

Type 1



# TOOLKIT

School Nursing Evidence-Based  
Clinical Practice Guideline:  
**Students with Type 1 Diabetes**



*National  
Association of  
School Nurses*

[nasn.org](http://nasn.org)

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## Overview

NASN's *School Nursing Evidence-Based Clinical Practice Guideline: Students with Type 1 Diabetes*, provides evidence-based recommendations to assist the school nurse in their role of improving the health and safety of the school-age child with T1D. Children with T1D experience multiple challenges in school that may place them at an increased risk for diabetes-related complications. It is critical that a safe and supportive environment exists in schools for students with T1D to self-manage their disease, achieve optimal glycemic stability, and proactively plan and implement risk reduction strategies to minimize actual or potential diabetes-related complications.

This toolkit is designed to help school nurses implement those recommendations. Multiple tools and resources are included to provide care for students with T1D:

- Nursing Assessment
- Planning and Implementing Care
- Evaluating Care
- Additional Resources

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## Definitions and Abbreviations of Terms

**504 Plan:** Plan developed under Section 504 of the Rehabilitation Act of 1973. This federal legislation guarantees certain rights to people with disabilities. This was one of the first federal rights laws offering protection for individuals with disabilities. It set precedents for the Americans with Disabilities Act of 1990. A 504 Plan is a plan developed to ensure that a child who has a disability identified under the law receives accommodations to ensure their academic success and access to the learning environment. A 504 Plan specifies the actions the school will take to keep the student with diabetes medically safe and ensure the student has the same access to education as other children and is treated fairly.

**Accommodations:** Actions, exceptions, and provisions documented in a 504 or IEP plan to allow students with T1D full access to their academic environment, full access to their diabetes management with support and participation at all levels without discrimination.

**Basal/Background Insulin:** The dose of insulin intended to regulate blood glucose overall. This occurs by either 1–2 injections of long-lasting insulin a day or a continuous flow of background insulin delivered in units/hour via CSII. The basal rate delivered during the day can vary from the basal rate delivered during hours of sleep and is calculated and ordered by the HCP.

**Blood glucose (BG):** Also referred to as blood sugar, is the main sugar found in blood. Blood carries blood glucose to the body's cells as the main source of the body's energy. As many students use interstitial sensor glucose readings (glucose found in the interstitial fluid between cells), the term blood glucose level may be replaced by glucose level in the DMMP.

**Bolus Insulin:** Dose of insulin used in addition to basal insulin. Divided into two distinct categories: carbohydrate coverage and high blood glucose correction. Bolus insulin is short acting or rapid acting insulin.

**Carbohydrate (CHO):** CHOs are found in foods and drinks. CHOs are broken down by the body into glucose. Glucose is the main source of energy for the body's cells. The meal portion of insulin dosing is based on counting grams of CHOs in foods.

**Continuous glucose monitoring (CGM):** A CGM system works through a sensor inserted under the skin, measuring interstitial glucose levels. The sensor sends information to a monitor or mobile device that allows sharing of information with family members and the healthcare team. The timing of information can be set at regular intervals. Current technology allows the individual with diabetes to see glucose changes over time and monitor trends. This helps to inform the individual with diabetes on how to regulate or balance food, medication, and physical activity allowing for prompt prevention and treatment of hypo- and hyperglycemia before it occurs.

**Correction Dose:** A correction dose may be referred to as a correction factor, insulin sensitivity factor or high sugar correction. A correction factor is typically calculated by an

endocrinologist to determine how many units of insulin will drop the blood glucose level by a specific mg/dl. This translates to the sliding scale a prescriber orders for high blood glucose correction. Ex: 1 unit of insulin for every 50 mg/dl over 150 (UCSF, 2020).

**Continuous subcutaneous insulin infusion (CSII):** CSII refers to an insulin pump that is a computerized, wearable technology device. It delivers rapid-acting or short-acting insulin through a thin and short tube or cannula inserted under the skin. The premise is to mimic the body's release of insulin continuously (basal) and then provide for an extra bolus of insulin when eating. Insulin pump therapy is most commonly used in conjunction with CGM systems (e.g., hybrid and advanced hybrid systems) that can provide synergism through mechanisms such as autocorrected boluses and automatic or adjusting basal rates.

**Diabetes Medical Management Plan (DMMP):** Prepared by the student's medical diabetes healthcare team, the DMMP contains the medical orders tailored for each student. The format and contents of the DMMP vary by clinic. Every student with diabetes must have a DMMP in order for treatments to be performed at school.

**Diabetic ketoacidosis (DKA):** Serious complication of diabetes when the body has insufficient insulin. The body is unable to use the circulating BG for metabolism and begins to break down fat. The breakdown process results in a build-up of ketones (acids) in the bloodstream. Left untreated, DKA develops. Signs and symptoms vary but include thirst, frequent urination, elevated BG levels, and ketonuria. Later signs and symptoms include fatigue, dry and flushed skin, nausea, vomiting, or abdominal pain, shortness of breath, fruity breath odor and confusion or difficulty paying attention. Students with T1D are tested for ketones per HCP orders when glucose levels are very high, typically  $\geq 250$  mg/dL.

**Diabetes Resilience:** The ability to navigate through adversity, adapt to life circumstances, and rebound from emotional low points to reduce the risks of T1D complications or untoward outcomes while managing T1D. Examples of resilience in T1D may include maintaining good quality of life, maintaining glycemic targets, attaining glycemic control, minimizing complications, preventing hypoglycemia, avoiding DKA, and avoiding diabetes-related hospitalizations.

**DIY (Do-it-Yourself Diabetes Technology):** Often referred to as looping that uses outside resources and materials to create an artificial pancreas. The DIY movement is an outgrowth of diabetes community members frustrated with the lack of accessibility and high cost of FDA-approved artificial pancreas systems. There are concerns about safety as the items are not commercially available; nor are they FDA-approved, which may cause increased liability concerns for schools.

**Emergency Care Plan (ECP):** This plan comes from the nurse's care plan (IHP) and is developed by the school nurse using clear terminology that can be easily understood by school personnel and non-medical professionals. The ECP outlines the action steps involved in recognizing and responding to a health crisis. For T1D the ECP outlines actions to take to respond to severe high or low BG.

**Glucagon:** A hormone that helps the liver to release glucose in order to raise BG levels. Glucagon exists naturally in the body; but, as a treatment for severe hypoglycemia, can be administered through injection, auto injection, or intranasally.

**Healthcare provider (HCP):** Examples include endocrinologist or primary care provider (physician, physician assistant, Certified Diabetes Care and Education Specialist, or nurse practitioner) responsible for medical diagnosis, treatment, and orders.

**Hemoglobin A1C (A1C):** Also abbreviated HBA1C. A blood test that measures glycated hemoglobin, a form of hemoglobin that is chemically linked to a sugar. It identifies the average BG levels from approximately the past 60–90 days as an assessment of glycemic control.

**Hypoglycemia:** BG level that is lower than normal and requires treatment to bring BG back into target range. This usually occurs when BG is < 70 mg/dL. Signs and symptoms vary but include shakiness, nervousness or anxiety, sweating, chills and clamminess, irritability or impatience, confusion, lightheadedness or dizziness, hunger, nausea, pallor. Signs and symptoms may not be present if the student has hypoglycemia unawareness.

**Hyperglycemia:** BG level that is higher than normal. In people with diabetes, this occurs from not enough insulin, insulin resistance, stress, and illness. Signs and symptoms vary but include frequent urination, increased thirst, fruity odor to breath, weakness, confusion, and coma.

**Individualized Education Program (IEP):** Developed under the Individuals with Disabilities Education Act, an IEP is created for students with a disability that impacts learning and requires special education services (IDEA, 2004). Students who are eligible have a plan developed in collaboration with the student, family, and educational facility that is a road map of services and supports to ensure academic success in the least restrictive environment.

**Individualized Healthcare Plan (IHP):** Called a nursing care plan in other settings, it reflects application of the nursing process. School nurses develop IHPs to meet the needs of students. The plan is developed in partnership with the student and family and incorporates synthesis of the nursing assessment and the HCP medical orders. The plan focuses on meeting a student's health and academic goals (NASN, 2020). It is from the IHP that an ECP and other documents are created.

**Insulin to Carbohydrate Ratio (I:CHO):** Also referred to as a cover dose. The I:CHO ratio tells you how many grams of CHO can be covered by one unit of rapid acting insulin. The student needs to calculate how much CHO will be eaten and take a dose of insulin that matches the food.

**Ketones:** When cells do not get the glucose they need for energy, the body burns fat as a secondary source of fuel, producing ketones, which are acids. Ketones may be present with normal and even low glucose levels during illness. See DKA for signs and symptom.



**Nursing Delegation:** There is an important distinction between delegation familiar to non-nurse school personnel and nursing delegation. The transfer of responsibility for the performance of an activity to another, with the former retaining accountability for the outcome. Nursing delegation requires the registered professional school nurse to assign performance of a specific nursing task, in a specific situation, for a particular student to an unlicensed professional – also known as an unlicensed assistive personnel (UAP); it also requires the school nurse to provide ongoing supervision and evaluation of the UAP and student’s health outcomes.

**Time in Range (TIR):** Using CGM data, TIR is the amount of time spent in the prescribed BG target range. The typical target range for adults is 70 mg/dL – 180 mg/dL; this may vary in the pediatric population. The ADA states most people with T1D or T2D should aim for 70% TIR.

## Resources

American Diabetes Association. (2020). *Helping the student with diabetes succeed: A guide for school personnel*. <https://www.diabetes.org/sites/default/files/2020-06/SchoolguidepdfMay2020.pdf>

National Association of School Nurses. (2020). *School nursing evidence-based clinical practice guideline: Students with type 1 diabetes*. <https://www.pathlms.com/nasn/courses/37660>

# Nursing Assessment for Students with Type 1 Diabetes (T1D)

## Overview

Assessment is the first step of the nursing process. Information, obtained from a variety of sources, is used to develop the student's Individualized Healthcare Plan (IHP), Emergency Care Plan (ECP), and can inform other educational plans (e.g., IEP plan, 504 plan). In the school setting, the nursing assessment begins with a baseline assessment but is ongoing throughout the school year. This section of the Toolkit supports translation into practice of the recommendations identified for Assessment in the *School Nursing Evidence-Based Clinical Practice Guideline: Students with Type 1 Diabetes* (NASN, 2021).

### **A student-focused assessment includes review of:**

- Healthcare provider orders (Two DMMP examples included)
- T1D health history
- Social determinants of health and learning
- Social needs
- School environmental factors
- Student-specific factors
- Self-management skills
- Review of body systems
- Objective data
- Medical equipment and supplies

### **Student-focused assessment tools included:**

- Sample Nursing Assessment
- Sample Nursing Assessment for Students with T1D
- Student Self-Management of T1D Inventory
- School Nurse Assessment of Self-Management of T1D – Student, Parent/Guardian, and School Nurse Assessment Comparison
- School Nurse Assessment of Student Self-Management of T1D

### **School and school district assessment includes:**

- Review of existing policies, practices, and procedures for alignment with federal and state law
- Identification of gaps in policies, practices, and procedures to support diabetes management in schools

NOTE: Steps to address identified gaps will be in the *Planning and Implementation of Care* section.

# Diabetes Medical Management Plan (DMMP)

This plan should be completed by the student's personal diabetes health care team, including the parents/guardians. It should be reviewed with relevant school staff and copies should be kept in a place that can be accessed easily by the school nurse, trained diabetes personnel, and other authorized personnel.

Date of plan: \_\_\_\_\_

This plan is valid for the current school year: \_\_\_\_\_ - \_\_\_\_\_

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## Student information

Student's name: \_\_\_\_\_ Date of birth: \_\_\_\_\_

Date of diabetes diagnosis: \_\_\_\_\_  Type 1  Type 2  Other: \_\_\_\_\_

School: \_\_\_\_\_ School phone number: \_\_\_\_\_

Grade: \_\_\_\_\_ Homeroom teacher: \_\_\_\_\_

School nurse: \_\_\_\_\_ Phone: \_\_\_\_\_

---

## Contact information

**Parent/guardian 1:** \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: Home: \_\_\_\_\_ Work: \_\_\_\_\_ Cell: \_\_\_\_\_

Email address: \_\_\_\_\_

**Parent/guardian 2:** \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: Home: \_\_\_\_\_ Work: \_\_\_\_\_ Cell: \_\_\_\_\_

Email address: \_\_\_\_\_

**Student's physician/health care provider:** \_\_\_\_\_

Address: \_\_\_\_\_

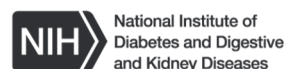
Telephone: \_\_\_\_\_ Emergency number: \_\_\_\_\_

Email address: \_\_\_\_\_

### Other emergency contacts:

Name: \_\_\_\_\_ Relationship: \_\_\_\_\_

Telephone: Home: \_\_\_\_\_ Work: \_\_\_\_\_ Cell: \_\_\_\_\_



## Checking blood glucose

Brand/model of blood glucose meter: \_\_\_\_\_

Target range of blood glucose:

Before meals:  90–130 mg/dL  Other: \_\_\_\_\_

Check blood glucose level:

- Before breakfast     After breakfast     \_\_\_\_\_ Hours after breakfast     2 hours after a correction dose  
 Before lunch     After lunch     \_\_\_\_\_ Hours after lunch     Before dismissal  
 Mid-morning     Before PE     After PE     Other: \_\_\_\_\_  
 As needed for signs/symptoms of low or high blood glucose     As needed for signs/symptoms of illness

Preferred site of testing:  Side of fingertip  Other: \_\_\_\_\_

Note: The side of the fingertip should always be used to check blood glucose level if hypoglycemia is suspected.

Student's self-care blood glucose checking skills:

- Independently checks own blood glucose  
 May check blood glucose with supervision  
 Requires school nurse or trained diabetes personnel to check blood glucose  
 Uses a smartphone or other monitoring technology to track blood glucose values

Continuous glucose monitor (CGM):  Yes  No Brand/model: \_\_\_\_\_

Alarms set for: Severe Low: \_\_\_\_\_ Low: \_\_\_\_\_ High: \_\_\_\_\_

Predictive alarm: Low: \_\_\_\_\_ High: \_\_\_\_\_ Rate of change: Low: \_\_\_\_\_ High: \_\_\_\_\_

Threshold suspend setting: \_\_\_\_\_

CGM may be used for insulin calculation if glucose is between \_\_\_ - \_\_\_ mg/dL \_\_\_ Yes \_\_\_ No

CGM may be used for hypoglycemia management \_\_\_ Yes \_\_\_ No

CGM may be used for hyperglycemia management \_\_\_ Yes \_\_\_ No

## Additional information for student with CGM

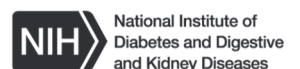
- Insulin injections should be given at least three inches away from the CGM insertion site.
- Do not disconnect from the CGM for sports activities.
- If the adhesive is peeling, reinforce it with approved medical tape.
- If the CGM becomes dislodged, return everything to the parents/guardians. Do not throw any part away.
- Refer to the manufacturer's instructions on how to use the student's device.

Student's Self-care CGM Skills: Check "Yes" or "No" if the student can perform the skill independently.

The student troubleshoots alarms and malfunctions.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The student knows what to do and is able to deal with a HIGH alarm.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The student knows what to do and is able to deal with a LOW alarm.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The student can calibrate the CGM.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The student knows what to do when the CGM indicates a rapid trending rise or fall in the blood glucose level.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

The student should be escorted to the nurse if the CGM alarm goes off:  Yes  No

Other instructions for the school health team: \_\_\_\_\_



## Hypoglycemia treatment

Student's usual symptoms of hypoglycemia (list below): \_\_\_\_\_

If exhibiting symptoms of hypoglycemia, OR if blood glucose level is less than \_\_\_\_\_ mg/dL, give a quick-acting glucose product equal to \_\_\_\_\_ grams of carbohydrate.

Recheck blood glucose in 15 minutes and repeat treatment if blood glucose level is less than \_\_\_\_\_ mg/dL.

Additional treatment: \_\_\_\_\_

If the student is unable to eat or drink, is unconscious or unresponsive, or is having seizure activity or convulsions (jerking movement):

- Position the student on his or her side to prevent choking.
- Administer glucagon                      Name of glucagon used: \_\_\_\_\_

Injection:

- 1 mg                       ½ mg                       Other (dose) \_\_\_\_\_
- Route:                       Subcutaneous (SC)                       Intramuscular (IM)
- Site for glucagon injection:                       Buttocks                       Arm                       Thigh                       Other: \_\_\_\_\_

Nasal route:

- 3 mg
- Route:                       Intranasal (IN)
- Site:                       Nose
- Call 911 (Emergency Medical Services) and the student's parents/guardians.
- Contact the student's health care provider.
- If on insulin pump, stop by placing mode in suspend or disconnect. Always send pump with EMS to hospital.

