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Laboratory Bulletin

DATE:	20 October 2025
TO:	Northern Lights Regional Hospital Healthcare Providers
FROM:	Clinical Biochemistry, Alberta Precision Laboratories
RE:	**Implementation of New Chemistry Analyzers at Northern Lights Regional Hospital (NLRH)**

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Key Message

- Effective 21 October 2025, new Roche Cobas® Pure chemistry analyzers will be implemented in the Northern Lights Regional Hospital (NLRH) laboratory for specified blood testing (Appendix 1).
- There will be several changes:
    - Change to troponin testing, including collection container with implementation of High Sensitivity Troponin T (hs-TnT) (Appendix 2) and 2 -hour Chest Pain Pathway for Troponin T- High Sensitivity (Appendix 3)
    - Reference intervals and reporting limits changes for select analytes (Appendix 4)
- Results for several tests will change significantly due to differences in methodology, and/or container types between current chemistry and new chemistry analyzers (Appendix 5)
- Changes to body fluid, cerebral spinal fluid (CSF), urine, and specified analytes in blood will remain on current testing platform (Appendix 1). These tests will transition at a later date (to be determined)

Background

- This change is part of a large-scale provincial standardization effort to implement Roche chemistry analyzers in urban hospital laboratories across Alberta, which will benefit patients by standardizing laboratory practice and reporting components such as tests, reference intervals and reporting comments.

How this will impact you

- Patients being monitored may require re-baselining for some tests for long term follow-up
- Implementation of hs-TnT supports application of the 2 -hour Chest Pain Pathway for Troponin T- High Sensitivity with rapid rule-in/rule-out for chest pain.

Action Required

- Be aware of changes outlined in Appendices 1-5 with implementation of Roche chemistry analyzers.
- Collect samples for hs-TnT in Barricor PST (lime green tubes) (Appendix 2, Figure 1)
- There are no changes to ordering in EPIC.

Effective **21 October 2025**

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Questions/Concerns

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- Dr. Janet Zhou, Clinical Biochemist, APL | 825-963-5137; janet.zhou@aplabs.ca
- Cardiovascular PIN CardiovascularPIN@acutecarealberta.ca
    - Questions regarding troponin testing, and 2 -hour Chest Pain Pathway

Approved by

- Dr. Kareena Schnabl, Clinical Biochemistry Section Chief, APL
- Dr. Michael Mengel, North Sector Medical Director, APL

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Appendix 1. Implementation of testing Roche Cobas® Pure chemistry analyzers

Table 1. Test menu testing platform as of 21 October 2025

Roche Cobas® Pure	Siemens Dimension EXL-200
Blood • Acetaminophen • Albumin • Alkaline phosphatase (ALP) • Alanine aminotransferase (ALT) • Aspartate aminotransferase (AST) • Beta hCG, Quantitative • Bilirubin, Conjugated • Bilirubin, Total • Calcium • Chloride • Creatine kinase (CK) • Carbon dioxide • Creatinine • CRP • Ethanol • Gamma glutamyl transferase (GGT) • Glucose • Lactate dehydrogenase (LD) • Lipase • Magnesium • NT-proBNP • Phosphate • Potassium • Salicylate • Sodium • Troponin T, High Sensitivity (hs-TnT) • Total protein • Urate • Urea • Vancomycin	**Blood** • Ammonia • Carbamazepine • Digoxin • Iron Overdose • Lithium • Phenytoin **Body Fluid** • Albumin, Body Fluid • Lactate dehydrogenase (LD), Body Fluid • Protein Total, Body Fluid • Urate, Body Fluid **CSF** • Protein Total, CSF • Glucose, CSF **Urine** • Creatinine, Urine • Potassium, Urine • Protein Total, Urine • Sodium, Urine

