



THE
CHARLES H. BEST
DIABETES CENTRE

“To keep our children, youth and adults living with type 1 diabetes healthy until a cure is found”

Transition Manual





**The
Charles H. Best
Diabetes Centre
Transition
Program**

Dear Best Centre young adult,

Congratulations on turning 18! The good news is that, even though you are graduating into adulthood, you will still be part of the Best Centre family. If you did not have the opportunity to be with us during your childhood, we would like to extend our welcome and support to you.

You are entering an exciting stage of life that is full of challenges for everyone which may be particularly challenging for young adults with type 1 diabetes. During these coming years, you will experience many changes such as graduating from high school, moving away from home, pursuing college or university studies and/or starting a new job. While it is a truly exciting time, it can also be overwhelming. It is your responsibility to continue to manage your diabetes. With all of these changes in your life, you may find that your diabetes takes a back seat. Research shows that there is an increased likelihood of missed appointments, losing contact with your diabetes healthcare team and/or experiencing changes in your diabetes control at this time. However, with the Best Centre Transition Program, we aim to ensure that this does not happen. We will continue to support you in managing your diabetes and assist you in arranging your appointments with us and your adult endocrinologist or diabetes specialist. We know that staying focused on your diabetes will help you live a long, healthy and fulfilling life and we want to continue to help you on this path.

This resource is an addition to the information and education your diabetes healthcare team has given you throughout your diabetes journey. It also addresses many of the new experiences you may encounter. We hope that you will find this very useful!

Wishing you and your family much success and joy in the years ahead.

Sincerely,
Your Best Centre team



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INTRODUCTION

1
Your Diabetes Team Contact Information

Your Diabetes Team of Nurses, Dietitians and Social Workers

The Charles H. Best Diabetes Centre

Address: 360 Columbus Road East, Whitby ON

Phone Number: 905-620-0360

Email: bestdiabetes@charleshbest.com

Contact info (Email/phone) of my diabetes educators:

Contact info (Email/phone) of my social worker:

Your Adult Diabetes Doctor (Endocrinologist/Diabetes Specialist)

Name:

Address:

Phone Number:

Email:

Your Family Doctor

Name:

Address:

Phone Number:



INTRODUCTION

2
Your Medication

Other medications or non-prescription medications/vitamins/minerals that you are taking:

Medication/Vitamin/Mineral	Dosage	Frequency

If you are on an insulin pump, your settings are:

Basal	ICR	ISF	Blood Sugar Targets

If you are on insulin injections, your insulin type and dosages are:

Breakfast-Type:	Lunch-Type:
ICR:	ICR:
ISF:	ISF:
Other:	Other:
Dinner-Type:	Bedtime-Type:
ICR:	ICR:
ISF:	ISF:
Other:	Other:



INTRODUCTION

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Medical Terminology

Some common terminology that the diabetes team will use at your appointments:

Rapid-Acting Insulin: Refers to Novorapid, Humalog, Apidra, Admelog and FIASP. You need to take rapid acting insulin before each of your meals in accordance with the amount of carbohydrates that you are eating and to correct an above-target blood sugar. You can also take rapid-acting insulin before a larger carbohydrate-containing snack.

Multiple Daily Injections (MDI): Involves 3 to 5 injections of rapid-acting insulin per day combined with 1 to 2 injections of long-acting insulin. The benefit of MDI is it provides more flexibility with timing of meals and amounts of food.

Long-Acting Insulin: Refers to Toujeo, Lantus, Levemir, Basalgar, Tresiba, NPH and Humulin N. These types of insulin are taken at the same time each day, once or twice daily. When you are on MDI these are considered your background insulins. It is very important you do not miss an injection of your long-acting insulin. Missing an injection may lead to elevated blood sugar readings and make it difficult to lower your blood sugars with your rapid-acting insulin for the next 24 hours.

Basal: Refers to the continuous flow of background insulin that keeps blood glucose levels stable during fasting and between meals. If you are on an insulin pump, basal insulin may be distributed at various rates throughout a 24-hour cycle.

Bolus: Refers to mealtime insulin that is given prior to meals and snacks and is intended to match the rise in the blood glucose levels after meals.

Carbohydrate Counting: Counting the number of carbohydrates in your meals and snacks to determine your insulin needs.

Insulin to Carbohydrate Ratio (ICR): The number of grams of carbohydrate to cover 1 unit of fast-acting insulin.

Example: If your Insulin to Carbohydrate Ratio is 1 : 10 grams and you are having a meal that has 60 grams of carbohydrate, you would calculate:

$$\frac{60 \text{ grams of carbohydrate}}{10} = 6 \text{ units of rapid acting insulin}$$

Correction Dose (Insulin Sensitivity Factor): The number of blood sugar readings (measured in mmol/L) you are expected to drop when you take 1 unit of rapid-acting insulin.

Example: If your correction factor is 1 : 2

$$\frac{\text{Current Blood Sugar} - \text{Target Blood Sugar}}{\text{Insulin Sensitivity Factor}} = \text{Correction Dose} = \frac{15 \text{ mmol/L} - 7 \text{ mmol/L}}{2} = 4 \text{ units of rapid - acting}$$

insulin is expected to drop your blood sugar from 15 mmol to 7 mmol



4

Who Is Your Adult Diabetes Health Care Team?

Now that you have transitioned to the adult diabetes program, there are some new faces on your team. Mainly, your adult diabetes specialist or adult endocrinologist. When you were in the pediatric program, your care was being overseen by a pediatrician who specialized in diabetes. The nurses, dietitians and social workers of the Best Centre will stay the same. Below you will find information about the roles of each of your team members and how they can help you.

Endocrinologist/Diabetologist/Diabetes Specialist: This is your physician who specializes in understanding diabetes and the treatment of diabetes. They can also assist in the treatment and management of thyroid and adrenal disorders. *It is important that you have an appointment with your diabetes specialist at least once per year in order to keep them as your specialist.* This will ensure that you receive annual lab work, have up to date prescriptions and maintain ADP funding if you are on insulin pump therapy.

Diabetes Nurse Educator: A registered nurse with specialized training caring for someone with diabetes. They can teach you the following:

- ▶ how to adjust your insulin dosage
- ▶ how to manage sick days and prevent diabetic ketoacidosis
- ▶ how to prepare for pregnancy and how to have a healthy outcome
- ▶ how to manage your diabetes if you decide to consume alcohol

Registered Dietitian/Diabetes Educator: Specializes in nutrition and healthy eating. Registered Dietitians at diabetes education centers also have expertise in diabetes management and nutritional therapy. They can teach you the following:

- ▶ how to balance your insulin needs for physical activity
- ▶ how to plan meals when living away from home
- ▶ how to determine which sport supplements are appropriate
- ▶ how to manage celiac disease when living away from home

Social Worker: Someone who specializes in counselling and can assist you with coping with your diabetes on a daily basis while you are gaining independence. This may include promoting healthy relationships with your family and friends. They also assist you with finding resources in the community if needed.

Optometrist/Ophthalmologist: This person is another key member of your health care team because diabetes can affect the blood vessels in the eyes. If eye problems are caught early, they can be easily treated and often damage is not permanent. The eye doctor will be either an ophthalmologist or an optometrist. *Diabetes Canada recommends you see your eye doctor at least once a year.* Be sure your eye doctor is familiar with how to spot and treat diabetic eye disease.

Chiropodist: A doctor who specializes in feet. They assist with maintaining and improving patient mobility to alleviate foot pain. They may have some awareness of diabetes care.

CHAPTER 1
Who is in charge now?

1
Who is in charge now?

One of the biggest changes as you move from childhood/adolescence to adulthood is that you will be taking responsibility for your own diabetes management. It is no longer up to your doctor or your parent(s)/guardian(s) to manage your diabetes. As an adult, you make your own decisions, and your diabetes team at the Charles H. Best Diabetes Centre will continue to support you. Diabetes is not a “do it yourself” disease at any age. You need the support of your team.

Even though you may be very busy with new experiences and challenges, your physical and mental health is the most important thing in your life! Taking responsibility to keep good control of your diabetes can protect you from both the short-term and long-term consequences of mismanaging your diabetes. The more you take charge of your own care, the more confident, healthy and happy you will be.

Your diabetes is unique to you and you know your body best. Being responsible for your own diabetes management does not mean that you’re completely on your own. It just means that it is up to you to work with your diabetes health care team to manage your diabetes.



CHAPTER 1

Who is in charge now?

1

What You Can Expect From Your Adult Diabetes Health Care Team

When you move from seeing a pediatrician to seeing an adult endocrinologist, there will be some changes to your doctor appointments, such as:

1 You are now in charge of your diabetes and you are now the main decision maker, but you are not alone. You always have access to a nurse, dietitian or social worker from the Best Centre whenever you need assistance. It is our hope that you continue to come for appointments with one of your educators at the Best Centre at least twice a year. The biggest change for you once you become an adult is the physician you see. You will be referred to an adult diabetes specialist and you will go to their office, instead of the Best Centre, to see them.

2 It is your responsibility to show up for your appointments. Your adult diabetes specialist's office may not call and remind you of your appointments like many pediatric diabetes centres do. If you cannot make your appointment, call the Best Centre to arrange another date. If you miss your appointment and it has been over a year since you last saw your adult diabetes specialist, you will need a referral from your family doctor to see them again. We also have Ontario Telemedical Network (OTN)/virtual appointments available if you are living a distance from the Best Centre while you are in college/university.

3 The team will be speaking to you instead of your parents/caregiver during your visit. You may or may not want your parents/caregiver in your appointment but know that they are welcome if you want them to be there. You will need to learn to ask questions of your team at the Best Centre instead of them asking you.

4 Everything you talk about with the doctor and other members of the team is confidential as long as you are not doing harm to yourself. In other words, they will not be discussing your care with anyone else unless you have given permission.

5 The goal of your diabetes control is to achieve an HbA1c of 7% or less without having a low blood sugar often (no more than 2 to 3 instances per week).

6 Your family physician will continue to provide ongoing medical support for all of your other health care needs.



2

What to Think About Before Your Appointment



1 Before your appointment, complete any blood/lab tests that were requested. Your diabetes health care team can then share and discuss the results with you.

2 Think about any specific questions/issues you want to discuss. Write them down before your appointment and be as honest as you can. This can include blood sugar levels, sexual health, stress, anxiety, depression or any other feelings that you have about your diabetes. Should you need to discuss any concerns you have about your wellbeing, we have social workers on staff who can help.

3 Bring your blood glucose meter(s) or flash monitor to the appointment. It is still important to check your blood sugar levels regularly and upload your device.

4 If you are on an insulin pump and/or continuous glucose monitor/sensor, try and upload your data a day before your appointment and review your results. If you are unable to do this, still come to the appointment and the educators will assist you with this.

5 If you are seeing your diabetes specialist, check your diabetes supplies to see if you need to ask for any new prescriptions.

6 Be aware and understand what your drug coverage is and know whether you are participating in the Assistive Devices Program (ADP) program if you are on an insulin pump.

