

Calgary Diabetes Centre Insulin Pump Therapy: Preparation and Expectations

This is a long and important document. It lists the steps for starting insulin pump therapy at the Calgary Diabetes Centre. It also outlines steps for receiving funding through the Alberta Insulin Pump Therapy (IPT) Program if you have type 1 diabetes. For more information see <https://www.albertahealthservices.ca/services/Page8548.aspx>

Please have your pump educator fill in these for your reference.

- Pump Educator Name:
- Pump Educator Email and phone number:

Important points: **Please note there are COVID masking guidelines for in-person appointments.**

- We want you to be well-informed and safe while pursuing pump therapy.
- Read this entire document and follow the preparation instructions.
- Keep in mind the time and work required for safely starting pump therapy.
- You will need to be off work for at least the day of the pump start.
- Know that there will be frustrations when starting an insulin pump and likely some poor sleeps. It's possible that glucose readings may not be stable for some time after starting.

If the timing isn't right for you to start, please cancel and rebook appointments with your pump educator. Our booking office does not rebook Pump Prep or Pump Start appointments. These must be done through your pump educator.

Quick summary of steps for Diabetes Centre Calgary Pump Program.

These steps follow the completion of required Type 1 Diabetes Education.

1. See your doctor or nurse practitioner to obtain referrals to:
 - a. The Diabetes Centre Calgary for pump assessment.
 - b. An Alberta IPT Program approved diabetes specialist physician.
2. Work with your diabetes team to complete criteria.
3. Meet with a Certified Pump Trainer for
 - a. Pump Prep & Review of Safety
 - b. Pump Start
 - c. Advanced training if required
4. Meet with your usual pump educator to complete basal setting and follow-ups to determine individualized insulin dose programming.

Contents:

Steps for Insulin Pump Therapy at Diabetes Centre Calgary.....	3
How to make an individual appointment with a diabetes educator.....	4
Prerequisites: Required Type 1 Diabetes Education and Skills	4
PUMP PREP (SAFETY) APPOINTMENT.....	5
THE DAYS or WEEK BEFORE THE PUMP START	6
THE NIGHT(S) BEFORE THE PUMP START	6
THE MORNING OF YOUR PUMP START	7
AFTER YOUR PUMP START	8
ANNUAL REVIEWS	9

Steps for Insulin Pump Therapy at Diabetes Centre Calgary

See: <https://cumming.ucalgary.ca/resources/endocrinology-metabolism/patients-and-family/diabetes/insulin-pump-therapy> for quizzes, documents, resources. Note: Other requirements may be needed. Your pump educator will review.

STEP 1: Diabetes Educator	a. See your doctor or nurse practitioner to obtain referrals to <ul style="list-style-type: none"> • Diabetes Centre Calgary for pump assessment by an educator • An IPTP approved diabetes specialist physician
	b. Complete AHS “Insulin Pump Therapy Learning Module” if new to pump therapy <ul style="list-style-type: none"> • Read it online https://myhealth.alberta.ca/Learning/insulin-pump-therapy • Complete the “Introduction to Pump Questionnaire”. The pdf is in the learning module and here. Review your answers with your diabetes educator.
	c. Demonstrate how to use correction factors, carbohydrate count, assess/act on glucose results to prevent hypo, hyperglycemia, DKA, and other diabetes self-management practices. This step may take a significant amount of time. You may be asked to complete quizzes for MDI (multiple daily injections) and Carbohydrate Counting found here . (If new to pump therapy)
	d. Review basic Type 1 Diabetes Education with educator, see here .
	e. Present one month of glucose data with at least 4 glucose checks a day (before meals and bedtime). If using CGM, provide reports and demonstrate how to interpret and use that data.
	f. Provide a downloaded copy of your CGM or Libre report to your educator, if you are using a CGM. Explain to your educator your understanding of how to interpret that report or ask for help in interpreting it. Also review with your educator setting CGM alarm levels to prevent lows, versus alarming at the low reading.
	g. Read this entire document.
	h. Be transferred to a DCC pump educator if you are not seeing one already.
STEP 2: Pump Educator	a. Review key pump information with Pump Educator. <ol style="list-style-type: none"> i. Prepare a Pump Safety Kit. Pump starts will not occur without a verified safety kit. ii. Review and discuss handouts on endometab.ca > Patients/Family > “Diabetes Insulin Pump Therapy iii. Have introductory discussions on: temp basal rates, insulin-on-board (IOB), tx of hypo using IOB, square and dual wave boluses, impact of protein and fat on glycemia, partial closed loop systems if applicable. iv. Know that pump use in hospital has AHS guidelines: www.ipumpit.ca v. Investigate pump brands. Find contacts under Insulin Pump heading here: vi. Other items as required.
	b. Complete IPTP provincial forms and await your approval letter.
	c. Purchase your pump by providing your Blue Cross confirmation letter to the pump company.
	d. Create a data account and send a blank report to your pump educator (Carelink for Medtronic, Diasend for Omnipod, Tandem)
	e. Attend “Insulin pump prep (safety)” appointment with your pump educator.
	f. Your pump educator will book you pump start appointments with a Certified Pump Trainer and book follow-ups with your usual pump educator.
Step 3: CPT	a. Attend “Insulin pump start” appointment with CPT. Have your safety kit ready to review. You may be asked to postpone pump start if you do not have it.
	b. Attend advanced pump training if relevant (partial closed loop pumps)
Step 4: Follow-Up	a. Follow with your usual pump educator to master use and settings b. Have Annual Pump Reviews if in IPTP

