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Maintaining Control

Managing your Type 2 Diabetes

March 2011

What is Diabetes?

Treatment with Insulin & Diabetes Medications

Management of Diabetes with Nutrition and Physical Activity

Blood Sugar Testing

Diseases Linked to Diabetes

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Under the Canadian Constitution Act, 1982, the term Aboriginal Peoples refers to First Nations, Inuit and Métis people living in Canada. However, common use of the term is not always inclusive of all three distinct people and much of the available research only focuses on particular segments of the Aboriginal population. NAHO makes every effort to ensure the term is used appropriately.

Contents

What is Diabetes?

Diabetes develops when a person's body can't use insulin properly or can't make enough insulin (The College of Family Physicians of Canada, 2007). Your body needs insulin to be able to use sugar, or "glucose", for energy. Without insulin, sugar levels in the blood rise.

There are three types of diabetes: type 1, type 2, and gestational diabetes.

Type 1 Diabetes: The body makes no insulin or not enough insulin.

Type 2 Diabetes: The body makes insulin but can't use it correctly.

Gestational Diabetes: The body can't use insulin properly during pregnancy.

In 1937 in Saskatchewan there were no cases of diabetes among Aboriginal Peoples but by 1996 almost 16% of adult Aboriginal men and women had diabetes (Dyck, 2001, p. 5).

Almost all cases of diabetes are type 2 diabetes. (Canadian Agency for Drugs and Technologies in Health, 2010). First Nations are more likely to get type 2 diabetes than the general Canadian population (Canadian Diabetes Association Clinical Practice Guidelines Expert Review Committee, 2008, p.187). This might be because of the loss of traditional cycles of feasting and fasting and active lifestyles (Health Canada, 2001). First Nations people have switched to a more Western lifestyle - less activity and foods higher in calories, fat, and sugar. These changes have lead to obesity as well as of type 2 diabetes and gestational diabetes. First Nations women are more likely to get gestational diabetes when they are pregnant. Gestational diabetes can make a woman more likely to develop type 2 diabetes later (CDACPGEC, 2008, p.s187).

Diabetes can lead to other health conditions (CFPC, 2007). It can affect your eyes, your arteries and veins, your nerves, and your kidneys. If diabetes affects your nerves you can have problems with your feet or with digestion. Men can get erectile dysfunction or "impotence" (CFPC, 2007). When diabetes affects your arteries you can have heart problems or a stroke. For more information about the health conditions connected to diabetes see the "Diseases Linked to Diabetes" section of this toolkit.

One of the best ways to keep your blood sugar under control is to have a healthy lifestyle. (CFPC, 2007). This means eating healthy, being physically active, and taking your insulin or medications as directed by your health care provider. You can keep track of your blood sugar by checking it as often as your health care provider recommends.

Diabetes is a serious disease but you can have a healthy life by managing it well and understanding blood sugar levels and the importance of nutrition, physical activity, and diabetes medications.

What does "blood sugar" mean?

Whenever you eat, your body breaks down the food into sugar. This sugar moves from your digestive system into your blood. Your blood sends the sugar around your body to be used as energy. Your body needs insulin to be able to use sugar for energy. Without insulin, sugar can build up in the blood and can damage other organs and lead to serious health problems.

If you have too much sugar in your blood it is called *hyperglycemia*. This means your blood sugar level is too high.

If your blood sugar level is too low it is called *hypoglycemia*. This means you haven't eaten enough or you have too much insulin in your blood.

For more information, see the "Blood Sugar Testing" section of this toolkit.

This diabetes toolkit will give you information about testing your blood sugar, taking insulin and other diabetes medications, and managing your diabetes with nutrition and exercise. It will help you understand some of the other health conditions that diabetes affects.

For More Information

The Canadian Diabetes Association: www.diabetes.ca

The National Aboriginal Diabetes Association: http://www.nada.ca/

The National Aboriginal Diabetes Association – Pathway to Wellness: A Handbook for People Living with Diabetes: http://www.nada.ca/resources/resources/pathway-to-wellness/

The Southern Ontario Aboriginal Diabetes Initiative: http://www.soadi.ca/

The Aboriginal Diabetes Initiative (First Nations and Inuit Health Branch, Health Canada): http://www.hc-sc.gc.ca/fniah-spnia/diseases-maladies/diabete/index-eng.php#a7

HealthLink BC – Information for the Newly Diagnosed: http://www.healthlinkbc.ca/kb/content/special/uq1094.html#uq1095

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Canadian Agency for Drugs and Technologies in Health (CADTH) (2010). Second- and third-line therapy for patients with diabetes. Retrieved November 25, 2010 from http://www.cadth.ca/index.php/en/compus/second-line-therapies-type-2-diabetes

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Dyck, R. (2001). Mechanisms of renal disease in indigenous populations: influences at work in Canadian indigenous peoples. Nephrology. 6, p. 3-7.

