

Q: Which patients should be tested based on current guidance?

A: Standards of Medical Care in Diabetes 2018, published by the American Diabetes Association (ADA Standards), recommend testing all patients 45 years and older. Additionally, testing should be considered in at-risk patients including those who are overweight or obese and have, among other risk factors, high blood pressure; are physically inactive; a personal history of cardiovascular disease; or are African American, Latino, Native American, Asian American, or Pacific Islander. The Standards also advocate testing women with a history of gestational diabetes every three years for the remainder of their lives.¹

Q: I order hemoglobin A_{1c} for my patients with diabetes. Can I use the same test to screen and diagnose prediabetes?

A: Hemoglobin A_{1c} is one test that can be used. In addition to greater preanalytic stability and fewer day-to-day perturbations that may occur due to concurrent illness or stress, the test does not require fasting. However, it is important to note hemoglobin A_{1c} is an indirect measure of average blood glucose levels, and factors such as age, race/ethnicity, and anemia/hemoglobinopathies may independently affect hemoglobin glycation.

Unless there is a clear clinical diagnosis, current ADA Standards require confirmation of screening results. One option is to repeat hemoglobin A_{1c} on a second sample **or** confirm with two different glucose tests, hemoglobin A_{1c} and fasting plasma glucose, on the same sample.¹

Q: Can fasting plasma glucose (FPG) be utilized as an alternative?

A: FPG is a widely used glucose measurement and can be used as an alternative to screen and confirm prediabetes.² The same confirmation requirements set forth in the current ADA Standards also apply to utilization of FPG: repeat FPG to confirm screening values on a second sample **or** confirm with two different glucose tests, FPG and hemoglobin A_{1c}, on the same sample.¹

Q: What are the reference intervals for prediabetes and diabetes?¹

| | Prediabetes | Diabetes |
|----------------------------------|-----------------------|------------|
| Hemoglobin A_{1c} | 5.7% – 6.4% | ≥6.5% |
| Fasting Plasma Glucose | 100 mg/dL – 125 mg/dL | ≥126 mg/dL |

Q: Does current guidance recommend using a point of care hemoglobin A_{1c} to test for prediabetes?

A: Current ADA Standards do not recommend point of care testing for diagnostic purposes.¹

Q: Why does LabCorp’s diabetes risk assessment panel include both hemoglobin A_{1c} and fasting plasma glucose?

A: ADA Standards recommends confirmation of screening results by one of two approaches: repeat the same glucose measure on a second sample **or** utilize two different glucose measures on the same sample. With either approach, if results from both tests are concordant, the diagnosis is confirmed. However, if results are discordant, the test with the abnormal value should be repeated with attention given to a coexistent medical condition that may have introduced interference or a preanalytical sample problem.¹

Medical conditions that may interfere with hemoglobin A_{1c} results include situations of increased red blood cell turnover including hemodialysis, sickle cell disease, and pregnancy (second and third trimesters). In these situations, A_{1c} is not recommended to be used as a screening test.¹

A common preanalytical problem that produces erroneous FPG results occurs when there is a delay in centrifugation of the whole blood sample. Samples

drawn in a clinician's office on an outpatient basis are often held for batch-centrifugation prior to shipment to a reference laboratory for testing. This may lead to an erroneous decrease in measured glucose, potentially misclassifying patients as "normal" when a diagnosis of prediabetes or diabetes is warranted.² This single-sample, two-test approach to confirmation offers patient convenience and has demonstrated a high positive predictive value for subsequent diabetes diagnoses and association with significant risk for future cardiovascular disease, chronic kidney disease, peripheral artery disease, and death.³

References

1. Standards of Medical Care in Diabetes Care – 2018. American Diabetes Association. *Diabetes Care*. 2018;41:S1-S159.
2. Mardi C. Clinical, operational and financial perspectives of POC diabetes testings. *Medical Laboratory Observer*. June 2018 50(6): 8-12.
3. Selvin E, Wang D, Matsushita K et al. Prognostic implications of single-sample confirmatory testing for undiagnosed diabetes. *Ann Intern Med*. 2018: 1-9.



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