Appendix 2. Reporting changes for troponin

Table 2. Summary of reporting changes with Roche hs-TnT

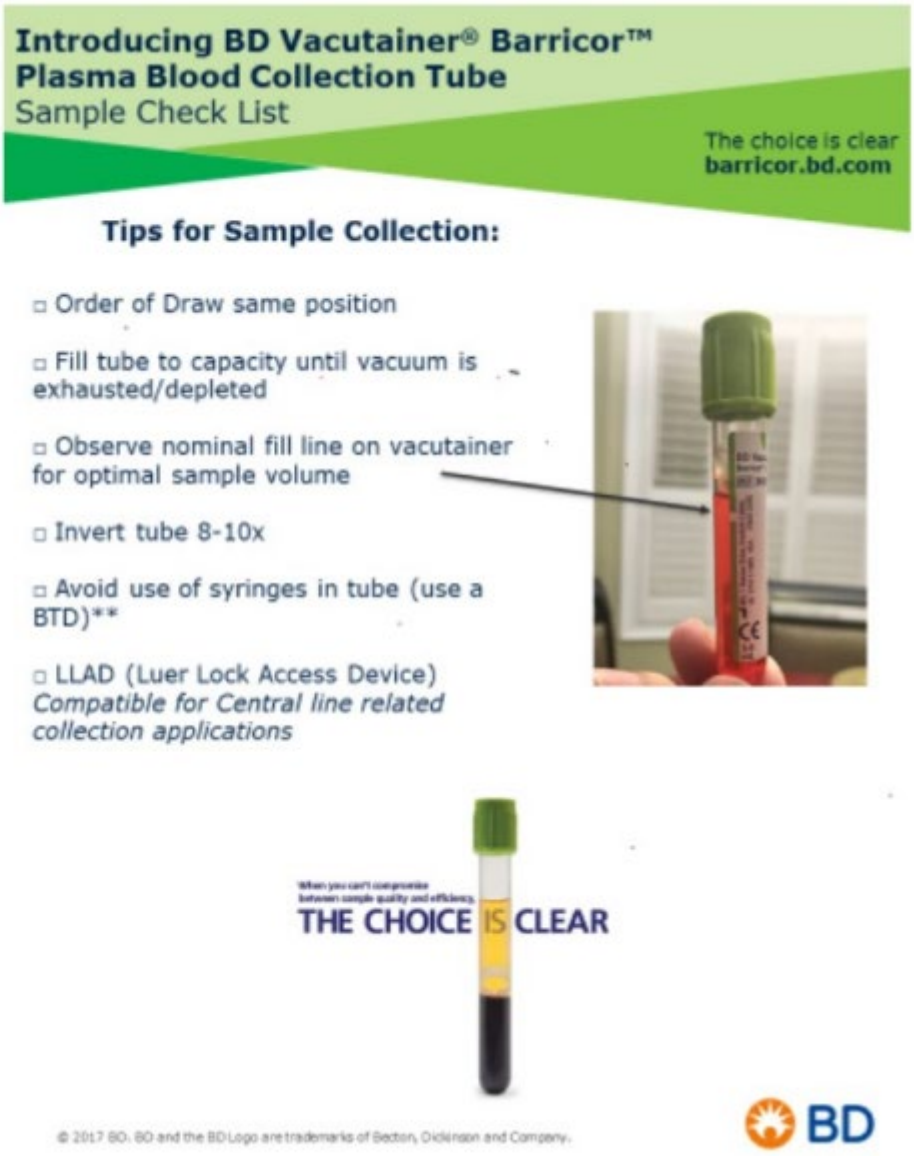
	Siemens Troponin I (Current)	Roche hs-TnT	Notes
Collection tube	Lithium heparin PST (light green)	Barricor PST (lime green)	
Rapid Chest Pain Pathway	N/A	2- hour	See appendix 2
Units	ug/L (2 decimals)	ng/L (whole numbers)	Adoption of high sensitivity troponin units (change by factor of 1000)
Reference Interval	< 0.15 ug/L	< 14 ng/L	99th percentile of assay Values above this limit will be flagged as high
Critical Value	N/A	> 52 ng/L	Only outpatient/community troponin critical values will be phoned to the ordering provider
Reporting limits	0.02 – 40.00 ug/L	3 – 100 000 ng/L	Reportable range extended
Delta Value	None	Reported for 0-2 hour delta	Reported if a previous hs-TnT value on the same patient and same method is within 4 hours
Comments	Method identification comments	Pathway interpretative comments And Method identification comments	Interpretative comments: Table 2