Health Canada. (2001). Diabetes among Aboriginal (First Nations, Inuit and Métis) people in Canada: the evidence. Retrieved from: http://www.hc-sc.gc.ca/fniah-spnia/pubs/diseases-maladies/_diabete/2001_evidence_faits/

The College of Family Physicians of Canada (CFPC) (2007). Diabetes – Taking charge of your diabetes. Retrieved November 25, 2010 from http://www.cfpc.ca/ProjectAssets/Templates/Resource.aspx?id=1374

Treatment with Insulin

If you have diabetes your doctor may recommend that you take insulin or other diabetes medications. If you take insulin you'll need to check your blood sugar more often than someone who doesn't take insulin (College of Family Physicians of Canada, 2007).

Insulin is made in a small organ called the pancreas. Insulin controls the levels of sugar in your blood. Your body needs insulin to keep your blood sugar at a healthy and safe level. Without insulin, sugar can build up in the blood and can damage other organs and lead to some serious health problems. These health problems are explained in the "Diseases Linked to Diabetes" section of this toolkit.

People with type 1 diabetes do not make their own insulin. They have to take insulin every day. Most people with diabetes, including First Nations people, have type 2 diabetes. People with type 2 diabetes may make their own insulin, but their body can't use it properly.

Insulin

There are different kinds of insulin that you can give yourself. The types are different depending on:

- the length of time they work, called the "duration of action";
- how soon they start to work after being injected, the "on set of action";
- when they work the most, the "peak of action".

Your body needs insulin to work quickly to reduce blood sugar after a meal. But you also need to have a regular amount of insulin throughout the day to keep your blood sugar within a normal range. You will need to learn how your insulin works in order to understand when it needs to be taken.

The different types of insulin approved for use in Canada are:

- Fast-acting – this insulin starts to work quickly and is usually taken right before eating. It works quickly and then starts to wear off (HealthLink BC, 2009).
- Short-acting – this insulin takes about 30 minutes to start to work and is most effective after two or three hours. It is usually taken about 30 minutes before eating. This insulin also works quickly and then starts to wear off.
- Intermediate acting – this insulin is often taken in the morning and at bedtime, or sometimes just at bed time. It can work for up to 18 hours and works best after five to eight hours.
- Long acting – this insulin is usually taken once or twice a day and can work for up to 24 hours.
- Premixed – this insulin includes a combination of the above insulin types. The mix of insulin is determined by your health care provider. A mixture of insulin types helps keep your blood sugar in a safe range throughout the day (HealthLink BC, 2009).

Giving yourself insulin

You can give yourself insulin using a syringe (needle), an insulin pen, or an insulin pump (CDA, n.d.). Try to use different places to inject insulin. Rotate the injection site from time to time. Using the same place all the time can cause hard lumps to form. Injecting insulin into these hard lumps can change the way the insulin works by affecting how the insulin gets into your blood. The most common injection sites are the belly, arm, buttocks, and thigh. Speak to your health care provider about the best places for you to use to inject your insulin.

If you take more than one kind of insulin, make sure you label the insulin containers so that you do not confuse short or fast acting insulin with long acting insulin.

Insulin Side Effects

The major side effect of insulin is a low blood sugar level, called *hypoglycemia*. Blood sugar can drop to dangerously low levels within just 10 or 15 minutes after taking fast-acting insulin (HealthLink BC, 2009).

Other side effects can include:

- weight gain, especially in people with type 2 diabetes).
- build up of fatty tissue at the injection site so it is important to change the injection site often;
- allergic reactions in rare cases (HealthLink BC, 2009).

Diabetes Medications

In addition to lifestyle changes such as eating healthy, getting enough physical activity, and staying at a healthy weight, your health care provider may prescribe other diabetes medications to control your blood sugar.

Metformin, is usually the first choice of drug for type 2 diabetes when lifestyle changes aren't enough to control blood sugar (Canadian Agency for Drugs and Technologies in Health, 2010). This is a drug that is taken as a pill.

Diabetes is a "progressive" disease - it changes over time. Drugs that work at first may eventually stop working. At this point your health care provider may add another medication or insulin.

Other drugs used to treat diabetes are:

- sulfonyureas
- meglitinides
- a-glucoseidase inhibitors
- thiazolidinediones
- incretin agents
- weight loss agents (CADTH, 2010)

Your health care provider will choose the medicines that will work the best

for you. You may need to try different medications before you get the best result.

Some Tips for Taking Insulin or Diabetes Medications

- Be sure to let your health care provider or pharmacist know about other medications or herbals your are taking. It is important for you to share this information because insulin or other diabetes medications can affect medicine and herbals. There could be effects on your body or the medicines may not work as well.
- Don't make changes to the amount of insulin or medications (the dose) that you are taking without first speaking to your health care provider. Taking extra insulin or other diabetes medications in addition to what your health care provider has prescribed could be dangerous.
- Always check the expiry dates on insulin and other medications. Do not use your insulin if it has passed the expiry date because it may not work as well as it should. This can impact your blood sugar levels and can have effects on your health.

