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 https://www.albertahealthservices.ca/services/Page8548.aspx

We want you to be well informed and safe while pursuing pump therapy. Please read this entire document and follow the preparation instructions for classes. Please keep in mind the time and work required for safely starting pump therapy. There can be many frustrations when starting an insulin pump. Blood sugars may not be stable for months afterwards. Please rebook appointments or classes if the timing isn’t right: Booking office 403-955-8146.

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 if you do not have one.
2. Work with your diabetes team to complete criteria.
3. Complete pump classes
4. Complete basal setting and follow-ups to determine individualized insulin dose programming.

Contents:

Steps for Insulin Pump Therapy Program (Diabetes Centre Calgary) ......................................... 2
How to make an individual appointment with a diabetes educator.............................................. 3
Prerequisites: Required Type 1 Diabetes Education and Skills ................................................... 3
Pump Start and Follow-Up Appointments ................................................................................... 4
SAFETY CLASS – Preparations at least one night before ............................................................ 5
SALINE CLASS – Preparations a few days before ..................................................................... 6
SALINE CLASS – Preparations day of class .............................................................................. 7
INSULIN START CLASS – Preparations the night before .......................................................... 8
INSULIN START CLASS – Preparations day of class ............................................................... 8
AFTER Insulin Start Class ........................................................................................................... 9
Resources.................................................................................................................................... 10
Steps for Insulin Pump Therapy Program (Diabetes Centre Calgary)

Note: All Pump Brands can be viewed with reps every second Wednesday of the month at the Carriage House Inn 9030 MacLeod Trail, Calgary 6-8 pm

|-------|--------------|-------------|------------|--------------------|-------------|-------------|
| Step 1| a. See your doctor or nurse practitioner to obtain referrals to:  
• Diabetes Centre Calgary for pump assessment by a diabetes educator  
• An IPT program approved diabetes specialist physician  
 b. Complete Type 1 Diabetes Education with educator (Provincial, Mandatory). | | | | | |
| Step 2| a. Read this entire document.  
b. Complete “Intro to pump class” in person (call 403-955-8146) or the online Pump Module [https://myhealth.alberta.ca/Learning/insulin-pump-therapy](https://myhealth.alberta.ca/Learning/insulin-pump-therapy) | | | N/A | N/A |
| | c. Complete Intro to Pump questionnaire and discuss with educator. | | | | N/A |
| | d. Present 4 weeks of CGM data or SBGM data with at least 4 glucose checks a day (before meals and bedtime) in a format that is easy to determine trends. If using CGM, learn how to access and understand these reports. | | | | |
| | e. Demonstrate management skills, problem-solving, understanding of the relationship between food and activity. This knowledge may be applied to the 4 weeks of glucose data if obvious trends exist. The MDI Patient Assessment Questionnaire may be used. This may have been completed in your prerequisites. | | | | |
| | f. Complete and discuss carbohydrate counting quiz. | | | | |
| | g. Review key information with educator.  
i. Review and discuss handouts: [https://ucalgary.ca/cdm/handouts](https://ucalgary.ca/cdm/handouts) under Diabetes: Insulin Pump Therapy  
• Treatment of Hyperglycemia to Prevent Diabetic Ketoacidosis in Insulin Pump Therapy  
• Coming Off The Pump  
• Checking and Adjusting Basal Rates in Insulin Pump Therapy  

ii. Have introductory discussions on advanced pump features: temporary basal rates, insulin-on-board (IOB) or active insulin, treatment of hypoglycemia using IOB, square and dual wave boluses, impact of protein and fat on glycemia.  

iii. Know how to access guidelines for managing your insulin pump therapy when in an AHS hospital: [www.ipumpit.ca](http://www.ipumpit.ca) | | | | |
| | h. Sign the Patient Responsibility Document | | | | |
| | i. Attend an “Insulin pump SAFETY class.” Prepare a safety kit! | | | Discuss with educator. |
| | j. Final approval step: The approved pump educator will sign and forward your IPT approval form to Blue Cross. Await your Blue Cross approval letter. | | | | |
| | k. Purchase your pump by providing the Blue Cross letter to pump company. | | | | |
| Step 3| a. Attend “Insulin pump SALINE class.” Be sure you have your safety kit! | | | Discuss with educator | |
| | b. Attend “Insulin pump INSULIN START class.” Bring your safety kit! | | | N/A | |
| Step 4| Complete tasks and follow-up appointments to individualize insulin settings. | | | | |
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 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:

