

## **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>

Important points:

- 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 rebook appointments with your pump trainer (booking office 403-955-8146). The 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.

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## Steps for Insulin Pump Therapy Program – IPTP (Diabetes Centre Calgary)

Quizzes, resources and documents are found on <https://cumming.ucalgary.ca/resources/endocrinology-metabolism/patients-and-family/diabetes/insulin-pump-therapy>

<b>STEP 1: Diabetes Educator</b>	a. See your doctor or nurse practitioner to obtain referrals to <ul style="list-style-type: none"> <li>• Diabetes Centre Calgary for pump assessment by an educator</li> <li>• An IPTP approved diabetes specialist physician</li> </ul>
	b. Complete AHS “Insulin Pump Therapy Learning Module” <ul style="list-style-type: none"> <li>• Read it online <a href="https://myhealth.alberta.ca/Learning/insulin-pump-therapy">https://myhealth.alberta.ca/Learning/insulin-pump-therapy</a></li> <li>• Complete the “Introduction to Pump Questionnaire”. The pdf is in the learning module and <a href="#">here</a>. Review your answers with your diabetes educator.</li> </ul>
	c. Demonstrate your ability to use basal bolus therapy, 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 <a href="#">here</a> .
	d. Review basic Type 1 Diabetes Education with educator (Provincial, Mandatory), instructions found <a href="#">here</a> .
	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.
<b>STEP 2: Pump Educator</b>	a. Review key pump information with Pump Educator. <ol style="list-style-type: none"> <li>i. Prepare a <a href="#">Pump Safety Kit</a>. Pump starts will not occur without a verified safety kit.</li> <li>ii. Review and discuss handouts on <a href="http://endometab.ca">endometab.ca</a> &gt; Patients/Family &gt; “Diabetes Insulin Pump Therapy”               <ul style="list-style-type: none"> <li>• Treatment of Hyperglycemia to Prevent Diabetic Ketoacidosis in Insulin Pump Therapy</li> <li>• Coming Off The Pump</li> <li>• Checking and Adjusting Basal Rates in Insulin Pump Therapy</li> </ul> </li> <li>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.</li> <li>iv. Know that pump use in hospital has AHS guidelines: <a href="http://www.ipumpit.ca">www.ipumpit.ca</a></li> <li>v. Investigate pump brands. Find contacts under Insulin Pump heading <a href="#">here</a>:</li> </ol>
	b. Complete IPTP provincial forms. <ol style="list-style-type: none"> <li>i. Provincial Patient Responsibility Document signed by you. This includes your agreement to have an Annual Pump Reviews.</li> <li>ii. IPT approval form. Signed and forwarded by pump educator &amp; physician. Await your Blue Cross approval letter.</li> </ol>
	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. Your pump educator will book you pump start appointments with a Certified Pump Trainer and book follow-ups with your usual pump educator.
<b>Step 3: CPT</b>	a. Attend “Insulin pump prep” appointment with Certified Pump Trainer (CPT).
	b. 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.
	c. Attend advanced pump training if relevant (partial closed loop pumps)
<b>Step 4: Follow-Up</b>	a. Follow with your usual pump educator to individualize insulin settings and address unique pump safety concerns.

### 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 Appointment with Certified Pump Trainer: YOUR PLANNING LIST

- 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 at a high risk of developing DKA. Without prompt treatment, DKA can result in death. Because of the high risk for DKA in pump therapy, we require people to review DKA prevention in pump multiple times and using case scenarios. Your safety is our priority.

- Have your safety kit prepared and ready to show your educator. This may be by videoconference. The kit may be a pouch or fanny bag that you'll be comfortable taking with you everywhere. There'll be times you'll need to give insulin by syringe to prevent diabetic ketoacidosis (DKA) and hospitalization.

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. And, once you have them, a list of your insulin pump basal rates and other pump programming. (Rotate these out when they are updated.)
  6. Optional: Infusion set, battery for pump or PDM, copy of DKA prevention handout
- Have these items handy.
    1. Your Alberta Health Care number, your email address.
    2. Computer (preferred) or tablet as the educator will call then arrange to Zoom for videoconference.
    3. A list of your questions or concerns about starting pump therapy.
    4. An infusion set and alcohol wipe (if moving to a Medtronic pump as you may wish to insert one before starting on pump therapy\_.
    5. The username and password to access your glucose sensor data, if you're using one.
    6. The username and password to access either your Diasend account (Omnipod or Tandem pump) or your Carelink account (Medtronic).
    7. 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.

## Insulin Pump Start with Certified Pump Trainer – YOUR PLANNING LIST

BEFORE you attend the Insulin Pump Start appointment, be sure you've completed each of the items below. For your safety, you may be asked to delay your start if these aren't completed.

- 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 the pump start:
  1. Do not take any injection of long acting insulin (unless instructed otherwise)
  2. Take your morning breakfast and bolus (rapid) insulin as instructed by your educator.
  3. DO NOT give a full correction dose, if needed. Correct down to 10 mmol/L.
- Plan to take a few days off work. You'll need to be available to test glucose, potentially troubleshoot high or low readings, change pump settings, change pods or infusion sets unexpectedly AND be available for phone calls each afternoon with a trainer for a minimum of 3 days e.g. Start time is Tuesday morning. Be available Tues, Wed & Thurs pm, as well, as for follow-up afterwards with your regular pump educator. You'll also have access to a pump trainer on-call overnight for the first two nights.
- Expect:
  - To test blood sugars 7-10 times daily for the first week or longer if you are not on a glucose sensor.
  - Your glucose readings to be erratic for at least the first week or longer.
  - To miss meals on a rotating basis to determine or to "set" basal rates for your individual needs (if not pregnant, and not progressing quickly to a partially-closed loop function). Decide which days you'll do "overnight basal tests" at 9 pm, midnight, 0300, 0600, 0900 (with no food in between). This may be done by glucose sensor. Try for 3 nights a week. Basal testing nights don't need to be in a row.
- Complete the patient training modules or videos provided by the pump manufacturer.
- Re-read the handouts: *Treatment of Hyperglycemia to Prevent Diabetic Ketoacidosis (DKA) for Insulin Pump Users* and *Coming off Pump*.
- Order supplies: Your pump is delivered with limited supplies.
- Have this information and these items ready:
  1. Your Alberta Health Care number and your email address
  2. The dose of basal insulin you took the night or few nights before.
  3. Your current blood glucose reading.
  4. Your most recent dose of rapid insulin.
  5. Your pump and all its supplies. Put in a battery to be sure the pump is functioning. (We've had cases where they weren't.)
  6. Your Safety Kit to show the trainer, including a method for testing ketones.
  7. Pen & paper for notes (additional instructions eg. temporary basal rates, on-call numbers, what to eat to test basal rates).

## AFTER Starting Insulin Pump

- 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.
  
- Starting the **second night on the pump**: do overnight basal tests if you've been instructed to do so. Instructions are on the worksheet *Checking and Adjusting Basal Rates in Insulin Pump Therapy* at [www.endometab.ca](http://www.endometab.ca) .
  
- Be available for your follow-up contacts. REBOOK 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 do that.
  
- PLACE A REMINDER in your cell phone now to contact your educator again for an annual review as required for the Alberta Insulin Pump Therapy program.

## 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