How to make an individual appointment with a diabetes educator

1. If you aren't a patient of our program, ask your doctor to refer you to the Calgary Diabetes Centre of the Endocrinology and Metabolism Program. You'll be phoned for an appointment.
2. If you are a patient in our program and interested in pump therapy, please book an appointment 403-955-8146 with your educator to discuss. You may be asked to transfer to an educator with more pump experience.
3. If you are a patient in our program, already on a pump but upgrading to a new model or brand, please call your Pump Educator to discuss your options.

Prerequisites: Required Type 1 Diabetes Education and Skills

Research* shows that multiple daily injections and insulin pump can be equally effective for blood sugar control if certain conditions are met. We want you to have the best chance of success with your diabetes, so we'll review these again with you to be sure they are met.

The following are required before considering pump therapy:

1. **Practice and competence using BBIT (basal bolus insulin therapy):** This requires the use of basal insulin once or twice daily, rapid insulin before meals, a carbohydrate management system (eg. insulin-to-carb ratio or units per carb exchange or similar) and a correction factor (insulin sensitivity factor) to determine meal doses. Glucose monitoring and self-adjustment of doses based on glucose results are essential, as are practices of DKA prevention and hypoglycemia prevention and treatment.
2. **Type 1 Diabetes Education:** We respect your diabetes knowledge. We also know that after many years some education points have changed or been forgotten. For your safety and your benefit, it is a requirement to review type 1 education. This includes a review of:

<input type="checkbox"/> Diabetes complications	<input type="checkbox"/> Basal insulin adjustment
<input type="checkbox"/> Relationship of A1c to complications	<input type="checkbox"/> Meal bolus insulin adjustment
<input type="checkbox"/> DKA prevention, illness	<input type="checkbox"/> Correction insulin
<input type="checkbox"/> Hypoglycemia, driving, glucagon	<input type="checkbox"/> Exercise
<input type="checkbox"/> Glucose measuring (blood glucose device, lab meter comparison, CGM/Flash and the use of CGM/Flash reports)	<input type="checkbox"/> Nutrition (healthy eating, carb management system eg. insulin to carb ratio or alternate)
	<input type="checkbox"/> Alcohol
	<input type="checkbox"/> Insulin inject review (insulin action, storage, injection technique, sites, rotation)

*Repose Study Group *BMJ* 2017;356:j1285; Little et al *Diabetes Care* May 2014, DC_140030; DOI: 10.2337/dc14-0030