7 Keep a record of your appointments, medications and pump settings if you are on an insulin pump.

8 If you need to cancel your appointment, contact the Best Centre office as soon as possible to schedule a new date and time. This is especially important to those who are on the ADP program and need to attend the Best Centre at least 2 times per year. You also need to see your diabetes specialist/endocrinologist as many times as they request to maintain your ADP funding and health.



3

Healthy Laboratory Checklist

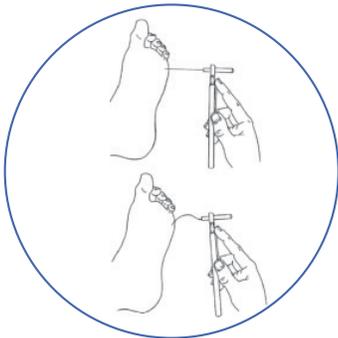


figure 1

The following is a guide to what routine checks you should do to maintain a healthy lifestyle. Refer to Appendix A for the Best Centre Healthy Lab Checklist.

EVERY 3-6 MONTHS

1 Have your A1C (hemoglobin A1C) measured. Your A1C is a measure of your average blood glucose before and after meals over the past 3 months. The goal is to aim for an A1c of 7% or less without frequent low blood sugar to reduce complications. You can have your A1c measured at the Best Centre during your appointment if you pay the annual membership fee or at a laboratory at no cost. Your doctor will provide you with a lab requisition for an A1c at least every 6 months.

2 A blood pressure test (goal: below 130/80 mm Hg). Blood pressure is a measure of the pressure or force of blood against the walls of your blood vessels (known as arteries). Your blood pressure reading is based on two measures called systolic and diastolic. The systolic (top) number is the measure of the pressure force when your heart contracts and pushes out the blood. The diastolic (bottom) number is the measure of when your heart relaxes between beats. Since you have diabetes, the high-risk category for your blood pressure is slightly lower. Your blood pressure should be less than 130 / 80 to prevent stroke and heart disease in accordance with Heart and Stroke Foundation of Canada.

3 Arrange an appointment with one of your diabetes educators at the Best Centre every 3 to 4 months.

EVERY 12 MONTHS

1 Have the protein in your urine measured to see how well your kidneys are working. This is determined by your Estimated Glomerular Filtration Rate (eGFR) which should be greater than (>) 60ml/min and Urine Albumin/Creatinine ratio which should be less than (<) 2.0 mg/mmol/L. These tests measure how well the kidneys are removing wastes and excess fluid from the blood. (National Kidney Foundation).

2 Have your feet inspected by a member of your diabetes health care team with a 10mg monofilament (see figure 1). This test determines the degree of normal sensation/feeling in your feet.

3 Have a dilated eye examine conducted by an optometrist or ophthalmologist. This exam is meant to check for diabetic retinopathy. Without appropriate monitoring and intervention, the red blood vessels in your eyes can be damaged, and you could be at risk for eye damage. If detected early, damage to the eyes may be reversible.

CHAPTER 1
Who is in charge now?

4

Immunizations

4 A blood test to check your cholesterol and triglyceride level. Cholesterol is a fat found in the blood. There are two main types of blood cholesterol: high density (HDL cholesterol) and low density (LDL cholesterol). LDL cholesterol is referred to as ‘bad’ cholesterol that can form fatty deposits on your artery walls and block blood flow to the heart and brain. Target LDL is less than (<) 2.0 mmol/L. HDL cholesterol is referred to as ‘good’ cholesterol because it helps to remove excess fat and cholesterol from the body. Target HDL is greater than (>) 1.0 mmol/L. Triglycerides are a type of fat found in your blood that your body uses for energy. You need triglycerides for good health, but consuming too many triglycerides may increase your risk of heart disease. Target triglycerides is less than (<) 1.5 mmol/L. (1)

5 Visit your family doctor at least once per year for your other general health needs such as flu shots, health concerns unrelated to diabetes, other prescriptions, and additional lab work.

Flu Shot: It is very important that you receive a flu shot once per year. If you become sick with the flu, your symptoms are very similar to Diabetic Ketoacidosis. Having the flu shot will help reduce the severity of the flu itself.

Pneumonia Vaccines (PPV): People with diabetes are at increased risk of getting pneumonia. Most children receive the Pneumonia Pneu-C-13 vaccine as routine immunization. As an adult with type 1 diabetes, you also need a single dose of Pneu-P-23 vaccine for lifetime prevention of pneumonia.

If you have further questions about immunizations, contact your family doctor or your local Public Health department. **Additional information can be found at the following website: *Vaccines and immunization* | Ontario.ca: www.ontario.ca/page/vaccines.** These immunizations are free of charge at a walk-in clinic, your physician’s office or on your campus.



CHAPTER 2
You Are Living on Your Own; What Now?!

1
Living on Your Own

Heading out on your own, away from your family for the first time can be exciting and challenging at the same time. If you are moving away from home and will soon be getting a new roommate, it is a good idea to talk about your diabetes. You may be surprised that many people are not aware of exactly what type 1 diabetes is or how it affects your body and daily life. Most people are familiar with type 2 diabetes but not type 1 diabetes.

Getting Your Prescriptions Filled

If you plan to move away from home, you need to ensure that you have a complete list of prescriptions for all of your diabetes supplies to take to a pharmacy near you. Obtain these prescriptions from your diabetes specialist. It is your responsibility to remember when you need more prescriptions.

Choosing a Pharmacy

- ▶ Shop around for a pharmacy that is convenient and located close to you
- ▶ Investigate dispensing fees as they vary from pharmacy to pharmacy
- ▶ If you are going out of province to go to college or university, you may need to visit the on-campus physician to get a prescription from that province
- ▶ Let the pharmacist know about any drug plan that you may have and ask what the cost will be. If you cannot afford the prescription, ask them what your options are.
- ▶ When you are re-filling a prescription, you can call ahead to the pharmacist and request what you need by giving the name of the medication. Make sure you always have all the diabetes supplies that you need and keep track of how much you have left so that you do not run out of supplies.
- ▶ You can get insulin, pen needle tips and blood sugar/ketone test strips without a prescription.

It is always helpful to have all of the supplies that you need as well as back-up supplies. If you do not already have one, get a back-up insulin pen and meter. It is also important for those on an insulin pump to have extra infusion sets/pods and reservoirs as it is difficult to get them last minute if you run out. Please find a list below of the supplies that you will need:

Blood glucose meter	Glucose tabs (Dex 4)
Blood glucose test strips	Glucagon kit
Lancing device and lancets	Blood ketone meter
Insulin	Blood ketone test strips
Pen needle tips	Medic alert bracelet
Insulin pen	Sensor supplies if on a sensor
Infusion sites, pods or reservoirs, tubing if on a pump	



CHAPTER 2
You Are Living on Your Own; What Now?!

2

What to Tell Your Roommate

Heading off to university or college often comes with meeting new people and new friends. It may feel scary and even lonely in the beginning to see all new faces and not know many people. However, most of the students are feeling the same way you are and are hoping to meet new friends. If you have a roommate that you have not met before, you may be nervous to let them know about your diabetes. Here are a few tips for talking to them about it.

To Start, You Can:

- ▶ Explain how and when you were diagnosed
- ▶ Give a brief overview of how T1D affects the pancreas and that you take insulin
- ▶ Explain that you need to test your blood sugar and count carbohydrates
- ▶ Let them know that you can pretty much eat whatever you want, as long as you take insulin

The Highs and Lows:

- ▶ Explain what low blood sugar is and what signs of low blood sugar are.
- ▶ Let them know how they can help you if you have a low blood sugar.
- ▶ Discuss how you feel when you have a high blood sugar and how you deal with it.

In Case of Emergency:

- ▶ Tell your roommate to call 911 if you start vomiting or become incoherent.
- ▶ Ask if they would be willing to give you glucagon for a severe low blood sugar and if so, demonstrate for them how to use it.
- ▶ Let your roommate know that if you drink alcohol, you are at risk of having a low blood sugar. Tell them that if you pass out while drinking alcohol, they need to call 911.



3

Student Housing: Things to Consider

If you are heading off to university or college, there are some things you will want to consider. For instance, determine what medical insurance is available. When applying for a room, notify the school that you have a medical condition that may require special accommodations. This may allow you to have additional support, such as a fridge in your room. There may be additional forms that you can fill out supporting your request for such accommodation. It is a good idea to take a tour of your new school ahead of time to find out what meal plans they have to offer and if there is a 24-hour kitchen or cafeteria close to where you will be living. Also, find out where the Health Center on campus is and their hours of operation. Locate the nearest hospital and pharmacy. Often there are not resources for people with diabetes directly on campus, however there are almost always onsite medical clinics that can provide assistance. You can also utilize the Best Centre number, or the Best Centre emergency pager if it is after hours for emergencies.

It is a good idea to arrange a meeting with your RA (resident assistant) or resident life staff member to let them know about your diabetes. You can also show them how to use your glucagon kit and leave it with them in case you have severe low blood sugar.

Investigate any resources that you can get! Many schools offer students with diabetes additional education services and assistance. For instance, schools may offer a note-taker for any class you may miss for medical reasons. Schools may allow you to have a lighter course load or to defer or make up exams, should you miss any. Do not use your diabetes as an excuse; however, having these services available is helpful. Some schools have a form that you will need to get your diabetes care team to fill out in order to get these additional services. Thus, it is a good idea to know about these services before you apply for housing, so that your team can assist you. Even if you are not applying for residence, your care team may need to fill out some forms. So get in contact with your school early and determine what you need from them and from your diabetes care team.



4

Financial Aid
for Diabetes
Supplies

Diabetes often creates financial burden if you do not have private medical insurance. If you are attending university or college, some institutions are now covering a percentage of your medical supplies. Talk to your university or college about their policies. The following programs can assist you as well:

OHIP +: You will have access to the following diabetes supplies up to 24 years of age if you have OHIP coverage:

- ▶ **Blood glucose test strips:** up to 3000 strips year
- ▶ **Insulin:** all types of rapid and long-acting insulins

You do not have to enroll in OHIP +, as coverage is automatic. The OHIP+ program does *not cover* pen needle tips, blood ketone test strips, lancets or lancing devices.

Ontario Monitoring for Health Program: For Ontario residents only and if you have no other coverage through other benefits program (for example: Trillium, ODSP or private insurance). This program offers the following:

- ▶ 75% reimbursement for the cost of blood glucose meters up to a maximum amount of \$75.00 (as of 2021) once every 5 years
- ▶ 75% reimbursement for the cost of lancets and testing strips up to a maximum amount of \$920.00 (as of 2021) per year
- ▶ For more information please use the following website:

Ontario Monitoring for Health Program - Diabetes Canada
(www.diabetes.ca/get-involved/local-programs-events/ontario-monitoring-for-health-program)

Your first claim form submitted to the program must be signed by a doctor or nurse practitioner to confirm that you use insulin, and the team members at the Best Centre cannot do this for you. Social assistance recipients or Trillium Drug Program clients can only submit to this program for lancets and/or blood glucose meters. We have the application form for the Ontario Monitoring for Health Program available at the Best Centre. You can call Diabetes Canada at **1-800-361-0796** or visit **diabetes.ca** to learn more.

