

Diabetes in Youth

Session Nine
Diabetes 101 Education Series

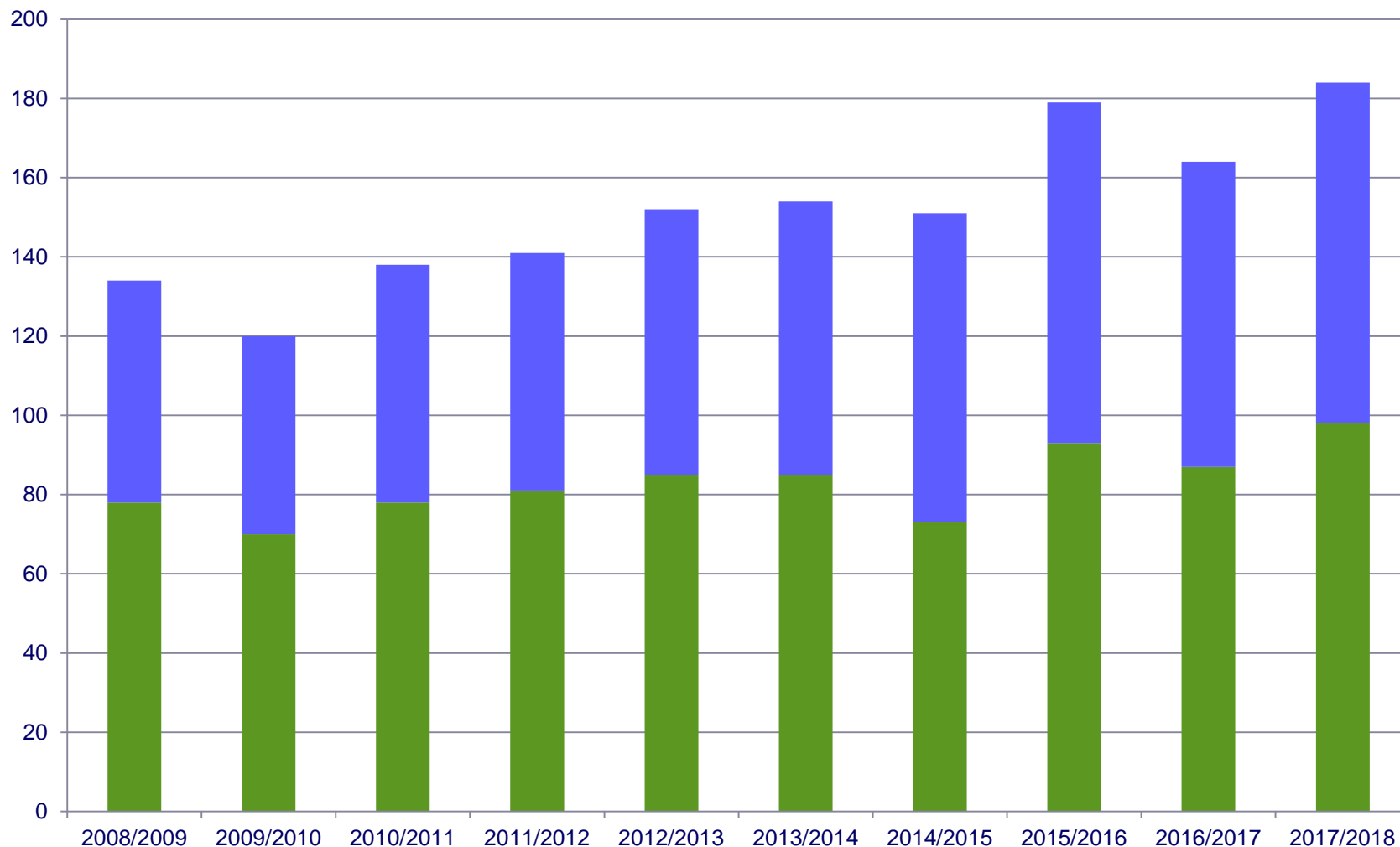
**Kathleen Gibson, Registered Dietitian
and Certified Diabetes Educator**



