

# School Guidelines for a Student with Diabetes on Insulin Pump Therapy

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Student Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_ Grade: \_\_\_\_\_ School Year: \_\_\_\_\_

## Blood Glucose (BG) Testing

- Test the BG prior to eating food that contains carbohydrates.
- Test the BG if the student has signs/symptoms of a high or low BG.
- Test the BG if the child is ill.
- Additional BG testing may be needed before and during periods of driving, physical activity, bus rides, and academic test taking.

## Urine Ketone Testing

- Test the urine for ketones if the BG is greater than 300 mg/dl.
- Test the urine for ketones if the child is ill, regardless of the child's BG.
- Follow the instructions on the ketone strip container that specifies the timing of the test and how to interpret the results.
  - If a new ketone strip bottle is opened, write the opening date on the bottle.
    - Check the expiration date before testing for ketones. Ketone strips expire after 6 months after opening the bottle.
- Even with positive ketones, **the child can remain at school** (Please see our **Diabetes: When a Child Should Stay Home from School** helping hand)
- See *Management of High Blood Glucose (Hyperglycemia)* section of this guideline for interpretation of ketones.

## Insulin Administration

- **Parent(s) are responsible for communicating the correct dose of insulin and any changes in the dose of insulin.**
- Store unopened insulin in the refrigerator (36-46° F). After the insulin pen/vial is opened, it can be refrigerated or kept at room temperature and should be discarded after 28 days.
- Administer rapid-acting insulin lispro (Humalog®), aspart (Novolog®) by an insulin pump within 15 minutes before eating.
  - If the child is an unpredictable eater, give the insulin immediately after eating (with a 30 minute limit for eating) per request of the patient.
- Enter the blood glucose and/or carbohydrate amount into the pump.
- Once the carbohydrate and/or blood glucose are entered, the insulin pump will calculate the correct dose.
- View the pump to ensure the pump has started to administer the insulin.
- Insulin pumps utilize an Insulin on Board (IOB)/Active Insulin feature.
  - This feature will automatically adjust the insulin amount based on how much insulin is still “working” in the body. Also by utilizing this feature, the pump may allow a decreased correction dose to be administered within a standard 3 hour interval.



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## Management of High Blood Glucose (Hyperglycemia)

### High BG with Negative to Trace Ketones:

- A correction bolus is needed if the BG is above the target BG (unique to each child).
  - If the parent elects to use the an Insulin on Board (IOB)/Active Insulin feature on the pump, an adjusted (decreased) correction bolus that is calculated by the pump may be given to the child in less than the standard three-hour interval.
- The child should be encouraged to drink water or carb-free/caffeine-free liquids.
- Monitor the BG and urine ketones every three hours until ketones are negative and BG is between 70-300 mg/dl.

### High BG with Small, Moderate or Large Urine Ketones:

- Parents should be notified immediately; if unable to reach the parent(s), contact Nationwide Children's Hospital- Endocrinology at (614) 722-4425, if the parent has signed a school release and/or HIPAA release.
- Additional insulin for ketones may be needed; give as directed by the parent or a Nationwide Children's Hospital- Endocrinology provider.
- Even with positive ketones, the child can remain at school if clinically well (i.e. not vomiting, able to concentrate in class)
- Additional insulin for ketones may be needed; give as directed by the parent or a Nationwide Children's Hospital- Endocrinology provider.
- A correction bolus is needed if the BG is above the target BG (unique to each child) and it has been at least three hours since the last dose of rapid-acting insulin.
  - The correction and/or ketone bolus **CANNOT** be administered via the insulin pump. The bolus is to be administered via injection, through an insulin pen or syringe and vial. See *School Guidelines for a student with Diabetes on Basal/ Bolus Insulin Injection Therapy* for additional information on how to calculate doses for correction.
  - Disconnect the insulin pump tubing from the current infusion set and remove the infusion set from the body.
  - Select a new site and insert a new infusion set.
  - Reconnect the pump tubing to the new infusion set.
  - If the child has an Omnipod pump, deactivate and remove the current pod and replace with new pod at a different site.
- The child should refrain from physical activity until the ketones are negative and feeling well.
- The child should be encouraged to drink water or carb-free/caffeine-free liquids.
- Monitor the BG and ketones every three hours if the child remains at school until ketones are negative.
- The child may require hospital treatment if one or more of the following signs of diabetic ketoacidosis (DKA) are present: rapid breathing, rapid heart rate, fruity breath, capillary refill greater than three seconds, altered consciousness, prolonged vomiting and/or abdominal pain.