Trillium Drug Program (TDP): The Trillium Drug Program is for people who spend approximately 4% or more of their after-tax household income on prescription medications. If you are applying for the first time to the TDP, the deadline in any given year is September 30. You can get the application form online.

To qualify for the TDP, you must:

- ▶ not already qualify for Ontario Drug Benefit (e.g., you are under 65 years old and not enrolled in a program such as Ontario Works)
- ▶ have a valid Ontario health card



Ontario Disability Support Program: Offers coverage for medical benefits by providing a drug card. Contact Family and Children's Services or Ministry of Community for more information.

Ontario Works Regular Benefits: Offers financial and health benefits for clients and their families. You need information about your housing cost and family income when you apply.

Financial Aid for Foot care: OHIP covers foot assessments for all Ontario residents. OHIP does not pay for services such as the clipping or trimming of toenails. To learn more, call Service Ontario toll-free at 1-800-268-1154 (in Toronto at 416-314-5518).

Disability Tax Credit (DTC): You can apply for a tax credit if you have type 1 diabetes. There is some work that you have to do to apply for this credit, however, if you are approved you can receive money from the government to assist you. To apply you need to do the following:

▶ Write a letter explaining why you spend at least 14 hours per week on activities related to determining and administering insulin. The following activities should be included in your letter towards the 14 hours per week requirement:

- monitoring your blood glucose level
- preparing and administering insulin
- calibrating necessary equipment
- maintaining a logbook of blood glucose levels.

▶ Please *do not* include time spent counting carbohydrates, exercising, travelling to medical appointments, shopping for medication, recuperating from hypoglycemia or hyperglycemia, or preparing meals after therapy; as a part of the 14 hours.

▶ Have your diabetes specialist verify how much time is spent on the tasks required for life-sustaining therapy by having them sign your documentation.

▶ Complete the Federal Disability Tax Credit certificate. You can access it at *Step-by-step instructions for filling out Form T2201 - Canada*, www.canada.ca/en/revenue-agency/services/tax/individuals/segments/tax-credits-deductions-persons-disabilities/disability-tax-credit/step-step-instructions-filling-form-t2201.html.

Assistive Devices Program (ADP): A program that offers an insulin pump every 5 years and provides coverage of up to \$2400.00 per year towards the cost of pump supplies. If you are 19 years of age or older, here is the ADP eligibility criteria for going on a pump:

Confirmation on Applicant's Eligibility: answers required to all the statements

To be completed by the Endocrinologist or another Specialist Physician or Nurse Practitioner who is associated with one of the adult diabetes programs. Please confirm that the following Eligibility Criteria have been met: (criterion #2 not required if applying for Insulin Supplies only)

1 Applicant has Type1 diabetes Yes No

2 Applicant has demonstrate experience with a basal/bolus insulin regimen for at lease a year Yes No

3 Applicant demonstrates the ability to self-assess and take action based on blood glucose results by: carbohydrate counting, correction bolus & sick day management Yes No

4 Applicant demonstrates a commitment to long-term diabetes follow-up through regular assessments by diabetes educators and physicians/nurse practitioners at lease 3 times a year or as deemed appropriate by the diabetes team Yes No

5 Applicant has participated in a pre-assessment for insulin pump therapy according to ADP requirements Yes No

If you are on an insulin pump, you are most likely getting your pump supplies covered through the Assistive Device Program of Ontario. This program has criteria that you must meet on an annual basis to maintain coverage for your pump supplies. ADP requires that the patient:

- ▶ Has continued to demonstrate an ongoing commitment to blood glucose monitoring at a *minimum* of four times a day
- ▶ Has continued to demonstrate successful sick day management
- ▶ Has demonstrated that they have benefited from Insulin Pump Therapy, which is defined as *one* of the following:
 - Improved quality of life
 - mproved A1c results, or
 - Reduction in the number of hypoglycaemic events
- ▶ Reduction in the number of diabetic ketoacidosis episodes
- ▶ Improved management of the “dawn phenomenon*” *(rise in blood sugars in the early morning)
- ▶ Has demonstrated a commitment to long-term diabetes follow-up through regular assessments by diabetes educators and your diabetes specialist
- ▶ A minimum of 2 visits per calendar year at the Best Centre

It would be to your benefit to visit the Best Centre educator more than 2 times per year to manage your diabetes. Your first year away from home may include many new experiences and your diabetes educators can assist you along the way. You do have access to Ontario Telemedicine for your appointments if you are unable to come physically to the Best Centre. However, you need to physically be at the centre for one of your two minimum appointments.



5

Eating Well on a Budget

It may be the first time that you are buying groceries unless you are on a student meal plan (if living in residence). Microwave meals, frozen pizza, mac and cheese and cereal can be a quick fix for a meal, however, you may get tired of it after a while. Most young adults are living on a budget; however, you can still eat healthy without it being too costly and taking up too much of your limited time.

Here are some tips on how to eat a variety of foods every day on a budget in accordance with Canada's Food Guide (Canada's Food Guide, <https://food-guide.canada.ca/en/>)

1 Make a budget: Figure out how much you have to spend for one month on food and divide by 4. This will help you determine your weekly food budget.

2 Plan your meals and keep it simple: Determine what food you already have at home and look at what specials grocery stores have for the week. You can do this by looking at flyers or using a phone app.. Some grocery stores offer price-matching; thus, you can use the flyers to price match products. From here, plan your meals and snacks for the week, make your grocery list and stick to your list. Sticking to your list will stop you from buying items that you may not need.

If it is your first time having a kitchen of your own, you may feel like experimenting with a recipe. Try to choose a recipe that is simple and does not require too many ingredients or spices that you cannot use often. Fresh herbs for instance tend to be more costly than dried herbs and you may not get as many uses out of them. If you have a roommate, ask if you can share spices/condiments and keep a few spices on hand that you will use often.

Also, be aware on how you shop! A good reminder is to try to “shop the perimeter”, which means to do most of your grocery shopping by following the perimeter of the store, before moving towards the inner isles. This is because most of the fresh produce, meat and dairy products tend to be kept along the outside of the store and many of the foods that are more heavily processed tend to be located in the middle aisles. Leave the middle area to the end and you may find that it is easier to resist the temptation to impulse buy sweet, salty or processed items.





1 Fruit and Vegetables: Buy fresh fruit and vegetables when they are in season or on sale. For instance, buy strawberries in the summer and corn in the fall. This way they will be cheaper and taste better. Frozen fruit and vegetables are also very nutritious and are often picked and packed when they are the most fresh and full of nutrients. They also last longer than fresh produce and can save you meal preparation time. Frozen vegetables are often pre-chopped and just need to be cooked. Try and avoid frozen vegetables with sauces. If you are buying canned fruit, try and purchase fruits that are canned in water or their own juice. White/sweet potatoes, carrots, corn, spinach, apples, oranges and bananas tend to be cheaper fruit and vegetable options that last longer and are very nutritious.

Another good idea is to choose fruits and vegetables that are more shelf stable, such as apples and squash. This gives you more time to eat them, so you are able to buy these foods in larger quantities and you do not have to be going back to the grocery store as often. Some grocery stores also carry “naturally imperfect” produce, that is fruits and vegetables which are perfectly good to eat, but that look less visually appealing. Naturally Imperfect items tend to be cheaper than their “perfect” counterparts, and they are just as delicious and nutritious. They are great for cooking with, as nothing but their visual appearance has been compromised. Some grocery stores also offer frozen chunks which are great for making smoothies!

2 Grains: When buying grains such as rice and bread, try getting whole grains. They are higher in fiber and have a lower glycemic index. Thus, they help keep your cholesterol in a healthy range, help prevent spikes in your blood sugars in between meals and keep you full longer. Buying whole grains does not need to cost more. They are more affordable if you buy the store brand or no name brand, and in fact many whole grains are the same price as non-whole grains. It may also be cheaper to buy some grains in bulk such as oatmeal, rice and pasta. Examples of whole grains are brown rice, multigrain bread, whole wheat pasta, quinoa, steel cut oatmeal and whole wheat tortillas. Also, some whole grains such as brown rice can be cooked once and re-heated for 3 days or even frozen for 6 months. Just add a small amount of water when reheating. Keep in mind that bread also freezes very well, so if there are deals on bread products such as English muffins, you can buy three packages and freeze two until you need them.





The following is an example of how brown rice can be made into a variety of ways:

- 1 Start with 1 cup of brown rice.
- 2 Add a variety of vegetables and protein like peppers, celery, beans or nuts. You can also use fish, chicken or beef and add some spices.

RICE BOWL	VEGETABLE OR FRUIT	PROTEIN	SAUCE OR SEASONING
Taco Bowl	Tomatoes, onions, corn and green peppers	Taco-seasoned lean ground beef, turkey, cod fish or black beans	Italian salad dressing, cilantro
Vegetarian Bowl	Cucumbers, tomatoes, carrots and celery	Black beans, pinto beans, edamame, or kidney beans	Italian salad dressing, cilantro
Thai Bowl	Red peppers, hot peppers, carrots, green onions and snap peas	Chicken, pork, seafood (shrimp) or tofu	Peanut sauce or curry sauce with cilantro or basil
Fajita Bowl	Green and red peppers, corn and onions	Grilled chicken, beef or kidney beans and black beans	Shredded cheese and salsa
Fruit and Nut breakfast Bowl	Apple, banana or mango	Walnuts or almonds	Cinnamon, raisins or cranberries
Hawaiian Bowl	Avocado, tomatoes and onions	Tuna	Soy sauce, sesame seed oil, cilantro, sesame seeds or minced ginger
California Bowl	Grilled red peppers, tomatoes, zucchini and avocado	Chicken and/or walnuts	Season with parsley, basil, olive oil and lemon juice

5 Dairy Products: Dairy products such as cheese, yogurt, milk, almond milk and soy milk are cheaper if you buy them in larger portions. For instance, it is cheaper to buy a 750gram tub of yogurt than individual containers.



6 Meat and Alternatives: Meat tends to be one of the most expensive items in a food budget, especially if you like a high-quality beef or seafood. If you are purchasing meat, try cheaper cuts of meat such as chicken legs or thighs instead of boneless chicken breast. If you want pork or beef, try roasting pork shoulder or beef in a slow cooker. Eggs, beans and canned fish can be quite affordable and are also protein sources that are very healthy. For instance, if you like beans and are making tacos, you can substitute ½ of the ground beef that is in the recipe for beans. Buy dried beans if you have time soak them overnight, as they are cheaper than canned beans. Canned tuna is a cheaper fish option which is great in a sandwich. If you are vegetarian, buy lentils and beans in bulk. If you are lacto-ovo vegetarian, buy 18 eggs versus a dozen eggs, as it is usually cheaper. Eggs are one of the most affordable sources of high-quality protein. One egg contains 6 grams of protein and 13 essential vitamins and minerals. Eggs can also be prepared in many ways.