   - Diabetes complications
   - Relationship of A1c to complications
   - DKA prevention, illness
   - Hypoglycemia, driving, glucagon
   - Glucose measuring (blood glucose device, lab meter comparison, CGM/Flash and the use of CGM/Flash reports)
   - Basal insulin adjustment
   - Meal bolus insulin adjustment
   - Correction insulin
   - Exercise
   - Nutrition (healthy eating, carb management system eg. insulin to carb ratio or alternate)
   - Alcohol
   - 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 Start and Follow-Up Appointments

1. The appointments below will be booked when you call to schedule pump start classes. Your educator will book additional appointments with you after you start on the pump.

2. Please be available for the time that is scheduled for your phone follow-up. Your educator will call you unless you’ve discussed other plans.

3. Be sure your cell phone number, or other accessible phone number, is on your chart so educators can reach you for scheduled phone follow-up appointments. Ask the clerk and educator to check that it is listed correctly under Patient Details in your chart.

4. The day or night before your scheduled phone follow-up appointment, email your pump and CGM records to your educator, as well as any basal setting worksheets. Be sure to include your full name, Alberta Healthcare Number and date of birth.

Insulin Start Appointments

Appointments 1-4 below are booked by the clerical staff. Ongoing follow-up is booked by your pump educator.

1. Saline Start – Insulin Pump per brand (1 morning)
2. Insulin Start – Insulin pump per brand (1 morning)
3. Week 1 after insulin start: 30 minute phone follow-up
4. Week 2 after insulin start: 60 minute in person appointment
5. Additional appointments. Please arrange these with your pump educator. You can expect numerous appointments to help you individualize the programming in your pump to improve the quality of your life, improve your blood sugars and keep you safe.
SAFETY CLASS – Preparations at least one night before

Diabetic ketoacidosis (DKA) is a serious complication of diabetes. People on insulin pumps are at a high risk of developing DKA. DKA can cause people to become extremely ill and require emergency treatment in hospital. Without prompt treatment, DKA can result in death. Because of the high risk for DKA in pump therapy, we require people to attend the Pump Safety Class before being approved for a pump. Your safety is our priority. If you have questions about this, please discuss during the insulin pump safety class or call your diabetes educator.

☐ Re-read the handout: Treatment of Hyperglycemia to Prevent Diabetic Ketoacidosis (DKA) for Insulin Pump Users. It is found on http://ucalgary.ca/cdm/handouts under the heading “Diabetes Insulin Pump Therapy Resources.” You’ll do mock DKA scenarios in class.

☐ Please be aware that, for your safety, the class instructor may ask you to book more time with your educator or to repeat the Safety Class before moving forward with pump therapy.

☐ We encourage you to have a safety kit already prepared. Please find a pouch or fanny bag that you will be comfortable taking with you (yes, everywhere) that includes:
  
  o Minimum:
    ▪ Insulin and syringe or insulin pen to prevent DKA
    ▪ Glucose meter and strips (even on CGM)
    ▪ Ketone testing equipment (urine strips or blood ketone meter with strips)
    ▪ Glucose tablets
  
  o Additional:
    ▪ Infusion set
    ▪ Battery for pump or PDM
SALINE CLASS – Preparations a few days before

BEFORE you attend the saline class, be sure you’ve completed each of the items below. For your safety, you may be asked to rebook into another saline class if these aren’t completed. If you’re late in receiving your pump and can’t complete these items, call 403-955-8146 to rebook.

☐ Receive and unpack the insulin pump.
☐ Put in a battery to be sure the pump is functioning. (We’ve had cases where they weren’t.)
☐ Read and review the manual, the DVD and/or the online training to complete the following:
  ☐ Set the date and time.
  ☐ Review how to load the insulin reservoir.
  ☐ Review how to program basal insulin.
  ☐ Review how to program insulin-to-carbohydrate ratios and insulin sensitivity factors.
  ☐ Set the new glucose meter (provided with the pump) to communicate with your pump.
  ☐ Acknowledge that if you are not prepared and not familiar with how to program, load and use the pump you may be asked to reschedule for another month’s class. Your safety is our priority. It is important you learn how to perform these functions well before attending the class. The class will review these briefly and focus on programming your personal rates, loading saline, inserting sets and practicing boluses and other programming with saline in the pump as well as safety issues.