Complementary and Alternative Treatments

Complementary treatments involve the use of herbal medicines as well as other interventions such as reflexology in addition to Western diabetes treatments. Alternative treatment means using only non-Western medicines or therapies to treat diabetes. Up to 30% of patients with diabetes use complementary or alternative treatments for their diabetes (CDACPGEC, 2008, p. s91).

It is important to tell your health care provider as well as your herbalist or healer about the medications and herbs that you are taking. This is to make sure that the drugs and herbs

don't affect each other and your health.

Managing your diabetes

It is important for people with diabetes to make lifestyle changes, such as eating healthy and getting physical activity in addition to taking insulin or other diabetes medications. See the "Management of Diabetes with Nutrition and Physical Activity" section of this toolkit.

For More Information

Aboriginal Diabetes Initiative (First Nations and Inuit Health Branch, Health Canada): http://www.hc-sc.gc.ca/fniah-spnia/diseases-maladies/diabete/index-eng.php

Canadian Diabetes Association – Diabetes and You: http://www.diabetes.ca/diabetes-and-you/

HealthLink BC – Information for the Newly Diagnosed: http://www.healthlinkbc.ca/kb/content/special/uq1094.html#uq1095

HealthLinkBC – Insulin: http://www.healthlinkbc.ca/kb/content/drugdetail/hw134981.html#hw134984

The National Aboriginal Diabetes Association – Pathway to Wellness: A Handbook for People Living with Diabetes: http://www.nada.ca/resources/resources/pathway-to-wellness/

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Canadian Agency for Drugs and Technologies in Health (CADTH) (2010). Second- and third-line therapy for patients with diabetes. Retrieved November 25, 2010 from http://www.cadth.ca/index.php/en/compus/second-line-therapies-type-2-diabetes

Canadian Diabetes Association (n.d.). Insulin: things you should know. Retrieved November 25, 2010 from http://www.diabetes.ca/diabetes-and-you/living/insulin/should-know/

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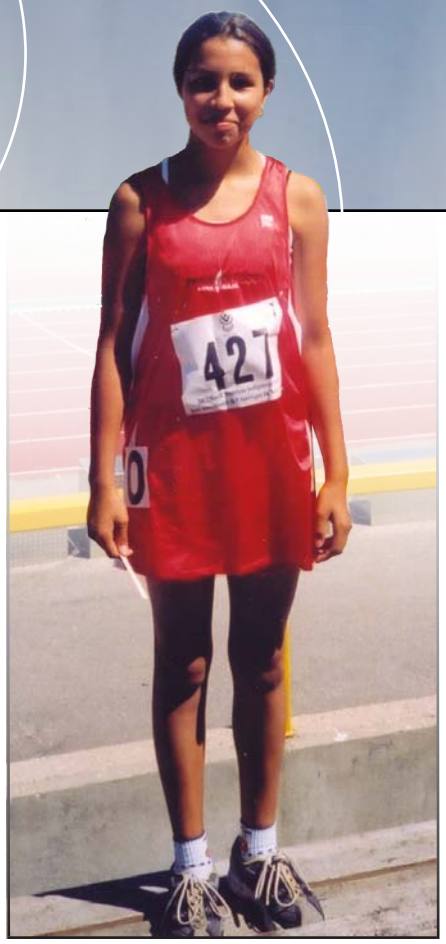
Management of Diabetes with Nutrition & Physical Activity



One of the best ways to manage your diabetes is by keeping your blood sugar levels within the range suggested by your health care provider. You can do this by eating healthy, getting physical activity, and taking your diabetes medications or insulin properly.

If you're overweight, try to lose a little weight. Just five to 15 pounds of weight loss can lower both blood sugar levels and cholesterol.

Nutrition

Follow Canada's Food Guide for First Nations to get the vitamins, minerals, and other nutrients that you need every day. You can find the Food Guide here:

Eating Well with Canada's Food Guide: First Nations, Inuit and Métis: http://www.hc-sc.gc.ca/fn-an/pubs/fnim-pnim/index-eng.php

According to the Food Guide, adults should have the following every day:

- ***Vegetables and Fruit*** - fresh, frozen and canned
  - ~ Men 7-10 servings
  - ~ Women 7-8 servings
- ***Grain Products*** – things like bread, bannock, cereal, and rice
  - ~ Men 7-8 servings
  - ~ Women 6-7 servings
- ***Milk and Alternatives*** - this includes powdered and canned milk as well as things like soy milk, yogurt, and cheese
  - ~ Teens 3-4 serving
  - ~ Adults 19-50 years 2 servings
  - ~ Adults 51 years and older 3 servings
- ***Meat and Alternatives*** – includes traditional meats/wild game, fish/shellfish, poultry, eggs, and cooked beans
  - ~ Men 3 servings
  - ~ Women 2 servings

You can find information on serving size at Health Canada's "What is One Food Guide Serving" at http://www.hc-sc.gc.ca/fn-an/pubs/fnim-pnim/index-eng.php#a_3

Try to eat at about the same time every day to keep your blood sugar and insulin levels from getting too far outside your healthy range. Try to eat three meals a day and don't wait more than six hours between meals. Listen to the advice of your health care provider about snacks between meals.