Be aware of **best before dates!** Food does not tend to spoil by this date! For example, eggs are often good for 3 weeks after their best before date, milk for 1 week after and yogurt for 1-2 weeks after. However, *use your own judgment.* If it smells or tastes funny it's probably not good. You can also freeze foods that are nearing their expiry dates to give you more time to eat them.

Nutrition Facts	
Per 90 g serving (2 slices)	
Amount	% Daily Value
Calories 170	
Fat 2.7 g	4 %
Saturated 0.5 g + Trans 0 g	5 %
Cholesterol 0 mg	
Sodium 200 mg	8 %
Carbohydrate 36 g	13 %
Fibre 6 g	24 %
Sugars 3 g	
Protein 8 g	
Vitamin A 1 %	Vitamin C 0 %
Calcium 2 %	Iron 16 %

Do You Need a Review on Carbohydrate Counting?

You need to take fast-acting insulin (Nova rapid, Humalog, Admelog, FIASP or Apidra) for carbohydrate-containing foods. Foods that contain carbohydrates are starch, fruit and some vegetables, milk, and sugars. Foods that do not contain carbohydrates are protein, fats and oils, and many vegetables. You generally do not need to take rapid-acting insulin with these food items, depending on the portion size.

Please refer to Appendix B for a copy of the Best Centre carbohydrate counting hand out. You can also refer to handy apps such as My Fitness Pal. Also, do not forget you can look at food labels to determine the grams of carbohydrate in a serving.



How to Read a Label

- 1 Look at the Nutrition Facts on the food label.
- 2 Look for the serving size on the top of the label (do not get confused with the grams in the serving size, this is not grams of carbohydrates, it refers to the weight of the serving size).
- 3 Look for the grams of carbohydrates (do not worry about counting grams of sugar as they are included in the grams of carbohydrates).
- 4 Subtract the grams of fibre from the grams of carbohydrates to determine the total carbohydrates in the serving.



1

Driving and Diabetes

1. Driving

If you have your driver's license or are thinking about getting your driver's license, there are important things you need to know.

Guidelines for Private Drivers on Insulin

Test your blood sugar before driving, and follow guide below:



If your blood sugar is above 5 mmol/L, you can drive.



For blood sugar 4 to 5 mmol/L:

▶ Have a snack with 15g carbohydrate before you start driving.



For blood sugar less than 4 mmol/L:

Treat low blood sugar with 15g fast-acting carbohydrate. Wait 15 minutes and retest. If still below 4 mmol/L, repeat above. Once above 4 mmol/L, have a snack with 15g carbohydrate, wait 40 minutes before driving and re-test to ensure blood sugar is above 5 mmol/L.

Additional Guidelines:

- ▶ You **must** have meter and fast-acting carbohydrate in the car within easy reach.
- ▶ Maintain record of blood sugars using meter with memory or electronic record.
- ▶ If you feel symptoms of a low, pull over safely, put car in park and take keys out of ignition. Treat low as above.
- ▶ If you have severe low blood sugar while driving, you must notify a member of your health care team within 72 hours.
- ▶ Test blood sugar at least every 4 hours while driving or wear continuous glucose monitor (CGM).
- ▶ If you have history of (1) not feeling low blood sugar symptoms or (2) a severe low blood sugar in last 12 months, test blood sugar every 2 hours while driving or wear CGM.



CAUTION - Your license may be at risk if you have:
Any severe low blood sugar while driving in the last 12 months. More than one episode of severe low blood sugar while awake in the last 6 months.

2

Being Active



You may have been involved in extra-curricular activities such as hockey or soccer while in high school and now that you have graduated you may not have time to join a new sports team. However, being active is a great way to stay healthy and will even help you stay focused.

Why is Being Active Important?

Exercise:

- ▶ Promotes the release of “happy chemicals”, such as dopamine, which help you feel better if you are in a bad mood or stressed out
- ▶ Helps you to relax, sleep well and have more energy
- ▶ Can assist with blood sugar control
- ▶ Improves blood pressure and cholesterol levels
- ▶ Can help you to maintain your weight or lose weight

How Much Activity is Recommended?

- ▶ For adults, aim for 150 minutes of aerobic activity per week (30 minutes a day) and resistance exercise 2 to 3 times per week.
- ▶ For young adults, aim for 150 minutes of activity per week.
- ▶ It is beneficial to incorporate stretching into your regular exercise routine to prevent injury and to improve flexibility.
- ▶ If you are sitting for prolonged periods of time, it is recommended that you take breaks with bouts of light activity every 30 minutes.

4 Types of Physical Activity

Aerobic: Activity that uses your major muscle groups, increases your heart rate and ranges from low to high intensity. This includes walking, biking, long distance running, cross country skiing, swimming, dancing and hiking.

Resistance: Activity that works against a resistance such as weights or your own body weight. This includes weight training, using resistance bands and Pilates.

Anaerobic: Activity that involves short bursts of intense movement and can lead to hyperglycemia. This includes sprinting, ice hockey and weightlifting.

Stretching: Exercise that improves your range of motion. This includes yoga and stretches.



How to Start Being Active if You Are Not Active Already

1. Be Safe

- ▶ Talk to your doctor if you have retinopathy, neuropathy or heart disease to determine what exercise is best for you.
- ▶ Always carry medical identification stating that you have type 1 diabetes on your person.
- ▶ Carry treatment for low blood sugar such as glucose tablets in case you need it.
- ▶ Take care of your feet by wearing supportive and appropriate footwear.
- ▶ Drink water before, during and after activity to maintain hydration. Aim to drink 500ml to 1 L of water per hour of activity.

2. Check Your Blood Sugar

Before you start any activity, check your blood sugar and use the chart below as a guide:

Blood Sugar Level	Treatment Needed*(2)
< 4 mmol/L	Do not exercise. Treat with 15 grams of fast-acting carbohydrates and follow low blood sugar treatment guidelines.
< 5 mmol/L	Consume 10-20 grams of carbohydrates and delay exercising until blood sugar is above 5 mmol/L and rising.
5-6.9 mmol/L	Consume 10-20 grams of carbohydrates before performing aerobic activity.
7-10 mmol/L	No carbohydrates are needed before starting aerobic or anaerobic activity.
10.1-14 mmol/L	Aerobic and anaerobic activity can be started.
>14 mmol/L	If high blood sugar is unexplained, check blood ketones and if > 0.6, treat according to preventing diabetic ketoacidosis guidelines and delay exercise until you no longer have ketones.

**If exercise is longer than 30 minutes, more carbohydrates will be needed. It is recommended that you monitor your blood sugar during the activity to determine if you need more treatment. If you are using a sensor/flash monitor, review your arrows and if it is suggesting that you are low, ensure accuracy with a capillary blood sugar check.*

3. Adjust Insulin if Activity Is 1 to 2 hours After a Meal

If you exercise 3 or more hours after a meal, your mealtime injection or bolus will not need to be adjusted.

Aerobic Activity: If you exercise 1 to 2 hours after your meal and your exercise is longer than 30 minutes, you will need to reduce your mealtime injection or food bolus as follows for aerobic activity:

Type of Mixed Aerobic and Anaerobic Activity	Meal Before Activity Lasting 30 to 45 Minutes	Meal Before Activity Lasting More than 45 Minutes
Gymnastics, hockey, soccer, baseball, dance	25% insulin reduction for meal	50% insulin reduction for meal

For activities that last 60 minutes or longer, additional carbohydrates may be needed during exercise, depending on your blood sugar level. You may need up to 1.5 grams of carbohydrate per kilogram of body weight to get through the activity, based on your own experience and individual needs.

For PUMPERS!!

If your activity is more than **2 hours after a meal**, you will need to set a **TEMPORARY BASAL RATE**.

- ▶ Start a temporary basal rate reduction 90 minutes before you plan to start exercising and run it for the duration of the exercise. This can be set at a reduction of 20 to 80% (depending on the intensity of the activity).
- ▶ If you notice that your blood sugars are dropping after exercise as well, consider extending the duration of the temporary basal rate reduction until after exercise.
- ▶ If you are participating in anaerobic or a combination of anaerobic/aerobic activity and you notice that you have to correct after the activity, consider increasing your basal rate 90 minutes prior to the start of the activity and start with 110% of your usual basal rate.
- ▶ It is not recommended that you suspend your pump for physical activity as it leads to hyperglycemia during and after the activity and increases the risk of low blood glucose overnight. If you are participating in a contact sport and your pump needs to be taken off, set a temporary basal rate reduction 90 minutes before the start of the activity and give a 50% correction after the sport.



CHAPTER 3 Extra-curricular Activities

3

Travelling

Be Aware of Possible Overnight Low Blood Sugars

It is common to experience low blood sugar up to 24 hours after being active (it is often 6 to 12 hours later). This is due to the muscles needing to replace their glycogen stores. There is an even higher risk of experiencing low blood sugar overnight if you have done more than one activity in the day. Here are some tips to prevent this:

- ▶ Test your blood sugar after exercise and do some blood sugar checks overnight. If you are on a sensor or flash monitor, review your blood sugar readings overnight after being active.
- ▶ If you do experience low blood sugar overnight, reduce your long-acting insulin on the day you are active by at least 20% if you are on injections, or reduce basal rate by at least 20% overnight if you are on an insulin pump.
- ▶ You may need lower glycemic index carbohydrate-containing snacks and protein at bedtime, especially if your blood sugar is less than 7mmol/L at bedtime.

Do not let diabetes stop you from travelling anywhere around the world, but do plan every trip. The following tips and checklist will help ensure you have everything that you need during your travels.

- 1 Arrange an appointment with one of your diabetes educators prior to your trip. For this appointment, please bring your travel itinerary so that they can assist you if there are changes in time zones.
- 2 Obtain any required vaccinations at least 4 weeks before you travel.
- 3 Be sure to get a list of all of your oral medications from your pharmacist.
- 4 Ensure that you have travel health insurance for trips out of country (you may have to buy it).
- 5 It is important to always carry your diabetes supplies with the original pharmacy label in a carry-on bag. It is not a good idea to pack any of your supplies in your luggage as it may get lost or be affected by extreme temperatures while in flight.
- 6 Always bring twice the amount of diabetes supplies that you will need in case supplies get lost, stolen or destroyed.

Travel Checklist

Travel Documents/Identification

- ▶ Travel letter outlining that you have diabetes and need to carry your insulin and supplies with you (this can be obtained from the Best Centre)
- ▶ Travel health insurance
- ▶ Travel plan - schedule of insulin adjustments for time zone if needed*
- ▶ Medical identification of diabetes such as a bracelet or wallet identification





Sick Day Supplies

- ▶ Blood ketone meter
- ▶ Blood ketone test strips
- ▶ Preventing Ketoacidosis information sheet
- ▶ Tylenol/Advil
- ▶ Gravol
- ▶ Thermometer

Low Blood Sugar Treatment Supplies

- ▶ Glucose Tablets such as Dex-4 tablets, Rockets, Skittles or other fast-acting carbohydrates
- ▶ Carbohydrate-containing snacks such as granola bars or crackers
- ▶ Glucagon kit

Miscellaneous

- ▶ Insulin - bring twice as much as you need and bring the pharmacy label
- ▶ Insulin pen and syringes (bring extra)
- ▶ Blood glucose meter (bring 2)
- ▶ Extra blood glucose test strips
- ▶ Insulated protective containers for insulin - insulin can be stored at room temperature for 30 days, however it cannot be exposed to extreme temperatures, thus never keep it in direct sunlight or on ice
- ▶ Extra meter batteries
- ▶ Sharps container
- ▶ Sensors if you use them

Pump Supplies

- ▶ Infusion sets/pods (bring double)
- ▶ Reservoirs
- ▶ Copy of your pump settings
- ▶ Skin preparation, dressings or adhesives
- ▶ Extra batteries for pump
- ▶ Extra insulin pump (loaner pump if on a tubed pump)

Tips if You Are Travelling With an Insulin Pump

If you are crossing time zones with a pump, all you need to do is change the time on your pump to the local time when you arrive.