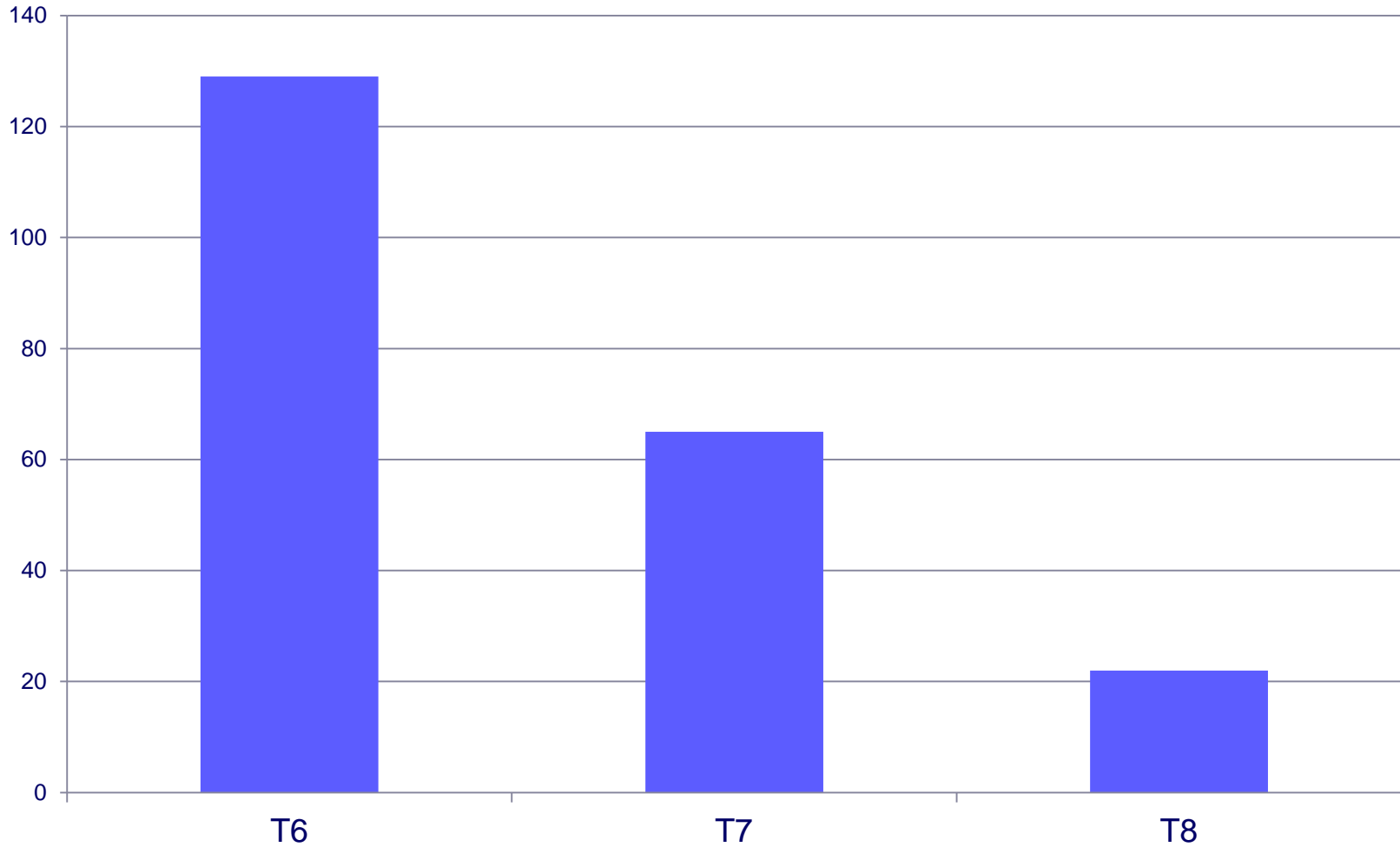
Outline

- Do Alberta youth have diabetes?
- What are the risk factors for diabetes in youth?
- How do you screen for type 2 diabetes in youth?
- What about type 1 diabetes?
- What's different about diabetes prevention and management in youth?
- Where can you get help?