Table 3: Interpretative comments reported with Roche hs-TnT

hs-TnT result (ng/L)	Comment	Flagging
<5	For patients with a non-ischemic ECG, a Troponin T, High Sensitivity of 4 ng/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. Please note that patients with ischemic ECG changes and/or high-risk clinical presentations should be considered for further evaluation irrespective of troponin results	**Normal**
5-13	Troponin T, High Sensitivity is below the upper reference limit (14 ng/L) and results are not consistent with myocardial infarction or injury.	**Normal**

	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. • 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. Please note that patients with ischemic ECG changes and/or high-risk clinical presentations should be considered for further evaluation irrespective of troponin results.	
14-52	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. Patients with acute symptoms (less than 6 hours) or concerning clinical presentations should undergo repeat troponin testing at 2-hours after the initial sample. • 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. Please note that patients with ischemic ECG changes and/or high-risk clinical presentations should be considered for further evaluation irrespective of troponin results.	**High**
> 52	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.	**Critical**

Figure 1. Collection in Barricor blood collection tubes



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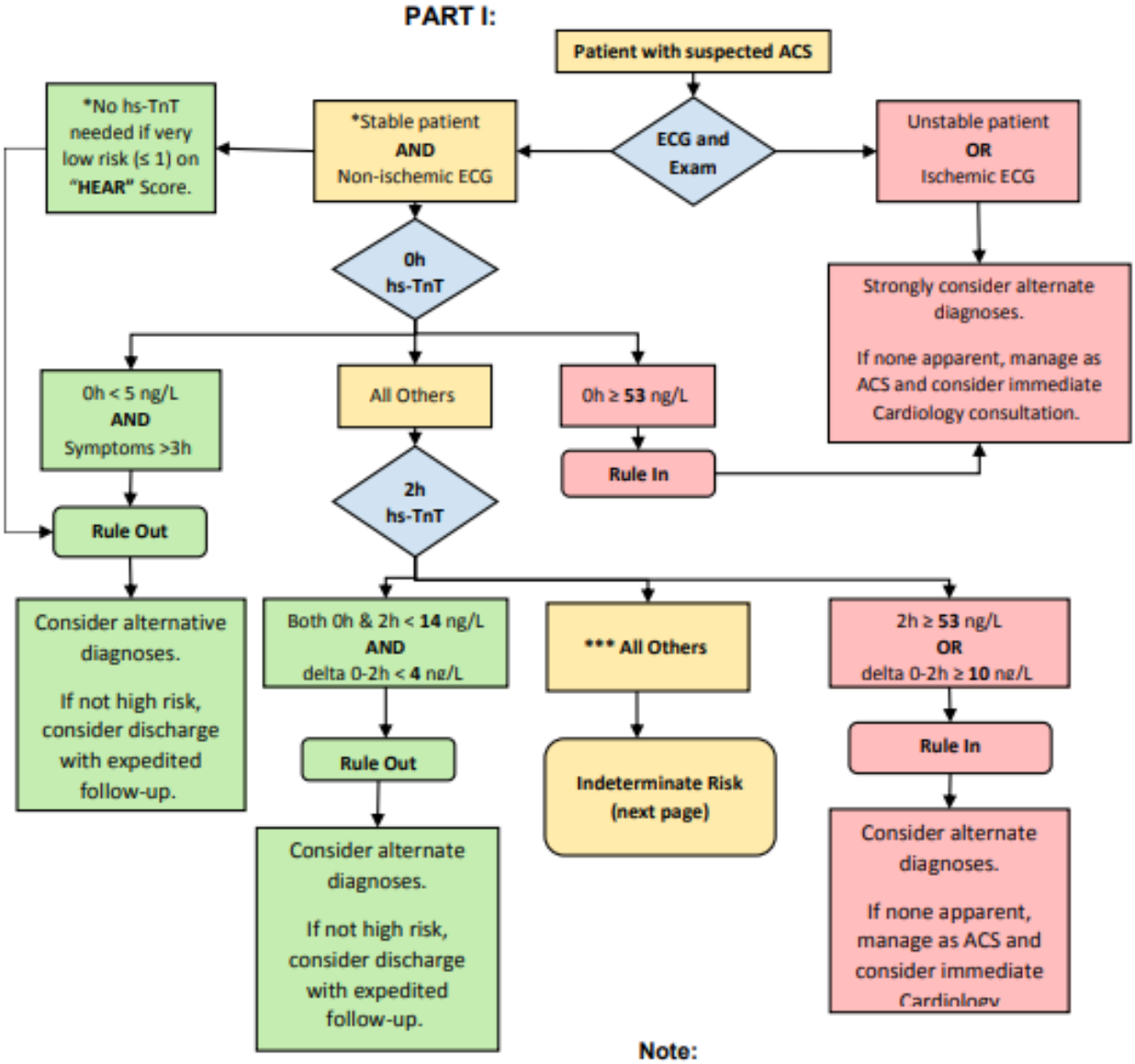
Appendix 3. 2-Hour Chest Pain Pathway for Troponin T – High Sensitivity (hs-TnT) Roche



