DIABETES CARE TASKS AT SCHOOL: What Key Personnel Need to Know

HYPERGLYCEMIA AND HYPOGLYCEMIA
Goal: Optimal Student Health and Learning

Managing hyperglycemia and hypoglycemia is a vital piece of a comprehensive plan.
Learning Objectives

Participants will be able to understand:

• Symptoms of high and low blood glucose
• Treatment of high and low blood glucose
• Prevention of high and low blood glucose
• Short- and long-term risks and complications
HYPERglycemia = HIGH Glucose (Sugar)

Onset:
- Usually slow to develop to severe levels
- More rapid with pump failure/malfunction, illness, infection
- Can mimic flu-like symptoms
- Greatest danger: may lead to diabetic ketoacidosis (DKA) if not treated

DMMP will specify signs and action steps at each level of severity:
- Mild
- Moderate
- Severe
Vocabulary

**HYPERglycemia** - too high a level of glucose in the blood

**Ketones** - (ketone bodies) Chemicals that the body makes when there is not enough insulin in the blood and the body must break down fat for its energy

**Diabetic ketoacidosis (DKA)** - An acute metabolic complication of diabetes characterized by excess acid in the blood which can be life threatening

**Ketone testing** - a procedure for measuring the level of ketones in the urine or blood

**Glucose** - a simple sugar found in the blood. The fuel that all body cells need to function
HYPERglycemia: Possible Signs & Symptoms

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HYPERglycemia: Possible Causes

- Late, missed or too little insulin
- Food intake exceeds insulin coverage
- Decreased physical activity
- Expired or improperly stored insulin
- Illness, injury
- Stress
- Other hormones or medications
- Hormone fluctuations, including menstrual periods
- Any combination of the above
HYPERglycemia: Prevention

- **Timing** is very important – stick to the schedules:
  - Meal time, insulin administration, physical activity

- **Accuracy** is very important
  - Insulin dose, monitoring the amount and type of food eaten

- **Changes** should only be made after consultation with the parent/guardian and/or school nurse
  - Snack, meal, or insulin or physical activity times or amounts
HYPERglycemia: What to do

Goal: *lower the blood glucose to target range.*

Action steps, following DMMP

- Verify with blood glucose check
- Check ketones
- Allow free use of bathroom and access to water
- Administer insulin
- Recheck blood glucose
- Call parent/guardian
- Note any patterns, communicate with school nurse and/or parent/guardian
HYPERglycemia: Risks & Complications

- Hyperglycemia, which if untreated can lead to DKA and potentially to coma and/or death (mainly in type 1)

- Interferes with a student’s ability to learn and participate

- Serious long-term complications develop when glucose levels remain above target range over time or are recurring
HYPOglycemia = LOW Glucose (sugar)

Onset:
- sudden, must be treated immediately
- may progress to unconsciousness if not treated
- can result in brain damage or death

DMMP should specify signs and action steps at each level of severity:
- mild
- moderate
- severe
Vocabulary

HYPOglycemia - a LOW level of glucose in the blood

Quick-acting glucose - sources of simple sugar that raises blood glucose levels, like juice, regular soda, glucose tabs or gel, hard candy

Glucose tablets or gel - special products that deliver a pre-measured amount of pure glucose. They are a fast-acting form of glucose used to counteract hypoglycemia

Carbohydrate - source of energy for the body which raises blood glucose level

Glucagon - hormone given by injection that raises level of glucose in the blood

1-800-DIABETES

www.diabetes.org
HYPOglycemia: Possible Signs & Symptoms

**Mild Symptoms**
- Hunger
- Shakiness
- Weakness
- Paleness
- Blurry vision
- Increased heart rate or palpitations

**Moderate to Severe Symptoms**
- Yawning
- Irritability/frustration
- Extreme tiredness/fatigue
- Inability to swallow
- Sudden crying
- Confusion
- Restlessness
- Dazed appearance
- Unconsciousness/coma
- Seizures
HYPOglycemia: Possible Causes

- Too much insulin
- Too little food or delayed meal or snack
- Extra/unanticipated physical activity
- Illness
- Medications
- Stress
HYPOglycemia: Prevention

- Physical activity, insulin, eating, checking BG, *per schedule*.

- Keep a quick-acting sugar source with the student. *ALWAYS.*

- Treat at onset of symptoms

- Ensure reliable insulin dosing, per DMMP.

- Ensure insulin dosing matches food eaten.
  - *Watch picky eaters*
  - *Provide nutritional information to parent/guardian*
  - *DMMP may specify after-meal dosing*
Hypoglycemia: Prevention

• Consult with parent/guardian or school nurse when snack, meal or physical activity times must be changed.

• Monitor blood glucose variations on gym days. An extra snack may be required ½ hour before gym or during prolonged vigorous physical activity per DMMP.

• A student should never be unattended when a low blood glucose is suspected. Maintain adult supervision.
Mild/Moderate HYPOglycemia: What to do

Intervene promptly; follow DMMP:

• Check blood glucose if meter is available.
• If no meter is available, treat immediately, on the spot.
• NEVER send a student with suspected low blood glucose anywhere alone
• When in doubt, always treat. If untreated may progress to more serious events.
• Consider “Rule of 15”
“Rule of 15”

General guidelines, follow DMMP for each student:

- Have student eat or drink fast acting carbs (15g)
- Check blood glucose 10-15 minutes after treatment
- Repeat treatment if blood glucose level remains low or if symptoms persist
- If symptoms continue, call parent/guardian per DMMP
Quick Acting Glucose for Mild/Moderate HYPOglycemia

Treatment for Lows: 15 g Carbohydrate

- 4 oz. fruit juice
- 15 g. glucose tablets (3-4 tablets)
- 1 tube of glucose gel
- 4-6 small hard candies
- 1-2 tablespoons of honey
- 6 oz. regular (not diet) soda (about half a can)
- 3 tsp. table sugar
- One-half tube of cake mate
Severe HYPOglycemia Symptoms

• Convulsions (seizures)
• Loss of consciousness
• Inability to swallow
Severe Hypoglycemia: What To Do

Rare, but life threatening, if not treated promptly:

- Place student on his or her side
- Lift chin to keep airway open
- Inject glucagon, per student’s DMMP
- Never give food or put anything in student’s mouth
- Call 911, then parent/guardian
- Student should respond in 10 to 20 minutes
- Remain with the student until help arrives
Hypoglycemia: Risks & Complications

- Early recognition and intervention can prevent an emergency
- Greatest immediate danger
- Not always preventable
- Impairs cognitive and motor functioning
Information for Teachers

- Students with hyperglycemia or hypoglycemia often do not concentrate well.

- Students should have adequate time for taking medication, checking blood glucose, and eating.

- During academic testing, provide accommodations as per 504 plan or IEP
  - Check blood glucose before and during testing, per plan
  - Access to food/drink and restroom
  - If a serious high or low blood glucose episode occurs, students should be excused with an opportunity for retake
“Make the Right Choice the Easy Choice”

Eliminate barriers to diabetes management:

- Become familiar with and follow students’ written plans
- Eliminate barriers to:
  - Snacking
  - Blood glucose checks
  - Access to water and bathrooms
  - Insulin administration
- Avoid judgments based on individual blood glucose readings
- Communicate with parent/guardian and school nurse
The ABSS School Nurses would like to thank each of you for volunteering to be Diabetes Care Managers at your school. Without you, caring for our students with Diabetes would not be possible!