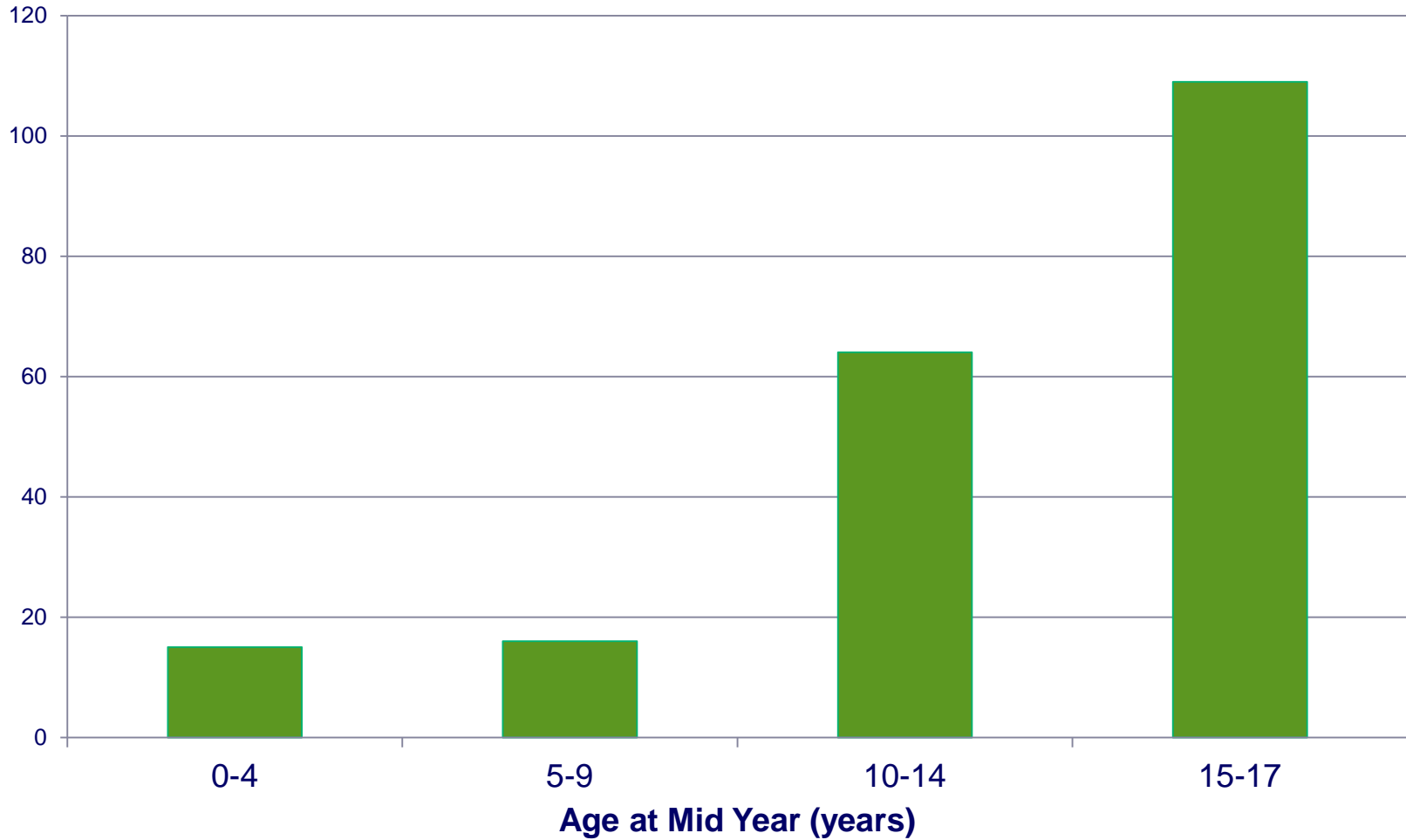
Number of youth with diabetes since 2008-2009



Diabetes in Youth by Treaty Area in Alberta



Diabetes in Youth by Age Group



Reminder about different types...

- **Prediabetes**: your blood sugars are higher than normal. A person with prediabetes is at higher risk for diabetes.
- **Type 1 diabetes**: your pancreas makes no insulin. Often happens in childhood, but can happen at any age.

What have you heard people say?

- **Type 2 diabetes**: your pancreas doesn't make enough insulin and/or your body doesn't use the insulin well. Used to only see in adults, but now found in children too. 90% of people living with diabetes have type 2.
- **Gestational diabetes**: type of diabetes that begins during pregnancy. Often goes away once the baby is born.

