



NICOA's
*American Indians
and Diabetes Series*

Volume I-Number I

A Critical Issue:
Blood Sugar Control

by Kelly Acton, M.D.

A *personal story*
Vincent still can't believe how good he feels! When he was first told he had diabetes, Vincent, an enrolled tribal member from northern Montana, says, "I didn't take it seriously. I felt fine! I wasn't going to change the way I eat and live because of some number my doctor measured." But when his eye doctor found early changes due to diabetes in the back of his eye several years later, Vincent felt his attitude shift. "All of a sudden I was interested in hearing what I could do to save my eyes. My diabetes became real to me that day."

National Indian Council on Aging



Diabetes: Awareness and Control

Blood Sugar Control
Like Vincent, many people with high blood sugars don't feel that something is wrong with them so they choose to ignore it. But having a high blood sugar over a long period of time can lead to complications of diabetes: blindness, amputations, heart damage, kidney failure, nerve damage, blood vessel damage, and problems in other organs.

"My diabetes became real to me that day."

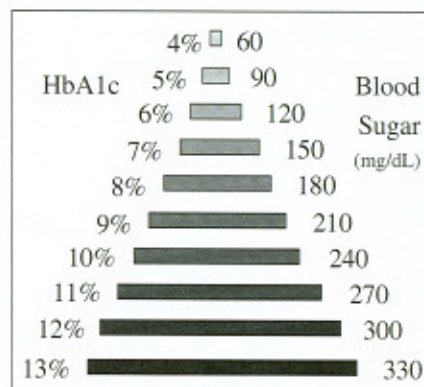
Lowering the risk for complications

Several large studies have shown that when people keep their blood sugar in the normal or near normal range, they develop fewer complications. In fact, a recent study of 5,102 patients with diabetes published in Great Britain showed that for every 1% decrease in Hemoglobin A1c level (a measure of blood sugar control which is explained below), there was a 35% reduction in the risk of complications.

How to Measure Blood Sugar Control: the Hemoglobin A1c Test

Hemoglobin A1c (HbA1c) is a measure of blood sugar control. HbA1c is a blood test that measures a person's level of blood sugar over the past 2-3 months. So if a person's average blood sugar over the past 2-3 months has been in the near normal

Comparison of HbA1c and Blood Sugar Levels



Higher HbA_{1c} equals higher blood sugar

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range, then the HbA1c should be 7% or less. If a person's average blood sugar has been in the 195-210 range, then the HbA1c will be 8.5-9.0%.

And if the average blood sugar has been very high - say around 350 - then the HbA1c will be about 12%. So this is a very helpful test for people with diabetes to set blood sugar goals.

Each year many IHS and tribal facilities participate in a medical record review of people with diabetes, to see how well diabetes is being cared for. Since 1994 the yearly average blood sugar in Indian health care settings (as measured by Hemoglobin A1c tests) has been coming down.

How to Control Blood Sugar

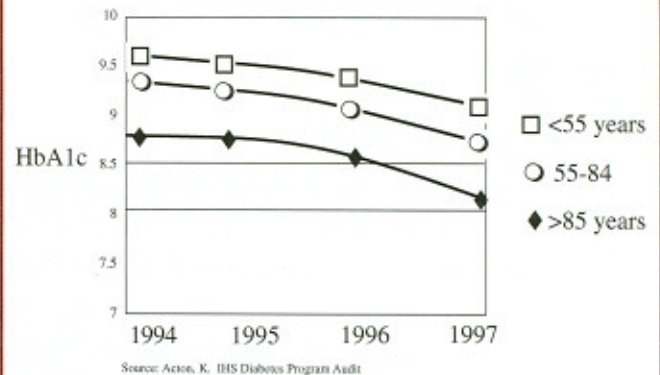
Many, but not all, people are able to control their diabetes with diet and exercise. The

American Diabetes Association recommends a low fat, high fiber diet in people with diabetes, and at least 30 minutes of aerobic exercise, such as walking, three times per week. For a significant number of people, though, diet and exercise aren't enough. There are now many medications on the market to treat diabetes besides insulin. The oral sulfonylureas --- like glyburide, tolinase, glipizide, and diabenese --- stimulate the body to produce more of its own insulin. Metformin, which was used in Europe and Canada for 25 years before it was released in the US in 1995, is especially useful in people who have a problem with overweight or obesity because it doesn't cause weight gain.

Troglitazone (Rezulin) is a new medicine that makes the body more sensitive to its own insulin. Acarbose (Precose) lowers the sugars after one eats a meal. And there are additional new drugs getting ready to be released for diabetes treatment.

What does this mean for the Indian person with diabetes? It means more options for controlling blood sugars.

Blood Sugar Control by Age-Group Over Time, 1994-1997



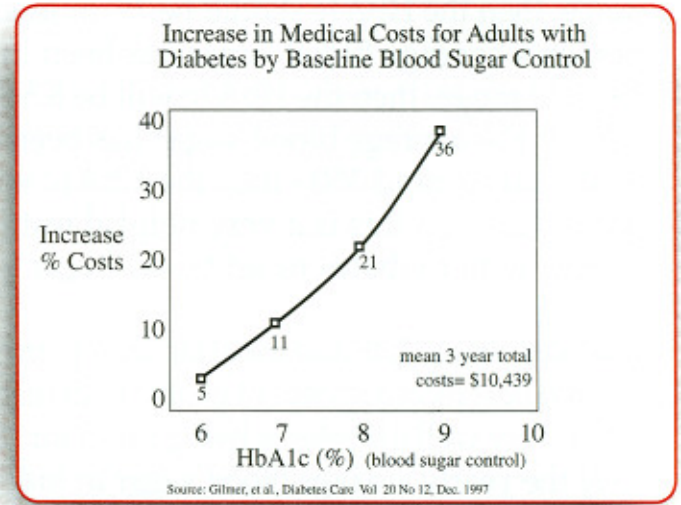
Diabetes audit shows improved blood sugar control

“What do these new medications mean for the Indian person with diabetes? It means more options for controlling blood sugars.”



The Cost of Poor Blood Sugar Control

A recent study was done looking at the cost of poor blood sugar control. They looked over a period of time at the HbA1c levels of clients and then added up what it cost to take care of them medically. The study showed that the patients with the highest blood sugars over time cost the most to care for. In fact, for every 1% rise in HbA1c (for example, from 8% to 9%), there was a 15% increase in the cost of medical care. The graph to the right shows the increase in costs as the HbA1c rises.



Cost directly related to level of blood sugar

his blood sugar in the normal range and he works hard to keep them there. "I knew all that stuff about cutting down my risk if I lowered my sugar. But I was surprised to find out how much better I feel with a normal blood sugar. I didn't even know that my high blood sugars were making me feel tired and grouchy. Now I have so much energy. I can even keep up with some of those younger guys on the basketball court!"

V

Vincent's Story

Vincent found out that by getting his blood sugar down to normal he had a very good chance of preserving his eyesight. He visited a nutritionist and then a diabetes educator to learn about ways to lower his blood sugar. He cut down on high fat foods, stopped drinking regular pop, and started walking nearly every day. He began taking his diabetes medications regularly and testing his blood sugars at home to see for himself how he is doing. Within three months Vincent's blood sugars were in the normal range and he was able to cut out one of the diabetes medications. He feels better having

Sponsors:

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