The more sugar you eat, the higher your blood sugar will be. Eat fewer desserts, candies, jam, and honey and drink less regular pop (Canadian Diabetes Association, 2010).

High fibre foods can help you feel full longer and can help to lower blood sugar and cholesterol levels (Canadian Diabetes Association, 2010). These are foods such as whole grain breads and cereals, beans, peas, brown rice, vegetables, and fruit. Eat high fibre foods every day.

Try to limit the amount of high fat foods you eat. These are things like fast food such as hamburgers and french fries, desserts, pastries, fried foods, and chips. Eating these types of food can make you gain weight. Eating healthier food can help you maintain your weight or even lose weight and this will help with controlling your blood sugar. It is also better for your heart (Canadian Diabetes Association, 2010).

Alcohol can affect your blood sugar levels and can also cause you to gain weight. Speak to your health care provider about whether you can continue drinking alcohol and how much is safe. A dietician or nutritionist will be able to answer any food questions you have and can make suggestions for meal plans. If possible, speak to one.

Physical Activity

You can control your diabetes and blood sugar levels by being physically active. This doesn't have to mean organized exercise, like joining a sports team or the gym, but it means you should move more. Guidelines for physical activity were updated in January of 2011. ***You can read the guidelines by visiting: http://www.csep.ca/english/view.asp?x=804.***

These guidelines suggest that adults should get at least 2.5 hours of physical activity every week (CSEP, 2011). More activity a week will have more benefits for your health. The activities should be moderate to high in intensity and you should also add in strengthening activities at least two days a week. Start slowly and then over time you can increase the length of time you are active and the level of activity.

You don't have to get 60 minutes of physical activity all at once during the day. If you're active for just 10 minutes at a time your activities will add up throughout the day. This will help you achieve the recommended 30 to 60 minutes of activity a day. Try not to go more than two days in a row without exercising (CDACP-GEC, 2008b, p. s37).

Some examples of ways to be active include walking whenever possible, reducing long periods of inactivity, such as watching TV, getting up and stretching or bending for a few minutes every hour, and playing actively with your kids. Do the activities you do now, more often!

Have an "activity buddy" who will do activities with you. Having a friend or a family member do activities with you will help you stay interested and motivated.

You should always be able to talk while you are doing physical activity. If you have pain in your chest or feel dizzy or short of breath stop what you are doing. Always speak to your health care provider before becoming active if you haven't been active in a while and want to do more than just walking.

Getting physical activity has more benefits than just controlling your blood sugar. It can also help lower your blood pressure and cholesterol levels and help you lose or maintain your weight. All these benefits will help lower your risk of heart disease and other complications from diabetes.

For More Information

Aboriginal Diabetes Initiative: http://www.hc-sc.gc.ca/fniah-spnia/diseases-maladies/diabete/index-eng.php

Canadian Diabetes Association – Verve: A Guide to Protecting your Health: http://www.diabetes.ca/diabetes-and-you/living/verve/

Canadian Diabetes Association – Diabetes and You: http://www.diabetes.ca/diabetes-and-you/

Eating Well with Canada's Food Guide: First Nations, Inuit and Métis: http://www.hc-sc.gc.ca/fn-an/pubs/fnim-pnim/index-eng.php

HealthLink BC – Information for the Newly Diagnosed: http://www.healthlinkbc.ca/kb/content/special/uq1094.html#uq1095

HealthLink BC – Coping with your feelings about your diet: http://www.healthlinkbc.ca/kb/content/actionset/aa15658.html#tp16403

Southern Ontario Aboriginal Diabetes Initiative – Videos on Eating Well, Exercise, and Foot Care: http://www.soadi.ca/videos.html

The National Aboriginal Diabetes Association – Pathway to Wellness: A Handbook for People Living with Diabetes: http://www.nada.ca/resources/resources/pathway-to-wellness/

The National Aboriginal Diabetes Association: http://www.nada.ca/diabetes/healthy-living/

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Blood Sugar Testing

Checking your blood sugar level is important for managing diabetes and staying healthy. To keep your blood sugar within a normal range, you'll need to test it as often as your health care provider has recommended. When you are first diagnosed you'll probably need to check it more often. You also need to test it more often when you are feeling sick or stressed, if you change the dose of medicine or insulin you take, or if you're a woman who becomes pregnant (College of Family Physicians of Canada, 2007).

Testing your blood sugar will help you to understand how food, exercise, and medications affect your blood sugar.