HEAR* Score (0-1 = low risk)			
History		Highly suspicious	2
		Moderately suspicious	1
		Slightly suspicious	0
ECG		Significant ST-depression	2
		Non-specific repolarization disturbance, LBBB, LVH, Paced	1
		Normal	0
Age		≥ 65 years	2
		45 – 64 years	1
		≤ 44 years	0
Risk Factors	☐ Diabetes ☐ Current smoker ☐ HTN (diagnosed) ☐ HL (diagnosed) ☐ Family hx CAD ☐ Obesity	≥ 3 risk factors or history of atherosclerotic disease	2
		1 or 2 risk factors	1
		No risk factors known	0

Note:

* Consider using a structured risk assessment tool such as the HEAR (HEART without the TnT testing) to aid decision making for **very low** risk patients.

** For all patients with abnormal hs-TnT results, check the medical record for prior results. Many patients have stable abnormalities in hs-TnT and measured concentrations similar to the patient's baseline are reassuring.

*** The **indeterminate risk pathway** arm relies on expert opinion, the experience in Calgary, and our Edmonton Zone hs-TnI chest pain pathway (initiated 2019). It aligns with

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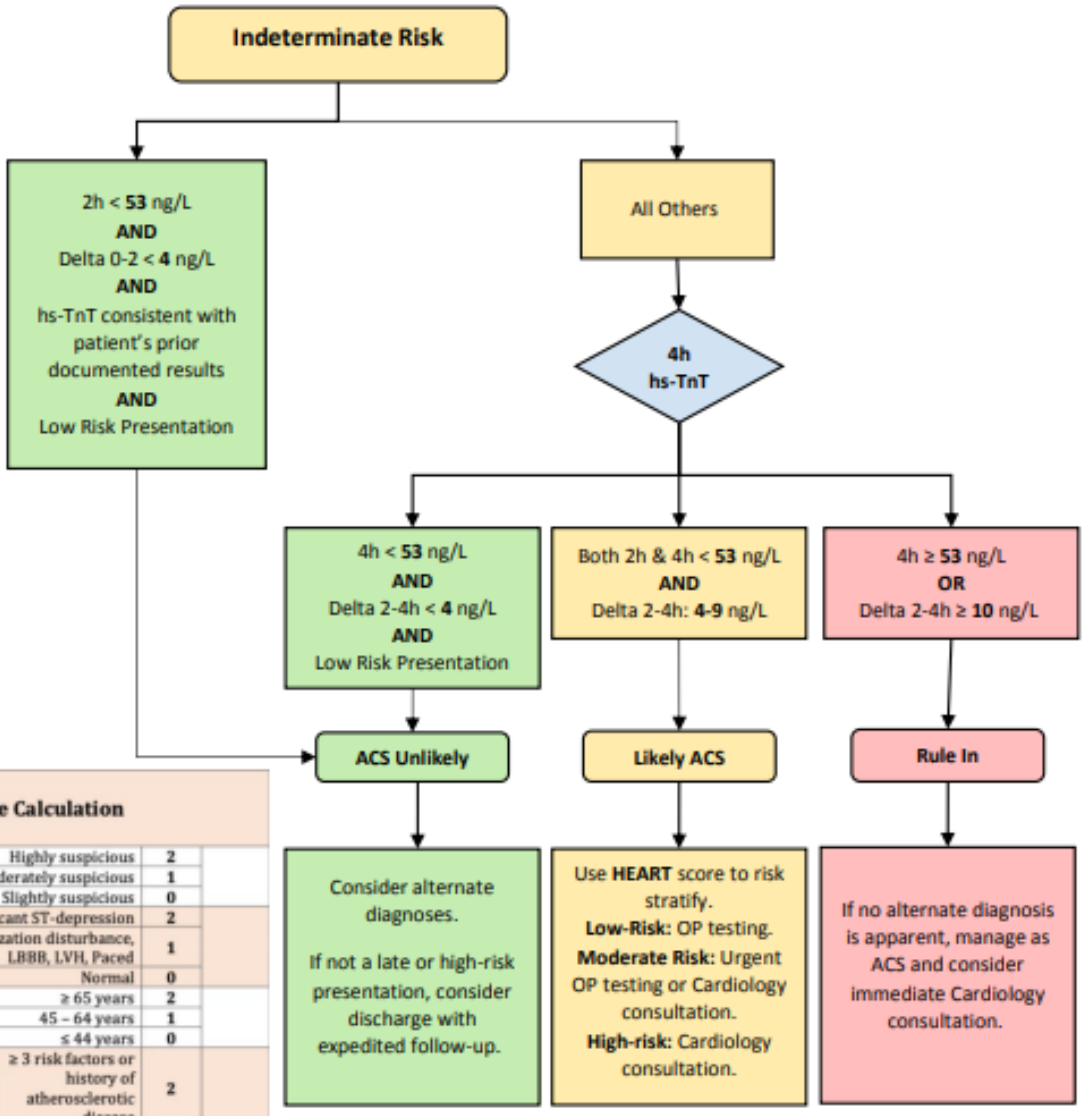
PART II: Intermediate Risk



