

January 4, 2022

CLINICAL BIOCHEMISTRY

Lactate Dehydrogenase (LDH) Changes

Date effective: January 18, 2022

PURPOSE

The Lactate Dehydrogenase (LDH) assay in rural Manitoba is being changed and will now produce results that agree with the LDH assay in Winnipeg and Brandon. New harmonized reference intervals will be adopted across all Shared Health Clinical Laboratories for LDH on January 18, 2022.

BACKGROUND

- Lactate dehydrogenase (LD or LDH) is an enzyme that is present in almost all body tissues. LDH is a non-specific marker of tissue turnover, which is a normal metabolic process. Because LDH is non-specific, its measurements provide limited information.
- Hemolysis (*in vitro* or *in vivo*; RBCs contain LDH) and any cellular necrosis can lead to elevated LDH plasma concentrations.
- Main clinical utility of LDH is in the areas of hematology and oncology. Marked increases (50x ULN) are seen in megaloblastic anemias. In addition, it is used as *in vivo* hemolysis marker in HELLP syndrome or to predict disease activity in leukemia. LDH is a predictor of poor outcomes in many neoplastic conditions.

CHANGE IN TEST PROCEDURE - RURAL SITES

- New method will be implemented at all rural sites on January 18, 2022.
- Results from new method at rural sites will be ~ **60% lower** than current results.
- The new method is traceable to IFCC reference material and in good agreement with the method currently used in Winnipeg hospitals (WRHA) and Westman laboratory.
- Method/instrument specific differences may still be present and monitoring of oncology patients should be performed using the same assay type.

CHANGE IN REFERENCE INTERVALS – ALL SITES

- New harmonized reference intervals will be implemented across all Shared Health sites on **January 18, 2022** to reflect this change.

Current Reference Intervals (until January 18, 2022)		New Reference Intervals (from January 18, 2022)	
WRHA & Westman lab	Rural Sites	Shared Health	
0 – 4 w	290-800	0 – 4 w	632-1839
5 w – 12 m	180-450	5 w – 12 m	372-1011
13 m – 8 y	190-400	13 m – 8 y	395-892
9 – 14 y	190-325	9 – 14 y	395-715
15 – 16 y	130-280	15 – 16 y	253-608
17 – 50 y	63-200	17 – 50 y	95-419
≥51 y	120-230	≥17 y	100-250

REFERENCES

- Tate JR, Koerbin G, Adeli K. Opinion Paper: Deriving Harmonized Reference Intervals - Global Activities. EJIFCC. 2016 Feb 9;27(1):48-65.
- Ichihara K et al; Committee on Reference Intervals and Decision Limits, International Federation of Clinical Chemistry and Laboratory Medicine. A global multicenter study on reference values: 1. Assessment of methods for derivation and comparison of reference intervals. Clin Chim Acta. 2017 Apr; 467:70-82.
- Caliper database. <https://caliper.research.sickkids.ca/#/>
- Roche Cobas LDHI2 package insert
- Ortho Vitros LDHI instructions for use

PATIENT IMPACT

- Results for patients being monitored with LDH in rural sites will have lower values due to changes in the assay.
- Method/instrument specific differences may still be present and monitoring of oncology patients should be performed using the same assay type and laboratory. Patients should continue to use the same laboratory for ongoing monitoring.
- Harmonized assays and reference values will improve patient safety.

ADDITIONAL INFORMATION

Lab Information Manual:

- LACTATE DEHYDROGENASE (LD), WRHA & Westman Lab (ROCHE) - (P)
<https://apps.sbgf.mb.ca/labmanual/test/view?seedId=1481>
- LACTATE DEHYDROGENASE (LD), Rural Sites (ORTHO), excluding Westman Lab - (P)
<https://apps.sbgf.mb.ca/labmanual/test/view?seedId=18868>

CONTACT INFORMATION

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