Tips for Testing your Blood Sugar

- Make sure you have been shown how to use the monitor and how to interpret your test result. Your health care provider or pharmacist can make sure you are properly trained.
- Make sure your reader/monitor is set correctly and is working well. Every few months have the pharmacist or your health care provider make sure it is working properly and that you are using it correctly.
- Make sure you wash and dry your hands before testing your blood sugar. This is important because if you have been touching or preparing food before testing your blood you can have incorrect readings.
- Make sure your test strips have not expired. Using test strips passed their expiration date can lead to incorrect readings.
- Keep track of your blood sugar readings in a journal. You can share this record with your health care provider to give them information on whether your insulin or medication dose needs to be adjusted. You may also want to record whether you've exercised and what kinds of food you've eaten so you can see the effects on your blood sugar.

- Keep your meter clean and make sure you check the batteries. Have extra batteries in case you need them.

Healthy Blood Sugar Levels

Your health care provider will suggest a healthy blood sugar range that will work best for you. A good goal is having a blood sugar level between 4.0 mmol/L and 7.0 mmol/L before eating a meal (Canadian Diabetes Association Clinical Guidelines Expert Committee, 2008, p. s31). Blood sugars will rise after a meal, to between 5 .0 mmol/L and 10.0 mmol/L, but should go back down to between 4 and 7 mmol/L after two hours. Not everyone will be able to achieve these goals. Speak to your health care provider about what is the best target range for you.

High Blood Sugar

High blood sugar can occur for many reasons. The most common ones are:

- eating too much food
- not getting enough exercise or activity - to use up sugar
- having an infection or an illness such as a cold or the flu
- not taking enough insulin or diabetes medications

Being stressed or having surgery can also make your blood sugar levels rise (HealthLink BC, 2010a). High blood sugar levels usually develop slowly over a few hours or days (HealthLink-BC, 2010a).

If your blood sugar is a little bit high or moderately high, you might:

- feel extreme thirst
- need to urinate, or pee more
- feel tired
- have warm, dry skin
- feel dizzy when you stand up from sitting or lying down
- have dark urine
- have gradually blurring vision (Health Link BC, 2008)

If you blood sugar is very high, you might:

- have a fast heart rate/beat,
- feel extreme tiredness and have trouble waking up
- feel weak
- sometimes lose consciousness or "pass out" (HealthLink BC, 2008)

If your blood sugar stays at a higher level, over time your body will adjust to the new level and you may not have any symptoms. This can have effects on your body. High blood sugar levels can cause damage to your eyes, heart, kidneys, nerves, and veins and arteries. High blood sugar can cause your kidneys to create more urine and you can become dehydrated. This can have serious effects like coma and death (HealthLink BC, 2010a).

Follow your health care provider's instructions for how to treat high blood sugar.

If your blood sugar is above your target blood sugar range often, speak to your health care provider. You may need to have them change the amount of insulin or medication that you take.

Low blood sugar

Low blood sugar is caused by not eating enough food, waiting too long between meals or snacks, getting more exercise or activity than usual, or taking too much insulin or diabetes medications. Blood sugar levels can drop quickly, in just 10 or 15 minutes (HealthLink BC, 2010a).

The lower your blood sugar gets the more noticeable and more severe your symptoms will be. For slightly low blood sugar you may:

- be nervous, shaky, or weak
- feel hungry
- be dizzy or have a headache
- be sweating
- have blurred vision
- have a fast heartbeat and an anxious feeling (HealthLink BC, 2010b)

As your blood sugar drops even more you may:

- be unable to concentrate
- feel confused or irritable
- have slurred speech
- be unsteady when standing/ walking
- have muscles that twitch.

You can usually treat blood sugar that is just a little bit low or moderately low by eating or drinking something that contains sugar (HealthLink BC, 2010a). Foods that will raise your blood sugar levels quickly are fruit juice or regular pop, honey or corn syrup, jam, or fat free milk (HealthLink BC, 2010a).

Severely low blood sugar can lead to seizure, loss of consciousness or

"passing out", stroke, or even death (HealthLink BC, 2010b). These effects can occur when blood sugar levels drop below 1.1 mmol/L. **If you have symptoms of very low blood sugar you need medical attention.**

Even after you treat a low blood sugar level your blood sugar may fall again. Make sure you test your blood sugar often after you've treated low blood sugar.

If your blood sugar is low during the night when you are sleeping, you may wake up feeling sweaty or with a headache (HealthLink BC, 2010b). Speak to your health care provider if you are having these symptoms.

Always keep some foods or drinks with you that can raise your blood sugar quickly if it starts to fall. You can carry hard candy or glucose tablets with you if you are not at home (HealthLink BC, 2010a).

Keep track of instances of low blood sugar. You should keep a record of your blood sugar readings so that you can share these with your health care provider. If your blood sugar level drops often tell your health care provider because your insulin or medication dose may need to be changed.