Pumps cannot be put through the conveyor belt that scans your carry-on luggage. They also cannot be on your body if you have to use a body scanner. Thus, you will have to disconnect your pump and have someone hold it for you. A tubeless pump is safe to go through the conveyor belt and body scanner.

If travelling in the U.S., please be aware that they use mg/dl to measure blood sugar level. If you lose your meter and have to purchase a meter in the U.S., use the conversion below to determine your blood sugar level.

Blood sugar conversion if you are in the USA and you have to purchase a new meter

$$1 \frac{\text{mmol}}{\text{L}} = 18 \frac{\text{mg}}{\text{dL}} \quad \text{For example } 7 \frac{\text{mmol}}{\text{L}} \times 18 = 126 \frac{\text{mg}}{\text{dL}}$$

$$4 \frac{\text{mmol}}{\text{L}} \times 18 = 72 \frac{\text{mg}}{\text{dL}}$$



4

Alcohol and Drugs

While we encourage a good social life balance and enjoying your growing independence, we also recommend you know what to do if you are consuming alcohol. It can be very challenging for someone with diabetes.

Sensible Drinking: We know we cannot tell you not to drink, but you should know that alcohol can be addictive. The legal drinking age is 19 in Ontario. The Diabetes Canada appropriate drinking amount for adults is 2 standard drinks per day or less than 10 drinks per week for women and less than 3 standard drinks per day or less than 15 drinks per week for men. The following is a list of “must do’s” when drinking alcohol;

- ▶ Always eat something before you drink. Drinking alcohol on an empty stomach can cause you to have a low blood sugar. Alcohol tends to cause blood sugar to go high in the beginning, depending on the type of drink of that is consumed, and then go low. This is due to the liver processing the alcohol. For this reason, do not take rapid acting insulin for carbohydrates that are in alcohol containing drinks.
- ▶ Bring snacks along when you go out to prevent your blood sugar from going too low (pretzels, candies etc.)
- ▶ Drink a glass of water or another calorie-free option (e.g. diet soda or iced tea) between drinks.
- ▶ Test your blood sugar before going out, while you are out and before going to bed. Monitoring continuously will help you manage the unpredictable numbers alcohol can give you.
- ▶ Have a buddy system. Make sure you are with someone who knows that you have type 1 diabetes. Remember that hypoglycemia has effects similar to drunkenness such as drowsiness, slurred speech and disorientation.
- ▶ Wear a medical alert ID. Having a low blood sugar and being drunk can look like the same thing.
- ▶ If you have a sensor, set the low alarm a little higher than usual, like 4-4.5 mmol/l, to prevent going too low at night.
- ▶ You may want to lower your basal rate overnight if you have consumed alcohol. It is generally recommended to lower your basal by 30-50% depending on the number of drinks that you have had.



Low Blood Sugar and Alcohol

Alcohol can cause delayed low blood sugar up to 24 hours after drinking. Alcohol also lowers your body's ability to recover from a low. Normally, when your blood glucose level starts to drop, your liver steps in and goes to work changing stored carbohydrates into glucose. It then sends the glucose out into the blood, which helps avoid or slow down a low blood glucose reaction. However, when alcohol enters your system, your liver acts differently. Your body reacts to alcohol like it would to a poison and the liver prioritizes clearing it from the blood. In other words, the liver will not put out the necessary glucose until it has taken care of the alcohol. If you consume alcohol 2 to 3 hours after the previous evening's meal, you are at high risk of having a low blood sugar overnight or the next morning.

ONE DRINK" SIZE	ALCOHOL PERCENTAGE	TYPES OF BEVERAGES
12 oz (341 mL)	5%	Beer (one standard can)
5 oz (145 mL)	12%	Wine
3 oz (85 mL)	16-18%	Fortified wine (e.g. port, sherry or vermouth)
1.5 oz (45 mL)	40%	Spirits or liquor (e.g. rum or vodka)

Alcohol and the Morning After

- ▶ If you are experiencing a hangover, you still need to get up and test your blood sugar and eat something if your blood sugar is less than 7. If you take long-acting insulin in the morning, you still need to get up and take it.
- ▶ If your blood sugar is above 14mmol/l and/or you are vomiting, test your blood ketones. Become familiar with sick day guidelines.



Pharmaceutical drugs, opiates, cannabis, psychedelic drugs and club drugs can be used in a way that is casual and potentially harmful. Any type of recreational drug can be harmful to anyone's health, and recreational drugs can be especially harmful to someone with type 1 diabetes.

Drugs

When you have diabetes, drugs can impact you in the following ways:

- ▶ Some drugs lower blood glucose levels, while others can raise blood glucose levels.
- ▶ Drugs can change your perception, awareness and consciousness, and they can make it hard for you to recognize when you are having a low blood sugar. This can also make you forget about routines, injections, mealtimes and all the other things you need to do to look after your diabetes.
- ▶ Some drugs cause lack of appetite and a decreased interest in food, increasing your risk for a low blood sugar. Other drugs, like marijuana, can give you “the munchies,” which can lead to overeating and high blood glucose levels. Drugs can also change the way you feel. You might notice a faster heartbeat or sweating, which can be mistaken for low blood sugar.
- ▶ “Hangover” effects that you may experience after the drugs have worn off, like depression or sleep problems, can make you lose interest in looking after your diabetes. Many drugs can have long-term effects on your health such as damage to the liver, heart and brain. Combined with diabetes, the damage can be severe. The risk of overdose and bad reactions to drugs can make you very sick or even kill you! Mixing drugs or combining them with alcohol can further increase these risks.

If you choose to use drugs, there are some guidelines you should follow to decrease your chances of ending up in the hospital.

- Set a limit for yourself ahead of time.
- Set a time to check your blood sugar, and then do it!
- Ask a friend who is not on drugs to watch you for signs of low blood sugar
- Make a plan to check your blood sugar or sensor and treat your blood sugar as needed.
- Always wear your diabetes medical ID.

Cigarette Smoking

If you decide to smoke cigarettes, here are some things you need to know:

- Although cigarettes do not affect your blood sugar, they do affect your blood vessels and circulation. Smoking cigarettes can lead to heart disease, eye damage and circulation issues.
- There is an increased risk in men having erectile dysfunction (as well as having problems with erection later in life).



5

Sexual Health

If you are thinking about having sex, make sure it is the right thing for you. It is important to remember and be aware that, like for someone without diabetes, there are risks when having sex. That includes getting pregnant and contracting a sexually transmitted disease.



What to Consider When Having sex

Sex is a unique form of physical exercise. Like most exercise it can cause you to sweat and can make your heart rate increase. Since it requires physical activity, it may cause you to have low blood sugar. It is good practice to check your blood sugar level before, during and after having sex. Try to have treatments for a low blood sugar such as juice boxes, granola bars and glucose tablets in your night stand.

Contraceptives

Contraceptives are important to prevent an unplanned pregnancy and some forms of contraceptives can even prevent sexually transmitted diseases. Birth control options for individuals with diabetes who are sexually active are the same as for those without diabetes. Options include hormonal birth control such as birth control pills or IUDs and non-hormonal birth control such as condoms.

Erectile Dysfunction

Men with type 1 diabetes are at increased risk of having erectile dysfunction if they have uncontrolled diabetes. This is due to the elevated blood sugars affecting blood flow and circulation. As well, elevated blood sugars can affect erection quality. There are many ways to treat erectile dysfunction, however, managing blood sugars is ideal for prevention.



6
Pregnancy



Women with type 1 diabetes are able to become pregnant just like women without diabetes. Women with diabetes are also able to have a healthy baby if they have controlled blood sugars before and during pregnancy. It is crucial for women with type 1 diabetes who are considering pregnancy to have optimal blood sugar control prior by having a hemoglobin A1c of 7.0% or less (ideally $\leq 6.5\%$ if possible). A baby's major organs develop within the first 8 to 12 weeks of a pregnancy; thus, it is ideal to have blood sugars in target range before conceiving. Poorly-controlled diabetes in a pregnant woman with type 1 diabetes increases her risk of miscarrying, having a baby born with malformations and having a stillborn. Thus, effective contraception should be provided until someone is ready for pregnancy and pregnancy should ideally be planned at least a few months prior to trying to conceive (6).

Pregnancy plans should be discussed with your Best Centre team prior to conception so that we can:

- ▶ Review your blood glucose targets
- ▶ Start you on folic acid supplementation of 1 mg daily
- ▶ Review the medications you are taking to determine if they are safe during pregnancy
- ▶ Complete annual lab work to review kidney function and cholesterol levels
- ▶ Ensure you complete your annual eye exam to assess if there is any diabetic retinopathy and need for treatment

What to do if you do become pregnant:

- ▶ Call your diabetes specialist/endocrinologist ASAP to arrange an appointment
- ▶ Call the Best Centre to arrange an appointment
- ▶ Call your family MD to arrange an appointment

5

Preventing
Complications

Having diabetes can lead to serious long-term complications. However, you can prevent complications from happening. One way to do this is to learn about the potential complications and how you can avoid them.

Chronic Complications

These usually develop over time and will be caught by having regular annual lab work and annual eye exams completed. Regular exams will also prevent microvascular complications such as eye, kidney and nerve disease, and macrovascular complications such as heart disease.

To Prevent Complications

- 1 Have regular appointments with your diabetes specialist at least once per year and your Best Centre team at least twice a year.
- 2 Monitor your blood sugar levels and keep them in target range. If you need help with doing this, contact your Best Centre team and they can help you.
- 3 Become familiar with any signs or symptoms of diabetes complications and contact your diabetes specialist immediately if they are present.
- 4 Avoid smoking, as it can increase the risk of diabetes complications such as heart disease, stroke, kidney disease, nerve damage, eye disease and erectile dysfunction.
- 5 Monitor your blood pressure and become familiar with your target.
- 6 Maintain a healthy lifestyle by eating healthy and exercising regularly.

Blood Glucose Monitoring

Checking your blood sugar before meals and at bedtime gives you valuable information about how to manage your diabetes. Wearing a continuous glucose monitor/sensor is very helpful as your blood sugars levels can be seen between meals and overnight.