## Hyperglycemia treatment

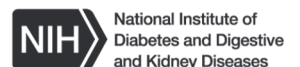
Student's usual symptoms of hyperglycemia (list below): \_\_\_\_\_

- Check  Urine     Blood for ketones every \_\_\_\_\_ hours when blood glucose levels are above \_\_\_\_\_ mg/dL.
- For blood glucose greater than \_\_\_\_\_ mg/dL AND at least \_\_\_\_\_ hours since last insulin dose, give correction dose of insulin (see correction dose orders).
- Notify parents/guardians if blood glucose is over \_\_\_\_\_ mg/dL.
- For insulin pump users: see **Additional Information for Student with Insulin Pump**.
- Allow unrestricted access to the bathroom.
- Give extra water and/or non-sugar-containing drinks (not fruit juices): \_\_\_\_\_ ounces per hour.

Additional treatment for ketones: \_\_\_\_\_

- Follow physical activity and sports orders. (See **Physical Activity and Sports**)

If the student has symptoms of a hyperglycemia emergency, call 911 (Emergency Medical Services) and contact the student's parents/guardians and health care provider. Symptoms of a hyperglycemia emergency include: dry mouth, extreme thirst, nausea and vomiting, severe abdominal pain, heavy breathing or shortness of breath, chest pain, increasing sleepiness or lethargy, or depressed level of consciousness.



## Insulin therapy

Insulin delivery device:  Syringe  Insulin pen  Insulin pump

Type of insulin therapy at school:  Adjustable (basal-bolus) insulin  Fixed insulin therapy  No insulin

### Adjustable (Basal-bolus) Insulin Therapy

• Carbohydrate Coverage/Correction Dose: Name of insulin: \_\_\_\_\_

#### • Carbohydrate Coverage:

Insulin-to-carbohydrate ratio:

**Breakfast:** 1 unit of insulin per \_\_\_\_\_ grams of carbohydrate

**Lunch:** 1 unit of insulin per \_\_\_\_\_ grams of carbohydrate

**Snack:** 1 unit of insulin per \_\_\_\_\_ grams of carbohydrate

#### Carbohydrate Dose Calculation Example

**Total Grams of Carbohydrate to Be Eaten** ÷ **Insulin-to-Carbohydrate Ratio** = \_\_\_\_\_ **Units of Insulin**

Correction Dose: Blood glucose correction factor (insulin sensitivity factor) = \_\_\_\_\_ Target blood glucose = \_\_\_\_\_ mg/dL

#### Correction Dose Calculation Example

**(Current Blood Glucose – Target Blood Glucose)** ÷ **Correction Factor** = \_\_\_\_\_ **Units of Insulin**

**Correction dose scale** (use instead of calculation above to determine insulin correction dose):

Blood glucose \_\_\_\_\_ to \_\_\_\_\_ mg/dL, give \_\_\_\_\_ units      Blood glucose \_\_\_\_\_ to \_\_\_\_\_ mg/dL, give \_\_\_\_\_ units

Blood glucose \_\_\_\_\_ to \_\_\_\_\_ mg/dL, give \_\_\_\_\_ units      Blood glucose \_\_\_\_\_ to \_\_\_\_\_ mg/dL, give \_\_\_\_\_ units

See the worksheet examples in **Advanced Insulin Management: Using Insulin-to-Carb Ratios and Correction Factors** for instructions on how to compute the insulin dose using a student's insulin-to-carb ratio and insulin correction factor.

### When to give insulin:

#### Breakfast

Carbohydrate coverage only

Carbohydrate coverage plus correction dose when blood glucose is greater than \_\_\_\_\_ mg/dL and \_\_\_\_\_ hours since last insulin dose.

Other: \_\_\_\_\_

#### Lunch

Carbohydrate coverage only

Carbohydrate coverage plus correction dose when blood glucose is greater than \_\_\_\_\_ mg/dL and \_\_\_\_\_ hours since last insulin dose.

Other: \_\_\_\_\_

#### Snack

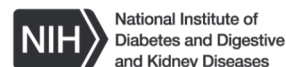
No coverage for snack

Carbohydrate coverage only

Carbohydrate coverage plus correction dose when blood glucose is greater than \_\_\_\_\_ mg/dL and \_\_\_\_\_ hours since last insulin dose.

Correction dose only: For blood glucose greater than \_\_\_\_\_ mg/dL AND at least \_\_\_\_\_ hours since last insulin dose.

Other: \_\_\_\_\_



## Insulin therapy (continued)

**Fixed Insulin Therapy** Name of insulin: \_\_\_\_\_

- \_\_\_\_\_ Units of insulin given pre-breakfast daily
- \_\_\_\_\_ Units of insulin given pre-lunch daily
- \_\_\_\_\_ Units of insulin given pre-snack daily
- Other: \_\_\_\_\_

**Basal Insulin Therapy** Name of insulin: \_\_\_\_\_

To be given during school hours:    \_\_\_ Pre-breakfast dose:    \_\_\_ units  
  \_\_\_ Pre-lunch dose:        \_\_\_ units  
  \_\_\_ Pre-dinner dose:      \_\_\_ units

Other diabetes medications:

Name: \_\_\_\_\_ Dose: \_\_\_\_\_ Route: \_\_\_\_\_ Times given: \_\_\_\_\_

Name: \_\_\_\_\_ Dose: \_\_\_\_\_ Route: \_\_\_\_\_ Times given: \_\_\_\_\_

### Parents/Guardians Authorization to Adjust Insulin Dose

- Yes    No    Parents/guardians authorization should be obtained before administering a correction dose.
- Yes    No    Parents/guardians are authorized to increase or decrease correction dose scale within the following range: +/- \_\_\_\_\_ units of insulin.
- Yes    No    Parents/guardians are authorized to increase or decrease insulin-to-carbohydrate ratio within the following range: \_\_\_\_\_ units per prescribed grams of carbohydrate, +/- \_\_\_\_\_ grams of carbohydrate.
- Yes    No    Parents/guardians are authorized to increase or decrease fixed insulin dose within the following range: +/- \_\_\_\_\_ units of insulin.

### Student's self-care insulin administration skills:

- Independently calculates and gives own injections.
- May calculate/give own injections with supervision.
- Requires school nurse or trained diabetes personnel to calculate dose and student can give own injection with supervision.
- Requires school nurse or trained diabetes personnel to calculate dose and give the injection.

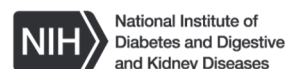
## Additional information for student with insulin pump

**Brand/model of pump:** \_\_\_\_\_ **Type of insulin in pump:** \_\_\_\_\_

**Basal rates during school:**    Time: \_\_\_\_\_ Basal rate: \_\_\_\_\_    Time: \_\_\_\_\_ Basal rate: \_\_\_\_\_  
  Time: \_\_\_\_\_ Basal rate: \_\_\_\_\_    Time: \_\_\_\_\_ Basal rate: \_\_\_\_\_  
  Time: \_\_\_\_\_ Basal rate: \_\_\_\_\_

**Other pump instructions:** \_\_\_\_\_

**Type of infusion set:** \_\_\_\_\_



## Additional information for student with insulin pump (continued)

**Appropriate infusion site(s):** \_\_\_\_\_

- For blood glucose greater than \_\_\_\_\_ mg/dL that has not decreased within \_\_\_\_\_ hours after correction, consider pump failure or infusion site failure. Notify parents/guardians.
- For infusion site failure: Insert new infusion set and/or replace reservoir, or give insulin by syringe or pen.
- For suspected pump failure: Suspend or remove pump and give insulin by syringe or pen.

### Physical Activity

- May disconnect from pump for sports activities:  Yes, for \_\_\_\_\_ hours  No
- Set a temporary basal rate:  Yes, \_\_\_\_\_% temporary basal for \_\_\_\_\_ hours  No
- Suspend pump use:  Yes, for \_\_\_\_\_ hours  No

**Student's Self-care Pump Skills:** Check "Yes" or "No" if the student can perform the skill independently.

Counts carbohydrates	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Calculates correct amount of insulin for carbohydrates consumed	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Administers correction bolus	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Calculates and sets basal profiles	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Calculates and sets temporary basal rate	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Changes batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Disconnects pump	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Reconnects pump to infusion set	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Prepares reservoir, pod, and/or tubing	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Inserts infusion set	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Troubleshoots alarms and malfunctions	<input type="checkbox"/> Yes	<input type="checkbox"/> No

## Meal plan

Meal/Snack	Time	Carbohydrate Content (grams)
Breakfast		_____ to _____
Mid-morning snack		_____ to _____
Lunch		_____ to _____
Mid-afternoon snack		_____ to _____

**Other times to give snacks and content/amount:** \_\_\_\_\_

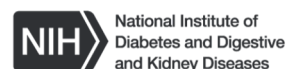
**Instructions for when food is provided to the class** (e.g., as part of a class party or food sampling event): \_\_\_\_\_

Parent/guardian substitution of food for meals, snacks and special events/parties permitted.

**Special event/party food permitted:**  Parents'/Guardians' discretion  Student discretion

### Student's self-care nutrition skills:

- Independently counts carbohydrates
- May count carbohydrates with supervision
- Requires school nurse/trained diabetes personnel to count carbohydrates





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## Physical activity and sports

A quick-acting source of glucose such as  glucose tabs and/or  sugar-containing juice must be available at the site of physical education activities and sports.

Student should eat  15 grams  30 grams of carbohydrate  other: \_\_\_\_\_

before  every 30 minutes during  every 60 minutes during  after vigorous physical activity  other: \_\_\_\_\_

If most recent blood glucose is less than \_\_\_\_\_ mg/dL, student can participate in physical activity when blood glucose is corrected and above \_\_\_\_\_ mg/dL.

Avoid physical activity when blood glucose is greater than \_\_\_\_\_ mg/dL or if urine/blood ketones are moderate to large.

(See **Administer Insulin** for additional information for students on insulin pumps.)

---

## Disaster/emergency and drill plan

To prepare for an unplanned disaster, emergency (72 hours) or drill, obtain emergency supply kit from parents/guardians. School nurse or other designated personnel should take student's diabetes supplies and medications to student's destination to make available to student for the duration of the unplanned disaster, emergency, or drill.

Continue to follow orders contained in this DMMP.

Additional insulin orders as follows (e.g., dinner and nighttime): \_\_\_\_\_

\_\_\_\_\_

Other: \_\_\_\_\_

---

## Signatures

This Diabetes Medical Management Plan has been approved by:

\_\_\_\_\_  
Student's Physician/Health Care Provider

\_\_\_\_\_  
Date

I, (parent/guardian) \_\_\_\_\_ give permission to the school nurse or another qualified health care professional or trained diabetes personnel of (school) \_\_\_\_\_ to perform and carry out the diabetes care tasks as outlined in (student) \_\_\_\_\_ Diabetes Medical Management Plan. I also consent to the release of the information contained in this Diabetes Medical Management Plan to all school staff members and other adults who have responsibility for my child and who may need to know this information to maintain my child's health and safety. I also give permission to the school nurse or another qualified health care professional to contact my child's physician/health care provider.

Acknowledged and received by:

\_\_\_\_\_  
Student's Parent/Guardian

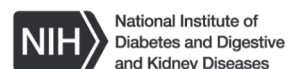
\_\_\_\_\_  
Date

\_\_\_\_\_  
Student's Parent/Guardian

\_\_\_\_\_  
Date

\_\_\_\_\_  
School Nurse/Other Qualified Health Care Personnel

\_\_\_\_\_  
Date



# Diabetes Medical Management Plan

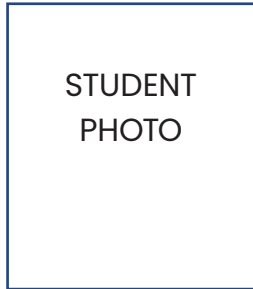
IDENTIFIERS

## Student Information

Student's Name: \_\_\_\_\_ Date of birth: \_\_\_\_\_  
 School: \_\_\_\_\_ Grade: \_\_\_\_\_ Homeroom teacher: \_\_\_\_\_

## Clinical Provider Information

School Nurse: \_\_\_\_\_  
 Endocrinologist: \_\_\_\_\_ Phone: \_\_\_\_\_



## Designated Staff

Designated staff to provide support with diabetes care (minimum 2):

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

CONTACTS

	Name	Relationship	Preferred phone #	Alternate phone #
1st				
2nd				
3rd				

GENERAL

## School Day

Before-school care: No  Yes  \_\_\_\_\_ After-school care: No  Yes  \_\_\_\_\_  
 School bus #: a.m. \_\_\_\_\_ p.m. \_\_\_\_\_ Emergency Release  School Bus  Parent Pick Up

## Plans

Individual Health Plan  Emergency Action Plan  504 Plan  IEP

## Level of Management

Dependent  Developing Self-Management Skills  Self-Manager

**SCHOOL** must ensure a kit is accessible at all times (class, gym, field trips, lockdowns, fire drills, etc.). Advise parents when running low on supplies. **PARENT** must maintain/refresh supplies.

EMERGENCY KITS / SUPPLIES

CONTENTS (check all that apply)	With student	Classroom	Office	Other location(s)
Blood glucose meter, test strips, lancets				
Fast-acting glucose				
Carbohydrate snack(s)				
Glucagon (expiry date: ____/____)				
Sharps disposal container				
Ketone strips/meter				
Insulin pen, pen needles, insulin (in case of pump failure)				
Extra batteries for meter				
Other:				

**Checking Blood Glucose**

Target Blood Glucose range: \_\_\_\_\_ to \_\_\_\_\_

 **Capillary Blood Glucose Checking**

- Before breakfast     Before Lunch     Scheduled: \_\_\_\_\_
- Before PE     Before Recess     When symptoms do not match CGM reading
- 2 Hours after correction dose     Before bus ride
- As needed for high/low     Other: \_\_\_\_\_

Preferred site of testing: \_\_\_\_\_

**Student's self-care blood glucose checking skills:**

- Independently checks own blood glucose
- May check blood glucose with supervision
- Requires school nurse or trained diabetes personnel to check blood glucose
- Uses a smartphone or other monitoring technology to track blood glucose value

**Continuous Glucose Monitor**     Yes     No    Brand/Model: \_\_\_\_\_ Alarms set for Severe low: \_\_\_\_\_ low: \_\_\_\_\_ high: \_\_\_\_\_

Predictive alarm: \_\_\_\_\_

Threshold for suspend setting (if applicable): \_\_\_\_\_

- CGM may be used for insulin calculations if glucose is between \_\_\_\_\_ and \_\_\_\_\_
- CGM may be used for hypoglycemia management     CGM may be used for hyperglycemia management
- Student is able to troubleshoot alarms and malfunctions     Student is able to calibrate CGM
- Student is able to manage HIGH alarm     Student is able to manage LOW alarm

**Procedures:**

- Refer to *Procedure for CBG Testing*

**General Nutrition**

- Student can eat snack and lunch at regular school times
- Student has scheduled snack times
- Before PE
  - Before Recess
  - Before dismissal

**Meals**

- Student eats school provided     breakfast     lunch
- Student brings meals from home

**Counting Carbohydrates**

- Student requires assistance counting carbohydrates
- Student requires supervision counting carbohydrates
- Student can count carbohydrates independently

**Procedures:**

- Refer to *Procedure for Counting Carbohydrates*

**Insulin Management**

Insulin dosage is ordered for:

- Lunchtime
- When BG is greater than \_\_\_\_\_ mg/dL (if it has been more than 3 hours since last dose)
- When student has ketones present
- Other

**Form of Insulin Administration**

- Vial/syringe
- Pen
- Pump Model: \_\_\_\_\_

**Insulin Management**

- Not independent. Student needs complete assistance with insulin administration.
  - Caregiver to draw up, check dose with another trained caregiver, and administer insulin.
- Partially independent. Student needs assistance from caregiver with drawing up and checking insulin dose but administers injection independently.
  - Student will draw up or dial appropriate dose of insulin.
  - Caregiver will verify number of units in syringe or insulin pen and check dose with another trained caregiver.
- Completely independent. Student requires no assistance from caregiver with drawing and administering injection.