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## Management of Low Blood Glucose (Hypoglycemia)

- Never send a child with a suspected low BG anywhere alone.
- Symptoms of low BG:
  - Shakiness
  - Nervousness
  - Weakness
  - Pale Skin
  - Sweating
  - Personality Change
  - Confusion
  - Blurry Vision
  - Stomach Ache
  - Irritability/Crankiness
- If the BG is less than 70 mg/dl and the child can safely consume food/drink, give 15 grams of fast-acting carbs (4 oz. juice, 3-4 glucose tablets).
- Retest BG 15 minutes after the initial treatment of a low BG.
  - o If child is still low, give an additional 15 grams of carbs until BG is greater than the above 70 mg/dl.
- If the low BG occurs at meal or snack time, treat the low BG as above until BG is above 70 mg/dl and then give the usual insulin dose at meal time to cover the carbohydrates for the meal
- If unable to test BG, but the child does have symptoms of low BG, treat as noted above.
- Contact parent(s) if the child required two or more carb treatments in one day for a low BG or if the BG was less than 50 mg/dl.

**Emergency Treatment:** If the child has symptoms of a low BG and is unable or refuses to eat or drink, is unconscious, or is having a seizure, follow the following steps:

- Glucagon: Have trained personnel mix and administer glucagon 1 mg IM or SQ. The dose is 0.5 mg if the child is less than 45 pounds.
- Turn child on his/her side in case of nausea or vomiting.
- Call 911
- Stay with the child until emergency help arrives. Have someone contact parent(s) or guardian.
- When the child awakens and can swallow, encourage the child to take small sips of a carb-containing fluid (fruit juice or regular pop). If tolerated, follow with 15 grams of a carb and protein-containing food (such as peanut butter and crackers). Check blood glucose every 15 minutes and repeat snacks until BG is above 100 mg/dl.

**Following Up:** Preventing another low blood sugar

- If the child's next meal is more than an hour away, give the child another 15g snack without insulin to keep blood sugar on track.
- Choose a snack that has carbohydrates, protein, and fat to keep a steady blood sugar. Potential snacks include:
  - o 4 crackers with cheese or 4 crackers with peanut butter
  - o 8oz glass of milk
  - o Half of a lunch meat sandwich
  - o Granola bar



# School Guidelines for a Student with Diabetes on Insulin Pump Therapy

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Student Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_ Grade: \_\_\_\_\_ School Year: \_\_\_\_\_

## Management of Physical Activity

To maintain safe BG levels for activity/exercise, the student may need to take extra grams of carbohydrates before, during, and after physical activity.

### Physical Activity Guidelines for Students with Diabetes

- If urine ketones are present, the child should not participate in physical activities. See *Management of High Blood Glucose (Hyperglycemia)* section of this guideline.
- Physical activity usually lowers BG. The drop in BG may be immediate or delayed as much as 12-24 hours.
- If BG is <100 mg/dl prior to physical activity, give 15 gram complex carb snack without insulin. If <70 mg/dl, treat low using 15/15 rule, follow up with a complex carb snack.
- Check BG with every 30 minutes of activity.
- Do NOT give a high BG correction bolus within ONE hour of vigorous or prolonged activity.
- Give 15 grams of complex carb (protein and carb) if the patient is exercising and BG < 100 (without insulin coverage) or as directed by the parent. This amount may need to be adjusted later after seeing the effect on BG.

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