How To Interpret A1C

An A1C of...	Equals an average plasma glucose (mg/dl) of...	Clinical Correlations
10%	240	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]
9%	212	Reducing A1C by just 1 point (e.g. from 9% to 8%) reduces risk of microvascular complications by 25% in Type 1 diabetes (DCCT).[1]
8%	183	Reducing A1C by just 1 point (e.g. from 8% to 7%) reduces risk of microvascular complications by 35% in Type 2 diabetes (UKPDS).[1]
7%	154	Keeping A1C under 7% significantly reduces risk of retinopathy and nephropathy.
6%	126	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.

For more information on eAG from the American Diabetes Association, visit
professional.diabetes.org/glucosecalculator.aspx

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

Estimated Average Glucose (eAG): A New Way to Talk to Patients about DM Management

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.

The American Diabetes Association (ADA) recommends the use of a new term in diabetes management, estimated average glucose, eAG. Health care professionals can now report A1C results to patients using the same units (mg/dl or mmol/l that patients see routinely in blood glucose measurements. To access the ADA's Glucose Calculator, visit *http://professional.diabetes.org/glucosecalculator.aspx*.

A1C	eAG	
%	mg/dl	mmol/l
6	126	7.0
6.5	140	7.8
7	154	8.6
7.5	169	9.4
8	183	10.2
8.5	197	11.0
9	212	11.8
9.5	226	12.6
10	240	13.4

The relationship between A1C and eAG is described by the formula 28.7 x A1C - 46.7 = eAG.

Causes of Unexpectedly Low A1C	Implications
❖ Hemolysis, acute or chronic blood loss	Test if indicated
❖ Congenital spherocytosis	Test if indicated
❖ Certain hemoglobinopathies (HbS, HbC, HbD)	Following A1C trend may be more valuable
❖ *Treatment of low iron, folate, vitamin B12* (Associated with increased RBC turnover)	Review history and med list
❖ Pregnancy	Follow specific guidelines for managing DM in pregnancy
❖ Hypoglycemia unawareness	Careful history, review of patient's glucose records
❖ Cirrhosis	Review history
Causes of Unexpectedly High A1C	**Implications**
❖ Frequent hypoglycemia with rebound hyperglycemia	Careful history, review of patient's glucose records
❖ Low iron, folate, vitamin B12 (Associated with decreased RBC turnover)	Test if indicated
❖ End-stage renal disease	Following A1C trend may be more valuable
❖ Certain abnormal hemoglobins (HbF)	Following A1C trend may be more valuable
❖ Splenectomy	Review medical and surgical history
❖ Chronic excessive alcohol use	Review history
❖ Hypertriglyceridemia	Review laboratory studies
❖ Polycythemia	Review laboratory studies

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