Risk Factors for type 2 diabetes in youth

Being:

- From a high-risk group (African, Arab, Hispanic, Indigenous or South-Asian)
- From a low-income household

Using:

- Atypical antipsychotic medication

Having:

- A parent, brother or sister with type 2 diabetes
- Obesity (BMI higher than 95th percentile)
- Exposure to diabetes in the womb
- Polycystic ovary syndrome (PCOS)
- Acanthosis nigricans
- Non-alcoholic fatty liver disease (NAFLD)
- High blood pressure and High cholesterol



Who to screen?

1. Children aged **8 years old with more than 3 risk factors** or children who have reached puberty with more than 2 risk factors
2. Girls with **polycystic ovary syndrome**
3. Children with impaired fasting glucose or impaired glucose tolerance (also known as **prediabetes**)
4. Children using **atypical antipsychotic medication**

Reminder of Risk factors:

- Obesity
- Indigenous
- Father, mother, brother or sister with diabetes
- Evidence of insulin resistance (acanthosis nigricans, high blood pressure, high cholesterol, non-alcoholic fatty liver disease)

How to Screen?

A1C **PLUS** Fasting OR Random Plasma Glucose

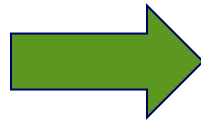
Diagnosis:

A1C greater than **6.5%** plus fasting greater than **7 mmol/L**

or

A1C greater than **6.5%** plus random greater than **11.1 mmol/L**

If the A1C and
plasma glucose
don't match



Oral glucose tolerance test

What about type 1 diabetes

- Often the most common type of diabetes in children
- All diabetes on the rise including diabetes in children and youth
- Can happen from infancy to any age; most commonly between ages 10 and 14
- Children (both type 1 and type 2) often present with metabolic decompensation also known as diabetic ketoacidosis or DKA at diagnosis. Very serious condition.
 - May present with frequent thirst and frequent peeing
 - Weight loss
 - Abdominal pain; vomiting
 - Tired; confusion
 - May breathe with deep sighs
 - May smell of ketones (e.g., nail polish remover is a ketone)
 - Show ketones in blood or pee
 - Elevated blood glucose

<http://guidelines.diabetes.ca/cpg/chapter34>

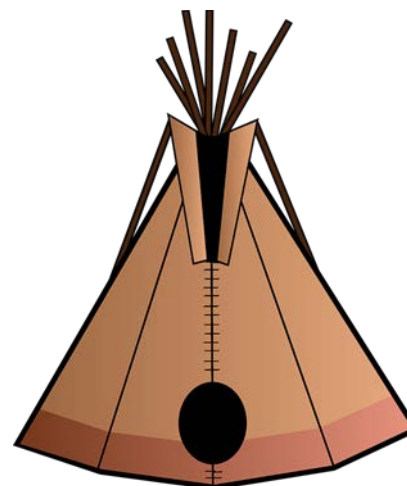
Importance of a Pediatric Diabetes Team (and others)

- Managing diabetes in childhood requires the support of a team with a specialty in pediatric diabetes (nurses, doctors, dietitians, social workers).
- An Indigenous child with diabetes will also need the support of their community-based health care team (nurses, CHRs, doctors, dietitians).
- The family of a child with diabetes will also need support since the role of care giver has just gotten more complex.
- Healthy lifestyle changes will be easier if the whole family adopts them.
- A child with diabetes will need to support of their school staff to help them monitor and manage their diabetes while at school (teachers, aides, cooks).

Are Prevention and Management Different?

- In diabetes, the steps you take to prevent diabetes are the same steps you take to manage diabetes.
- This idea is helpful when you plan programs and/or talk to clients.
- The basics of diabetes prevention and management are: Nutrition, Active Living and Medications.
- Culture is at the core of prevention and management.

