

Diabetes Care Training for General School Employees
Care of Students with Diabetes Act

Legislation to Enhance a Positive Learning Environment (Students with diabetes are included)

Plan	Author of Document	Coverage
IEP or 504 Plan	IEP or 504 team	Curriculum and Education Plan – provides both health care and educational aids, services, accommodations and special education services needed by student
IHP and DMMP	School nurse and personal health care team	IHP – School nursing care plan in concert with the DMMP indicates how diabetes care should be administered in the school (by nurse or delegated care aides) DMMP – Doctor’s order provides DETAILED information regarding routine and emergent actions for specific patient/student with diabetes

DMMP = Diabetes Medical Management Plan; IEP = Individualized Education Program; IHP = Individualized Health Care Plan; 504 Plan = Section 504 of the Rehabilitation Act

- **Care of Students with Diabetes Act (Slides 3-5)**
 - Adopted December 2010
 - Accommodates mandates of the above legislations
 - Allows non-health care professionals to be involved with diabetes care in the absence of a registered nurse to ensure a positive learning environment
 - All schools receiving federal funding must comply with this ruling
 - Yearly training is needed for both GENERAL EMPLOYEES and DELEGATED CARE AIDES

Diabetes Mellitus (Slide 7)

- A metabolic condition that does not allow the body to either make or use insulin appropriately. If a patient does not have these abilities, basic metabolic processes cannot occur causing dangers of hyperglycemia. Diabetes is not only a condition of hyperglycemia, but also hypoglycemia due to the inability to balance metabolism of carbohydrates and other substances that sustain life. The most common type of diabetes is type 1 and type 2. Other causes/types of diabetes have been identified however type 1 and type 2 make up the majority of the cases within the United States.

Key Definition Terms (Slide 8-10)

Metabolism	A physical process necessary to maintain life. Substances may be degraded (broken down) or synthesized (made) to provide energy.
Insulin	A hormone that regulates fat and carbohydrate metabolism within the body. Insulin allows cells to take up glucose from the blood. At that time it can immediately be used for bodily functions or stored for a later time. (Stored glucose is called glycogen)
Glucagon	A natural hormone made in the pancreas to help raise and maintain blood glucose levels by causing a release of stored glucose (glycogen) from the liver.
Glucose	A simple “sugar” and an important carbohydrate used for cellular energy. Glucose is one of the main products of metabolism and allows the body to perform daily tasks and bodily function.
Hyperglycemia	A condition of elevated blood sugar circulating within the blood.
Hypoglycemia	A condition when lower-than-normal blood sugar levels are circulating in the blood.
Diabetes Type 1	Classified as an auto-immune disorder. The patient’s immune system attacks the insulin-producing beta-cells within the pancreas and destroys them. The eradication of beta cells leads to an absolute lack of insulin production for biological function.
Diabetes Type 2	Classified as an insulin resistant state. Patients are able to produce insulin from the pancreas, however may become less responsive to the insulin produced or unable to make enough insulin to keep up with blood glucose levels.

Comparison: Type 1 and Type 2

	Type 1	Type 2
Diagnosed	5-10% of patients with diabetes	95-90% of patients with diabetes
Age of diagnosis	Typically during adolescents [^]	Typically later in life [#]
Onset	Relatively quick	Variable timeframe for children, however tends to be slow for adults ^Ω
Body type	Slender build	Central obesity
Therapy	INSULIN ^Σ	ORAL MEDICATION NON-INSULIN INJECTABLES INSULIN

[^] = cases of late-onset type 1 have been documented

[#] = cases within adolescents are becoming more common due to environmental factors (lack of physical activity, obesity, ethnic groups, and genetics)

^Ω = At the time of diagnosis, older adults may already have metabolic issues such as hypertension, obesity and cholesterol predisposing the patient to a faster onset for complications associated with diabetes.

^Σ = Insulin is necessary in order to live

Associated Symptoms (Slide 11)

Patients with type 1 or type 2 diabetes often times have the same type of symptoms present at the time of diagnosis. Patients with type 1 diabetes may have a faster onset of symptoms leading to acute (short-term) complications. Due to the insidious nature of symptoms with type 2 diabetes, patients at risk for type 2 diabetes may not be aware of these symptoms for early detection.