BLOOD GLUCOSE TARGETS ARE AS FOLLOWS:
4-7 mmol/L before meals
5-10 mmol/L 2 hours after meals
A1C of 7.0% or less
Time in range of at least 70%
3% or less of low blood sugar levels



Blood Glucose Pattern Management

If your blood sugar is consistently too high or too low, consider the following:

1 If you are on injections, does the insulin dose need to be changed? If you are on an insulin pump do you need to change your pump settings?

2 Elevated blood sugar levels at certain times of the day often determine which insulin has the greatest effect on the blood sugar level

If your blood sugar is consistently too high or too low, consider the following:

For Insulin Injections

IF BLOOD SUGAR IS LOW FOR AT LEAST 2 DAYS	DECREASE THE FOLLOWING (7):
Before breakfast or overnight	Long-acting insulin dosage by 1 to 2 units
Before lunch	Rapid-acting insulin: if using an insulin to carbohydrate ratio, increase breakfast ratio by 1 to 2 grams
Before dinner	Rapid-acting insulin: if using an insulin to carbohydrate ratio, increase lunch ratio by 1 to 2 grams
Before bedtime	Rapid-acting insulin: if using an insulin to carbohydrate ratio, increase dinner ratio by 1 to 2 grams

IF BLOOD SUGAR IS HIGH FOR AT LEAST 3 DAYS	INCREASE THE FOLLOWING (7):
Before breakfast or overnight	Long-acting insulin dosage by 1 to 2 units
Before lunch	Rapid-acting insulin: if using an insulin to carbohydrate ratio, decrease breakfast ratio by 1 to 2 grams
Before dinner	Rapid-acting insulin: if using an insulin to carbohydrate ratio, decrease lunch ratio by 1 to 2 grams
Before bedtime	Rapid-acting insulin: if using an insulin to carbohydrate ratio, decrease dinner ratio by 1 to 2 grams



If you are on an Insulin pump

If your blood sugar levels are lower overnight or in the morning, your basal rate needs to be decreased overnight.

If your blood sugar levels are higher overnight or in the morning, your basal rates need to be increased overnight

If your blood sugar levels are elevated before a meal, then your insulin to carbohydrate ratio needs to be decreased by 1 to 2 grams.

If your blood sugar level remains elevated after a correction and you continue to correct your blood sugars, then your insulin sensitivity factor needs to be changed.

3 If your blood sugars were lower in the morning due to physical activity the day before, make a plan to reduce your insulin before bed the next time you are active.

4 Only make small increases or decreases to your insulin dosages. Long-acting insulin should only be increased or decreased by one or two units at a time. Leave the change for 2 to 3 days to see if it works. When changing your insulin to carbohydrate ratio, adjust it up or down by 1 to 2 grams at a time.

5 Contact the Best Centre for help at any time during the day if you need further guidance.

CHAPTER 4 Managing Your Diabetes

2

Treatment of a low blood sugar

Experiencing low blood sugar (hypoglycemia) of less than 4mmol/L can be very scary. Signs and symptoms of hypoglycemia develop when the supply of glucose to the brain is insufficient for normal functioning. Individuals with diabetes can expect to have the occasional low blood sugar and should **always** have access to emergency sugar. There are a number of reasons why your blood sugar may drop to less than 4 mmol/L:

- ▶ Eating too few carbohydrates after taking your insulin
- ▶ Missing or being late for a meal
- ▶ Insulin dosage being too high
- ▶ Increased physical activity that was not planned
- ▶ A more intensive physical activity
- ▶ A very busy day at work
- ▶ Consumption of alcohol
- ▶ Stress or illness



Signs and Symptoms of Low Blood Sugar:

- ▶ Sudden onset of hunger
- ▶ Tremors/shakiness
- ▶ Sweating
- ▶ Fatigue/tiredness
- ▶ Irritability, mood changes or confusion
- ▶ Blurred vision

Call 911 if a person with type 1 diabetes is unable to receive sugar treatment safely or if they:

- ▶ Have lost consciousness
- ▶ Had a seizure
- ▶ Are unable to take fast-acting sugar by mouth

Treatment of hypoglycemia:

1 Test your blood sugar. If blood sugar is under 4 mmol/L, treat with 15g fast-acting carbohydrate. If blood sugar is under 3 mmol/L, treat with 20g fast-acting carbohydrate.

FAST-ACTING CARBOHYDRATE FOR TREATMENT OF MILD TO MODERATE HYPOGLYCEMIA		
	15g	20g
Dex4 glucose tables	4 tablets	5 tables
Dex4 LiquiBlast (bottle)	1 bottle	1 and 1/3 bottle
Dex glucose gel	1 tube	1 and 1/3 tube
Juice	125 mL or 1/2 cup 1 juice box	175 ml or 3/4 cup 1 juice box
Regular pop	125 ml or 1/2 cup 1/2 of 12 oz can 1/3 of 20 oz bottle	175 ml or 3/4 cup 1/2 of 12 oz can 1/3 of 20 oz bottle
Honey corn syrup or maple syrup	1 tbsp or 3 tsp	1 and 1/4 tbsp or 4 tsp
Skittles	15 pieces	20 pieces
Rockets candy (Regular)	2 rolls	3 rolls
Roceks candy (Giant)	5 candies	7 candies

2 Wait 15 minutes then re-test blood sugar. If blood sugar is still less than 4 mmol/L, repeat treatment and retest in 15 minutes. Repeat these steps until blood sugar is above 4 mmol/L.

3 Once blood sugar is over 4 mmol/L, eat a snack or meal with 15g carbohydrate and protein within the next 60 minutes (e.g., granola bar, yogurt, crackers with cheese or peanut butter, or half a sandwich).



Hypoglycemia Unawareness

Sometimes people with diabetes do not recognize early signs or symptoms of low blood sugar. This may be due to having had diabetes for a long time or having low blood sugar often (more than 3 to 4 times per week).

Please let your diabetes team know if you do not always have symptoms of low blood sugar and they can help you with this.

Tell your friends about your diabetes and what to do if you require help in recognizing and treating low blood glucose. They may notice something such as changes in your behaviour (confusion or irritability) that alerts them that you may be having a low blood sugar.

Always wear medical alert ID and carry treatment for a low blood sugar with you.

CHAPTER 4 Managing Your Diabetes

3

Glucagon and Mini dose glucagon

Severe Hypoglycemia

Severe low blood sugar occurs if you become unresponsive or are unable to take a treatment for low blood sugar by mouth. This is a medical emergency. Always have a glucagon emergency kit available. If you have a roommate, show them what it is and how to use it. If glucagon is not available, someone needs to call 911.

What is Glucagon?

Glucagon is a hormone that stimulates the liver to release stored glucose into the blood stream. Glucagon comes in 2 forms: an injection and a nasal spray. Ask your doctor for a prescription for glucagon if you do not have one.

Injectable Glucagon

Your injectable glucagon kit contains the following:

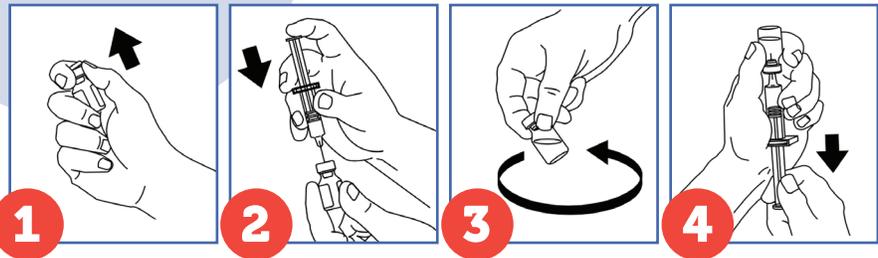
- ▶ a small bottle with a 1 mg tablet of glucagon powder inside it
- ▶ a syringe pre-filled with 1 mL of sterile water

The contents of the syringe and powder are inactive. They must be mixed together before an injection is given and they cannot be mixed ahead of time.



How do I inject Glucagon?

- 1 Remove the plastic cap from the bottle.
- 2 Push the pre-filled syringe through the middle of the rubber stopper of the bottle. Inject all of the water from the syringe into the bottle containing the glucagon tablet
- 3 Without taking the needle out of the bottle, gently shake the bottle until the glucagon has dissolved in the water and the solution is clear. Do not use if a gel has formed or if you see particles in the solution.
- 4 Carefully turn the vial and syringe together upside down. Gently draw all of the fluid back into the syringe. Be careful not to pull the plunger out of the syringe.
- 5 Remove air bubbles from the syringe if they are present. With the needle pointing upwards, tap the syringe with your finger. Push the plunger slightly to release any air bubbles. Remove the syringe from the vial.
- 6 Inject glucagon into the thigh muscle, buttocks or upper arm by pushing the plunger all the way down.



Remove the Shrink Wrap by pulling on the red stripe



*Open the Lid and remove the Device from the Tube.
Caution: do not press the Plunger until ready to give*

Nasal Glucagon

Glucagon also comes in the form of a dry nasal spray and is given as a puff in the nose. It does not need to be inhaled, thus can be given in the presence of nasal congestion.

- 1 It may take 10 to 15 minutes for the glucagon to work.
- 2 If the person is unconsciousness, roll them over on their side as they may vomit when they wake up. Putting the person on their side will lessen their chances of choking.
- 3 Call 911 after you give glucagon.
- 4 Once the person is alert and able to swallow, give them juice or other fast-acting sugar.
- 5 Once the person's blood sugar is above 4 mmol/L, give them a carbohydrate-containing snack such as crackers and cheese, toast and peanut butter or a granola bar.



Hold Device between fingers and thumb. Do not push Plunger yet.



Insert Tip gently into one nostril until finger(s) touch the outside of the nose.



Push Plunger firmly all the way in. Dose is complete when the Green Line disappears.

Possible Side Effects of Glucagon

Vomiting is possible after receiving glucagon and someone can have an upset stomach up to 24 hours after receiving it. Inhaled glucagon may cause a runny or stuffy nose or nasal discomfort. Glucagon may not be effective if the severe low blood sugar is due to alcohol consumption.

Storage of Glucagon

Store glucagon at room temperature. Tell friends/roommates/family where it is and always keep it in the same place. Check the expiry date from time to time. Injectable glucagon has a one-year expiry date and inhaled glucagon has an 18-month expiry date.

Mini-dose Injectable Glucagon

During illness you may be unable to consume or absorb carbohydrates because of nausea, vomiting, diarrhea, or your blood glucose being below 4 mmol/L. In this case, you can use a mini dose of injectable glucagon (8).

You will need:

- ▶ Glucagon for injection
- ▶ An insulin syringe
- ▶ A blood glucose meter and test strips

How to prepare a mini dose of injectable glucagon:

1 Mix the glucagon as per directions (inject 1cc of sterile diluent into the vial containing the glucagon powder). DO NOT use glucagon syringe after mixing glucagon.

2 Draw up 15 units into the insulin syringe.

3 Inject the mini dose the same way you would give an insulin injection (subcutaneously).

4 Check your blood sugar every 30 minutes.

5 If after 30 minutes your blood sugar has not improved, then give a double dose of the glucagon (30 units).

6 The effective dose may be repeated every hour as needed to keep blood glucose levels above 4.5 mmol/L.

7 The mixed glucagon should be kept in the fridge between doses, and then discarded after 24 hours.

Replenish the glucagon as soon as possible! Many pharmacies do not stock glucagon. It may take up to 1-2 weeks to order, so let your pharmacist know before your stock is out.