Medications

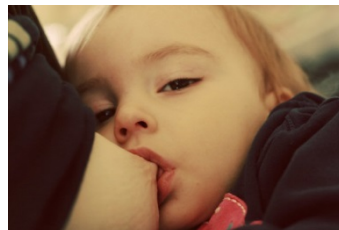


Nutrition

Active Living

Prevention of type 2 diabetes in youth

Encourage breastfeeding in moms



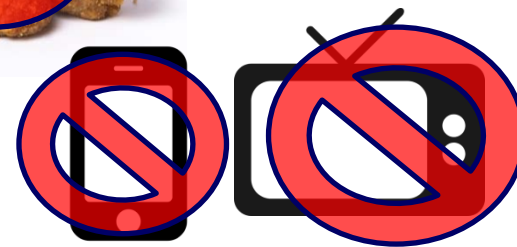
Decrease sugar sweetened beverages



Limit ultra-processed foods



Decrease screen time



Increase activity



Involve the family in healthy behaviours



Lifestyle management of type 2 in youth

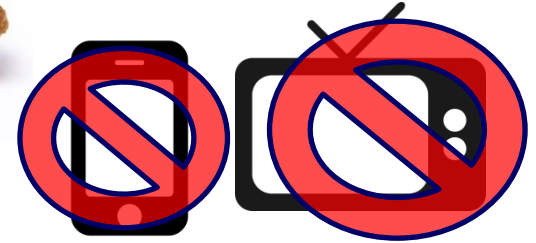
Decrease sugar sweetened beverages



Limit ultra-processed foods



Decrease screen time



Increase activity

Involve the family in healthy behaviours



The new Canada's Food Guide

Canada's food guide **Eat well. Live well.**

Eat a variety of healthy foods each day

Have plenty of vegetables and fruits

Eat protein foods

Make water your drink of choice

Choose whole grain foods

Discover your food guide at Canada.ca/FoodGuide

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Health Canada Santé Canada

Canada's food guide **Eat well. Live well.**

Healthy eating is more than the foods you eat

Be mindful of your eating habits

Cook more often

Enjoy your food

Eat meals with others

Use food labels

Limit foods high in sodium, sugars or saturated fat

Be aware of food marketing

Discover your food guide at Canada.ca/FoodGuide

Health Canada Santé Canada

Role of medications for youth

Insulin

- In type 1 diabetes, insulin is always the first line of medication!
 - Education is needed on hypoglycemia, insulin action, dosing and sick days
- In type 2 diabetes if A1C at diagnosis is greater than or equal to 9.0%, then insulin will be started, usually along with metformin
- As blood sugars become more stable, then insulin can be reduced and maybe stopped
- If blood sugars increase again, insulin will be started as basal at first with metformin. If blood sugars continue to increase, then insulin will replace metformin in a basal/bolus pattern.

Metformin

- Metformin is first line medication for youth with type 2 diabetes

Blood Glucose Targets

Check	Type 1	Type 2
Fasting or before a meal	4-8 mmol/L	4-7 mmol/L
2 hr after a meal	5-10 mmol/L	5-10 mmol/L
A1C (every three months)	Less than 7.5%	Less than 7% Try for 6%

Complications of Diabetes

Type 1 diabetes

- Low and high blood glucose emergencies
- Screening for microvascular complications usually starts **5 years after diagnosis** and older than 12 years old
- Mental health issues for children and families
- Thyroid issues; Celiac disease



Type 2 diabetes

- High blood glucose emergencies
- Screening for microvascular complications begins **at diagnosis**
- Screening for cholesterol and high blood pressure **at diagnosis**
- Screening for non-alcoholic fatty liver disease, polycystic ovary syndrome and sleep apnea **at diagnosis**
- Mental health issues like depression, disordered eating

Other things to talk about with youth

Vaccination

- Influenza vaccines each year
- Pneumococcal vaccines – Indigenous children at higher risk

Sexual Health

- Contraception to prevent an unplanned pregnancy with diabetes
- Metformin and increased fertility

Smoking

- Smoking is a risk for cardiovascular disease and microvascular complications

Alcohol and Substance use

- Can be issues with insulin use and substances

Mental Wellness

- Diabetes is a lot to handle – especially for growing children and teens

Reminder!



Type 2 diabetes in children and youth can be prevented.

Screening for diabetes and complications helps people get on a healthier pathway.

Good relationships between the health care team and the child living with diabetes can go a long way to living well.

Including families is very important for everyone.

Use meaningful conversations to work with youth and their families.

Where can I get more help?

