



How To Interpret A1C

An A1C of...	Equals an average plasma glucose (mg/dl) of...	Clinical Correlations
12%	345	Persons with uncontrolled diabetes are at increased risk for heart disease, kidney failure, blindness, neuropathy, limb amputation, sexual dysfunction, and premature death. Studies have shown even high levels of A1C can be brought down to 7% or below with intensive therapy. ¹
11%	310	
10%	275	
9%	240	Reducing A1C by just 1 point (e.g. from 9% to 8%) reduces risk of microvascular complications by 25% in type one diabetes (DCCT). ¹
8%	205	Reducing A1C by just 1 point (e.g. from 8% to 7%) reduces risk of microvascular complications by 35% in type two diabetes (UKPDS). ¹
7%	170	Keeping A1C under 7% significantly reduces risk of retinopathy and nephropathy.
6%	135	Lower A1C values are better for the health of patients with diabetes.

Causes of unexpectedly low A1C	Implications
Frequent hypoglycemia with rebound hyperglycemia	Taking a careful history and reviewing the patient's home monitoring log can help resolve discrepancies between measured A1C, glucose levels, and clinical symptoms.
Hemolytic anemia, blood loss	Test if indicated.
Pregnancy	Follow specific guidelines for managing diabetes in pregnancy.
Certain hemoglobinopathies	Trending may be more valuable than absolute values. Monitor symptoms and glucose testing records closely.

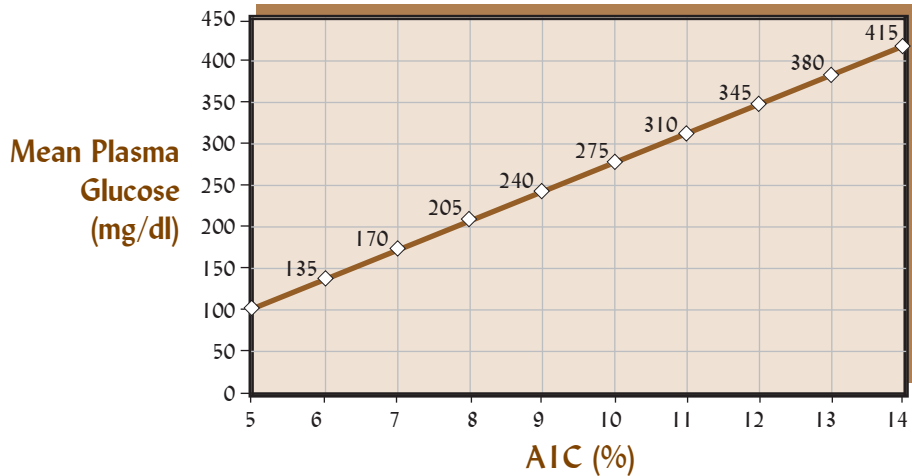
¹ Source: Diabetes Care 27:S15-S35, 2004.

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How To Interpret A1C (continued)

A1C (A-one-C) is now the preferred “short-hand” for referring to glycated hemoglobin (HbA1c). Using A1C avoids confusion with hematology tests (hemoglobin) and makes it easier for patients and clinicians to communicate.



An A1C of 5 corresponds to an average 3-month blood glucose of 100 mg/dl. Every 1% increase in A1C represents a 35 mg/dl increase in average blood glucose.

Causes of Unexpectedly Low A1C	Implications
<ul style="list-style-type: none"> ❖ Hemolysis, acute or chronic blood loss ❖ Congenital spherocytosis ❖ Certain hemoglobinopathies (HbS, HbC, HbD) ❖ <i>Treatment of low iron, folate, vitamin B12</i> (Associated with increased RBC turnover) ❖ Pregnancy ❖ Hypoglycemia unawareness ❖ Cirrhosis 	<ul style="list-style-type: none"> Test if indicated Test if indicated Following A1C trend may be more valuable Review history and med list Follow specific guidelines for managing DM in pregnancy Careful history, review of patient's glucose records Review history
Causes of Unexpectedly High A1C	Implications
<ul style="list-style-type: none"> ❖ Frequent hypoglycemia with rebound hyperglycemia ❖ Low iron, folate, vitamin B12 (Associated with decreased RBC turnover) ❖ End-stage renal disease ❖ Certain abnormal hemoglobins (HbF) ❖ Splenectomy ❖ Chronic excessive alcohol use ❖ Hypertriglyceridemia ❖ Polycythemia 	<ul style="list-style-type: none"> Careful history, review of patient's glucose records Test if indicated Following A1C trend may be more valuable Following A1C trend may be more valuable Review medical and surgical history Review history Review laboratory studies Review laboratory studies