Ketoacidosis

Ketoacidosis happens more often with type 1 diabetes but can also happen with type 2 (HealthLink BC, 2007). It is a serious complication of low insulin levels. It can also result from a serious illness or infection, or dehydration (HealthLink BC, 2010c). Without insulin, your body can't use sugar for energy. It starts to break down fat and protein, like muscles, instead (CFPC, 2007). This can have serious effects and can be life-threatening. The symptoms include:

- hot, dry skin
- blurred vision
- thirst
- tiredness or difficulty waking up
- quick and deep breathing
- fruity smelling breath
- stomach pain or vomiting
- confusion

In serious cases, the brain can swell and ketoacidosis can lead to a coma or death.

Remember: Keeping your blood sugar with the range recommended by your health care provider can reduce the risk of complications from your diabetes (CDACPGEC, 2008, p. s29). If you find that your blood sugar is often outside of your recommended range, speak to your health care provider.

For More Information

Aboriginal Diabetes Initiative (First Nations and Inuit Health Branch, Health Canada): http://www.hc-sc.gc.ca/fniah-spnia/diseases-maladies/diabete/index-eng.php

Canadian Diabetes Association – Managing your blood glucose: http://www.diabetes.ca/diabetes-and-you/living/management/manage-glucose/
Canadian Diabetes Association – Diabetes and You: http://www.diabetes.ca/diabetes-and-you/

HealthLink BC – Home Blood Glucose Test: http://www.healthlinkbc.ca/kb/content/medicaltest/hw226531.html

The National Aboriginal Diabetes Association – Pathway to Wellness: A Handbook for People Living with Diabetes: http://www.nada.ca/resources/resources/pathway-to-wellness/

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HealthLink BC (2010c). Diabetic Ketoacidosis (DKA). Retrieved December 16, 2010 from http://www.healthlinkbc.ca/kb/content/special/aa21118spec.html

The College of Family Physicians of Canada (CFPC) (2007). Diabetes – Taking charge of your diabetes. Retrieved November 25, 2010 from http://www.cfpc.ca/ProjectAssets/Templates/Resource.aspx?id=1374

Diseases Linked to Diabetes

People with diabetes are more likely to get certain health conditions. Some of these can be very serious and life threatening. Over time, high blood sugar levels can damage organs and blood vessels, called veins and arteries. This damage can lead to heart and kidney problems. It can also have effects on your eyes and your nerves. **Keeping your blood sugar levels under control and within a healthy range will help prevent these complications.**

This section of the toolkit will provide information on the diseases and health conditions that can result from diabetes.

Heart Disease - Coronary Artery Disease (CAD)

Coronary Artery Disease (CAD) is the narrowing, or hardening, of the arteries that give your heart blood and oxygen. CAD makes it harder for your heart muscle to get oxygen. Without oxygen, you might feel chest pain, called "angina". You might also feel pain in your shoulders, neck, back, or jaw. If the artery becomes completely blocked it causes a heart attack. Over time CAD can weaken the heart muscle and lead to heart failure or irregular heartbeats. It is sometimes called "ischemic heart disease".

Many people with diabetes die from CAD (Canadian Diabetes Association Clinical Practice Guidelines Expert Committee, 2008a, p. s95). People with diabetes are at high risk for CAD if they are men over the age of 45 or women over the age of 50. Younger people may be considered high risk if they are smokers, have high blood pressure, have high cholesterol, or have had diabetes for over 15 years (CDACPGE C, 2008a, p. s95).

Keeping blood sugar levels within your target range can prevent coronary artery disease as well as other heart health issues such as heart failure and heart attacks. Heart failure happens when your heart becomes weak and isn't able to pump blood well. Heart attack happens when an artery in the heart becomes blocked and the heart itself is damaged. For more information on heart disease, see the First Nations Centre's Heart Disease toolkit.

High Blood Pressure (Hypertension)

High blood pressure is the biggest risk factor for heart attack or stroke. Your health care provider will measure your blood pressure to find out if it is high. Many people with diabetes develop high blood pressure (CDACPGEC, 2008d, p. s115). Lowering your blood pressure just a little can make you less likely to get a complication related to diabetes (Canadian Diabetes Association, 2006, p. 12). You can lower your blood pressure by:

- being active
- losing weight – even a little weight loss can improve blood pressure
- quitting smoking
- reducing the amount of salt in your diet
- taking time to relax - stress can make your blood pressure rise

Drinking alcohol can also raise your blood pressure. Limit yourself to one or two drinks per day. Men should have no more than 14 drinks in one week. Women should have no more than nine drinks in one week. If you have high blood pressure, your health care provider may recommend that you don't drink alcohol.

Kidney Disease - Nephropathy

Diabetic nephropathy is a kidney disease caused by diabetes. The kidneys work to filter the blood and remove waste. The waste becomes urine, or "pee". With nephropathy, the kidneys don't work as well because there is damage to the tiny blood vessels that act as filters. Over time, nephropathy can get worse and can lead to kidney failure, called *End Stage Renal DIsease* (ESRD). At this stage, the kidneys don't work well enough to keep the person alive (Kidney Foundation of Canada, 2002). ESRD requires treatment such as dialysis or kidney transplant. Dialysis is used to clean the waste out of a person's blood and then return the blood back to the body. First Nations people with diabetes are more likely to develop ESRD than non-Aboriginal Canadians with diabetes (Dyck, 2001, p.6).