PUMP PREP (SAFETY) APPOINTMENT

- This is a required review of: your pump orders, your preparation for safety, verification of your pump start dates and follow-up appointments and a chance to discuss any concerns you may have.
- If you cancel this appointment by calling 403-955-8146 please note the booking clerk cannot arrange another date. You must contact your pump educator to do this. If you have not had this appointment before your pump start, you will be asked to rebook your pump start date.
- Re-read [these safety handouts](#) again. Be prepared to discuss scenarios.
 1. *Treatment of Hyperglycemia to Prevent Diabetic Ketoacidosis (DKA) for Insulin Pump Users.*
 2. *Coming off the Pump*
 3. *(Checking and adjusting basal rates in insulin pump therapy if you are not moving to a partially closed-loop pump).*

Diabetic ketoacidosis (DKA) is a serious complication of diabetes. People on insulin pumps are can develop DKA quickly since there is no long acting insulin used in the pump. Without prompt treatment, DKA can result in death. Because of this risk of DKA in pump therapy, we require people to review DKA prevention in pump therapy multiple times and use case scenarios. Your safety is our priority.

- Have your Pump Safety Kit ready to review with your pump educator. Kit to include:
 1. Insulin and syringe / insulin pen to prevent DKA. Have a plan to rotate out the insulin in your safety kit every month.
 2. Glucose meter and strips (even on CGM)
 3. Ketone testing equipment (urine strips or blood ketone meter with strips)
 4. Glucose tablets
 5. A list of your insulin pump basal rates and other pump programming. (Your pump educator will provide to you. Rotate these out when they are updated.)
 6. Optional: Infusion set, charger for your pump (Tandem), batteries for pump or PDM, copy of DKA prevention handout
- Have these items handy.
 1. A list of your questions or concerns about starting pump therapy.
 2. An infusion set and alcohol wipe if wish to insert one before starting on pump therapy. If you don't have your pump yet, your pump educator can arrange for one of these if you let them know at least a week in advance.
 3. The username and password to access your glucose sensor data, if you're using one.
 4. The username and password to access either your Diasend account (Omnipod or Tandem pump) or your Carelink account (Medtronic).
 5. A pen and paper to take notes. You will be provided insulin dose reductions before starting pump and verification of your pump start day, time, trainer name.

THE DAYS or WEEK BEFORE THE PUMP START

- If on the Alberta Insulin Pump Therapy Program (IPTP): Put a reminder date in your smart phone or calendar to get an annual Pump Review a year from the date on your Blue Cross acceptance letter for the IPTP program.
- Complete the patient training modules or videos provided by the pump manufacturer. Optional: Play with the “virtual” pump if the brand has one (Medtronic, Tandem)
- Verify you have the pump start day off work. It is also essential that you can be reached by phone the afternoon of the pump start (Tuesday) and Wednesday and Thursday. You may wish to take 2-3 days off work.
- Re-read these safety handouts at home and mentally prepare.
 1. Treatment of Hyperglycemia to Prevent Diabetic Ketoacidosis (DKA) for Insulin Pump Users. Key items you need to do if you have ketones on a pump.
 - Give 1.5 x your correction dose by syringe or insulin pen if you have ketones that are more than trace while on the pump. Read the handout.
 - Replace your infusion set. You’ll learn more in training.
 - Set your pump to manual mode for at least 3 hours (so that any hybrid closed loop auto delivery of insulin does not overlap with your manual safety injection for ketones). You’ll learn more in training.
 2. Coming off Pump. Key items you need to do if your pump stops working.
 - Give a certain number of units of rapid insulin manually with a syringe or insulin pen every 3 hours if your pump stops working or if you pull out an infusion set/pod and do not have a replacement.
 - Use the math in the handout to determine how much insulin you would need to give if you were off the pump for a few hours. Look at the handout your pump educator gave you for your starting basal rates on the pump. You’ll need this to do the math.
- Order supplies if your pump came with only a few infusion sets.
- Charge or put batteries in your pump (Medtronic, Tandem, Ypsopump) to be sure it is working.

THE NIGHT(S) BEFORE THE PUMP START

- The NIGHT before pump start, take less of your night-time basal (long acting) insulin as per the instructions the trainer gave you.
- If you are on Tresiba, you may be asked to reduce this insulin a few days in advance.

THE MORNING OF YOUR PUMP START

For your safety, you may be asked to delay your start if you haven't addressed key safety points.

