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| **Name:** |
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| **Group:** |
| 6A-4 |
| **Basic Science Question:** |
| What is HbA1c? |
| **Report:** |
| HbA1c is a test that reflects the average blood glucose concentration over the past 8-12 weeks. It is used to manage diabetes and can also be used to diagnose diabetic and prediabetic patients.  HbA1c stands for glycated hemoglobin. In the blood, glucose binds to hemoglobin, a protein in red blood cells that carries oxygen, thus “glycating the hemoglobin”. The concentration of HbA1c depends on the amount of glucose in the blood and also the life span of red blood cells. Because red blood cells live about 120 days, the HbA1c test can tell us the average blood glucose concentration over the past 8-12 weeks. HbA1c is not affected by daily fluctuations in blood glucose concentration.  HbA1c can be used for diagnosis. A normal level of HbA1c is below 5.7%. In prediabetics, HbA1c levels are between 5.7% to 6.5%. In diabetic patients, HbA1c levels are 6.5% or more. The goal for adults with diabetes is less than 7%. The higher the HbA1c, the greater the risk for developing diabetic complications.  Generally, HbA1c is a great indicator for measuring the average glucose concentration over 8-12 weeks. However, there may be some limitations of HbA1c testing, such as in individuals with altered red blood cell life spans or with severe iron-deficient anemia. Race and age may also slightly impact HbA1c results. |
| **References:** |
| Little RR, Sacks DB. HbA1c: how do we measure it and what does it mean?. *Curr Opin Endocrinol Diabetes Obes*. 2009;16(2):113-118. doi:10.1097/MED.0b013e328327728d  Understanding A1c. *American Diabetes Association (ADA).* https://www.diabetes.org/a1c |