In the early stages of kidney disease you might not feel any symptoms of kidney damage. Your health care provider will check for kidney damage by testing your urine. As the damage gets worse, you may have swelling in your hands, feet, and ankles. You may feel more tired than usual, have shortness of breath, and you may have nausea or vomiting (The Kidney Foundation of Canada, 2004).

People with diabetes have more sugar in their urine and this can make it is easier for bladder infections to spread to the kidneys. This can cause a kidney infection.

Kidney infections can cause permanent damage the kidneys. If you have diabetes and think you have a bladder infection, speak to your health care provider.

Symptoms of a bladder infection are:

- burning pain when urinating, "peeing";
- feeling the need to urinate often but not being able to pass much urine;
- blood in the urine (Health Link BC, 2010).

Symptoms of a bladder infection that has spread to the kidneys are:

- fever
- pain in your stomach
- back, side, or groin pain
- feeling like you need to urinate more often
- pus or blood in your urine (Mayo Clinic, 2009)

To prevent kidney damage from diabetes, try to keep your blood sugar levels within the range recommended by your health care provider. It's important that you keep your blood pressure within a healthy range. This will be determined by your health care provider as well (Canadian Diabetes Association, 2006, p. 8). Eat healthy foods, get regular physical activity, avoid drinking too much alcohol, quit smoking, and see your health care provider if you think you have a bladder infection (The Kidney Foundation of Canada, 2004).

Eye Disease - Retinopathy

Diabetic retinopathy is damage to the back of the eye, called the retina, from diabetes. It happens when the small blood vessels in the retina bleed. This causes blurry vision. In the later stages, the blood vessels can become blocked. Scar tissue can develop and damage the retina. Scar tissue can cause the retina to separate from the eye making it hard to see or causing blindness. Diabetic retinopathy is the most common cause of legal blindness for adults in Canada (CDACPGEC, 2008d, p. s134).

Most people who have had diabetes for 30 years will have some damage to their eyes (Murphy, Connor Gorber, & O'Dwyer, 2005, p. 9). Having high blood sugar, high blood pressure, and being

a smoker puts you at more risk for retinopathy. Controlling blood sugar levels and blood pressure will slow the development of this disease. There are treatments that can prevent blindness (Murphy, Connor Gorber, & O'Dwyer, 2005, p. 9). If you have diabetes you should have your eyes checked every year if possible (National Aboriginal Diabetes Association, 2009).

Nerve Damage - Neuropathy

Neuropathy is nerve damage from diabetes that usually affects the hands and feet. It causes numbness, weakness, and sometimes pain. The first signs are usually numbness or tingling in the feet but the symptoms are different depending on the nerves that are affected (Murphy, Connor Gorber, & O'Dwyer, 2005, p.10). Certain things can increase your risk of developing neuropathy. These include high blood sugar levels, high levels of fats in your blood, high blood pressure, being overweight or obese, and smoking. Neuropathy is the most common complication from diabetes and it affects half of all diabetics (Murphy, Connor Gorber, & O'Dwyer, 2005, p.10). It usually takes about 10 to 20 years for the symptoms of neuropathy to develop after diagnosis.

Neuropathy can cause you to have less feeling in your feet and you may not notice cuts, scrapes or other effects to your feet. This is called Diabetic Foot. These cuts or sores can become infected and if they are not treated they can become *gangrene. Gangrene* is caused by the death of body tissues, such as the parts around an infected sore on your foot. Gangrene can cause you to need to have your foot or part of your leg amputated (CDACPGSC, 2008b, p. s140).

Your health care provider will test you every year for neuropathy. To make sure your feet stay healthy, visit the foot care clinic or the foot care nurse in your community if this is available.

You can prevent diabetic foot by checking your feet every day for cuts, scrapes, blisters, or ingrown toenails. Use a small hand-held mirror to see the bottoms of your feet. Other ways to keep your feet healthy include:

- always wearing shoes and socks;
- don't wear open toed shoes or sandals;
- keeping your blood sugar within your target range;
- not smoking (Murphy, Connor Gorber, & O'Dwyer, 2005, p.11).

Foot care information is available on the Diabetes Association of Canada's website: http://www.diabetes.ca/diabetes-and-you/living/complica-

tions/foot-care/ and the National Aboriginal Diabetes Association's website: http://www.nada.ca/diabetes/complications/.

Mental Health Effects of Diabetes

Many people have trouble adjusting to diabetes after they are diagnosed. It is normal to have many different feelings about your diabetes. It might be hard for you to adjust to checking your blood pressure and making changes to the foods you eat. If you are still having trouble adjusting after the first year, speak to your health care provider. People who find it hard to adjust after a year with diabetes might find it harder to keep their blood sugar levels under control (CDACPGEC, 2008c, p. s82).