Do not use a mini dose of glucagon if you are experiencing severe low blood sugar symptoms such as confusion, unconsciousness or seizure. Give the full dose of injectable glucagon (using the syringe it comes with) or use the nasal glucagon in that case.



4

Managing Illness and Preventing Diabetic Ketoacidosis

Having diabetes does not increase your risk of getting sick or having an infection. However, an illness can make diabetes more difficult to manage. There is a release of stress hormones during illness which lead to high blood sugars even if you are not eating. Nausea, vomiting, diarrhea and/or changes in food and fluid intake can also lead to low blood sugar. These guidelines will help prevent possible diabetic ketoacidosis, severe low blood sugar and dehydration during illness.

The keys to managing diabetes during illness are:

- 1 Getting enough fluids
- 2 Controlling blood sugars
- 3 Managing ketones

Tell someone when you are not feeling well.
Things can change quickly and unexpectedly, and you might need help.

Be prepared

Keep a supply of the following available in case of illness:

- ▶ Blood sugar meter and strips, especially if you are on a sensor
- ▶ Blood ketone meter (Freestyle Precision Neo or Libre reader) and blood ketone strips
- ▶ Glucagon:
 - Nasal glucagon
 - Injectable glucagon and syringes for mini-dose glucagon
- ▶ Sugar-containing fluids such as regular juice (not diet or low calorie), ginger ale, Gatorade™/Powerade™ or Jello™
- ▶ Lollipops, freezies and popsicles
- ▶ Sugar-free fluids such as Gatorade™/Powerade™ Zero, sugar free Jello™ or soup broth

Seek medical attention* if:

- ▶ Blood sugars and ketones remain high even after extra doses of rapid-acting insulin
- ▶ Blood sugar remains low even after mini dose glucagon
- ▶ You vomit more than 2 times or have diarrhea more than 3 times within 4 hours
- ▶ You show signs of dehydration (see description below), become drowsy or confused or have a seizure
- ▶ You have difficulty breathing or have abdominal pain and nausea that will not go away
- ▶ You feel that you need help

**Contact the Best Centre during regular hours, call the emergency number after hours or go to your nearest hospital emergency department.*

Take diabetes supplies such as a blood glucose meter and strips, ketone meter and strips, and fluids with you to the hospital.

Check Blood Sugar and Blood Ketones Frequently.

Check blood sugar and blood ketones every 2 to 4 hours, including overnight. Extra rapid-acting insulin is often required if blood sugars are high and ketones of 0.6 or higher are present.



Managing Ketones/Preventing Diabetic Ketoacidosis

You may need more insulin during illness. If there is not enough insulin, our bodies burn fat and muscle for energy instead of sugar. This creates ketones. Ketones are a type of acid. A build-up of ketones can be toxic and can cause a serious problem called diabetic ketoacidosis (DKA). With DKA you may be nauseous, have stomach pains, vomit, become dehydrated or have difficulty breathing. If left untreated, DKA can become life threatening. To prevent this, you need extra insulin and plenty of fluids.

The body does not make ketones from eating too much. It will make small amounts of ketones during periods of starvation. Both of these do not normally lead to DKA.

Follow these steps to manage ketones:

Step 1: If on injections; calculate TDD (total daily dose). Add up the units of all the insulin you take in a usual day, both long-acting (_____) and fast-acting (_____). TDD: _____ units. If on an insulin pump, please look at your total daily insulin history on your pump to determine your average total daily dose.

Step 2: Use the chart to determine how much EXTRA rapid-acting insulin you need (Humalog, Novorapid, Apidra or Fiasp) to give to get rid of the ketones. Give the extra insulin in addition to the correction dose for high blood sugar.

Blood Ketones	GIVE THIS MUCH EXTRA INSULIN	
	Blood Sugar 8-16	Blood Sugar Greater than 16
Less than 0.6 mmol/L	No extra insulin	10% of TDD
0.6-1.4 mmol/L	10% of TDD	15% of TDD
1.5-3.0 mmol/L	10% of TDD	20% of TDD
If more than 3.0 mmol/L seek medical attention		

Total Daily Dose (TDD)	5% of	10% of TDD	15% of TDD	20% of TDD
5-15 units	0.5 units	1 unit	1.5 units	2 unit
16-25 units	1 unit	2 units	3 units	4 units
26-35 units	1.5 units	3 units	4.5 units	6 units
36-45 units	2 units	4 units	6 units	8 units
46-55 units	2.5 units	5 units	7.5 units	10 units
56-65 units	3 units	6 units	9 units	12 units
66-75 units	3.5 units	7 units	10.5 units	14 units
76-85 units	4 units	8 units	12 units	16 units
86-95 units	4.5 units	9 units	13.5 units	18 units
96-105 units	5 units	10 units	15 units	20 units
106-115 units	5.5 units	11 units	16.5 units	22 units
116-125 units	6 units	12 units	18 units	24 units

Ketones should come down within 2-3 hours. Give extra insulin every 3-4 hours as needed.

If you are on a pump, give the insulin by pen or syringe, then change the pump site.



Step 3: Drink plenty of fluids

Sometimes you can have “starvation” ketones due to eating poorly and vomiting. Rapid-acting insulin may not be needed in this case. Please refer to the chart below for guidance regarding how to manage your blood sugars if no ketones are present.

Blood Sugar	What to Do
Less than 4.0 mmol/L	Consider mini-dose glucagon if you are not tolerating food or fluids. Do not give extra insulin (even if there are ketones). You may not need mealtime insulin.
4.0-10.0 mmol/L	Give half the mealtime insulin dose.
Greater than 10.1 mmol/L	Give the usual mealtime insulin dose and correction. Give a correction even if you are not eating. Give correction doses every 3-4 hours as needed.

General Guidelines for Managing Illness

1. Take Vomiting Very Seriously.

Do not assume vomiting is just the flu or food poisoning. DKA can look like the stomach flu. Illness can cause vomiting, but missing insulin doses or pump site failures can also cause vomiting. Nausea and vomiting with high blood sugar and ketones (at the same time) may be a sign of DKA, which is a serious life-threatening condition. It is very important to **always** check ketones if you are vomiting. If you vomit more than twice in 4 hours, contact the Best Centre or seek medical attention.

Vomiting with a normal or low blood sugar can lead to additional low blood sugars.

Vomiting can also lead to dehydration, which is serious.

2. Avoid Dehydration.

Vomiting and diarrhea can lead to dehydration. Dehydration is serious and makes managing illness much more difficult. The following signs and symptoms can happen with dehydration:

- ▶ Thirst, dry mouth and/or tongue, cracked lips
- ▶ No tears
- ▶ Less urine than usual or dark coloured urine
- ▶ Dark circles under the eyes or “sunken” eyes
- ▶ Feeling very tired or dizzy
- ▶ Poor skin turgor: test this by pinching the skin on the back of your hand, if it does not spring back to its normal position in a couple of seconds, this is a sign of dehydration

Drink clear liquids to prevent dehydration and vomiting. Have sips of fluids at least every 30 minutes, but avoid large amounts all at once as this may lead to more vomiting. Drink 1 cup (250ml) fluid every hour to prevent dehydration. Consider electrolyte replacement solutions such as Gastrolyte®, Hydralyte® or Pedialyte®.



If your blood sugar is less than 10mmol/L, drink sugar-containing fluids such as regular juice (not diet or low calorie), ginger ale, Gatorade™/Powerade™ or Jello™.

If you are having a hard time drinking, try sucking on sugar containing lollipops, candy, freezies or popsicles.

If your blood sugar is above 10mmol/L, drink sugar-free fluids such as Gatorade™/Powerade™ zero, sugar free Jello™, sugar free Kool-Aid™, Crystal Light™ or broth.

3. Never Skip an Insulin Dose Entirely

Even if you are vomiting or unable to eat, do not skip insulin. Our bodies need insulin to convert sugar into energy so that it can fight infection. Vomiting or diarrhea can result in lower blood sugar levels, however insulin is still required, and long-acting insulin is especially helpful. Never omit the long-acting insulin as this could result in DKA.

4. Avoid low blood sugars

Mini dose glucagon may be required if

- ▶ you are unable to keep food or fluids down such as with vomiting
- ▶ blood sugars are low and will not come up

5. Treat the Illness

Over-the-counter medications can be used for treatment of short-term illness such as cold or fever. Acetaminophen (e.g., Tylenol®) and/or Ibuprofen (e.g., Motrin® or Advil®) may be used for pain or fever, as directed. These medications do not have a significant effect on blood sugar if taken in prescribed amounts.

Gravol™ tablets or suppositories can be used with caution as they can lead to drowsiness, which may make you less able to sense a low blood sugar.

Many cold medications (such as Benylin™, Robitussin™ and Sudafed™) contain decongestants which may increase blood sugars. Drowsiness is also a side effect of many cold medications.

6. Rest

Get plenty of rest and avoid all physical activity.

What can you eat?

Eating and drinking during illness can be difficult. Eat small amounts of food every 2 to 3 hours and drink fluids every 30 to 60 minutes. Aim for bland foods which are easier to digest such as soup, crackers, rice, plain pasta or applesauce. Avoid higher fat foods and dairy which may be harder to tolerate.

AVOID coffee, tea or colas as the caffeine may cause dehydration and can act as laxatives, which can also worsen dehydration.

Avoid alcohol as it may cause dehydration and make vomiting worse.



7. Medications

If you are unable to drink enough fluids to keep hydrated for more than 24 hours, you should **TEMPORARILY STOP** the following medications:

▶ **certain blood pressure/heart medications:**

- ACE Inhibitors: e.g. Enalapril (Vasotec®), Fosinopril (Monopril™), Lisinopril (Prinivil®/Zestril®), Perindopril (Coversyl®), Quinapril (Accupril™), Ramipril (Altace®) and Trandolapril (Mavik®)
- ARBs: e.g., Candesartan (Atacand®), Eprosartan (Teveten®), Irbesartan (Avapro®), Losartan (Cozaar®), Olmesartan (Olmotec®), Telmisartan (Micardis®), Valsartan (Diovan®)

▶ all water pills

- e.g., Chlorthalidone (Hygroton), Furosemide (Lasix®), Hydrochlorothiazide, Indapamide (Lozide®), Metolazone (Zaroxolyn®) and Spironolactone (Aldactone®)

▶ certain diabetes pills

- Metformin (Glucophage® or Glumetza®), Canagliflozin (Invokana®), Dapagliflozin (Forxiga®), Empagliflozin (Jardiance™)

▶ anti-inflammatory pain medications

- e.g., Ibuprofen (Advil®/Motrin®), Celecoxib (Celebrex®), Diclofenac (Voltaren®), Ketorolac (Toradol®), Naproxen (Aleve®/Naprosyn®)

Ask your pharmacist which medications to **TEMPORARILY STOP** if you are dehydrated.
RESTART these medications when you are eating and drinking normally.