- Cardinal Signs and Symptoms
 - Sudden weight loss
 - Increased thirst (polydipsia)
 - Excessive urination (polyuria)
 - Increased hunger (polyphagia)
 - Dry, itchy skin
 - Difficulty healing

Immediate Concerns (Slide 13 – 20)

	Hypoglycemia	Hyperglycemia
Onset	Very rapid – may or may not have warning signs	Slow to develop to severe levels
Causes	<ul style="list-style-type: none"> • Delay or omission of meals • Medications • Physical activity • Stress • Unknown 	<ul style="list-style-type: none"> • Compliance with medical advice • Excessive carbohydrate intake • Hormonal changes/stress • Illness • Medication or insulin pump failure • Lack of physical activity • Physical activity • Unknown
Signs and symptoms	<p style="text-align: center;">MILD SYMPTOMS</p> <p>-Hunger -Shakiness -Fatigue -Sweating -Paleness -Anxiety -Blurred vision -Dilated pupils</p> <p style="text-align: center;">MODERATE/SEVERE SYMPTOMS</p> <p>-Yawning -Confusion -Restlessness -Dazed -Irritability -Frustration -Extreme fatigue -Sudden crying -Seizures -Coma/death</p>	<p style="text-align: center;">MILD SYMPTOMS</p> <p>-Stomach pains -Fatigue -Sleepiness -Blurred vision -Frequent urination -Thirst -Increased hunger -Weight loss -Sweet, fruity breath -Lack of concentration</p> <p style="text-align: center;">MODERATE/SEVERE SYMPTOMS</p> <p>-Dry mouth -Vomiting -Stomach cramps -Nausea -Unconscious -Confusion -Profound weakness -Labored breathing</p>

	Hypoglycemia	Hyperglycemia
Treatment	<p>Early Recognition is KEY</p> <p><u>Mild/Moderate hypoglycemia[^]</u></p> <ul style="list-style-type: none"> • 15 grams of carbohydrates, repeat blood glucose check within 15 minutes • Eat within 1 hour <p><u>Severe hypoglycemia[#]</u></p> <ul style="list-style-type: none"> • 1mg Glucagon intramuscular injection – should respond within 10-20 minutes • Call 911/parent or guardian 	<p>Early Monitoring is KEY</p> <p><u>Prevention</u></p> <ul style="list-style-type: none"> • Routinely check blood glucose levels as directed • If elevated greater than 250mg/dl → check ketones • Reduce issues with possible causes <p><u>Treatment</u></p> <ul style="list-style-type: none"> • Increase access to water • Allow bathroom breaks • INSULIN
Examples of ~15 grams of carbohydrates^Ω	<ul style="list-style-type: none"> • 4 oz. fruit juice • 6 oz. REGULAR soda (not diet) • 1-2 tablespoons of honey • 15 grams of glucose tablets (3-4 tablets) • 1 tube of glucose gel • 3 teaspoons of table sugar 	

[^] = No formal definition. Typically identified if blood glucose is less than 70mg/dl or patient is symptomatic

[#] = unable to treat self; regardless of blood glucose level

^Ω = not an all-inclusive list; young/smaller students may be directed to take 8 grams of carbohydrates

Eliminate Barriers (Slide 21)

- Become familiar with the students in your school
- Become familiar with signs and symptoms of hypoglycemia and hyperglycemia
- Provide a diabetes friendly environment
 - Educate current classmates without alienating patient
 - Be familiar with the student's diabetes medical management plan (DMMP)
 - Allow free access to bathroom and water
 - Encourage blood glucose testing
 - Learn from your student and other resources available

Available resources

- American Diabetes Association – Safe at School Program
 - <http://www.diabetes.org>
- National Diabetes Education Program
 - <http://www.ndep.nih.gov>
- Helping the student with diabetes succeed: A guide for school personnel
 - http://www.ndep.nih.gov/media/youth_schoolguide.pdf
- American Association of Diabetes Educators
 - <http://www.diabeteseducator.org>