HEART Score Calculation			
History	Highly suspicious		2
	Moderately suspicious		1
	Slightly suspicious		0
ECG	Significant ST-depression		2
	Non-specific repolarization disturbance, LBBB, LVH, Paced		1
	Normal		0
Age	≥ 65 years		2
	45 – 64 years		1
	≤ 44 years		0
Risk Factors	☐ Diabetes ☐ Current smoker ☐ HTN (diagnosed) ☐ HL (diagnosed) ☐ Family hx CAD ☐ Obesity	≥ 3 risk factors or history of atherosclerotic disease	2
		1 or 2 risk factors	1
		No risk factors known	0
hs-cTnT (Peak)	> 3x normal limit (43ng/L or greater)		2
	1-3x normal limit (14-42ng/L)		1
	< normal limit (<14ng/L)		0
		Total (10 maximum)	

HEART Score Interpretation	
Low Risk	0-3
Moderate Risk	4-6
High Risk	7-10

Note:

* Consider using a structured risk assessment tool such as the HEART score to aid decision making for all patients without indications for Cardiology consultation.

** For all patients with abnormal hs-TnT results, check the medical record for prior results. Many patients have stable abnormalities in hs-TnT and measured concentrations similar to the patient's baseline are reassuring.

***The **indeterminate risk pathway** arm relies on expert opinion, the experience in Calgary, and our Edmonton Zone hs-TnI chest pain pathway (started 2019). It aligns with current guideline recommendations.

Appendix 4. Reference interval and reporting limit changes with Roche chemistry analyzers

Table 4. Summary of changes to reference intervals

Test	units	Current Reference Interval		New Reference interval (Roche Cobas® Pure)	
Bilirubin, Neonatal (NBIL)	µmol/L	< 30 d	≤ 300	**Age** < 7d 7 to 14 d 15 to 29 d	**Interval** No range < 250 < 20
Calcium	mmol/L	**Age** 0 to 10 d 11 d to 364 d ≥ 1 y	**Interval** 1.80 – 2.70 2.20 – 2.70 2.05 – 2.45	**Age** < 7d 7 to 14 d 15 to 29 d	**Interval** 1.80 – 2.90 2.20 – 2.80 2.10 – 2.60
Glucose, Fasting	mmol/L	**Age** < 30 d ≥ 30 d	**Interval** 2.5 – 5.5 3.3 – 6.0	**Age** < 72 h ≥ 72 h	**Interval** 2.6 – 5.5 3.3 – 6.0
Glucose, Random	mmol/L	**Age** < 30 d ≥ 30 d	**Interval** 2.5 – 11.0 3.3 – 11.0	**Age** < 72 h ≥ 72 h	**Interval** 2.6 – 11.0 3.3 – 11.0
NT-proBNP	ng/L	No reference interval reported		**Age** < 1 y 1 y 2 to 5 y 6 to 11 y 12 to 17 y ≥ 18 y	**Interval** 54 - 556 39 - 578 20 - 565 10 - 340 6 - 216 0 - 300
		Note: no change to interpretative comment			
Troponin T, High Sensitivity (hs-TNT)	**Refer to Appendix 2**				

