Diabetes Care Tasks at School: What Key Personnel Need To Know

INSULIN BY PUMP

Safe at School

American Diabetes Association
Accurate and timely insulin dosing is a vital piece of a comprehensive plan.
Participants will be able to understand:

- Basic types and features of insulin pumps
- What pumps do
- Essential information and skills for key school personnel who might perform or assist in entering data or delivering insulin with a pump
WHAT IS AN INSULIN PUMP

• Battery operated device about the size of a pager
• Reservoir filled with insulin
• Insulin is delivered by tubing or from a “patch”
• Worn 24 hours per day
• Delivers only rapid-acting insulin
DOSING WITH AN INSULIN PUMP

Dosage instructions are entered into the pump’s small computer and the appropriate amount of insulin is then injected into the body in a calculated, controlled manner.

Insulin pump
INSULIN PUMP THERAPY

• Based on what the body does naturally
  - *Small amounts of insulin all the time* (basal insulin)
  - *Extra doses to cover each meal or snack* (bolus insulin)

• Precision, micro-drop insulin delivery

• Flexibility

• Ease of correction for high blood glucose levels
WHAT PUMPS DO

“Bells and Whistles”

• Most pumps will calculate bolus dosages
• Some pumps communicate with blood glucose meters and/or continuous glucose monitors
• Tracking active insulin
• Temporary basal rates

Limitations:

• Pumps rely on accurate input from humans to calculate dosing; the user can override pump-calculated doses
More advanced hybrid closed loop systems self-adjust insulin delivery based on sensor data

- The Medtronic 670G System (a pump + a sensor) partially automates insulin delivery to help students stay in a target glucose range
- Can be used in Auto-Mode (hybrid closed loop) or Manual-Mode (basic pump and sensor therapy without automated delivery)
- Blood glucose testing with a meter is still required by student for treatment decisions, per DMMP
- Important to address alerts
  - “enter BG”
  - calibration requests
  - Students must bolus before meals/snacks to stay in Auto-Mode
  - If insulin is given by injection for ketones, Auto-Mode should be disabled
- Students who cannot self-manage independently will require assistance
WHAT KEY PERSONNEL NEED TO KNOW ABOUT AN INSULIN PUMP

How to deliver routine boluses for carbs and high blood glucose

Signs/symptoms that pump site may need to be changed

When an injection by pen or syringe is indicated

How to disconnect or “suspend” the pump

- In the event the student becomes unconscious or seizes or
- If instructed by the parent/guardian or diabetes care provider, e.g. during P.E.
SAMPLING OF PUMPS
METHOD OF DELIVERY

- In cases of pump or site malfunction, **always** notify the parent/guardian
  - Immediate site change is recommended if a pump site error occurs. For delayed or pump malfunctions, one common response is to provide correctional insulin with injection to reduce risk for hyperglycemia and DKA

**Insulin injection**
- Prescribed insulin therapy
- Prescribed as back-up plan if insulin pump malfunctions
- Prescribed for only certain seasons – determined by student, parent/guardian and provider

**Insulin pump**
- Prescribed and intended year-round use **unless** pump malfunction
- Prescribed and used for only certain seasons – determined by student, parent/guardian, and health care provider
In cases where the pump is disconnected (for example in PE) it should be placed in a secure place as designated in the student’s written plan. In cases of pump or site malfunction, always notify the parent/guardian and back-up plan, per DMMP.
Module 9 Pre – and Post – Tests: INSULIN BY PUMP

This tool may be freely duplicated and distributed for training purposes
1. **Pumps deliver insulin through:**
   a. A tube inserted under skin  
   b. A pod attached to body  
   c. a and b  

2. **Most pumps can calculate insulin dosages based on carbohydrate intake and blood glucose levels entered into the device.**
   a. True  
   b. False  

3. **Advantage of using an insulin pump that have been reported include:**
   a. Allows for finer adjustment of insulin dosages  
   b. Convenience without multiple daily injections  
   c. Monitors “on board” or “active” insulin  
   d. Calculates insulin dosage  
   e. All of the above  

4. **A back-up plan for giving insulin should be in place for any problems with the pump.**
   a. True  
   b. False
WHERE TO GET MORE INFORMATION

American Diabetes Association
1-800- DIABETES
www.diabetes.org/safeatschool