Hemoglobin A1C: Change in Methodology

Laboratory Alliance of Central New York is pleased to announce a change in methodology for our hemoglobin A1C analysis. Effective July 10, 2018, hemoglobin A1C testing will be performed using the Siemens Dimension Vista immunoassay method. This change from HPLC ion-exchange chromatography to the new method allows us to decentralize testing and offer on-site analysis at our Crouse Health and St. Joseph's Health Rapid Response Laboratories (RRLs) as well as at the Operations Center in Liverpool. Furthermore, redundancy in instrumentation will minimize delays due to instrument downtime. Analysis for hospital patients will be available 24/7.

Although there are no changes to collection requirements or order codes, providers should be aware that there are potential minor differences in the results that they may receive from the new method. Both methods are NGSP-certified methods[1] and correlation between the two methods is good, with results from the new immunoassay method slightly higher within the normal range and slightly lower at markedly elevated levels. In keeping with a target range for hemoglobin A1C in non-diabetic adults of 4.0 – 6.0% of total hemoglobin, we will continue to use this range as the reference range established in our reporting system, with values outside of that range flagged as abnormal. Guidelines from the American Diabetes Association (ADA) for interpretation of hemoglobin A1C are presented in the table below.[2]

	A1C
Normal	less than 5.7%
Prediabetes	5.7% to 6.4%
Diabetes	6.5% or higher

The ADA also recommends that target ranges for hemoglobin A1C should be individualized for each diabetic patient.[3]

While the most common glycated hemoglobin beta-chain variants (Hemoglobins S, C, D and E) are measured by this assay, the result is for total glycated hemoglobin and there is not a mechanism to identify the presence of a beta-chain variant in a patient's sample. Glycated HbF ($\alpha_2\gamma_2$) is not measured by this assay.

Measured hemoglobin A1C can be falsely lowered in people with certain conditions, e.g. genetic hemoglobin variations, which alter the lifespan of red blood cells in the body.

Using the new method, the laboratory will no longer have the ability to alert providers to the presence of a hemoglobin variant in a patient's sample. If there are discrepancies noted between hemoglobin A1C and glucose results for a patient, additional or alternate diagnostic tests are available. Please contact the respective laboratory management staff at the performing location for additional information.

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For questions about hemoglobin A1C analysis at Laboratory Alliance, please contact Dr. Roy Huchzermeier at 315-410-7221 or RoyHuchzermeierPhD@lacny.com, or Cheryl Haskins at 315-410-7014 or CherylHaskins@lacny.com.

References:

1) When the NGSP began in 1996, it was originally called the "National Glycohemoglobin Standardization Program". As the program grew and became international in scope the official name was shortened to the acronym.
2) http://www.diabetes.org/diabetes-basics/diagnosis
3) American Diabetes Association. 6. Glycemic targets: Standards of Medical Care in Diabetes—2018. *Diabetes Care.* 2018;41(suppl 1):S55–S64.

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