- In the morning ...**
 - Eat your breakfast and give your usual food bolus.
 - DO NOT give a full correction dose, if needed. Correct down to 10 mmol/L unless your pump educator has given you different instructions
 - Do not take any injection of long acting insulin (unless instructed otherwise)

- BEFORE you leave your home**, be sure you bring each of these items:

(Most pump starts are in person. If you made plans in advance to accommodate your individual needs remotely, you still need these items in easy reach. We have limited 1:1 remote sessions so you may need to wait considerably longer for these if this is your preference. Most are class starts.)

- Safety kit (syringe, pen vial or vial of insulin, ketone strips, glucose tablets, meter, test strips, extra infusion set)
- Insulin vial to fill your pump (easiest if you have a full-sized vial, not a pen fill.)
- Your pump!
 - If Omnipod, bring a number of pods.
 - If Medtronic or Ypsopump, bring batteries.
 - If Tandem, bring your charging cable.
- Infusion sets (a few). Not required for Omnipod.
- Instruction manual
- Preparation wipes the company included
- Glucose meter and test strips (should be in emergency kit). Even if you plan to start on Medtronic CGM, you will need a glucose meter to set that up.
- Your Alberta Health Care number
- The most recent doses of insulin you gave
 - number of units of long-acting insulin you gave and when
 - number of units of rapid-acting insulin you gave and when
- Pen & paper for notes (additional instructions eg. temporary basal rates, on-call numbers, what to eat to test basal rates).

AFTER YOUR PUMP START

FOR SAFETY:

1. Call for assistance if needed.
 - For the first 48 hrs after starting insulin pump, call the educator-on-call number provided to you and be available to receive calls.
 - After the first 48 hours: Call your diabetes educator or 403-955-8118 and leave a message for any pump trainer who will call you back between 8 a.m - 3 p.m Mon-Friday. After hours, call your diabetes doctor's office (their machine gives instructions for who to contact in emergencies) or visit an emergency department.
2. Check blood sugars at least every 3 hours during the daytime, and at 0300, for the first 24-48 hours. DKA can develop in a few hours because of infusion set problems.
3. Keep your safety kit with you at all times. Follow the guidelines in *Treatment of Hyperglycemia to Prevent Diabetic Ketoacidosis (DKA) in Insulin Pump Users*.
4. Visit the emergency department if you think you're in DKA and can't reach your healthcare team.
5. Call the 1-800 number on the pump at any time if you have technical pump questions.
6. Rebook any follow-up appointments you can't make 403-955-8146. Remember, the booking clerks cannot rebook Pump Prep or Pump Start appointments. Only your pump educator can
- 7.

EXPECT

- To check glucose levels 7-10 times daily for the first week or longer if you are not on a glucose sensor.
- Your glucose readings may be erratic for the first week or longer.
- If you are on Omnipod or you are not moving towards using the hybrid closed loop functions of your pump, you may need to miss meals on a rotating basis to determine or to "set" basal rates. Your pump educator will have reviewed this with you already. If you aren't sure, ask them.

ANNUAL REVIEWS

The following is also summarized on our public patient website:

<https://cumming.ucalgary.ca/resources/endocrinology-metabolism/patients-and-family/diabetes/insulin-pump-therapy>

Please arrange each Annual Review with your approved IPTP clinic close to the date you were accepted into the program (the date on your IPTP acceptance letter). If you move, please notify your educator who in turn can notify Blue Cross and the IPTP data analyst. If we cannot reach you or do not learn of your current IPTP clinic transfer, we will start the discontinuation process.

Prepare for your Annual Review.

1. Have the following available for your pump educator:
 - a. This questionnaire completed: Insulin Pump Therapy Program Participant Self-Assessment Questionnaire.
 - b. Current pump and glucose data (ISF, ICR, basal rates, insulin action time, targets, a month of glucose data e.g. CGM reports)
 - c. Your current safety kit (you may be asked to show it or discuss its contents).
2. Be prepared to discuss the safety information in these handouts found on <https://cumming.ucalgary.ca/resources/endocrinology-metabolism/patients-and-family/diabetes/insulin-pump-therapy>
 - a. Coming off Pump (If you don't have a plan for how to come off pump (e.g. it stops working for whatever reason) be prepared to develop one with your educator.)
 - b. Preventing DKA in Insulin Pump Therapy