Adults with diabetes report having mental and emotional effects that impact their abilities to:

- monitor their blood sugar
- eat healthy
- exercise
- take their medications (CDACPGEC, 2008c, p. s82)

Mental health effects of diabetes can lead to depression or anxiety. Your health care provider may ask questions to see if you have any symptoms of depression or anxiety. Speak to your health care provider if you are feeling depressed or anxious.

For More Information

Aboriginal Diabetes Initiative: http://www.hc-sc.gc.ca/fniah-spnia/diseases-maladies/diabete/index-eng.php

Canadian Diabetes Association – Diabetes and You: http://www.diabetes.ca/diabetes-and-you/

Kidney Foundation of Canada: http://www.kidney.ca/Page.aspx?pid=320
The National Aboriginal Diabetes Association – Pathway to Wellness: A Handbook for People Living with Diabetes: http://www.nada.ca/resources/resources/pathway-to-wellness/

The National Aboriginal Diabetes Association: http://www.nada.ca/diabetes/complications/

Southern Ontario Aboriginal Diabetes Initiative – Videos on Eating Well, Exercise, and Foot Care: http://www.soadi.ca/videos.html

HealthLink BC – Diabetes and Vision Problems: http://www.healthlinkbc.ca/kb/content/actionset/uq2601.html#uq2602

HealthLink BC – Living with Complications: http://www.healthlinkbc.ca/kb/content/special/uq1117.html#uq1436

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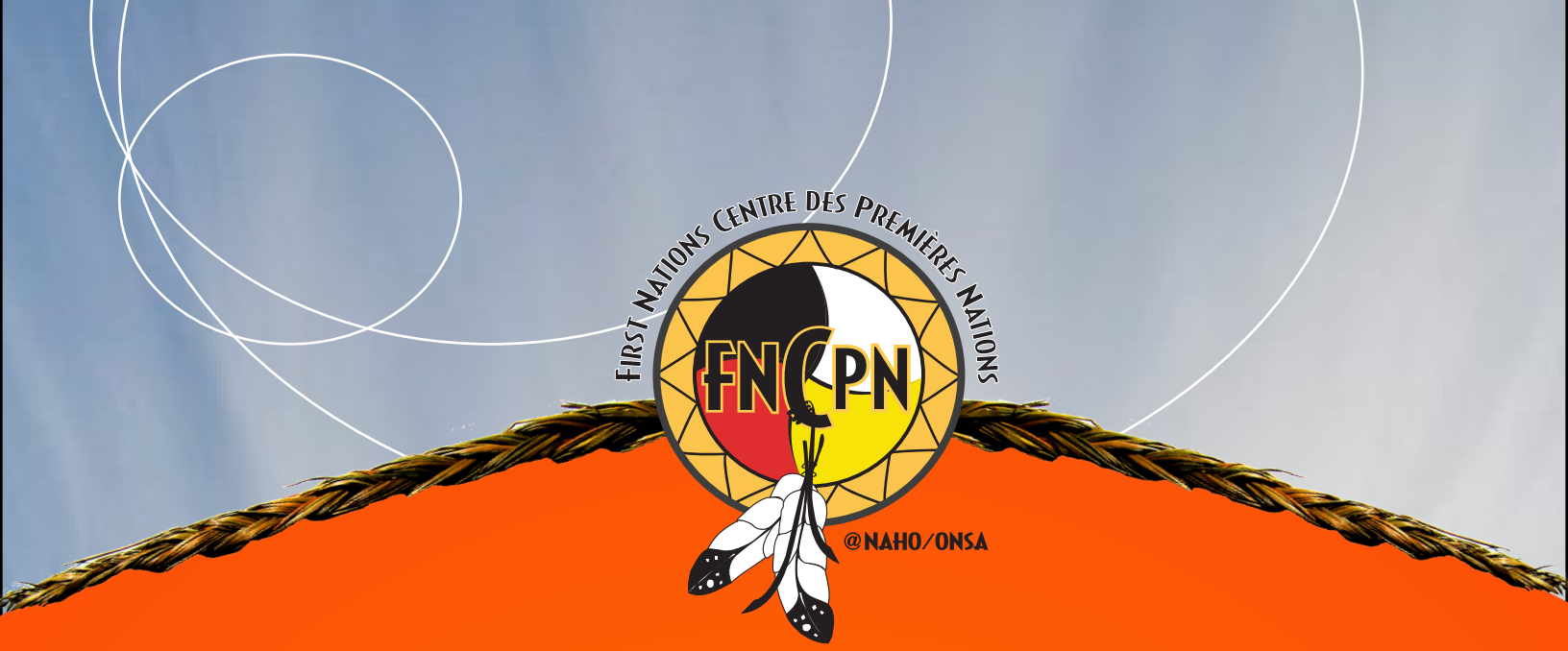

National Aboriginal Health Organization (NAHO)
Organisation nationale de la santé autochtone (ONSA)
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