>12 - 17 years</td> <td>6 - 216</td> </tr> <tr> <td>≥ 18 years</td> <td>0 - 300</td> </tr> </tbody> </table>	Age Range	Result (ng/L)	< 1 year	54 - 556	1 – 2 years	39 - 578	2 – 6 years	20 - 565	6 – 12 years	10 - 340	12 - 17 years	6 - 216	≥ 18 years	0 - 300	None
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* **Note:** Critical value for High Sensitivity Troponin T will only be called for community/outpatients.

Why this is Important

- Implementation of new chemistry equipment at CRH will affect many reference intervals and reportable ranges.
- Patients being monitored long term will require re-baselining for long term follow up.
- This change is in part due to the provincial standardization of general chemistry platforms in hospital laboratories, and is made with the intent to ease transition to Connect Care in the near future by harmonizing reference intervals and testing methodologies prior to Connect Care go-live.

Action Required

- Please be aware of these changes with implementation of the new chemistry analyzers.
- When ordering NT-proBNP or Troponin in Meditech, note the changes below. For all other routine chemistry tests, no changes are required.
 - NT-proBNP: **BNPNT**
 - High Sensitivity Troponin T:
 - Inpatient/ED: **TROPTHs**
 - Outpatient/Community: **TROPTHs1**
- It is recommended to establish a new baseline for all analytes, even if the reference intervals remains the same.
- Educational materials, including a recorded rounds presentation, for interpretation of NT-proBNP and High Sensitivity Troponin T will be made available.



Inquiries and feedback may be directed to

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This bulletin has been reviewed and approved by

- Krishna Narra, MD, Medical Director, Chinook Regional Hospital
- Hossein Sadrzadeh, PhD, Section Chief, Clinical Biochemistry, South Sector
- Paul Klonowski, MD, Associate Medical Director, South Sector

Appendix A:

High Sensitivity Troponin T results for patients in hospital will be accompanied by the following interpretive comments, based on the result range indicated.

Troponin Result (ng/L)	Hospital Patient Comment
< 5	For patients with a non-ischemic ECG, a Troponin T, High Sensitivity of 4ng/L or less on presentation is highly sensitive for excluding acute myocardial infarction, provided the specimen was collected more than 3-hours from symptom onset. However, for patients with symptoms less than 3-hours duration or concerning clinical presentations, repeat troponin testing at 2-hours after the initial sample is recommended.
5 to 13	<p>Troponin T, High Sensitivity is below the upper reference limit (14 ng/L) and results are not consistent with myocardial infarction or injury. However, patients with acute symptoms (less than 6-hours) or concerning clinical presentations should undergo repeat troponin testing at 2-hours after the initial sample.</p> <ul style="list-style-type: none"> • A 2-hour change of 3 ng/L or less is highly sensitive for excluding acute myocardial infarction. • A 2-hour change of 4-9 ng/L may indicate acute myocardial injury. Repeat clinical evaluation, ECG and troponin at 4-hours after the initial sample is recommended. • A 2-hour change of 10 ng/L suggests an acute myocardial injury and may represent acute myocardial infarction in the appropriate clinical scenario. <p>Please note that patients with ischemic ECG changes and/or high-risk clinical presentations should be considered for further evaluation irrespective of troponin results.</p>
14 to 52	<p>Troponin T, High Sensitivity has a non-specific/non-diagnostic elevation. Interpretation is highly dependent on clinical presentation and patient history. New elevations are concerning; however, many patients have chronic elevations in troponin and measured concentrations near the patient's baseline are reassuring.</p> <p>Patients with acute symptoms (less than 6 hours) or concerning clinical presentations should undergo repeat troponin testing at 2-hours after the initial sample.</p> <ul style="list-style-type: none"> • A 2-hour change of 3 ng/L or less suggests acute myocardial infarction is unlikely. • A 2-hour change of 4-9 ng/L may indicate acute myocardial injury. Repeat clinical evaluation, ECG and troponin at 4-hours after the initial sample is recommended. • A 2-hour change of 10 ng/L suggests an acute myocardial injury and may represent acute myocardial infarction in the appropriate clinical scenario. <p>Please note that patients with ischemic ECG changes and/or high-risk clinical presentations should be considered for further evaluation irrespective of troponin results.</p>
≥ 53	Clear elevation of Troponin T, High Sensitivity consistent with acute myocardial injury or infarction in the appropriate clinical context. Repeat troponin testing at 2-hours after the initial sample may be helpful to assess for ongoing myocardial injury.



Appendix B:

High Sensitivity Troponin T results for patients in the community will be accompanied by the following interpretive comments, based on the result range indicated.

Troponin Result (ng/L)	Community Patient Comment
< 14	<p>Troponin T, High Sensitivity is below the upper reference limit (14 ng/L) and results are not consistent with myocardial infarction or injury, provided the specimen was collected more than 6-hours from the onset of symptoms.</p> <p>Patients with active symptoms, ischemic ECG changes and/or concerning clinical presentations should be considered for urgent evaluation irrespective of troponin results.</p>
14 to 52	<p>Troponin T, High Sensitivity has a non-specific/non-diagnostic elevation. Interpretation is highly dependent on clinical presentation and patient history. New elevations are concerning; however, many patients have chronic elevations in troponin and measured concentrations near the patient's baseline are reassuring.</p> <p>Patients with active symptoms, ischemic ECG changes and/or concerning clinical presentations should be considered for urgent evaluation irrespective of troponin results.</p>
≥ 53	<p>Clear elevation of Troponin T, High Sensitivity consistent with myocardial injury or infarction. Interpretation is highly dependent on clinical presentation and patient history. Many patients have chronic elevations in troponin and measured concentrations near the patient's baseline are reassuring. New troponin elevations are concerning and urgent assessment in an emergency department may be indicated in the appropriate clinical context.</p>