**Procedures**

- Refer to *Procedure for Injectable Insulin Administration*
- Refer to *Procedure for Insulin Pen Administration*
- Refer to *Procedure for Insulin Pump*

**The student may use these words to describe a high blood sugar:****Usual symptoms of high blood sugar for this student are:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Extreme thirst     | <input type="checkbox"/> Frequent urination | <input type="checkbox"/> Headache       |
| <input type="checkbox"/> Hunger             | <input type="checkbox"/> Abdominal pain     | <input type="checkbox"/> Blurred vision |
| <input type="checkbox"/> Warm, flushed skin | <input type="checkbox"/> Irritability       | <input type="checkbox"/> Other: _____   |

**Usual symptoms of SEVERE high blood sugar**

- Rapid, shallow breathing
- Vomiting
- Fruity-smelling breath

**Level of Care**

- Student needs assistance with high blood glucose management
- Student requires supervision with high blood glucose management
- Student manages high blood glucose independently

**Procedures**

- Refer to *Procedure for high or low blood glucose*

**Checking for Ketones**

- This student does not check for ketones at school
  - If BG is above \_\_\_\_\_, check ketones using
- Student uses  urine sticks  ketone blood meter

**Level of Care**

- Student requires assistance checking ketones
- Student requires supervision checking ketones
- Student checks ketones independently

**Procedures**

- Refer to *Procedure checking ketones*

**MILD-TO-MODERATE LOW BLOOD SUGAR**

When blood sugar (BG) is low, the student may have these symptoms:

- |                                    |  |                                    |
|------------------------------------|--|------------------------------------|
| <input type="checkbox"/> Shakiness | <input type="checkbox"/> Irritable/grouchy | <input type="checkbox"/> Dizziness |
| <input type="checkbox"/> Sweating  | <input type="checkbox"/> Blurred vision    | <input type="checkbox"/> Headache  |
| <input type="checkbox"/> Hunger    | <input type="checkbox"/> Weakness/fatigue  | <input type="checkbox"/> Paleness  |
| <input type="checkbox"/> Confusion | <input type="checkbox"/> Other(s) _____    |                                    |

The student may also use these words to describe feeling low:

\_\_\_\_\_

**Do not leave student with low blood glucose unattended.**

**Treat the low blood sugar IMMEDIATELY.**

**Remain with student.**

First, check blood sugar (BG). Even students who do their own checks may need help when their blood sugar is low.

Then follow these steps:

**CHECK**

- If BG is under \_\_\_\_\_ OR
- If symptoms of hypoglycemia are present

**TREAT**

- Immediately give \_\_\_\_\_ grams of fast-acting sugar (See below for student preferences and amounts)

**REPEAT**

- After 15 minutes, check BG again:
- If still under \_\_\_\_\_ treat again as above.
- Repeat cycle every 10 to 15 minutes until BG is above \_\_\_\_\_

**When BG is over \_\_\_\_\_:**

- If meal or snack is more than 1 hour away, give long lasting carbohydrate snack
- If meals or snack less than 1 hour away, no action needed. Student can eat at regular time

**How much fast-acting sugar to give**

✓		10 g	15 g
	Glucose tablets (4 g each)	2 tabs (8 g)	4 tabs (16 g)
	Juice or regular soft drink	½ cup	¾ cup
	Skittles	10 pieces	15 pieces
	Rockets (roll candy)	1 roll (7 g)	2 rolls (14 g)
	Table sugar	2 tsp / 2 pkgs	1 Tbsp / 3 pkgs

**SEVERE HYPOGLYCEMIA****Symptoms**

- Unresponsive or unconscious
- Having a seizure
- So uncooperative that you can't give juice or sugar by mouth

**What to do**

1. Place the student in recovery position.
2. Have someone call 911. Then call parents.
3. Stay with the student until ambulance arrives. Do not give food or drink (choking hazard).
4. Give Glucagon, if ordered.

**Yes, give glucagon**

**No, do not give glucagon**

\_\_\_\_\_

**Procedures**

- Refer to *Procedure for Injectable Glucagon Administration*
- Refer to *Procedure for Intranasal Glucagon Administration*

**Authorization for:**

- Hospital transport
- Emergency glucagon administration
- Insulin Calculations
- Insulin Administration
- Blood Glucose Monitoring
- Ketone Checking
- Carbohydrate counting
- Communication to provider

Parent/guardian signature: \_\_\_\_\_ Date: \_\_\_\_\_

Parent/guardian name (print): \_\_\_\_\_ Relationship: \_\_\_\_\_

Student signature: \_\_\_\_\_

Nurse's signature: \_\_\_\_\_ Date: \_\_\_\_\_

Nurse's name (print): \_\_\_\_\_

# Sample Nursing Assessment for Students with Type 1 Diabetes (T1D)

## Student Basics

Student Name		DOB	
School		Grade	Homeroom
Parent/Guardian 1		Phone	
Parent/Guardian 2		Phone	
Family's First Language			

## Medical Management and History

Endocrinologist		Phone	
Diabetes Educator		Phone	
Clinic		Fax	
Last appointment		Most Recent HgA1c/Date	
Age at Diagnosis		Hx of Hospitalizations	

## Transportation & Activities

Transportation	<input type="checkbox"/> Family <input type="checkbox"/> Bus	Duration of bus ride	
Does student attend before and after care?	<input type="checkbox"/> Before Care <input type="checkbox"/> After Care <input type="checkbox"/> Neither		
Does student participate in clubs or athletics?			

## Blood Sugar Monitoring

Does student have a CGM?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is CGM approved for treatment decisions?	<input type="checkbox"/> Yes <input type="checkbox"/> No
CGM Specifics			
Level of Support with glucose monitoring	<input type="checkbox"/> Requires assistance <input type="checkbox"/> Requires supervision <input type="checkbox"/> Independent		
Location of Testing			
Frequency of Testing			
Parent Notification Parameters/Frequency			

## Insulin

Method of Administration	<input type="checkbox"/> Pen <input type="checkbox"/> Injection <input type="checkbox"/> Pump	Times of Administration	
Pump Information			
Insulin Specifics			
Level of Support with Insulin	<input type="checkbox"/> Requires assistance <input type="checkbox"/> Requires supervision <input type="checkbox"/> Independent		

## Glucagon

Type of Glucagon	<input type="checkbox"/> Intranasal <input type="checkbox"/> Injectable	Glucagon previously administered	<input type="checkbox"/> Yes <input type="checkbox"/> No
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## Nutrition

Will student eat school lunches?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Both	Free and Reduced Lunch	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there special dietary needs?			
Level of Support with Counting Carbohydrates	<input type="checkbox"/> Requires assistance <input type="checkbox"/> Requires supervision <input type="checkbox"/> Independent		
Scheduled Snacks		Mealtimes	

## Remarks

--

**Intake Discussions/Notes**

**Student IEP/504 or IHP's at Prior Schools?**

**Emergency Lockdown, Lockout, Shelter in Place, Evacuation**

**Student Level of Independence**

**Does Student Recognize Highs/Lows?**

**Concerns About Diabetes/Other Medical Diagnoses**

**Disabilities Present**

**Behavioral History**

**Psychosocial Factors**

**Cultural and Language Considerations**

**Communication Plan**

**Field Trips**

**Other Remarks**



## NOTIFICATION CHECKLIST/REMARKS

<input type="checkbox"/> <b>Teachers</b>	
<input type="checkbox"/> <b>Support Staff</b>	
<input type="checkbox"/> <b>Nutrition Department</b>	
<input type="checkbox"/> <b>Counselor/504 Coordinator</b>	
<input type="checkbox"/> <b>Transportation</b>	
<input type="checkbox"/> <b>Athletic Department</b>	
<input type="checkbox"/> <b>Administrators</b>	
<input type="checkbox"/> <b>Social Worker</b>	
<input type="checkbox"/> <b>Other</b>	

# Sample Nursing Assessment

Student Name:	Date of Birth:	Grade:	School Year:
Teacher/Staff Contact Person:		Date of Assessment:	
Parent/Guardian:	Day Phone:	Other:	
Healthcare Provider:	Day Phone:	Other:	

ASSESSMENT CRITERIA	DATE/DATA
<b>Healthcare Provider(s)</b> T1D medical management orders Date of last visit Recent health summary	
<b>Health History Related to T1D</b> Age of diagnosis Co-existing diagnoses Pattern of low and high BG readings Frequency of receiving glucagon Frequency of DKA Current medications Current treatments Past hospitalizations Average days per month absent Average classes missed	
<b>Social Influencers of Health and Education</b> Economic stability (unemployment or under-employment) Family (strengths and risks for student well-being) Access to services and supports (technology) Safe physical space (housing, transportation, neighborhood) Health care access and quality (mental and physical; provider; insurance) Community violence Access to nutritious foods and physical activity opportunities Trauma and ACEs	
<b>School</b> Mode of transportation to/from school Class schedule School-sponsored events Field trips Education plans Access to social emotional learning	

# Sample Nursing Assessment

Student Name:	Date of Birth:	Grade:	School Year:
Teacher/Staff Contact Person:		Date of Assessment:	
Parent/Guardian:	Day Phone:	Other:	
Healthcare Provider:	Day Phone:	Other:	

<p><b>Individual Student</b>          Culture and religion (potential impact of traditions on glycemic control; language)          Healthy literacy (student and family)          Developmental level          Psychosocial issues (recent loss/grief; mental well-being)          Accommodations needed (e.g., mobility, self-carry medications and/or equipment)          Knowledge, strengths, &amp; concerns related to T1D          Self-management skills (refer to ` )          Degree of independence</p>	
<p><b>Review of Systems (Historical Data)</b>  <b>General Health</b>          Immunization status  <b>Head/Neck</b>          Vision/hearing          Nose/sinuses          Dental  <b>Respiratory</b>  <b>Cardiac</b>  <b>Musculoskeletal</b>  <b>Skin</b>  <b>Gastrointestinal</b>  <b>Genitourinary</b></p>	
<p><b>Objective Data</b>          Physical assessment          Biophysical assessment (height, weight, blood pressure)          Lab results (A1C, ketones)</p>	
<p><b>Equipment and Supplies</b>          Emergency/disaster plan          Technology</p>	

# School Nurse Assessment of Self-Management of Type 1 Diabetes (T1D)

## Student, Parent/Guardian and School Nurse Assessment Comparison

Use the following grid for the student to independently identify their level of self-management and the parent/guardian to identify their child's level of self-management. After the inventory is completed by the student and parent/guardian, a nursing assessment is used to confirm the student's level of ability to self-manage in school.

**Novice:** Just getting started and newly diagnosed

**Beginner:** Just starting to do some self-care

**Competent:** Performs skill independently, but still needs support with calculations and interpretations and possibly predicting outcomes of certain numbers or interventions

**Expert:** Performs skill independently without support; calculates and interprets related numbers and dosages independently; predicts outcomes associated with numbers

Skill	Student	Parent	School Nurse	Remarks
<b>Blood Glucose Fingertick</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	
<b>CGM Use</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	
<b>Blood Glucose Interpretation</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	
<b>Insulin Administration</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	
<b>Insulin Calculations</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Pump <input type="checkbox"/> Pen <input type="checkbox"/> Syringe/Vial
<b>Counting Carbohydrates</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	

<b>Identifying High or low Blood Glucose</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	
<b>Treating Low Blood Sugar</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	
<b>Ketone Testing</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Blood <input type="checkbox"/> Urine
<b>Treating high blood sugar</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	
<b>Snacks</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	
<b>When to ask for help</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	
<b>Understanding DKA</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	
<b>Understanding Severe Hypoglycemia</b>	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	<input type="checkbox"/> Novice <input type="checkbox"/> Beginner <input type="checkbox"/> Competent <input type="checkbox"/> Expert	

# School Nurse Assessment of Student Self-Management of Type 1 Diabetes (T1D)

This assessment is designed to assess the student's and/or parent/guardian's knowledge and skills for the day-to-day management of T1D. This should be completed in conjunction with the *Student Self-Management Inventory* to identify gaps in self-management knowledge and skills.

## Level of Understanding Scale

- (5) Able to provide a proficient explanation of the Area of Care – including examples, experiential context, and an understanding of health and academic implications.
- (4) Able to articulate the potential short term and long-term health outcomes and physiology of disease (in lay terms) for the Area of Care
- (3) Able to articulate the potential complications and short-term health outcomes of the Area of Care
- (2) Able to describe the Area of Care as it relates to T1D, but not potential complications
- (1) Novice, newly diagnosed - learning to describe the Area of Care as it relates to T1D

Area of Care	Student	Parent/ Guardian	Notes
Understanding of T1D	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
Understanding of blood glucose testing, frequency, purpose	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
How to check blood glucose level	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
Target blood glucose range (understanding glycemic control)	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
Recognizing and treating lows	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	

<b>Recognizing treating highs</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>Snacks/ meals/ carbohydrate counting</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>Insulin dosing</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>Insulin administration</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>Treatment with fast acting glucose</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>When and how to use glucagon</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>Diabetes emergencies</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>Ketone testing</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>When to call the healthcare provider</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	

<b>Connection of blood glucose level to academic performance</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>T1D and social implications</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>Total of Each Column</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	
<b>Divided by 16</b>	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	

### Level of Understanding Scale Average

- (5) Able to provide a proficient explanation of the Area of Care – including examples, experiential context, and an understanding of health and academic implications.
- (4) Able to articulate the potential short term and long term health outcomes and physiology of disease (in lay terms) for the Area of Care
- (3) Able to articulate the potential complications and short term health outcomes of the Area of Care
- (2) Able to describe the Area of Care as it relates to T1D, but not potential complications
- (1) Novice, newly diagnosed – learning to describe the Area of Care as it relates to T1D



# Student Self-Management of Type 1 Diabetes (T1D) Inventory

This is a series of open-ended questions that students can answer to illustrate their level of understanding about major areas of diabetes self-management. Students should be able to speak to each of these areas when there is mastery of information and self-care.

Area of Inventory	Response
My target range is:	
The purpose of my target range is:	
I can tell I have low blood glucose when:	
I understand that glucose is used for:	
I know when I need to eat something because:	
I check my blood glucose level because:	
I can describe how to check my blood glucose level:	
I can tell when my blood glucose elevated:	
Ketone strips test for:	
When ketones are present the actions I should take are:	
Counting carbohydrates is important because?	
I calculate my insulin by:	
The type of insulin I take is:	
My insulin is administered by:	
My diabetic technology includes:	
I know I need to ask for help when:	
I know 2 long term effects of high blood glucose include:	
I can talk to family members or other adults regarding my diabetes without feeling judged:	
I feel supported and understood by my teachers regarding the requirements for me to care for my diabetes:	

# Planning and Implementing Care for Students with Type 1 Diabetes (T1D)

## Overview

Planning and implementing care builds on the information gathered from the nursing assessment – the first step of the nursing process. Critical analysis of the assessment information leads the school nurse to identify the focus of care or diagnosis (second step), define the expected or desired outcomes (third step), and plan for and implement evidence-based strategies to address the focus of care and reach the identified outcomes (fourth and fifth steps). This section of the Toolkit supports translation into practice the recommendations identified for Nursing Diagnoses, Outcomes Identification, Planning, and Implementation of the *School Nursing Evidence-Based Clinical Practice Guideline: Students with Type 1 Diabetes* (NASN, 2021).

Planning and implementing care tools include

- NASN Sample Individualized Healthcare Plan – T1D
- Sample Hypoglycemia Emergency Care Plans (NASN and NIH)
- Sample Hyperglycemia Emergency Care Plans (NASN and NIH)
- Sample T1D 504 Plan

Tools to support planning and implementing care for students with T1D include

- Algorithm for management of T1D medical emergencies
- Planning for extracurricular activities
- Sample 504 accommodations
- Nursing delegation resources (e.g., decision tree, nursing delegation considerations, UAP competency checklist)
- Model procedures (blood glucose testing, ketone testing, insulin administration, glucagon administration, carbohydrate counting)
- Diabetes technology policy considerations
- Transition planning for pediatric to adult care
- Tiered training for school personnel overview

NOTE: Gaps in alignment between school and district policies, practices, and procedures and federal and state law can also be planned and implemented to support care for students with T1D.

# Sample Individualized Healthcare Plan – Type 1 Diabetes (T1D)

**OVERVIEW:** The following is an example of part of a student’s Individualized Healthcare Plan (IHP) using NASN’s template. The IHP would be developed by the school nurse after synthesis of the nursing assessment data from the student and family and incorporation of the healthcare provider medical orders. The sample evidence-based interventions are based on NASN’s (2021) *School Nursing Evidence-based Clinical Practice Guideline: Students with Type 1 Diabetes* (<https://www.pathlms.com/nasn/courses/37660>). The student-centered goal is long-term and should be in SMART format. Nursing delegation is a suggested interventions in this example. Note that this evidence-based intervention must follow the principles of nursing delegation and state-specific legal parameters.

Student Name: <b>Morie</b>	Grade: <b>4<sup>th</sup></b>	Student Picture
Teacher/Staff Contact Person:	Date of IHP: <b>August 31, 20XX</b>	
Individualized Healthcare Plan written by:		

**Nursing Diagnosis/Health Focus:** Risk for unstable blood glucose: Hypoglycemia    **Student-centered Goal:** For the current school year, Morie will not experience severe hypoglycemia.