☐ Re-read the handout: Treatment of Hyperglycemia to Prevent Diabetic Ketoacidosis (DKA) for Insulin Pump Users. It is found on [http://ucalgary.ca/cdm/handouts](http://ucalgary.ca/cdm/handouts) near the bottom under the heading “Diabetes Insulin Pump Therapy Resources.”

☐ Purchase items to prepare a safety kit to carry with you. This includes: ketone test strips for urine or a blood ketone meter; syringe or insulin pen, insulin vial (partial or penvial), glucose tablets, extra infusion set, glucose meter and test strips. There will be times you’ll need to give insulin by syringe to prevent diabetic ketoacidosis (DKA) and hospitalization.

☐ Set up your pump’s online data management program online.

☐ Order supplies: Your pump is delivered with limited supplies. Order more supplies now through the pump company or your pharmacy by providing a copy of your Alberta Insulin Pump Therapy Program acceptance letter. Orders occur every 100 days. For your first order, consider trying a few different infusion sets (if you are on a tubed pump). You may revise your next order according to your preferences.
SALINE CLASS – Preparations day of class

BEFORE you leave the house, be sure to check that you have each of these items below to bring to class. For your safety, you may be asked to rebook into another saline class if these are not completed. If wish to cancel or rebook please call 403-955-8146 as well as your educator.

☐ FOR SAFETY BRING: Printed copy of “Treatment of Hyperglycemia to Prevent Diabetic Ketoacidosis (DKA) in Insulin Pump Users.” http://ucalgary.ca/cdm/handouts. Your safety is our priority. Review the sheet and decide how you would manage a blood sugar of 22 mmol with small ketones while on pump therapy. This is not an unusual scenario but unfortunately can lead to hospitalization if not treated quickly while on pump therapy.

☐ FOR SAFETY BRING: Emergency kit that includes ketone strips (urine or blood+ketone meter); syringe preferably (an insulin pen is a less preferred option), insulin vial (partial or pen vial), glucose tablets, an extra infusion set, glucose meter and test strips. Your safety is our priority. Practice bringing this kit everywhere even before you start insulin in the pump.

☐ FOR EQUIPMENT BRING: Everything the pump company sent (except not the continuous glucose sensor and transmitter). The class will not instruct you on how to use continuous glucose monitoring (CGM). If in doubt about what to bring, bring everything the company has sent you. The Diabetes Centre will provide the saline. Be sure you bring:

- Insulin pump (battery tried in pump to be sure it is working)
- Infusion sets
- Reservoirs
- Instruction manual and quick start guides (all paper!)
- Preparation wipes the company included
- Glucose meter and test strips

☐ FOR NEXT WEEK’S INSULIN START:
- Be sure you’ve planned to take the day off when starting insulin in the pump. You may wish to take more than one day off.
- Plan to available by phone for 48 hours after starting insulin in the pump.
- Decide which days you will do “overnight basal tests” at midnight, 0300, 0600, 0900 with no food AFTER you start insulin in your pump. Try for 3 nights a week with good sleep days in-between. Basal testing nights do not need to be in a row.
  - Expect to test blood sugars 7-10 times daily for the first week or longer.
  - Expect to wake numerous times during the night for the first week or longer.
  - Expect your blood sugar readings to be erratic for at least the first week or longer.
  - Expect you will miss meals on a rotating basis (if not pregnant) to determine or “set” basal rates for your individual needs.
  - Consider how the above may impact your work and home life. Determine how much time to take off work/school to start the pump next week. Decide if you can accommodate the extra work involved or if you should delay the pump start.
### INSULIN START CLASS – Preparations the night before

- Take less of your night-time basal (long acting) insulin as per the instructions your educator gave you.

### INSULIN START CLASS – Preparations day of class

- Take the day off of work or school if possible. It is essential that you can be reached by phone for the first 48 hours that you are on the pump.

- Do not take any morning basal (long acting insulin) unless your educator or doctor told you differently. Take your morning breakfast and bolus (rapid) insulin as instructed by your educator.

