

Dr. Randie Litt...: Hello, I'm Dr. Randie Little, and I'm happy to join you today to discuss various topics of hemoglobin A1C measurement, standardization, and hemoglobin variants.

The most common hemoglobin variants include hemoglobins S, C, D, and E. These are usually clinically silent in the heterozygous form. Analytical interference varies with a specific method and can cause inaccurate hemoglobin A1C results with some methods. With some methods such as iron exchange, HPLC, or capillary electrophoresis, you can see the presence of the hemoglobin variant. You cannot detect the presence of a variant with other method types, including immunoassay, boronate affinity HPLC, or enzymatic methods.

You can see a summary of hemoglobin variant interference on the NGSP website. Clicking on more comprehensive information will show the reference to back up each notation. Here's our most recent paper on hemoglobin variant interference with 15 different methods. We had a lot of help from manufacturers and laboratories to gather these samples and data.

Methods and variants are indicated on the X-axis. On the Y-axis is the difference between the test method and the reference method. There were only three methods in this study showing clinically significant interference from one or more of the most common variants. This is indicated by the asterisk above three of the error bars. Because of the high prevalence of hemoglobin variants, use of methods without interference is recommended.