Outcomes	Evidence-Based Interventions	Evaluation (Date & initial)		
		Outcomes	Process	Goal
Morie will 1) accurately identify potential causes of hypoglycemia and 2) describe personal signs and symptoms of hypoglycemia by the end of the first week of school – and when interviewed throughout the school year.	Conduct thorough nursing assessment with Morie and family to determine Morie’s personal risk for and signs/symptoms of hypoglycemia (NASN, 2021[Assessment]). Incorporate findings into Morie’s Emergency Care Plan (ECP) (NASN, 2021 [Planning & Implementation]).	Morie identifies potential causes of hypoglycemia & signs/symptoms that need intervention at school. <i>September 7, 20XX NB</i> <i>December X, 20XX NB</i> <i>March X, 20XX NB</i> <i>June X, 20XX NB</i>	During initial nursing assessment, Morie responded to interview questions – parent/guardian concurred. Develop student’s ECP. Schedule student check-ins Q 3 months.	TBD at the end of the school year
All (100%) school personnel and students will understand their role in identifying and responding to signs and symptoms of hypoglycemia in order to prevent severe hypoglycemia for Morie by the end of the first month of school.	Tier/Level 1 education for all school personnel and students, at least annually, about signs/symptoms of hypoglycemia and what actions to take (NASN, 2021 [Planning & Implementation]).	School personnel & students answered all online questions correctly. <i>September 30, 20XX NB</i> <i>December X, 20XX NB</i> <i>March X, 20XX NB</i>	Information on signs/symptoms of severe hypoglycemia and action steps to take provided to all school personnel and students at school assemblies (Sept., Dec., March). Online knowledge quiz after each.	TBD at the end of the school year

<p>All (100%) school personnel who have responsibility for Morie will demonstrate understanding of how to recognize and respond to hypoglycemia in order to prevent severe hypoglycemia by the end of the 1<sup>st</sup> month of school.</p>	<p>Tier/Level 2 education for school personnel who have responsibility for Morie. Provide a copy of the student's ECP (NASN, 2021 [Planning &amp; Implementation]).</p>	<p>School personnel with responsibility for Morie will have the ECP readily available and verbalize understanding of how to recognize and respond to hypoglycemia.</p> <p><i>September 30, 20XX NB</i>  <i>December X, 20XX NB</i>  <i>March X, 20XX NB</i>  <i>June X, 20XX NB</i></p>	<p>Schedule Tier/Level 2 education event the first week of September. Provide all school personnel who have responsibility for Morie with the student's ECP. Assess understanding of how to implement the ECP. Schedule re-evaluate Q 3 months.</p>	<p>TBD at the end of the school year</p>
<p>Assigned unlicensed assistive personnel (UAP) will demonstrate when and how to perform assigned nursing tasks (when allowed by local and state regulations).</p>	<p>Follow critical components of nursing delegation, including training and ongoing supervision (NASN, 2021 [Implementation]).</p>	<p>UAP competently performs, documents, and communicates with SN about the delegated nursing tasks per planned ongoing supervision/evaluation by the SN; Morie's health goals reached:</p> <p><i>Date _____ NB</i>  <i>Date _____ NB</i>  <i>Date _____ NB</i></p>	<p>Identify appropriate nursing tasks to delegate. Follow critical components of nursing delegation. Advocate for least restrictive evidence-based rescue medication. Supervision/evaluation plan of UAP and Morie followed.</p>	<p>TBD at the end of the school year.</p>
<p>Morie's blood glucose will remain within target range 70% of the time by the end of the first month of school – and throughout the school year (<a href="https://www.niddk.nih.gov/-/media/Files/Health-Information/Health-Professionals/Diabetes/health-care-professionals/Individualized_Healthcare_Plan.docx">https://www.niddk.nih.gov/-/media/Files/Health-Information/Health-Professionals/Diabetes/health-care-professionals/Individualized_Healthcare_Plan.docx</a>).</p>	<ul style="list-style-type: none"> <li>• Monitor blood glucose trends (routine blood glucose checks, related to school schedule [PE, lunch, field trips]).</li> <li>• Support Morie's independence in recognizing and promptly treating early signs of low blood glucose.</li> <li>• Treat hypoglycemia per medical orders and ECP.</li> <li>• Report and consult with Morie's diabetes care team to adjust medical management as needed.</li> <li>• Report and consult with Morrie's parent/caregiver about diabetes management concerns at school (NASN, 2021 [Planning &amp; Implementation]).</li> </ul>	<p>Morie will self-monitor and report blood glucose trends at school. Morie will demonstrate correct actions to take for blood glucose readings. Blood glucose will remain within target range 80% of the time.</p> <p><i>September 30, 20XX NB</i>  <i>December X, 20XX NB</i>  <i>March X, 20XX NB</i>  <i>June X, 20XX NB</i></p>	<p>Establish a schedule for check-ins with Morie to monitor blood glucose trends. Provide opportunities for self-management skill building. Build trust/collaborate with Morie's diabetes care team.</p>	<p>TBD at the end of the school year</p>

## Additional Sample Health Focus and Goals for a Student with T1D

Based on the synthesis of the nursing assessment of the student, their family, and healthcare provider orders, the following sample focus of care and related goal would guide development of the remainder of the student's IHP.

Health Focus	Goals
Impaired diabetes resilience for self-management	By the end of the current school year, the student will demonstrate improved resilience to diabetes self-management moving from substantially impaired, to mildly impaired.
Effective T1D self-management	By the end of the current school year, the student will consistently demonstrate developmentally appropriate effective T1D self-management.
Readiness to improve T1D self-management	By the end of the current school year, the student will demonstrate improved readiness to self-manage T1D.
Knowledge gaps of T1D self-management	By the end of the current school year, the student will demonstrate improved knowledge about key components of developmentally appropriate T1D self-management.
Family and/or student coping with ongoing T1D management	By the end of the current school year, the family and student will report having opportunities to express feelings and build positive coping skills.
Social engagement with peers and/or family	By the end of the current school year, the student and family will report one positive example of being connected with school health activities and school peers that support students with diabetes.
General health promotion	By the end of the current school year, the student will demonstrate one healthy behavior related to nutrition, physical activity, sleep/rest, and spiritual/mental well-being.
Emotional and mental health and well-being	By the end of the current school year, the student will identify one thing that makes their school climate support emotional and mental health and well-being.
Diabetes-safe school environment	By the end of the current school year, school and district policies, protocols, and procedures will be in place for effective diabetes management at school and school-sponsored events.
Health care coordination	By the end of the school year, the student will have access to a primary healthcare provider.
Education success	By the end of the school year, the student will have experienced education success (e.g., attendance, passing grades, full participation in school-based academic and school-sponsored activities).
Transition planning (for the senior high school student)	By the end of the school year, student will have the knowledge & skills to transition from pediatric to adult care including knowledge about the disease & symptoms of exacerbation; necessary treatments & medications; and how to navigate the healthcare system.

# Sample Hypoglycemia Emergency Care Plan (ECP)

Student Name:	Date of Birth:	Medical Diagnosis:	Student Picture
Allergies:			
Grade:	School Year:	Grade/Teacher:	

## Emergency Contact Information

**Parent/Guardian 1:** \_\_\_\_\_ Email Address: \_\_\_\_\_

Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_

**Parent/Guardian 2:** \_\_\_\_\_ Email Address: \_\_\_\_\_

Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_

**Healthcare Provider:** \_\_\_\_\_ Phone: \_\_\_\_\_

**School Nurse:** \_\_\_\_\_ Phone: \_\_\_\_\_

## If the student exhibits or reports any of the following (tailor to student):

- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"><li>Change in personality or behavior</li><li>Tired, drowsy, or fatigue</li><li>Nausea, vomiting, or loss of appetite</li><li>Slurred speech</li></ul> | <ul style="list-style-type: none"><li>Clamminess, sweating, or pale</li><li>Rapid heart rate</li><li>Blurred vision</li><li>Argumentative or combative</li></ul> | <ul style="list-style-type: none"><li>Weak, shaky, or dizzy</li><li>Headache</li><li>Inattention, confusion, or disoriented</li><li>Loss of consciousness or seizures</li></ul> |
|--|--|---|

## Take the following emergency actions (per DMMP):

- Notify the school nurse.
- Never leave the student alone or send anywhere alone or with another student.
- Check blood glucose (BG), if possible.
- Treat if BG is below 80 mg/dL (per DMMP).
  - Give 15 grams of carbohydrates (3-4 glucose tablets, 4 ounces fruit juice, glucose gel).
  - Recheck BG in 15 minutes.
  - Repeat treatment if BG is not to target range.
  - If BG remains below 80 mg/dL after second treatment, call 911 - continue to monitor and treat.
  - When BG is in target range, provide snack of 15-20 grams carbohydrate if more than 1 hour until next meal, snack, or if going to an activity (PE or recess).
  - If student becomes unconscious or has a seizure,
    - Position student on side.
    - Administer glucagon: \_\_\_\_\_
    - Call 911.
- Call 911 if student is getting worse or is not improving.
- Notify parent/guardian.

Reviewed with:	Date:
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Signature of school personnel:	Signature of school nurse:
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# Sample Hypoglycemia (Low Blood Glucose) Emergency Care Plan

Student's Name: \_\_\_\_\_

Grade/Teacher: \_\_\_\_\_

Date of Plan: \_\_\_\_\_

## Emergency Contact Information

**Parent 1/Guardian:** \_\_\_\_\_

Email Address: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_

**Parent 2/Guardian:** \_\_\_\_\_

Email Address: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_

**Health Care Provider:** \_\_\_\_\_

Phone Number: \_\_\_\_\_

**School Nurse:** \_\_\_\_\_

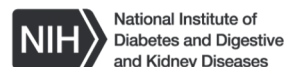
Contact Number(s): \_\_\_\_\_

**Trained Diabetes Personnel:** \_\_\_\_\_

Contact Number(s): \_\_\_\_\_

**The student should never be left alone, or sent anywhere alone or with another student, when experiencing hypoglycemia.**

Causes of Hypoglycemia	Onset of Hypoglycemia
<ul style="list-style-type: none"> <li>• Too much insulin</li> <li>• Missing or delaying meals or snacks</li> <li>• Not eating enough food (carbohydrates)</li> <li>• Getting extra, intense, or unplanned physical activity</li> <li>• Being ill, particularly with gastrointestinal illness</li> </ul>	<ul style="list-style-type: none"> <li>• Sudden — symptoms may progress rapidly</li> </ul>



**Hypoglycemia Symptoms**

Circle student's usual symptoms.

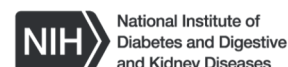
Mild to Moderate Symptoms	Severe Symptoms
<ul style="list-style-type: none"> <li>• Shaky or jittery</li> <li>• Sweaty</li> <li>• Hungry</li> <li>• Pale</li> <li>• Headache</li> <li>• Blurry vision</li> <li>• Sleepy</li> <li>• Dizzy</li> <li>• Lightheaded</li> <li>• Confused</li> <li>• Disoriented</li> <li>• Uncoordinated</li> <li>• Irritable or nervous</li> <li>• Argumentative</li> <li>• Combative</li> <li>• Changed personality</li> <li>• Changed behavior</li> <li>• Inability to concentrate</li> <li>• Weak</li> <li>• Lethargic</li> <li>• Other: _____</li> </ul>	<ul style="list-style-type: none"> <li>• Inability to eat or drink</li> <li>• Unconscious</li> <li>• Unresponsive</li> <li>• Seizure activity or convulsions (jerking movements)</li> </ul>

**Actions for Treating Hypoglycemia**

Notify school nurse or trained diabetes personnel as soon as you observe symptoms. If possible, check blood glucose (sugar) at side of finger. Treat for hypoglycemia if blood glucose level is less than \_\_\_\_\_ mg/dL.

**WHEN IN DOUBT, ALWAYS TREAT FOR HYPOGLYCEMIA AS SPECIFIED BELOW.**

Treatment for Mild to Moderate Hypoglycemia	Treatment for Severe Hypoglycemia
<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide quick-acting glucose (sugar) product equal to __ grams of carbohydrates. Examples of 15 grams of carbohydrates are listed below:               <ul style="list-style-type: none"> <li>• 4 glucose tablets</li> <li>• 1 tube of glucose gel</li> <li>• 4 ounces of fruit juice (not low-calorie or reduced sugar)</li> <li>• 4-6 ounces (½ can) of soda (not low-calorie or reduced sugar)</li> </ul> </li> <li><input type="checkbox"/> Wait 15 minutes.</li> <li><input type="checkbox"/> Recheck blood glucose level.</li> <li><input type="checkbox"/> Repeat quick-acting glucose product if blood glucose level is less than _____ mg/dL.</li> <li><input type="checkbox"/> Contact the student's parents/guardians.</li> <li><input type="checkbox"/> Once the student's blood glucose returns to normal, check the blood glucose level 1 hour later. Provide an additional source of carbohydrate (e.g., whole grain crackers, graham crackers, granola bar, yogurt, or fruit) if a meal or snack is not planned.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Position the student on his or her side.</li> <li><input type="checkbox"/> Do not attempt to give anything by mouth.</li> <li><input type="checkbox"/> Administer glucagon: _____mg at _____site.</li> <li><input type="checkbox"/> While treating, have another person call 911 (Emergency Medical Services).</li> <li><input type="checkbox"/> Contact the student's parents/guardians.</li> <li><input type="checkbox"/> Stay with the student until Emergency Medical Services arrive.</li> <li><input type="checkbox"/> Notify student's health care provider.</li> </ul>





# Sample Hyperglycemia Emergency Care Plan (ECP)

Student Name: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Medical Diagnosis: \_\_\_\_\_

Allergies: \_\_\_\_\_

Grade: \_\_\_\_\_

School Year: \_\_\_\_\_

Grade/Teacher: \_\_\_\_\_

Date of Plan: \_\_\_\_\_

Student  
Picture

## Emergency Contact Information

**Parent/Guardian 1:** \_\_\_\_\_ Email Address: \_\_\_\_\_

Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_

**Parent/Guardian 2:** \_\_\_\_\_ Email Address: \_\_\_\_\_

Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_

**Healthcare Provider:** \_\_\_\_\_ Phone: \_\_\_\_\_

**School Nurse:** \_\_\_\_\_ Phone: \_\_\_\_\_

## If the student exhibits or reports any of the following (tailor to student):

- Increased thirst, urination, or appetite
- Tired or drowsy
- Blurred vision
- Warm, dry, or flushed skin
- Nausea or vomiting

## Take the following emergency actions (per DMMP):

- Notify the school nurse.
- Never leave the student alone or send anywhere alone or with another student.
- If student uses a pump, check to see if connected and functioning properly.
- Check blood glucose (BG).
- If BG is between 250 mg/dL and 300 mg/dL,
  - Have student drink 8-16 ounces of water as tolerated.
  - Administer insulin: \_\_\_\_\_.
  - Check urine or blood ketones.
  - Recheck BG after 30-60 minutes to ensure downward trend.
  - Continue to monitor.
- If BG is above 300 mg/dL,
  - Check urine or blood ketones.
  - Administer insulin: \_\_\_\_\_.
  - If student symptomatic, notify parent/guardian and HCP immediately.
  - If student asymptomatic and no ketones, may return to class.
  - Continue to monitor.
- Call 911 if student is getting worse or is not improving.
- Notify parent/guardian.

Reviewed with: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of school personnel: \_\_\_\_\_

Signature of school nurse: \_\_\_\_\_

# Sample Hyperglycemia (High Blood Glucose) Emergency Care Plan

Student's Name: \_\_\_\_\_

Grade/Teacher: \_\_\_\_\_

Date of Plan: \_\_\_\_\_

## Emergency Contact Information

**Parent 1/Guardian:** \_\_\_\_\_

Email Address: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_

**Parent 2/Guardian:** \_\_\_\_\_

Email Address: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_

**Healthcare Provider:** \_\_\_\_\_

Phone Number: \_\_\_\_\_

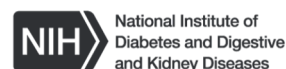
**School Nurse:** \_\_\_\_\_

Contact Number(s): \_\_\_\_\_

**Trained Diabetes Personnel:** \_\_\_\_\_

Contact Number(s): \_\_\_\_\_

Causes of Hyperglycemia	Onset of Hyperglycemia
<ul style="list-style-type: none"> <li>• Too little insulin or other blood glucose-lowering medications</li> <li>• Insulin pump or infusion set malfunction</li> <li>• Food intake that has not been covered adequately by insulin</li> <li>• Decreased physical activity</li> <li>• Illness</li> <li>• Infection</li> <li>• Injury</li> <li>• Severe physical or emotional stress</li> </ul>	<ul style="list-style-type: none"> <li>• Over several hours or days</li> </ul>



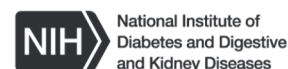
Circle student's usual signs and symptoms.