- DO NOT give a full correction dose if your blood sugars are high. Correct your blood sugars down to 10 mmol/L. This means if your blood sugars are high when waking, you will give only a partial correction dose of insulin.

- BEFORE you leave the house, be sure you bring each of these items:
  - Printed copy of “Treatment of Hyperglycemia to Prevent Diabetic Ketoacidosis (DKA) in Insulin Pump Users.” If you can’t find your copy, please download one from [http://ucalgary.ca/cdm/handouts](http://ucalgary.ca/cdm/handouts) under the heading “Diabetes: Insulin Pump Therapy Resources”
  - Emergency kit (syringe, vial or vial of insulin, ketone strips, glucose tablets, meter, test strips, extra infusion set)
  - Insulin to fill your pump
  - Insulin pump with battery
  - Infusion sets (more than one)
  - Reservoirs
  - Instruction manual
  - Preparation wipes the company included
  - Glucose meter and test strips (should be in emergency kit)
AFTER Insulin Start Class

- **FOR SAFETY:**
  - Call for assistance if needed.
  - For the first 48 hrs after starting insulin pump, call the educator-on-call number provided in class 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 - 4 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.
  - 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.
  - 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*.
  - Visit the emergency department if you think you’re in DKA and can’t reach your healthcare team.
  - Call the 1-800 number on the pump at any time if you have technical pump questions.

- Expect you may not reach target blood sugars for up to a few months. Most people will reach targets faster if they complete and recheck the basal worksheets. (see next point).

- Starting the **second night on the pump**: do overnight basal tests. Aim to do at least 3 nights in the next week. Instructions are on the worksheet *Checking and Adjusting Basal Rates in Insulin Pump Therapy* at [http://ucalgary.ca/cdm/handouts](http://ucalgary.ca/cdm/handouts). If using continuous glucose monitoring, use the same instructions except fill in the glucose results the next morning from your sensor. Then assess if the basal rate is holding you stable within the various 2-3 hour periods overnight.

- ATTEND YOUR FOLLOW-UP APPOINTMENTS AND PHONE CALLS. The risk of DKA (which can result in death) increases on insulin pump therapy because there is no long acting insulin. Don’t hesitate to call and book more appointments or speak with your pump educator.

- REBOOK any phone calls or appointments you can’t make (403-955-8146).

- PLACE A REMINDER in your cell phone to contact your educator again before your 1 year anniversary on pump, so you don’t risk losing Alberta Insulin Pump Therapy coverage.
Resources

Alberta Insulin Pump Therapy (IPT) Program

- Main site: https://www.albertahealthservices.ca/services/Page8548.aspx
- Patient Learning Module: Insulin Pump Therapy
  https://myhealth.alberta.ca/Learning/insulin-pump-therapy

Brands of Insulin Pumps

- Medtronic:
  Sandra Lueders sandra.lueders@medtronic.com
  403-829-1932

- Omnipod:
  Jodi Thorimbert jthorimbert@insulet.ca 403-594-2194
  Greg Kierzek gkierzek@insulet.ca 587-434-2187
  http://www.myomnipod.ca/content/en/

- Tandem:
  Kate Stephen kstephen@tandemdiabetes.com 403-512-2632
  https://www.tandemdiabetes.com/en-ca/home

- Ypsomed
  Ward Clark ward.clark@ypsomed.com 587-437-1777
  https://www.ypsomed-diabetescare.com/en-CA/

- “Hands on Pumps” events at held at the Carriage House Inn 9030 MacLeod Trail, Calgary 6-8 pm every second Wed of the month. Please call reps to verify dates.

Handouts
The following handouts are available on http://ucalgary.ca/cdm/handouts under the heading “Diabetes – Insulin Pump Therapy”

- Prevention of Diabetic Ketoacidosis (DKA) in Insulin Pump Therapy
- Checking and adjusting basal rates in insulin pump therapy (AHS)
- Coming off the pump (AHS)
- Blood glucose and insulin record for pump therapy (AHS)
- Guidelines for Emergency Room Management of Patients Using Insulin Pump Therapy (AHS)

Hospital stays on the pump
- Visit www.ipumpit.ca to review the process for managing your pump in Alberta hospitals

Pump trainer emails and phone numbers.

- If you have been scheduled to call a pump trainer but can’t recall the name or email, please call the booking clerk 403-955-8146 or 403-955-8118.