1. TSAG

- a. Continue attending ISC-FNIHB Diabetes 101 Education series with TSAG
<https://fntn.ca/Home.aspx>

2. ISC-FNIHB:

- a. Get to know your Community Nutrition Advisor!
- b. General Diabetes Information: Kathleen Gibson RD CDE, 780-495-8641

3. Diabetes Canada – www.diabetes.ca

- a. 2018 Clinical Practice Guidelines: <http://guidelines.diabetes.ca/>

Type 2 Diabetes in Children and Adolescents: <https://www.guidelines.diabetes.ca/cpg/chapter35>

Type 1 Diabetes in Children and Adolescents: <https://www.guidelines.diabetes.ca/cpg/chapter34>

4. Kainai Diabetes Program – school screening program

- a. Phone: 403-737-3933 or kainaidiabetes@btdh.ca

Where can I get more help?

5. Alberta Health Services

- a. Calgary: Alberta Children's Hospital, Diabetes Clinic ph. **403-955-7003**
- b. Edmonton: Stollery Children's Hospital, Pediatric Diabetes Education Centre ph. **780-407-6888**
- c. Grande Prairie: Diabetes Specialty Clinic, Pediatric Diabetes Education ph. **780-513-7502**
- d. Health Link, 24/7 services: Call **811**
- e. Visit www.MyHealth.Alberta.ca; search for Type 2 diabetes in children
- f. AHS Indigenous Wellness Program ph. **780-735-4512**
 - i. Jane Jensen, RD can provide clinical nutrition to communities in Treaty 8 by videoconference.

Overview of Diabetes 101 Series

- *What is Diabetes?* – January 23, 2019
- *Diabetes Complications* – February 28, 2019
- *History Plays a Part in our Health Today* – March 7, 2019
- *Diabetes Prevention and Management: Nutrition 101* – March 21, 2019
- *Diabetes Prevention and Management: Active Living 101* – April 11, 2019
- *Meaningful Conversations* – April 25, 2019
- *Diabetes Prevention and Management: Medications 101* – May 9, 2019
- *Diabetes in Special Populations: Diabetes in Pregnancy* – May 23, 2019
- *Diabetes in Special Populations: Diabetes and Youth* – June 6, 2019

Questions?

CANADA URGENTLY NEEDS A DIABETES 360° STRATEGY

EVERY 24 HOURS...



More than **20 Canadians die** of diabetes complications

620 receive a diagnosis of diabetes

14 have lower limb amputations

Our health care system spends **\$79 million** treating diabetes

A \$150 MILLION INVESTMENT = \$20 BILLION SAVINGS
IN 7 YEARS

770,000 fewer cases of type 2 diabetes

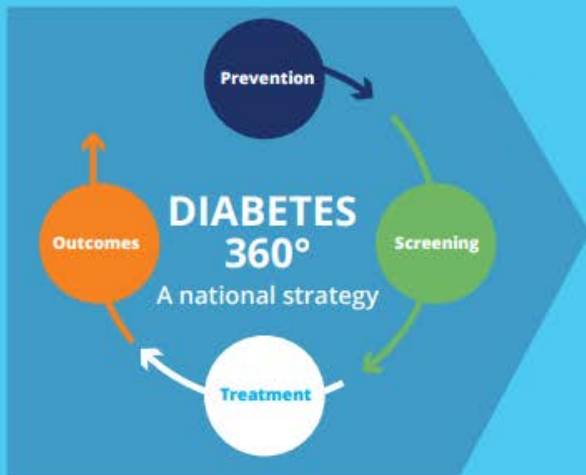
245,000 fewer hospitalizations for diabetes

34,000 fewer lower limb amputations

* please see "Diabetes 360°: The science behind the numbers" for more information.



WITH DIABETES 360°, WE CAN HAVE:



90% of Canadians living in an environment that prevents the development of diabetes

90% of all Canadians achieving improved health outcomes



90% of Canadians aware of their diabetes status

90% of Canadians with diabetes engaged in preventing complications

SIGN THE PETITION
to make Diabetes 360° a reality

Visit diabetes.ca/strategy

~~DIABETES~~ CANADA | ~~END~~ ~~DIABETES~~

Thank you for Watching Diabetes in Youth!

- Please fill out the Attendance and Evaluation forms for your site. The forms can be found on www.fntn.ca.
- This information helps us plan additional sessions or new series.
- Please send by fax to 780-495-7338 or scan and email to kathleen.gibson@canada.ca
- We hope you have learned more about diabetes and how to take steps to do more in your community!.