Hyperglycemia Symptoms	Hyperglycemia Emergency Symptoms Diabetic ketoacidosis (DKA), which is associated with hyperglycemia, ketosis, and dehydration
<ul style="list-style-type: none"> <li>• Increased thirst and/or dry mouth</li> <li>• Frequent or increased urination</li> <li>• Change in appetite and nausea</li> <li>• Blurry vision</li> <li>• Fatigue</li> <li>• Other: _____</li> </ul>	<ul style="list-style-type: none"> <li>• Dry mouth, extreme thirst, and dehydration</li> <li>• Nausea and vomiting</li> <li>• Severe abdominal pain</li> <li>• Fruity breath</li> <li>• Heavy breathing or shortness of breath</li> <li>• Chest pain</li> <li>• Increasing sleepiness or lethargy</li> <li>• Depressed level of consciousness</li> </ul>

### **Actions for Treating Hyperglycemia**

Notify school nurse or trained diabetes personnel as soon as you observe symptoms.

Treatment for Hyperglycemia	Treatment for Hyperglycemia Emergency
<ul style="list-style-type: none"> <li><input type="checkbox"/> Check the blood glucose level.</li> <li><input type="checkbox"/> Check urine or blood for ketones if blood glucose levels are greater than _____ mg/dL.</li> <li><input type="checkbox"/> Calculate the Insulin Correction Dose needed as specified in the DMMP.</li> <li><input type="checkbox"/> Administer supplemental insulin dose: _____. (If student uses a pump, see instructions below.)</li> <li><input type="checkbox"/> Give extra water or non-sugar-containing drinks (not fruit juices): _____ ounces per hour.</li> <li><input type="checkbox"/> Allow free and unrestricted access to the restroom.</li> <li><input type="checkbox"/> Recheck blood glucose every 2 hours to determine if decreasing to target range of _____ mg/dL.</li> <li><input type="checkbox"/> Restrict participation in physical activity if blood glucose is greater than _____ mg/dL and if ketones are moderate to large.</li> <li><input type="checkbox"/> Notify parents/guardians if blood glucose is greater than _____ mg/dL or if ketones are present.</li> </ul> <p><b>For Students Using an Insulin Pump</b></p> <ul style="list-style-type: none"> <li>• If student uses a pump, check to see if the pump is connected properly and functioning by giving a correction bolus through the pump and checking the blood glucose 1 hour later.</li> <li>• If moderate or large ketones are present, treat ketones with a subcutaneous injection of insulin, then change pump site or initiate pump back-up plan.</li> <li>• For infusion site failure: insert new infusion set and/or replace reservoir or pod, or give insulin by syringe or pen.</li> <li>• For suspected pump failure: suspend or remove pump and give insulin by syringe or pen.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Call parents/guardians, student's healthcare provider, and 911 (Emergency Medical Services) right away.</li> <li><input type="checkbox"/> Stay with the student until Emergency Medical Services arrive.</li> </ul>



# SAMPLE Type 1 Diabetes (T1D) 504 PLAN

**NOTE:** A 504 Plan is mandated by Section 504 of the Rehabilitation Act of 1973 to protect students with disabilities who can learn in the regular curriculum from being discriminated. It lists a broad range of accommodations individualized to meet the need, abilities, and medical condition of a student with T1D. While a written plan is not mandated by law, making accommodations is mandated for students who qualify. The school nurse has an essential role in the development of a 504 Plan for students with T1D who need support to obtain equal access to the general curriculum.

School District: \_\_\_\_\_ Document Date: \_\_\_\_\_  
 Address: \_\_\_\_\_ Section 504 Plan Meeting Date: \_\_\_\_\_  
 Phone: \_\_\_\_\_ Next 504 Plan Review Date: \_\_\_\_\_  
 504 Evaluation Due Date: \_\_\_\_\_

Student Name: \_\_\_\_\_ School: \_\_\_\_\_  
 Date of Birth: \_\_\_\_\_ Grade: \_\_\_\_\_  
 Gender: \_\_\_\_\_  
 Ethnicity: \_\_\_\_\_  
 Student Number: \_\_\_\_\_

## Impairment Information

Qualifying Impairment	Type 1 diabetes (T1D)
<b>Brief Description of Impact</b>	T1D is a complex diagnosis that affects the physical, emotional, and academic well-being of student XX. Management is ongoing. T1D requires staff to be able to recognize and respond to hypoglycemia, the primary medical emergency in the school setting. Changes in cognition and concentration can impact academic functioning. Attendance can also be impacted by diabetes care both inside school and outside healthcare appointments. The disease tends to change within the first year, often in adolescents, with major environmental or psychosocial stressors and illness. Activity and food directly impact the carbohydrate-insulin balance and should be carefully considered.
<b>Major Life Activities Impacted</b>	
<b>Pertinent Health Status</b>	<i>Date of diagnosis, history of severe lows or DKA, glycemic stability, social influencers, etc.</i>
<b>Behavioral Health Needs</b>	
<b>Student Strengths</b>	

## 504 Multidisciplinary Team

Name	Title	Signature
	Counselor	
	School Nurse	
	Teacher	
	Administrator	
	Parent/Guardian	
	Student	

Area of Accommodation	Specific Accommodation	Responsible Parties
<b>Food</b>	Student will leave class 5 minutes prior to lunch for lunchtime insulin dosing.	Classroom Teacher Delegated Caregiver
	Student will have assistance counting carbohydrates at lunch.	Delegated Caregiver Nurse
	Nutrition Department will provide carbohydrate counts for school lunches to delegated caregivers.	Nutrition Services Nurses Delegated Caregiver
	Student is permitted to eat snack as needed to sustain blood glucose.	School Wide
	Student is permitted to carry glucose on their person at all times for the treatment of hypoglycemia.	School Wide
<b>Technology</b>	Student shall have secure Wi-Fi connection at all times for CGM use.	School Wide Administrator
	Student shall have free access to phone or Bluetooth device for blood glucose monitoring.	School Wide Administrator
	Student shall be permitted audible alarm on CGM at all times without penalty.	Classroom Teacher School Wide Counselor
<b>Absences</b>	Student shall not be penalized for classroom absences related to management of diabetes or treatment of highs/lows.	School Wide Teachers
	Student shall not be penalized for absences related to medical appointments or diabetes related illness.	Attendance Secretary Administrator Nurse
<b>Extended Time</b>	Student shall be permitted extended time on homework or exams when impacted by blood glucose deviations or breaks to provide care.	Teachers Counselor
<b>Trained Staff</b>	Student's classroom teachers, coaches, recess aides, bus driver, and delegated caregivers (UAP) will be trained in recognizing and responding to hypoglycemia including severe hypoglycemia.	Nurse Teacher
	Student's UAP will be trained, evaluated, and receive ongoing supervision by the school nurse for student-specific delegated nursing tasks.	Nurse Delegated Caregivers
	All staff will be trained in diabetes basics.	Nurse Administrator School Wide
	Substitute teachers will be notified of diagnosis and accommodations.	Teacher
<b>Diabetes Management</b>	Student will be permitted to test as needed throughout the day.	School Wide
	Student will be provided a secure place for supplies and a private place to administer insulin.	Administrator
	Student will have direct supervision of diabetic pump usage.	Delegated Caregivers Nurse

<b>Activities</b>	Student will have access to snack prior to activities as needed.	School Wide
	PE teacher will have fast-acting glucose during physical education classes.	PE Teacher
	Student will fully participate in all activities.	School Wide
<b>Communication</b>	UAP will notify school nurse of treatment of lows, or positive ketones.	Delegated Caregiver
	Parents/guardians will be notified of supply needs.	Delegated Caregivers
	Parents/guardians will communicate significant deviations in blood glucose or complications to the school nurse.	Parents
	Teachers will communicate class activities such as parties to UAP, school nurse, and parents/guardians in advance.	Teacher
<b>Water and Bathroom/Hall Pass</b>	Student is permitted free access to water either in the classroom or access to the drinking fountain.	School Wide Teacher Counselor
	Student is permitted free bathroom access at all times without penalty.	School Wide Teacher Counselor
<b>Disaster Management</b>	Student will have assigned UAP in the event of drills or actual emergencies.	School Wide Teacher Assigned Caregiver
	Emergency supplies will be located in the classroom.	

# Planning for Extracurricular Activities – Considerations for Students with Type 1 Diabetes (T1D)

## Introduction

Students with T1D must have access to all school sponsored activities equal to that of their same age peers. Standards of safe medication administration and the provision of health services – including delegated nursing tasks with school nurse supervision, do not change when students are on school-sponsored field trips. Schools are mandated by federal law to provide all students equal opportunity to participate in nonacademic and extracurricular activities, whether day or overnight trips, in-state, out-of-state, or out-of-country. Following are some of the considerations to keep in mind when planning for extracurricular activities for the student with T1D.

## Field Trips

Staff planning field trips must identify related school policies and the process for identifying students with special healthcare needs, including students with T1D. Planners must provide advance notice to parents/guardians and the school nurse to allow time for securing and training school staff to provide the necessary health services.

While parents/guardians may be invited to attend field trips and provide care to their students, they cannot be required to attend. The school is obligated to provide care for the student with T1D during field trips.

## Logistical Considerations

- Does the school or district have a field trip policy that needs to be followed?
- Has the school nurse, school administration, teachers, other school staff, family, and student met to develop an approach for safe effective diabetes management on the trip?
- Under what circumstances do parents/guardians want to be contacted?
- What is the mode of transportation and duration of the trip?
- Is the trip in state, out of state, and/or out of the country?
- Is the trip overnight?
- What is the plan for meals?
- Will there be privacy for diabetes care tasks?
- How much activity will be involved? (e.g., excessive activity such as hiking or swimming)
- Will there be wifi access for diabetic technology?
- Will there be access to cell service for diabetes technology and access to emergency services?

- How close will emergency medical services be?
- Are additional consents needed for emergency medical services when on the trip?
- Will there be a secure place for the student's diabetes supplies? Is refrigeration needed?
- Have adequate amounts of routine and emergency supplies been provided to cover the extent of the trip?

## School Nursing Practice Considerations

- What is the level of care needed by the student? Does it require the need for the school nurse to accompany the student?
- Have accompanying staff been trained in diabetes basics and how to recognize and respond to a diabetes emergency?
- If the school nurse is required to attend the field trip, have arrangements been made for a substitute nurse to address the health needs of the students who remain in school?
- For out-of-state trips
  - What are the nurse practice laws of the state(s) the student will visit or travel through?
  - Are the states members of the Nurse Licensure Compact (NLC) providing multistate licensure?
  - If the visiting state is not a member of the NLC, what does the visiting state require for health services to be provided?
  - If planning to delegate nursing tasks, have the requirements been reviewed for the home and visiting state?
  - Are there any laws in the visiting state that impact medication administration?
- For in-state field trips
  - Has the nursing delegation process been reassessed in light of the circumstances of the field trip? For procedures delegated and supervised by the school nurse during the school day, will changes to who performs the procedure or how the procedure is accomplished need to be made for the field trip?
- For out-of-country field trips
  - Since nursing licenses are not recognized outside the U.S. have you contacted the U.S. Embassy for points of contact for destination countries?
- For overnight field trips
  - Have the health services needed for beyond the school day been identified?
  - Is there professional liability insurance coverage for the school nurse on providing care overnight?
  - Have adequate supplies been gathered?
- For medication safety
  - Is there a plan for safe and proper administration of medication?
  - Is there the need for additional consent for medication administration beyond normal school hours?
  - Is additional training of school staff needed to administer medication?
  - For students who self-manage, does the school/district have a policy for self-administration of medication?
  - Is there a plan for documenting medications administered?
- Are the emergency care plans for hypo- and hyperglycemia up-to-date and are emergency supplies available?



## Student Considerations

- What is the student's level of self-management?
- Does the student need privacy to perform their diabetes care tasks?
- If appropriate, has a meeting been arranged among school nurse, parent/guardian, student, and healthcare provider to determine if feasible to increase the level of student self-management?

## Staffing/Chaperone Considerations

- Have staff been provided with copies of the hypo- and hyperglycemia ECP?
- Have staff been trained in diabetes basics and how to recognize and respond to a diabetic emergency?
- Will there be trained staff present at all times?
- Will there be a designated staff person in charge of the diabetes supplies?
- Have staff been informed about the level of independent self-management skills the student has?
- Have staff been reminded of confidentiality requirements?
- Have staff been provided opportunities to ask questions?

## Athletic Events and Clubs

Unlike field trips, athletic events and clubs are ongoing activities. The above field trip guidance may be used when athletic events and clubs travel overnight or to other states.

## Athletic Event and Club Considerations

- Does the school or district have a policy that needs to be followed?
- What is the nature of the athletic event and/or club activity?
- Is there a communication plan in place for when and how to reach the school nurse and/or parent/guardian?
- Will a parent/guardian be present at the events?
- Will there be access to diabetes supplies, fast-acting glucose, and water?
- Will the supervising staff have copies of the student's hypo- and hyperglycemia ECP?
- Will there be a secure space for diabetes supplies and technology?
- Will there be access to trained staff who can recognize and respond to a diabetes emergency?
- Will the student have access to wifi and cell service to support diabetes technology?

## Resources

American Diabetes Association. (2021). *Extracurricular activities and field trips*. <https://www.diabetes.org/resources/know-your-rights/safe-at-school-state-laws/extracurricular-activities-and-field-trips>

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## Sample 504 Accommodations for Students with Type 1 Diabetes (T1D)

When it comes to identifying areas of accommodation for students with T1D, there are several major concept areas that should be included. Listed below are accommodation areas, rationale for each, and accommodation examples. It is important to create a 504 plan that frames all necessary accommodations to make the academic environment equitable for the student with T1D.

### Nutrition

Meals and snacks are critical in maintaining glucose levels of students with T1D and as a part of managing insulin administration and response to hypoglycemia. There are several accommodations that may be applicable to nutrition at school including:

- access to snacks throughout the day whenever needed
- access to fast acting glucose for hypoglycemic events
- snack prior to activities or bus ride home
- provision of carbohydrate counts in school lunches
- assistance with counting carbohydrates at school

### Exercise and Physical Activity

Physical activity impacts blood glucose levels directly. For very young children or a newly diagnosed student with diabetes, closely monitoring blood glucose levels around exercise and physical activity is important. Although there is a potential for T1D complications, all students should have full access to their academic and school-sponsored extracurricular events which include physical education (PE) and athletics. To that end, some associated accommodations may include:

- full participation in student exercise, athletics, and recess
- snack prior to PE
- blood glucose check prior to PE, exercise, or recess
- access to glucose from PE teacher and/or coach
- training of coaches, recess supervisors, and PE teachers in recognition of and response to hypoglycemia

## Water and Bathroom Access

Variable blood glucose levels may impact the need to consume an increased volume of water and may also be cause for increased restroom use, this is specifically true for hyperglycemia. Students with T1D should have access to both water and restroom use without restriction or penalty. Common accommodations often include:

- free bathroom access without restriction/open hall pass
- free access to water or drinking fountains, without restriction

## Diabetes Technology

As diabetes technology advances and becomes the standard in managing diabetes, schools need to provide appropriate access to devices necessary to monitor blood glucose levels and administer insulin. These devices rely on secure internet and Bluetooth® connections. To that end accommodations around diabetic technology include both access to devices and access to an environment that will support the appropriate use. Common accommodation associated with diabetes technology include:

- access to school secure Wi-Fi
- free access to cell phones or Bluetooth® device at all times, including exams
- free access to all electronic diabetic equipment
- allowance of audible alarm on devices, including during academic programs and exams

## Trained Staff

Even in schools that have school nurses present, staff must still be trained to recognize and respond to hypoglycemic events. In schools where there is not a school nurse present, certain tasks and emergency care may be delegated to unlicensed staff by the school nurse – if allowed by state laws and school district’s policies and regulations. To ensure that there is always appropriately trained staff in the school setting and accompanying the student on field trips or to school sponsored events, the 504 plan will often designate the conditions under which a specifically trained staff must be present, the number of staff that must be present who are trained by the school nurse, or who identify who will monitor the student during the day or during emergencies. Some common examples of staff training accommodations may include:

- All staff will be trained in basic diabetes information and how to recognize and respond to hypoglycemia (Tier/Level 1 Training).
- Staff who have responsibility for the student with T1D throughout the school day will be trained in diabetes basics and what to do in an emergency (Tier/Level 2 Training).
- Staff identified in a student’s Individualized Healthcare Plan to provide student-specific diabetes care tasks will be trained on the task(s), evaluated, and supervised by the school nurse (Tier/Level 3 Training).

## Management of Diabetes

School nurse-led diabetes case management is foundational to effective diabetes management throughout the school day and across the home-community-school continuum. Accommodations are relative to the student's level of self-management and developmental age, and healthcare provider orders. Common accommodations associated with diabetes management include:

- Student will have support counting carbohydrates and calculating insulin dosage each day at lunch.
- Trained staff will count carbohydrates and identify insulin dosing for student.
- Trained staff will support student with ketone testing.
- Trained staff will test blood glucose daily at designated times and as needed for symptoms of high or low blood sugar.
- Student should be able to test blood glucose as needed.
- Student shall not be permitted to walk to the office or health room alone when presenting with symptoms of hypoglycemia.
- Student shall be provided a secure place for diabetes supplies.
- Student shall be permitted to carry diabetes supplies.
- Student shall be provided a private place to test blood glucose level and administer insulin.