CHAPTER 4
Managing Your Diabetes

5
**Diabetes
Distress and
Diabetes
Burnout**

The ongoing demand of managing diabetes can be an emotional burden. Thus, it can lead to diabetes distress or diabetes burnout. Signs of diabetes distress can include feeling overwhelmed with managing your diabetes, worrying or having feelings of anxiety towards complications or having a low blood sugar. These feelings are normal. However, if these feelings are getting in the way of managing your diabetes, let your Best Centre team know. We can help you by arranging an appointment with our social worker. They are a wonderful support and can help you.

CHAPTER 4
Managing Your Diabetes

6
**Eating
Disorders/
Disordered
Eating**

Eating healthy and staying active is an important part of managing your diabetes. However, when someone becomes more concerned with staying thin and obsessed with food instead of staying healthy they may be developing an eating disorder or disordered eating. Anyone, male or female, can have an eating disorder, regardless of age. It becomes even more of a concern for someone with diabetes, especially if insulin dosages are being manipulated to manage weight, as this can lead to diabetes complications. It is very difficult for people with an eating disorder to manage it on their own, they need assistance from others. If you feel you have an eating disorder or have disordered eating tendencies, let your Best Centre team member know. We will provide you with guidance and do all that we can to help you.

Conclusion

On behalf of the Best Centre, we wish you success and plenty of health and happiness. It is our hope that you will use and refer to this manual to help you through your transition years. Always remember, even though you have now transitioned to the adult diabetes program you are still a part of the Best Centre. Your diabetes educator team does not change and we look forward to seeing you grow as you go through your many adventures.



THE BEST CENTRE HEALTHY DIABETES ASSESSMENT CHECKLIST

Test and Frequency	Healthy Goal ¹	Your Results			
		Date (dd/mm/yy)	Date (dd/mm/yy)	Date (dd/mm/yy)	Date (dd/mm/yy)
Height					
Weight					
BMI	18.5-24.9				
Waist Circumference* (Annual)	Men: < 102cm Women: < 88cm				
Blood Pressure Every medical visit	< 130 / 80				
A1C (Every 3 months)	< 7%				
Date of Labs:					
Lipids (Every Year)					
Total Cholesterol	< 4.0 mmol/L				
Date of Labs:					
LDL - Cholesterol	< 2.0 mmol/L				
Date of Labs:					
HDL - Cholesterol	Men: > 1.0mmol/L Women: > 1.0mmol/L				
Date of Labs:					
Non - HDL	< 2.6 mmol/L				
Date of Labs:					
Triglycerides	< 1.5 mmol/L				
Date of Labs:					
Kidney Function (Every Year)					
eGFR	> 60 mL/min				
Date of Labs:					
Urine Albumin/ Creatinine Ratio	< 2.0 mg/mmol/L				
Date of Labs:					
Eye Exam (Every Year)					
Annual Eye Exam	No Retinopathy				
Date of Exam:					
Foot Exam (Every Year)					
Annual Foot Exam (10 gram monofilament)	Normal sensation				
Date of Exam:					

* Asian, Ethnic South/Central American, First Nations: men < 90cm (35 in), women < 80cm (32 in).



Blood Sugar and A1c Target

Target Blood Glucose Fasting or Before Meals	Target Blood Glucose Two Hours After Meals	A1C Target
4.0 - 7.0 mmol/L	5.0 - 10.0 mmol/L	7% or less

A1C (%)	Average Blood Glucose (mmol/L)
5.0	5.4
5.5	6.2
6.0	7.0
6.5	7.8
7.0	8.6
7.5	9.4
8.0	10.2
8.5	11.0
9.0	11.8
9.5	12.6
10.0	13.4
10.5	14.1
11.0	14.9
11.5	15.7
12.0	16.5
12.5	17.3
13.0	18.1
13.5	18.9
14.0	19.7


Healthy range

Your A1C blood test result corresponds to your average glucose level before and after meals over the past 3 hemoglobin A1C. The goal is to aim for an A1C of 7% or less (without frequent low blood sugars) to reduce complications.



CARBOHYDRATE COUNTING APPENDIX B

STARCHY FOODS – 1 Starch serving = 15 grams of carbohydrate

- 1/4 large bagel, 1/3 Kaiser
- 1/2 English muffin
- 1/2 small 6" wrap bread, pita or roti
- 1/2 hamburger or hot dog bun
- 1 small dinner roll
- 1/2 cup cooked oatmeal
- 1/2 cup pre-sweetened cereal
- 3/4 cup unsweetened cereal
- 2 taco shells
- 1/2 pizza pop or 1/2 mini pizza
- 1 small pancake/waffle/French toast
- 1/3 cup cooked rice, couscous, quinoa
- 3 dumplings/ perogies
- 1/2 cup cooked pasta
- 1/4 cup Kraft dinner
- 1 cup soup/stew
- 10 french fries
- 6 soda crackers
- 8 mini rice cakes
- 3 cups of popcorn
- 2 rice cakes
- 1/3 cup stuffing
- 1/3 cup baked beans
- 1/2 cup legumes, chick peas
- 1 granola bar
- 1/2 nutragrain bar
- 1/2 gourmet cookie
- 1/2 small homemade muffin
- 4 graham wafers
- 3 arrowroot cookies
- 2 store bought cookies
40 fish crackers
- Tortilla chips 8-10
- Sun chips-15
- Potato chips-20
- Pretzels-1/2 cup

FRUIT & SWEET VEGETABLES

1 Fruit or Vegetable serving = 15 grams carbohydrate

FRUITS

- 1 small orange, 1/2 grapefruit
- 1 small apple, nectarine, peach
- 1 small pear, 1 large kiwi
- 2 medium plums,
- 1/2 pomegranate
- 1/2 cup applesauce,
- 1/2 cup fruit salad packed in juice
- 1/2 medium banana, mango, papaya
- 1 cup blueberries, blackberries, pineapple
- 2 cup strawberries,
- 1 large kiwi
- 3 apricots, dates or prunes
- 1/4 cantaloupe,
- 1 cup watermelon
- 1/2 cup (15) cherries, grapes (15)
- 2 tbsp raisins,

VEGETABLES

- 1/2 potato, 1/2 cup mashed
- 1/3 cup cooked sweet potatoes
- 1/2 cup corn, 1/2 corn on cob
- 1/2 cup peas, lima beans
- 1/2 cup pickled beets
- 3/4 cup mixed vegetables
- 3/4 cup carrots
- 1/2 cup turnip, squash, parsnip
- 1 cup edamame
- 1 cup snow peas
- 1/2 cup spaghetti sauce/tomato sauce

UNSWEETENED JUICES

- Choose juice less often (fresh fruit have more fiber)
- 2/3 cup orange juice, grape
- 1 cup tomato/vegetable
- 1/2 cup apple juice, pineapple juice 1/3 cup grape or cranberry juice
- 1/3 cup prune juice



MILK – 1 Milk serving = 12 grams carbohydrate

- 1 cup milk (skim, 1%, 2%)
- 1/2 cup chocolate milk
- 1 cup soy milk
- 2 cups almond milk (can vary by flavor)
- 1 cup plain yogurt
- 1 Activia yogurt
- 2 yogurt tubes, 2 minigo
- 2 Stirred yogurts ie: Silhouette or Source 1 yogurt drink (depends on brand)
- ½ cup flavoured Greek yogurt
- 1/3 cup ice cream
- 1/3 cup frozen yogurt

SUGARS – 1 Sugars serving = 15 grams carbohydrate * Choose less often*

- 1 Tbsp sugar, brown sugar, honey
- 1 Tbsp regular jam or jelly
- 1 Tbsp maple syrup, corn syrup, molasses
- 2 Tbsp light syrup, chocolate syrup
- 6 Tbsp ED Smith no sugar added syrup
- 5 lifesavers, 5 jellybeans
- 1 fruit to go
- 10 gummy bears
- 15 skittles
- 4 starburst fruit chews
- 1 small snack size choc. bar
- 2 light creamsicle bars

PROTEIN – No Carbohydrate (Will have little effect on blood sugars, may not need to count)

Beef, Pork, Lamb, Veal – without breading, coating or sauce

Chicken or Turkey – without breading, coating or sauce

All types of cheeses – cheddar, mozzarella, havarti, slices, cheese strings, Cottage/ricotta cheese

Fish – canned tuna, salmon, shellfish (in water), scallops, clams, oysters, mussels

Eggs of all types

Back bacon, turkey bacon, hot dogs, sausages, wings

Luncheon meats – turkey, chicken, ham, roast beef, bologna, mortadella, macaroni loaf Tofu

NOTE: Peanut Butter and Nutella: these will contain small amounts of carbohydrate, please check the label Nuts and seeds in portions greater than ¼ cup will affect your blood sugars. Please check the label

FATS & OILS – No Carbohydrate (Will not affect blood sugars)

Fat free/lower fat varieties are low in calories. They may be used in addition to your meals/snacks in limited quantities.

- Soft margarine (non-hydrogenated), butter
- Liquid oil – olive, canola, peanut Mayonnaise
- Liver pate
- Avocado
- Olives
- Sour cream
- Cream cheese
- Half and half cream
- Salad dressings
- Whipped topping



EXTRA VEGETABLES - ½ cup of cooked or 1 cup of raw equals 5 grams of carbohydrate. Note: Larger portions will affect your blood sugars. 1½ cups cooked and 3 cups raw = 15gm carbs

- Artichoke,
- Beans (green, wax, italian)
- Cabbage
- Cucumber
- Fiddleheads
- Leeks, chard, chives
- Peppers (all varieties)
- Tomato: 1 slice, Tomato puree
- Asparagus
- Brussels sprouts
- Cauliflower
- Dill pickles: 2
- Green onions, onions
- Mushrooms
- Radishes: 5-6
- Water chestnuts, Watercress
- Alfalfa, bean sprouts, parsley, cilantro
- Broccoli
- Celery
- Eggplant
- Greens (collard, kale, mustard)
- Okra
- Salad greens (lettuce, romaine, spinach)
- Zucchini

OTHER EXTRAS – Foods from this section are low in calories and carbohydrate.

- Artificial sweeteners
- Sugar-free soft drinks, sugar free drink mixes: such as crystal light, diet pop, Mio drops, Nestle flavoured water Coffee and tea
- Sugar-free chewing gum
- Sugar free jello
- Mustard, vinegar, horseradish, lemon/lime juice Ginger root
- Soy sauce, tzatziki sauce
- Garlic, spices, salt, pepper
- Consomme, broth, bouillon

CONDIMENTS – these do not need to be measured if consumed in small quantities.

- **1 Tbsp Hummus** – 2 grams carbohydrates
- **1 Tbsp Ketchup** – 4 grams carbohydrates
- **1 Tbsp Barbecue Sauce** – 4-8 grams of carbohydrates
- **Barbecue sauce** – 4-8 grams
- **Cranberry sauce** – 1/4 cup-26 grams
- **White sauce** – 1/4 cup-11 grams





THE
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