Note: for analytes not listed, there is no change to reference intervals

Table 5. Summary of changes to reporting limits

Test	Units	Current reporting limits	New reporting limits (Roche Cobas® Pure)
Acetaminophen	µmol/L	33 – 39 708	33 - 6620
Alanine aminotransferase (ALT)	U/L	5 – 35 000	5 - 7000
Albumin	g/L	4.0 – 80.0	2 – 100
Alkaline phosphatase (ALP)	U/L	15 – 10 000	5 – 6000
Aspartate aminotransferase (AST)	U/L	5 – 20 000	5 – 7000
Beta hCG, Quantitative	IU/L	5 – 400 000	1 – 1 000 000
Bilirubin, Total	µmol/L	2 – 3424	2 - 3000
Bilirubin, Conjugated	µmol/L	1 – 1096	1 – 900
Calcium	mmol/L	1.25 – 6.38	0.20 – 5.00
Chloride	mmol/L	50 – 150	60 – 140
Creatine kinase (CK)	U/L	7 – 140 000	7 – 22 000
Carbon dioxide	mmol/L	5 – 45	2 – 50
Creatinine	µmol/L	13 – 7072	5 – 6000
C-Reactive protein (CRP)	mg/L	5 – 250	0.6 – 700.0
Ethanol	mmol/L	2.0 – 980	2 – 216
Gamma glutamyl transferase (GGT)	U/L	5 – 16 000	3 – 13 200
Glucose	mmol/L	0.1 – 417	0.5 – 83.2
Iron (iron overdose)	µmol/L	0.9 – 716	1 – 376
Lactate dehydrogenase	U/L	10 – 40 000	10 – 2500
Lipase	U/L	6 – 1875	3 – 3000
Magnesium	mmol/L	0.10 – 82.20	0.10 – 4.00
NT-proBNP	ng/L	5 – 35 000	5 – 70 000
Phosphate	mmol/L	0.16 – 8.70	0.10 – 10.00
Potassium	mmol/L	1.0 – 10.0	1.5 – 9.9
Salicylate	mmol/L	0.30 – 217.20	0.30 – 10.14
Sodium	mmol/L	50 – 200	80 – 180
Total protein	g/L	20 – 2280	2 – 300
Troponin	**Refer to Appendix 2**		
Urate	µmol/L	30 – 40 460	12 – 3700
Urea	mmol/L	0.4 – 160.8	0.8 – 100.00
Vancomycin	mg/L	5 – 150	4.0 – 160.0

Appendix 5. Approximate expected changes to results with the new Roche Cobas® Pure analyzers compared to the current method

Table 6. Approximate range of result changes compared to current method

Test	Approximate range of result changes	Notes
Alkaline phosphatase (ALP)	-10%	
Alanine aminotransferase (ALT)	-15%	
Beta hCG, Quantitative	+10% results 0-1000 IU/L -15% results >1000 IU/L	This is now the same assay used at Edmonton Base Lab. Note: suggest re-baselining if using as a tumour marker)
Bilirubin, Conjugated	-15%	For results > 40 µmol/L
Bilirubin, Total /Bilirubin, Neonatal	-10%	
Calcium	+0.05 to +0.20 mmol/L	See Appendix 4 for reference interval changes
Gamma glutamyl transferase	-20%	
Phosphate	-0.06 mmol/L	
Total Protein	-2.0 g/L	
Troponin T, High Sensitivity (hs-TNT)	Unable to compare numerical results between Troponin I and Troponin T, High Sensitivity	Refer to Appendix 2, 3 for reference interval and interpretation changes