## Emergency Plans

Emergency care plans (ECP) and disaster plans serve a separate purpose from The ECP flows from the student's Individualized Healthcare Plan (IHP) and includes the medical orders for treating hypo- and hyperglycemia. All staff with direct responsibility for the student with T1D should be trained on how the ECPs guide their response to a medical emergency. In addition, a 72-hour disaster plan should adopt procedures for lockdown or disaster. Common emergency accommodations may include:

- All staff with responsibility for the student with T1D will be trained in how to recognize and respond to a medical emergency using the student's ECPs.
- Student will have access to their diabetes supplies in their classroom in the event of a lockdown.
- Student will be permitted to carry diabetes supplies on their person or in their backpack, in the event of a lockdown.
- All staff will have access to the student's disaster plan.

## Individualized Healthcare Plan

School nurses are responsible for the development, implementation, and evaluation of the student's Individualized Healthcare Plan (IHP). The IHP — developed in collaboration with the student, family, and healthcare provider — outlines the school health services and accommodations necessary to facilitate attendance, educational achievement, and

participation in the entire educational process while meeting the healthcare needs of the student with T1D. The IHP can be used to inform an IEP or 504 plan; the plans should align and not contain contradicting information. Some districts identify the IHP in the 504; likewise, many school nurses will identify the 504 in IHP. It is important to note that IHPs and 504s are not synonymous. An accommodation example includes:

- IHP will be developed, implemented, and evaluated by the school nurse and will remain in effect during the school day and all school-sponsored extracurricular events.

## Attendance

Students with T1D may have extended absences related to a diabetes complication (e.g., hospitalization for diabetic ketoacidosis), very elevated blood glucose levels related to an illness, feeling unwell for a couple of days following a significant low, or missing school for medical appointments. Attendance accommodations should be extended to these students, especially in districts that have strict attendance practices or truancy rules. Some accommodations associated with attendance include:

- Student will be exempt from school attendance policy.
- Students will not be penalized for prolonged absences related to diabetes complications, and staff will provide instructions for missed work.
- Student will not be penalized for absences required for medical appointments.
- Student will not be penalized for lost class time related to treatment of high or low blood sugar.

## Academics

Academic accommodations are necessary for students with T1D due to the potential impact of glycemic variability on cognition. It is important to assess the student for cognitive impairment related to hypoglycemia, ability to concentrate due to blood glucose deviations, and recognize students may miss portions of classroom time to treat highs or lows or provide routine care. Academic accommodations include:

- extending test-taking time
- allowing exams to be retaken as necessary
- providing memory aids when appropriate
- extending time of homework as needed
- allowing class content makeup when classroom time is missed

## Communication

Communication is a critical element of diabetes management for all students with T1D. A communication system should be established between families, school, healthcare provider, and trained staff. Key items to communicate include when there have been

deviations at home and at school; when medical appointments are scheduled; when classroom events are scheduled; and when supplies are running low. Communication accommodations include:

- Teacher will provide advance notice of fields trips to the family and school nurse.
- School will notify family when diabetes supplies are running low.
- Parent/guardian will notify the school nurse if blood glucose has had frequent lows or sustained highs at home.
- School nurse will develop communication process to exchange information with student's healthcare provider.
- Trained staff will notify the school nurse of changes in student's health status.

## Resources

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## Decision Tree: Nursing Delegation in the School Setting

Does the state's nurse practice act allow delegation?	<b>YES</b> – Can delegate <b>NO</b> – Cannot delegate
Does school policy support training and supervision of UAP by the school nurse?	<b>YES</b> – Can delegate <b>NO</b> – Cannot delegate
Has a healthcare provider ordered the healthcare task?	<b>YES</b> – Can delegate <b>NO</b> – Cannot delegate
Does the school nurse have the competence to train the UAP on the nursing task?	<b>YES</b> – Can delegate <b>NO</b> – Cannot delegate
Does the student's IHP – based on the nursing assessment, in combination with the healthcare provider's orders – outline the nursing tasks required to help meet the student's health goals.	<b>YES</b> – Can delegate <b>NO</b> – Cannot delegate
Does the nursing care task meet the criteria of delegation? (Right task) <ul style="list-style-type: none"> <li>▪ Not complex</li> <li>▪ Part of the student's routine plan of care, whether at school or at home</li> <li>▪ Follows an established sequence of steps</li> <li>▪ Does not require modification</li> <li>▪ Has a predictable outcome</li> <li>▪ Does not involve assessment, judgment, interpretation of results, or decision making by UAP</li> </ul>	<b>YES</b> – Can delegate <b>NO</b> – Cannot delegate
From the nursing assessment was it determined that the student's health status is stable and the outcome of care is predictable? (Right circumstance).	<b>YES</b> – Can delegate <b>NO</b> – Cannot delegate
Is an appropriate, competent, and willing UAP available? (Right person)	<b>YES</b> – Can delegate <b>NO</b> – Cannot delegate
Is the school nurse able to develop the UAP training, implement the training, provide a written sequence of steps for the nursing task, and evaluate competence? (Right direction and communication)	<b>YES</b> – Can delegate <b>NO</b> – Cannot delegate
Is there a communication plan between the UAP and school nurse in place? (Right direction and Communication)	<b>YES</b> – Can delegate <b>NO</b> – Cannot delegate



<p>Can the school nurse provide ongoing supervision of the UAP and evaluation of the student's health outcomes? (Right supervision and evaluation)</p>	<p><b>YES</b> – Can delegate <b>NO</b> – Cannot delegate</p>
<p>For out-of-state, school-sponsored events</p> <ul style="list-style-type: none"> <li>▪ Are both the home and visiting states members of the Nurse Licensure Compact?</li> <li>▪ Does the visiting state allow delegation to UAP?</li> </ul>	<p><b>YES</b> – Can delegate <b>NO</b> – Cannot delegate</p>

## Resources

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## Nursing Delegation Considerations for the Student with Type 1 Diabetes (T1D)

**Disclaimer:** This document provides considerations for school nurses as they formulate independent nursing judgment for their practice or when participating in policy discussions in their districts. This document is not intended to provide clinical standards or guidelines. The school nurse is responsible for complying with applicable federal, state, and local laws, regulations, ordinances, executive orders, policies, and any other applicable sources of authority, including any applicable standards of practice.

The safety and welfare of the individual student with type 1 diabetes (T1D) must be the central focus of all nursing delegation decisions. The school nurse delegates diabetes care tasks to unlicensed assistive personnel (UAP) in accordance with applicable legal and policy parameters and according to the principles of nursing delegation. The school nurse can only consider delegating nursing tasks that do not involve nursing judgment or any component of the nursing process (NCSBN & ANA, 2019; NASN, 2019).

Examples of diabetes care tasks, outlined in a student's Individualized Healthcare Plan (IHP), that could be delegated include the following:

- Blood glucose monitoring
- Ketone testing
- Administration of medication, including insulin and/or emergency medication
- Supporting individualized meal planning and carbohydrate counting
- Supporting regular physical activity
- Supporting extracurricular events

Following are considerations for the school nurse to identify positive indicators that nursing delegation can occur, concerns to proceeding with nursing delegation, and barriers to proceeding with nursing delegation.

Area of Consideration	What to Evaluate	Positive Indicators for Delegation	Proceed with Caution	Barriers to Delegation
<b>Delegation Laws and Policies</b>	Identify delegation laws and regulations under the state nurse practice act.  Identify district/school applicable policies.	The laws permit nursing delegation of tasks to UAP under the state nurse practice act and local policy.	Laws and policy limit the provision of delegation to UAP.	Laws and/or policies prohibit delegation to UAP.

<p><b>Student Health Status &amp; History</b></p>	<p>Review student health history, past hypoglycemic events, overall glycemic control, and identify comorbidities.</p>	<p>Student has stable health history with no comorbidities and no major adverse events in the past year.</p> <p>HGA1c &lt;8.</p>	<p>Student has had mild episodic blood glucose highs or lows, with loss of school time associated with glycemic instability in the past 12 months.</p> <p>Student's comorbidities have not impacted management of T1D.</p> <p>HGA1c is 9-10.</p>	<p>Student has a pattern of severe hypoglycemic events.</p> <p>Student has a history of multiple hospitalizations related to DKA.</p> <p>Student has consistent elevated HBA1c.</p> <p>Student has comorbidities or medications that may impact glycemic control.</p>
<p><b>Student's Ability &amp; Stability</b></p>	<p>Assess student's developmental age, cognition, self-management skills, psychosocial factors, and social determinants.</p>	<p>Student has no developmental or cognitive impact to care.</p> <p>Student is capable to self-manage with minor assistance with specified tasks.</p> <p>Student has no barriers to supports, psychosocial burdens, or major negative social influencers.</p>	<p>Student is young (&lt;7) or newly diagnosed.</p> <p>Student has at least one diagnosis that limits cognitive function.</p> <p>Student experiences negative social influencers such as food insecurity, poverty, or environmental stressors that may complicate care.</p>	<p>Student has major developmental delays or cognitive impairments.</p> <p>Student has major negative psychosocial factors or social influencers (e.g., hunger, lack of access to medical care and medication, lack of supplies, major mental health issues, history of abuse and/or neglect) that impact overall stability of health and glycemic control.</p>

<p><b>Level of Risk &amp; Complexity of Delegated Task</b></p>	<p>Identify predictability of the student’s health outcome from the task.</p> <p>Review the complexity of the task, the number of steps, and the potential need for clinical decision-making.</p>	<p>The task is expected to result in a consistent outcome each time it is performed.</p> <p>The task has minimal steps associated with being accomplished. (e.g., adding carbohydrates for carbohydrate counting).</p>	<p>Outcomes might be variable.</p> <p>The tasks require multiple and/or complicated steps.</p>	<p>The task is complex, and outcomes are unpredictable.</p> <p>The task is not a regular part of care.</p> <p>The task potentially requires clinical decision-making.</p>
<p><b>Emergency Access (EMS)</b></p>	<p>Identify EMS response time, closest emergency access, proximity of the school nurse, and proximity of parents/guardian.</p>	<p>EMS response time is less than 5 minutes.</p> <p>Emergency care is accessible within 15 minutes.</p> <p>School nurse is in reasonable proximity even when not present in the school setting.</p> <p>Parents/guardians and school nurse can be reached (e.g., phone, text).</p>	<p>EMS response time is within 10 minutes.</p> <p>Emergency care is within 30 minutes away.</p> <p>School nurse and parent/guardian are not within reasonable proximity during the day (e.g., physically, phone, text).</p>	<p>EMS response time is greater than 10 minutes.</p> <p>Emergency care is more than 30 minutes away.</p> <p>School nurse and parents/guardian are not accessible during the day.</p>
<p><b>School Nurse Competency</b></p>	<p>Evaluate level of nursing experience and expertise in school nursing in general.</p> <p>Identify level of competency managing T1D.</p> <p>Identify proficiency in skills to be delegated.</p>	<p>The nurse is an experienced school nurse.</p> <p>The school nurse has expertise in the management of T1D and is proficient in the tasks being delegated.</p> <p>The school nurse is able to effectively consult rapidly on a question posed by the UAP based on clinical expertise and judgment.</p>	<p>The school nurse has essential knowledge of T1D but is not proficient in the task being delegated.</p>	<p>The nurse is new to nursing, new to school nursing practice, and/or has limited knowledge in T1D management.</p> <p>The school nurse does not have proficiency or expertise in the task being delegated.</p>

<p><b>UAP Competency</b></p>	<p>Identify that the UAP is chosen by the school nurse.</p> <p>The UAP has the following qualifications:</p> <ul style="list-style-type: none"> <li>• Education, CPR and first aide training, previous healthcare experience</li> <li>• Attributes (willingness to assume responsibility, ability to follow directions)</li> <li>• Ability to perform the task</li> <li>• Interpersonal attributes (able to maintain confidentiality, open communication with school nurse, works with children)</li> <li>• Emergency effectiveness</li> </ul> <p>Evaluate UAP's understanding of basic and emergency response training.</p>	<p>UAP is able to identify when and how tasks are performed.</p> <p>UAP correctly return-demonstrates the task.</p> <p>UAP can identify when to call the school nurse and/or EMS. UAP agrees to ongoing school nurse supervision.</p> <p>UAP is able to describe basic physiology of T1D.</p> <p>UAP is able to identify signs and symptoms of high and low blood glucose levels.</p> <p>UAP is able to explain how, when, and why insulin and glucagon are used.</p>	<p>UAP was chosen by the principal.</p> <p>UAP return-demonstrates the task after multiple attempts.</p> <p>UAP at times incorrectly identifies signs and symptoms of high and low blood glucose levels.</p> <p>UAP requires continued education on T1D basic physiology of T1D and how, when, and why insulin and glucagon are used.</p>	<p>UAP cannot describe basic physiology of T1D or how, when, and why insulin and glucagon are used.</p> <p>UAP cannot provide appropriate return-demonstration of the task.</p> <p>UAP is unable to identify when to call the school nurse or EMS.</p>
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After confirming delegation is allowed by state law (e.g., state nurse practice act) and school district policies, and the school nurse is knowledgeable about and skilled in nursing delegation, the five rights of delegation provide guidance in making safe nursing delegation decisions.

**RIGHT TASK**

- Is not complex
- Is part of the student's routine plan of care
- Follows an established sequence of steps
- Does not require modification
- Has a predictable outcome
- Does not require assessment, interpretation, or independent decision-making during its performance or at completion by the UAP

**RIGHT CIRCUMSTANCE**

- The ongoing nursing assessment of the student determines the student's health status is stable and outcomes of care are predictable.
- The student has an Individualized Healthcare Plan (IHP) and Emergency Care Plan (ECP).
- There are available resources for the UAP to perform the task.
- The conditions under which the task should be performed are clear.

## RIGHT PERSON

- The school nurse identifies the appropriate UAP to assign care.
- The UAP is willing and accepts responsibility.
- The UAP has the education, legal authority, and demonstrated competency to perform the task.
- The UAP knows when to call emergency medical services and/or the school nurse.

## RIGHT DIRECTION AND COMMUNICATION

- The school nurse trains and evaluates competence of the UAP.
  - School nurse documents UAP competency.
  - School nurse determines how frequently competency needs to be re-assessed and if/when more training is needed.
- Step-by-step instructions to perform the task are provided verbally and in writing.
  - School nurse verifies UAP understanding.
  - School nurse provides a delegation agreement or assignment as appropriate.
- The school nurse outlines a communication plan to include when and what the UAP should report to the nurse; how the UAP should respond in an emergency; and how the UAP should document care.

## RIGHT SUPERVISION AND EVALUATION

- The school nurse provides an explanation on how ongoing supervision and evaluation of the UAP's performance of the task and student's health outcome will happen.
- The school nurse supervises the UAP's documentation.
- The school nurse provides feedback to the UAP, including follow-up on identified problems, needed remediation, revision of the plan of care as needed.
- The school nurse develops a process to rescind delegation if unsafe actions are determined.
- The school nurse develops a process to rescind delegation when the delegating school nurse moves from the school and is no longer responsible for planning the student's care.

## Resources

- National Council of State Boards of Nursing. (2016.) National guidelines for nursing delegation. *Journal of Nursing Regulation*, 7(1), 5-14. [https://www.ncsbn.org/NCSBN\\_Delegation\\_Guidelines.pdf](https://www.ncsbn.org/NCSBN_Delegation_Guidelines.pdf)
- National Council of State Boards of Nursing and American Nurses Association. (2019). *Joint statement and national guidelines for nursing delegation*. [https://www.ncsbn.org/NGND-PosPaper\\_06.pdf](https://www.ncsbn.org/NGND-PosPaper_06.pdf)
- Resha, C.A. (2017). Process for delegation in the school setting. In C. Resha & V. Taliaferro (Eds.), *Legal resources for school health services* (pp. 35-48). SchoolNurse.com

# Sample Competency Checklist for Unlicensed Assistive Personnel (UAP)

The school nurse delegates only those nursing tasks the UAP has the necessary skills and competence to accomplish safely. The school nurse trains, documents UAP competency, and determines how frequently competency needs to be re-assessed. This sample form identifies potential nursing tasks that could be delegated to a UAP, essential knowledge deemed important for the UAP to have to provide safe and effective care for a student with T1D, and key areas of documentation.

