

DATE:	2021 November 15
TO:	Grande Prairie Regional Hospital and North Zone Peace Region Clinicians
FROM:	Clinical Biochemistry, North Sector, Alberta Precision Laboratories (APL)
RE:	Implementation of New Chemistry Analyzers at Grande Prairie Regional Hospital (GPRH)

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Key Message:

- Effective **December 4, 2021**, the newest generation of Roche Chemistry analyzers (Cobas® Pro) will be implemented in the Grande Prairie Regional Hospital (GPRH) laboratory.
- New tests NT-proBNP and High Sensitivity Troponin T (hsTNT) assays will replace current BNP and conventional Troponin I tests.
- Peace Region referral sites to GPRH will have the option to order hsTNT through Connect Care with a routine turn around time.
- Rural routine chemistry tests will begin to be tested on the new Roche Chemistry Analyzers on November 29, 2021.

Reportable ranges

- Interpretive comments will be provided for all hsTNT results, as shown in the Appendix.
- Lower and upper reportable limits of certain analytes will be affected. Specifically, hsTNT 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	Age Range	Result (ng/L)	None
		< 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			

* Note: **Critical value for hsTNT will only be called for community/outpatients.**

Why this is Important:

- Implementation of new chemistry equipment at GPRH will affect some reference intervals and reportable ranges. A separate laboratory change document will be issued prior to GPRH opening.
- 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.



Action Required:

- Ordering practices:
 - GPRH: Any troponin order originating from within the facility will default to hsTNT.
 - Peace Region Referral sites to GPRH: All conventional troponin orders will default to on site testing. If a hsTNT is ordered, it will default to GPRH with a routine TAT.
- When ordering BNP, the test will default to the local on site test, whether NT-proBNP or conventional BNP.
- 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 hsTNT will be made available.

Inquiries and feedback may be directed to:

- Dustin Proctor, Biochemist, North Sector, Alberta Precision Laboratories.
- A. Brent Mendez, Regional Lab Medicine Site Chief, Queen Elizabeth II Hospital/Grande Prairie Regional Hospital, 780-538-7417, allen.mendez@aplabs.ca, Alberta Precision Laboratories.

This bulletin has been reviewed and approved by:

- Kareena Schnabl, Section Chief Biochemistry North Sector, Alberta Precision Laboratories.
- Michael Mengel, North Sector Medical Director, Alberta Precision Laboratories.

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	<p>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.</p>
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>



<p>14 to 52</p>	<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>
<p>≥ 53</p>	<p>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.</p>

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.

<p>Troponin Result (ng/L)</p>	<p>Hospital Patient Comment</p>
<p>< 14</p>	<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>
<p>14 to 52</p>	<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>
<p>≥ 53</p>	<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>