A Guide to Insulin Pumps at School

Many students with type 1 diabetes use insulin pumps, which are wearable medical devices that supply a continuous flow of insulin underneath the skin.

- With any pump, the infusion site must be replaced every 2 or 3 days. This will be done at home. If for some reason the pump stops delivering insulin, blood sugar levels will rise. If this happens during the school day, consult the student's care plan for instructions on what to do.
- All pumps provide a continuous supply of background or ***basal*** insulin. For standard pumps, the person's individual basal profile will be preprogrammed. Some pumps have an automated feature that allows the basal amount to change in response to whether blood sugar is stable, rising or falling.
- Although pumps are becoming increasingly automated, they all require the user to activate an insulin dose (a "bolus") before they eat. The user enters the amount of carbohydrates to be eaten (meal or snack) and—for some pump systems—the current glucose level. The pump calculates the amount of insulin to deliver. See below for a full glossary of terms.

This table shows the features of pumps commonly used in Canada as of September 2024.

	Omnipod (Tubeless)	**T:slim**	**Medtronic**
			
Bolus	Standard bolus with remote (PDM* or Dash)	Standard bolus using the pump	Standard bolus using the pump
Basal (background) insulin	Pre-set	Pre-set OR automated (if using Dexcom)	Pre-set OR automatic adjustment
Glucose checks	Integrated meter (part of PDM) sends the BG wirelessly to pump	Manual entry into pump. When using optional CGM, BG is auto-populated	Linked meter sends BG wirelessly to pump
CGM integration	No, but can be used separately. Expected soon.	Yes. Optional: Dexcom G6 or G7	Yes, Optional: Guardian sensor

* PDM = personal diabetes manager

Diabetes@School is a collaboration of the Canadian Paediatric Society, Canadian Pediatric Endocrine Group, and Diabetes Canada. For more information on supporting students with diabetes, visit www.diabetesatschool.ca.

Glossary

- **CGM:** Continuous glucose monitor
- **Standard bolus**: A bolus is a dose of insulin given before eating. See the student's care plan for details: For all pumps, give insulin as described in the plan: Enter carbohydrates and BG as directed and the pump will calculate the dose to be given.
- **Standard basal**: Basal (or background) insulin is a small dose given continuously through the pump to regulate blood sugar between meals and snacks. These basal rates are pre-programmed into the pump by the student/family.
- **Automatic adjustment basal**: This is a specific feature where the pump automatically alters the amount of basal insulin given every 5 minutes in response to the glucose readings from an integrated CGM.
- **Integrated meter, PDM**: The PDM ("personal diabetes manager") is a wireless, hand-held device that is used to program the OmniPod. It has a built-in/ integrated glucose meter to enable users to take a fingerstick. Even though the pump has the BG information, the user still needs to tell the pump when to give an insulin bolus.
- **DIY automated insulin delivery:** This is a form of automated insulin delivery pumping that uses open source programming codes to determine insulin delivery. Current options insulin Loop, Open APS and Android APS.