Essential Knowledge or Task	Demonstration by School Nurse DATE	Verbal and Written Explanation by School Nurse DATE	Return Demonstration by UAP DATE	School Nurse Observation DATE	School Nurse Observation DATE	School Nurse Observation DATE
Hand hygiene						
5 rights of medication						
General diabetes information						
Symptoms of hypoglycemia						
Symptoms of hyperglycemia						
Response to hypoglycemia						
Response to hyperglycemia						
General insulin information						
General Glucagon information						
General information on factors that influence blood sugar						
Symptoms of severe hypoglycemia						
Conditions under which: Ketone testing						

<b>Conditions under which: Unscheduled glucose testing</b>						
<b>Conditions under which: Calling the nurse</b>						
<b>BG Monitoring</b>						
<b>Carbohydrate counting</b>						
<b>Insulin dosing</b>						
<b>Insulin administration</b>						
<b>Ketone testing</b>						
<b>General accommodations</b>						
<b>Medication monitoring</b>						
<b>Documentation</b>						

School Nurse: \_\_\_\_\_ Date: \_\_\_\_\_



## MODEL PROCEDURE

### BLOOD GLUCOSE (BG) TESTING VIA GLUCOMETER

Disclaimer: NASN's model procedures and/or language are intended as examples that may serve as a tool for those responsible for drafting procedures that meet the needs of a local school or district. These examples are not authoritarian, nor should they be viewed as complying with any requirements specific or unique to any school or district. Model procedures and language should not substitute or replace the advice of legal counsel and/or research on applicable federal or local laws, regulations, or ordinances.

#### Needed Supplies:

- Blood sugar test strip (1)
- Blood sugar meter labeled with student's name
- Soap and water or alcohol swab
- Lancet and lancing device
- Tissue or paper towel to work on
- Gloves

#### Pre-Procedure:

1. Identify the right time to test blood glucose per medical orders (e.g., daily at lunch, 30 minutes before bus ride home, for complaints or observation of symptoms compatible with high or low blood glucose).
2. Identify where supplies are stored.
3. Ensure you have selected supplies for the right student.
4. Determine student's level of assistance.

#### Procedure:

1. Gather supplies.
2. Prepare supplies on a clean surface.
3. Provide privacy to the student.
4. Wash hands and put on gloves.
5. Have student wash hands.
  - a. If student is unable to wash hands (such as a field trip), have student cleanse finger with alcohol wipe.
  - b. Ensure that hands are dry.
6. Prepare the lancet for use.
7. Place the strip into the meter according to manufacturer's instructions.

8. Place the injector perpendicular to the skin. Release the needle and pierce the skin.
9. Gently squeeze (but do not touch) the puncture site until a large drop of blood forms.
10. Hold the test strip under the puncture until enough blood covers the indicator square.
11. Note the blood glucose reading on the meter.
12. Apply pressure to the puncture site with a cotton ball or gauze.
13. Properly dispose of test strip in plastic lined garbage receptacles.
14. Dispose of lancet in biohazard sharps container.
15. Remove your gloves and wash hands. Direct student to wash hands.
16. After obtaining blood glucose reading, follow student's IHP and/or ECP for next steps.
17. Record time, date, and blood sugar reading on student's log.

## Resources

- American Diabetes Association. (2021) *The big picture: Checking your blood sugar*. <https://www.diabetes.org/healthy-living/medication-treatments/blood-glucose-testing-and-control/checking-your-blood-sugar>
- Molalla River School District. (2021). *Procedure for blood glucose testing via glucometer*. [https://www.molallariv.k12.or.us/departments/school\\_health\\_services/individual\\_school\\_health\\_protocols](https://www.molallariv.k12.or.us/departments/school_health_services/individual_school_health_protocols)

# MODEL PROCEDURE

## BLOOD KETONE TESTING

**Disclaimer:** NASN’s model procedures and/or language are intended as examples that may serve as a tool for those responsible for drafting procedures that meet the needs of a local school or district. These examples are not authoritarian, nor should they be viewed as complying with any requirements specific or unique to any school or district. Model procedures and language should not substitute or replace the advice of legal counsel and/or research on applicable federal or local laws, regulations, or ordinances.

### Needed Supplies:

- Disposable gloves
- Ketone meter and test strips
- Lancing device and lancet
- Alcohol wipe
- Paper towel

### Storage and Handling:

- Store ketone test supplies at room temperature in a non-humid environment.
- For test strips:
  - Keep test strips in the original container and keep the container closed when not in use.
  - Do not refrigerate or freeze.
  - Keep out of direct sunlight.
- Do not touch strips with wet hands.
- Use test strip immediately after taking out of vial. Do not leave test strips open to air for a prolonged period of time.
- Ensure meter is appropriately calibrated.

### Pre-Procedure:

1. Determine where supplies are kept.
2. Determine the circumstances under which ketone testing should be performed per medical orders.
3. Determine the student’s level of assistance.

### Procedure:

1. Gather and prepare supplies.
2. Prepare supplies on a clean surface.

3. Provide privacy to the student.
4. Wash hands and put on gloves.
5. Have student wash hands.
  - a. If student is unable to wash hands (such as a field trip), have student cleanse finger with alcohol wipe.
  - b. Ensure that hands are dry.
6. Prepare lancet for finger stick.
7. Place strip into the meter according to manufacturer's instructions.
8. Cleanse finger with alcohol wipe.
9. Use lancet to prick finger.
10. Allow blood to bead in order for ketone strip to pick up blood.
11. When blood is in contact with the meter, the meter will begin to count down.
12. Await results and use guidelines for device to determine results. Follow student IHP.
13. Properly dispose of test strip in plastic lined garbage receptacle.
14. Dispose of lancet in biohazard sharps container.
15. Remove gloves and wash hands. Direct student to wash hands.
16. If ketones are present, follow student's IHP for next steps.
17. Record on as per school procedures.

## Resources

American Diabetes Association. (n.d.) *Diabetes care tasks at school: What key personnel need to know – Ketones*. <https://www.diabetes.org/sites/default/files/2019-06/12.%20Ketones2018final.pdf>

Joslin Diabetes. (n.d.) *Ketone testing*. <https://www.joslin.org/patient-care/diabetes-education/diabetes-learning-center/ketone-testing-0>

# MODEL PROCEDURE

## URINE KETONE TESTING

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### Needed Supplies:

- Disposable gloves
- Ketone test strips
- Disposable cup
- Watch with second hand or timer
- Paper towels

### Storage and Handling:

- Store ketone test strips at room temperature in a non-humid environment.
- Test strips
  - Keep test strips in the original container and keep the container closed when not in use.
  - Do not refrigerate or freeze.
  - Keep out of direct sunlight.
- Do not touch strips with wet hands.
- Use test strip immediately after taking out of vial. Do not leave test strips open to air for a prolonged period of time.

### Pre-Procedure:

1. Determine where supplies are kept.
2. Determine the circumstances under which ketone testing should be performed per medical orders.
3. Determine the student’s level of assistance.

### Procedure:

1. Gather supplies.
2. Have student independently void small amount of urine into a clean paper cup.

3. Wash hands and put on gloves.
4. Saturate strip by dipping strip into cup.
5. Wait for test strip to develop per manufacturer's direction.
6. Compare color of strip to chart on bottle to identify presence of ketones.
7. Empty urine into toilet and dispose of cup and ketone strip in plastic lined garbage receptacle.
8. Remove gloves and wash hands.
9. If ketones are present, follow student's IHP for next steps.
10. Record per school procedures.

## Resources

- Diabetes Association®. (2020). *Type 1 diabetes*. <http://www.diabetes.org/diabetes-basics/type-1/>
- Marsden, J., & Pickering, D. (2015). Urine testing for diabetic analysis. *Community eye health*, 28(92), 77.
- Molalla River School District. (2021). *Ketone testing*. [https://www.molallariv.k12.or.us/departments/school\\_health\\_services/individual\\_school\\_health\\_protocols](https://www.molallariv.k12.or.us/departments/school_health_services/individual_school_health_protocols)

# MODEL PROCEDURE

## INJECTABLE GLUCAGON ADMINISTRATION

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### Needed Supplies:

- Alcohol wipes
- Gloves
- Glucagon emergency kit, unexpired
- Sharps container

### Pre-Procedure:

1. Determine location of supplies (store glucagon kit at controlled room temperature (68° - 77°F).
2. Do not prepare glucagon mixture in advance.
3. Identify, train, and evaluate competency of an unlicensed assistive personnel (UAP) per local/state rules to perform this student-specific task.
4. Following student's Emergency Care Plan (ECP) to check for Right Student/Right Medication/Right Dose/Right Time/Right Route/Right Documentation.

### Procedure:

1. Verify that symptoms of severe low blood glucose are present; follow student's ECP.
2. Call for assistance – ask another staff person to call 911/EMS.
3. Provide privacy, including redirecting students from the area as needed.
4. Assemble supplies on a clean surface.
5. Put on gloves; if gloves are not available, continue with procedure.
6. Remove glucagon vial, syringe, and liquid/diluent from case.
  - Remove cap from diluent vial – draw up with syringe OR
  - Use pre-filled syringe with diluent.
7. Remove cap from glucagon vial – slowly push diluent into vial.

8. Gently swirl vial with the syringe still in the vial until solution is clear (10–15 seconds).
  - Glucagon should not be used if it is not clear and of water-like consistency.
9. Turn vial upside down to withdraw the ordered amount of glucagon solution.
  - If present, remove air bubbles by tapping on the outside of the syringe to expel air or by pushing the dose back into the vial and pulling back on the plunger again.
10. Identify the injection route per student's ECP (e.g., subcutaneous, intramuscular).
11. Identify location (buttock, thigh, or arm) for injection.
12. If you have an alcohol wipe, cleanse the injection site.
13. Slowly inject the solution then remove the needle.
14. Put used syringe in the carrying case (close carrying case to avoid a possible needle stick injury) or sharps container.
15. Apply pressure using the alcohol wipe and gently massage the injection site.
16. If student is not lying on their side, move the student to a side-lying position because vomiting often follows the injection of glucagon.
17. If alone with student and you have not already called 911/EMS, do so now.
18. Monitor the student's arousal, pulse, respiration, and potential seizure
  - For seizure, clear area of anything hard or sharp to prevent injury. Place something soft under the head, and time the seizure.
  - If breathing stops, move the student onto their back and begin rescue breaths.
  - If breathing and heartbeat stop, begin CPR.
19. Check blood glucose level if able.
20. As soon as student is awake and able to swallow, give fast-acting source of sugar and long-acting source of carbohydrate, per student's ECP.
21. Stay with student until rescue squad arrives.
  - Inform rescue squad of dose, route, and time glucagon was given.
22. Dispose of all used materials in proper receptacles.
23. Remove gloves and wash hands.
24. Follow up with parent/guardian and healthcare provider.
25. Complete required documentation of glucagon administration.

NOTE: Xeris® Pharmaceuticals' device (Gvoke®) works similarly to EpiPens; the device contains a stable form of glucagon that's already dissolved into liquid. You simply remove the cap and inject – the pen pushes glucagon into the system as quickly as a glucagon kit.



## Resources

Centers for Disease Control and Prevention. (2022). *Seizure first aid*. <https://www.cdc.gov/epilepsy/about/first-aid.htm>

Lilly. (2018). Step by step instructions on how to inject glucagon. <https://www.lillyglucagon.com/taking-glucagon/how-to-inject>

Xeris® Pharmaceuticals. (n.d.) *Gvoke®- (glucagon injection)*. <https://www.xerispharma.com/about/products>

University of Michigan Health. (2021). *Diabetes: How to give glucagon*. <https://www.uofmhealth.org/health-library/aa20664>

# MODEL PROCEDURE

## INTRANASAL GLUCAGON ADMINISTRATION

**Disclaimer:** NASN’s model procedures and/or language are intended as examples that may serve as a tool for those responsible for drafting procedures that meet the needs of a local school or district. These examples are not authoritarian, nor should they be viewed as complying with any requirements specific or unique to any school or district. Model procedures and language should not substitute or replace the advice of legal counsel and/or research on applicable federal or local laws, regulations, or ordinances.

### Needed Supplies:

- Gloves
- Glucagon kit (Eli Lilly’s Baqsimi®)
- Bulb syringe

### Pre-Procedure:

1. Determine location of supplies.
  - Do not remove the shrink wrap or open the tube until you are ready to use it.
  - If the glucagon tube has been opened, it could be exposed to moisture and not work as expected.
2. Identify, train, and evaluate competency of an unlicensed assistive personnel (UAP) per local/state rules to perform this student-specific task.
3. Follow student’s Emergency Care Plan (ECP) to check for Right Student/Right Medication/Right Dose/Right Time/Right Route/Right Documentation.

### Procedure:

1. Identify that symptoms of severe low blood glucose are present; follow student’s ECP.
2. Call for assistance – ask another staff person to call 911/EMS.
3. Provide privacy, including redirecting students from the area as needed.
4. Assemble supplies on a clean surface.
5. Put on gloves; if gloves are not available continue with procedure.
6. Look into student’s nostrils to determine if there is fluid or mucous present.
  - If present, use a bulb syringe to remove fluid or mucous.
7. Remove the shrink wrap by pulling on the red stripe.
8. Open the lid and remove the device from the tube.
  - Caution: do not push the plunger until ready to give the dose.

9. Use your free hand to hold the crown of the head stable.
10. Hold the device between your fingers and thumb.
11. Insert tip gently into one nostril until your finger(s) touch the outside of the nose.
12. Push plunger firmly all the way in.
  - Dose is complete when the green line disappears.
13. Remove the device.
14. If student is not lying on their side, move the student to a side-lying position because vomiting often follows the injection of glucagon.
15. If alone with student and you have not already called 911/EMS, do so now.
16. Monitor the student's arousal, pulse, respirations, and potential seizure.
  - For seizure, clear area of anything hard or sharp to prevent injury. Place something soft under the head, and time the seizure.
  - If breathing stops, move student onto their back and begin rescue breaths.
  - If breathing and heartbeat stop, begin CPR.
17. Check blood glucose level if able.
18. As soon as student is awake and able to swallow, give fast-acting source of sugar and long-acting source of carbohydrate, per student's ECP.
19. Stay with student until rescue squad arrives.
  - Inform rescue squad of dose and time glucagon was given.
20. Dispose of all used materials in proper receptacles.
21. Remove gloves and wash hands.
22. Follow up with parent/guardian and healthcare provider.
23. Complete required documentation of glucagon administration.

## Resources

Lily. (2021). *How to use BASQIMI*. <https://www.baqsimi.com/how-to-use-baqsimi>

Mayo Clinic (2021) *Glucagon (nasal route)*. <https://www.mayoclinic.org/drugs-supplements/glucagon-nasal-route/precautions/drg-20469984?p=1>

# MODEL PROCEDURE

## INSULIN DELIVERY BY PEN

**Disclaimer:** NASN's model procedures and/or language are intended as examples that may serve as a tool for those responsible for drafting procedures that meet the needs of a local school or district. These examples are not authoritarian, nor should they be viewed as complying with any requirements specific or unique to any school or district. Model procedures and language should not substitute or replace the advice of legal counsel and/or research on applicable federal or local laws, regulations, or ordinances.

### Needed Supplies:

- Alcohol wipes
- Gloves
- Insulin pen
- Biohazard/sharps container

### Pre-Procedure:

1. Determine student's level of assistance.
2. Determine location of supplies.
3. Determine where insulin administration occurs.
4. Determine the dose of insulin, based on the student's blood glucose and carbohydrate count according to the student's Individualized Healthcare Plan (IHP).
5. Check for Right Student/Right Medication/Right Dose/Right Time/Right Route/Right Documentation.

### Procedure:

1. Gather supplies.
2. Provide privacy.
3. Wash hands and put on gloves.
4. If student is self-administering, verify student's dose before administration.
5. If staff is administering insulin, verify with second staff if warranted by state practice or local policy.
6. Prepare the pen following manufacturer's specific instructions.
  - a. Remove the cap on the pen.
  - b. If needed, roll pen to mix insulin.
  - c. Clean the rubber seal on the end of the pen with an alcohol swab.

- d. Attach a new capped needle onto the end of the pen by turning it clockwise until tight. A new needle is required for each dose administered.
  - e. Hold the pen with the needle pointing up and remove the outer needle shield. Keep the shield to use during needle removal. Remove the inner needle shield and discard.
7. Prime the pen.
- a. Turn the dose knob clockwise until the number 2 is seen in the dose window. If the number you have dialed is too high, simply turn the dose knob backward until the number 2 is seen in the dose window.
  - b. Hold the pen with the needle pointing up. Tap the clear cartridge holder gently so any air bubbles collect near the top.
  - c. Using your thumb, push the injection button firmly while counting to 5. You should see a stream of insulin come out of the tip of the needle. Depending on the pen, the dial should return to zero (0) or a diamond (◆) will appear in the center of the dose window.
  - d. Turn the dose knob clockwise until the correct dose needed is seen in the window. If you pass the dose amount, simply turn the knob backward until the correct dose is seen in the window.
8. Give the injection.
- a. Select an injection site – upper arm or abdomen.
  - b. Cleanse injection site with an alcohol swab.
  - c. Insert the needle.
  - d. Inject the insulin using your thumb to push the injection button completely.
  - e. Keep pressing and continue to hold the injection button firmly while counting slowly to 5.
9. When the injection is done, the dial should return to zero (0) or a diamond (◆) will appear in the center of the dose window (dependent on manufacturer).
10. Do not rub the injection site.
11. Direct student to carefully replace the outer needle shield. Because of biohazard concerns, student must perform this step independently.
12. Direct student to remove the capped needle by turning it counterclockwise. Student must discard capped needle in the sharps container.
13. Replace the cap on the pen.
14. Remove gloves and wash hands.
15. Complete required documentation of insulin administration.

## Resources

Association of Diabetes Care & Education Specialist. (2020). Insulin injection know-how. [https://www.diabeteseducator.org/docs/default-source/legacy-docs/\\_resources/pdf/general/Insulin\\_Injection\\_How\\_To\\_AADE.pdf](https://www.diabeteseducator.org/docs/default-source/legacy-docs/_resources/pdf/general/Insulin_Injection_How_To_AADE.pdf)

# MODEL PROCEDURE

## INSULIN DELIVERY BY PUMP

**Disclaimer:** NASN’s model procedures and/or language are intended as examples that may serve as a tool for those responsible for drafting procedures that meet the needs of a local school or district. These examples are not authoritarian, nor should they be viewed as complying with any requirements specific or unique to any school or district. Model procedures and language should not substitute or replace the advice of legal counsel and/or research on applicable federal or local laws, regulations, or ordinances.

### Needed Supplies:

- Insulin pump

### Pre-Procedure:

1. Obtain Diabetes Medical Management Plan (DMMP) and develop Individualized Health Plan (IHP) and Emergency Action Plan (ECP) for hypoglycemia and hyperglycemia.
2. Determine student’s level of self-care and assistance needs.
3. Identify the type of pump used by the student and become informed about the type of pump by referring to the manufacturer’s website. Specifically, determine and understand
  - The type of insulin delivery system: conventional, hypoglycemia suspension technology or an automated insulin delivery system (hybrid closed loop system); and
  - How to suspend the pump in case of severe hypoglycemia.
4. Determine type of insulin. For example:
  - rapid acting: Novolog, Humalog, Apidra
  - ultra-rapid acting: Fiasp
5. Determine the student’s infusion site location.
6. Identify the student’s Insulin to Carbohydrate Ratios and Sensitivity (Correction) Factors for meals. The insulin’s pump’s bolus calculator should be used to determine meal and hyperglycemia correction dosing since it takes into account Insulin on Board (IOB) and target ranges. The school nurse may need to determine the dose of insulin when the pump calculator is not working.
7. Determine target range and if the student has set any temporary targets (in advanced systems).
8. Determine if the student is using any features such as exercise or sleep mode, temporary basal settings.
9. Determine if the student will be using dual wave or extended (square) wave delivery for bolus insulin.

10. Have emergency insulin supplies available if the insulin pump malfunctions or with recurrent hyperglycemia – per DMMP.
11. Check for Right Student/Right Medication/Right Dose/Right Time/Right Route/Right Documentation.

## Procedure:

1. Follow student’s Individualized Health Plan (IHP).
2. Ensure pump is running effectively and no alarms are indicated.
3. Check infusion set and site for redness, leaking, and lipohypertrophy.
4. Provide privacy.
5. Wash hands.
6. If student is self-administering, verify student’s orders before administration.
7. Ensure pump screen is unlocked.
8. Select Bolus Menu (or compatible field depending on manufacturer’s instructions).
9. Check blood or sensor glucose level.
10. Identify the field to enter the current blood glucose level. Often a cursor will flash (this is dependent on the manufacturer). In CGM integrated systems, the sensor glucose level will automatically populate the field.
11. Enter blood or sensor glucose level into the appropriate field and proceed as per manufacturer’s instructions (this may include using arrows to maneuver settings or numbers).
12. Identify the field to enter carbohydrate count.
13. Enter carbohydrate count into the appropriate field and proceed as per manufacturer’s instruction.
14. Follow directions to review the identified bolus dose of insulin that the pump has calculated and proceed to administration as per manufacturer’s instruction.
15. Ensure the bolus dose has started to be delivered, especially for student’s transitioning to self-care.
16. Record actions in diabetes care log.

## Common Insulin Pumps:

Company	Pump Model	User Guide
<b>Traditional Insulin Pumps</b>		
Medtronic™	<ul style="list-style-type: none"> <li>▪ MiniMed™ 630G, 670G, 770G</li> <li>▪ MiniMed™ 780G (pending FDA approval)</li> </ul>	<ul style="list-style-type: none"> <li>▪ <a href="#">Medtronic™ Library of User Guides and Manuals</a></li> </ul>

Tandem <sup>®</sup> Diabetes Care	<ul style="list-style-type: none"> <li>▪ t:slimX2<sup>®</sup> with basal IQ or control IQ technology</li> </ul>	<ul style="list-style-type: none"> <li>▪ <a href="https://www.tandemdiabetes.com/docs/default-source/product-documents/t-slim-x2-insulin-pump/aw-1005628_d_user-guide-tslim-x2-control-iq-7-4-mgdl-artwork_web.pdf?sfvrsn=18a507d7_196">https://www.tandemdiabetes.com/docs/default-source/product-documents/t-slim-x2-insulin-pump/aw-1005628_d_user-guide-tslim-x2-control-iq-7-4-mgdl-artwork_web.pdf?sfvrsn=18a507d7_196</a></li> <li>▪ <a href="https://www.tandemdiabetes.com/docs/default-source/product-documents/t-slim-x2-insulin-pump/aw-1006684_c-user-guide-tslim-x2-basal-iq-6-4-mmoll-artwork-web.pdf?sfvrsn=eeb230d7_139">https://www.tandemdiabetes.com/docs/default-source/product-documents/t-slim-x2-insulin-pump/aw-1006684_c-user-guide-tslim-x2-basal-iq-6-4-mmoll-artwork-web.pdf?sfvrsn=eeb230d7_139</a></li> </ul>
<b>Patch Pumps</b>		
Insulet Corp	<ul style="list-style-type: none"> <li>▪ Omnipod</li> <li>▪ Omnipod DASH</li> <li>▪ Omnipod 5</li> </ul>	<ul style="list-style-type: none"> <li>▪ <a href="https://www.omnipod.com/sites/default/files/2021-04/Omnipod-System_Caregiver-Guide_English.pdf">https://www.omnipod.com/sites/default/files/2021-04/Omnipod-System_Caregiver-Guide_English.pdf</a></li> </ul>

## Resources

- Association of Diabetes Care & Education Specialist. (2020). *Insulin injection know-how*. [https://www.diabeteseducator.org/docs/default-source/legacy-docs/\\_resources/pdf/general/Insulin\\_Injection\\_How\\_To\\_AADE.pdf](https://www.diabeteseducator.org/docs/default-source/legacy-docs/_resources/pdf/general/Insulin_Injection_How_To_AADE.pdf)
- Berget, C. & Wyckoff, L. (2020, July). The use of technology in managing diabetes in youth part 2 – insulin pump technologies: Information & tips for the school nurse. *NASN School Nurse*, 35(4), 188–195. doi: 10.1177/1942602x20928914



# MODEL PROCEDURE

## INSULIN DELIVERY BY SYRINGE

**Disclaimer:** NASN’s model procedures and/or language are intended as examples that may serve as a tool for those responsible for drafting procedures that meet the needs of a local school or district. These examples are not authoritarian, nor should they be viewed as complying with any requirements specific or unique to any school or district. Model procedures and language should not substitute or replace the advice of legal counsel and/or research on applicable federal or local laws, regulations, or ordinances.

### Needed Supplies:

- Alcohol wipes
- Gloves
- Insulin vial
- Insulin syringe
- Biohazard/sharps container

### Pre-Procedure:

1. Determine student’s level assistance.
2. Determine location of supplies.
3. Determine where insulin administration occurs.
4. Determine the dose of insulin, based on the student’s blood glucose and carbohydrate count according to the student’s Individualized Healthcare Plan (IHP).
5. Check for Right Student/Right Medication/Right Dose/Right Time/Right Route/Right Documentation.

### Procedure:

1. Gather supplies.
2. Provide privacy.
3. Wash hands and put on gloves.
4. If student is self-administering, verify student’s dose before administration.
5. If staff is administering insulin, verify with a second staff if warranted by state practice or local policy.
6. Prepare the insulin syringe and vial.
  - a. If cloudy, roll the vial between palms to mix.
  - b. Use an alcohol wipe to sanitize the rubber top of the insulin vial.

- c. Remove the cap from the syringe. DO NOT touch the needle.
  - d. Pull back the plunger of the syringe to fill with air, the same amount of the insulin dose.
  - e. With bottle upright, insert needle into the insulin vial and push the plunger to inject air into the bottle.
  - f. With the needle in the bottle pull the plunger to the correct dose
    - If present, remove air bubbles by tapping on the outside of the syringe.
  - g. Remove the syringe from the vial.
  - h. Verify the dose as needed.
7. Give the injection.
- a. Clean a two-inch area of the upper arm or abdomen, avoiding bruised areas.
  - b. Grasp clean skin between thumb and forefinger with non-dominant hand.
  - c. Hold syringe like a pencil between thumb and forefinger in dominant hand.
  - d. Insert needle at 45° to 90° using a dart-like motion.
  - e. Let loose skin held by non-dominant hand and transfer hold of the syringe.
  - f. Push all insulin in from syringe.
  - g. Wait a couple of seconds and pull needle out of skin.
  - h. Do not rub the injection site.
8. Dispose of needle in sharps container.
9. Remove gloves and wash hands.
10. Complete required documentation of insulin administration.

## Resources

Association of Diabetes Care & Education Specialist. (2020). *Insulin injection know-how*. [https://www.diabeteseducator.org/docs/default-source/legacy-docs/\\_resources/pdf/general/Insulin\\_Injection\\_How\\_To\\_AADE.pdf](https://www.diabeteseducator.org/docs/default-source/legacy-docs/_resources/pdf/general/Insulin_Injection_How_To_AADE.pdf)

# MODEL PROCEDURE

## CARBOHYDRATE COUNTING

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### Needed Supplies:

- Nutrition labels
- Carbohydrate contents for school meals
- Application for macronutrients
- Paper, pen/pencil
- Calculator

### Pre-Procedure:

1. Determine who will provide itemized carbohydrate counts for meals (e.g., family, school nutrition department).
2. Determine which meals will be eaten at school.
3. Determine the appropriate time accommodation for counting carbohydrates prior to meals.
4. Determine student's level of assistance.

### Procedure:

1. Follow student's Individualized Health Plan (IHP).
2. Gather supplies.
3. List each food and drink consumed by the student at the meal.
4. Determine the serving size of each food and drink consumed (e.g., ½ serving, full serving size, double serving).
5. Determine the amount of carbohydrate in grams from one or more of the following:
  - the food nutrition label
  - a carbohydrate count book for T1D
  - carbohydrate information provided by school nutrition services or family
  - a reliable smartphone nutrition application that itemizes carbohydrates

6. List the total number of carbohydrates for each serving next to each item to be consumed on a log sheet.
7. Add all carbohydrates for all items together to get the total carbohydrate count.
8. Follow the student's IHP for insulin dosing calculations.
9. Document information on a student's diabetes care log.

## Resources

- American Diabetes Association. (2010). *Carbohydrate counting*. <http://www.diabetes.org/food-and-fitness/food/planning-meals/carb-counting/>
- New Mexico Department of Health. (n.d.). *New Mexico school health manual: Calculating total carbohydrates*. <https://www.nmhealth.org/publication/view/form/4218/>
- Molalla River School District. (2021). *Carbohydrate counting*. [https://www.molallariv.k12.or.us/departments/school\\_health\\_services/individual\\_school\\_health\\_protocols](https://www.molallariv.k12.or.us/departments/school_health_services/individual_school_health_protocols)



## SAMPLE Authorization for Emergency Glucagon Administration

**Student:** \_\_\_\_\_ **DOB:** \_\_\_\_\_

**School:** \_\_\_\_\_

As the parent or guardian of the above referenced student, I request that my child receive the following specialized health services: *Response to severe hypoglycemic events including administration of emergency glucagon as per physician's orders and Individualized Health Plan.*

### Medication:

Glucagon Emergency Kit 1mg reconstituted in 1 ml

Dose: Entire contents of bottle (1ml)       \_\_\_\_\_ ml from the bottle

Route: Subcutaneous injection

Pre-dosed Glucagon Auto Injector

Route: Subcutaneous injection

Pre-dosed glucagon and nasal spray

Route: intranasal

**For: Severe hypoglycemic symptoms; unconsciousness, seizure activity, unable to swallow or speak.  
Per physician's orders.**

I understand that

- Glucagon orders are as designated by the physician;
- Unlicensed assistive personnel will be trained as per state rules as it relates to glucagon administration; and
- As the parent/guardian, I am responsible for bringing to school all necessary supplies and medications.

Parent/Guardian Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## SAMPLE Insulin Administration Log – Diabetes

NAME: \_\_\_\_\_ DOB: \_\_\_\_\_ SCHOOL YEAR: \_\_\_\_\_

<b>DOCTOR’S ORDER FOR INSULIN TO CARB RATIO:</b> (see IHP/Orders for Complete Sliding Scale)	<b>Carb Cover:</b> _____ <b>Correction Dose:</b> _____ <input type="checkbox"/> Pen <input type="checkbox"/> Pump <input type="checkbox"/> Syringe
---	--

DATE	TIME	BLOOD SUGAR	CARB COUNT	INSULIN DOSE (Units)	SITE	COMMENTS/ACTIONS/TREATMENTS	INITIALS

INITIALS	SIGNATURE	SITE CODES	(for insulin admin)



## SAMPLE Parent/Guardian Diabetes Care Authorization Form

<b>Student Name:</b>	<b>DOB:</b>
<b>Level of Support:</b> <input type="checkbox"/> Student self-manages T1D. <input type="checkbox"/> Student requires supervision with diabetes care. <input type="checkbox"/> Student requires assistance with diabetes care. <input type="checkbox"/> Student is dependent on others for provision of care.	
<b>Student Needs Assistance With:</b> <input type="checkbox"/> Counting Carbohydrates <input type="checkbox"/> Calculation of Insulin Dosing <input type="checkbox"/> Drawing up or Dialing Insulin <input type="checkbox"/> Insulin Pump Injection <input type="checkbox"/> Insulin Pump Bolus <input type="checkbox"/> Blood Glucose Meter <input type="checkbox"/> CGM <input type="checkbox"/> Trouble Shooting Pump or CGM <input type="checkbox"/> Treating Hyperglycemia <input type="checkbox"/> Treating Hypoglycemia <input type="checkbox"/> Snacks	
<b>Supplies and Devices (student uses the following for diabetes care):</b> <input type="checkbox"/> CGM <input type="checkbox"/> Insulin Pump <input type="checkbox"/> Insulin Pen <input type="checkbox"/> Insulin Syringe and Vial <input type="checkbox"/> Blood Glucose Monitor <input type="checkbox"/> Injectable Glucagon <input type="checkbox"/> Nasal Glucagon <input type="checkbox"/> Urine Ketone Testing <input type="checkbox"/> Blood Ketone Testing	
<b>Medication to be Administered at School:</b> <input type="checkbox"/> Insulin (daily) <input type="checkbox"/> Glucagon (PRN) <input type="checkbox"/> Other	
<p><i>By signing this document, I acknowledge the level of care my child requires in the school setting and consent to provide the nurse permission to provide a plan and training to unlicensed assistive personnel to meet these care requirements.</i></p>	
<b>Parent/Guardian Signature:</b>	<b>Date:</b>

## Diabetes at School – Policy Considerations

**Disclaimer:** NASN’s model policies and/or language are intended as examples that may serve as a tool for those responsible for drafting policies that meet the needs of a local school or district. These examples are not authoritarian, nor should they be viewed as complying with any requirements specific or unique to any school or district. Model policies and language should not substitute or replace the advice of legal counsel and/or research on applicable federal or local laws, regulations, or ordinances.

### Introduction

There have been significant and rapid advancements in diabetes technology over the past decade. Diabetes technology is the hardware, software, and electronic devices that individuals with diabetes use to assist in managing their glucose levels, prevent complications, and improve quality of life (ADA, 2019). Diabetes technology provides significant gains in promoting overall glycemic control, improving goals around diabetes management, and in decreasing diabetes complications (Sherwood, Russel & Putman, 2020).

There are several key areas for consideration when reviewing and/or developing policies that address the use of diabetes technology at school.

### Checking Blood Glucose Levels – Continuous Glucose Monitor Devices and Blood Glucose Meters

Although glycemic control tends to be tighter with diabetes technology, low and high blood glucose levels still occur. Response to highs and lows are handled similarly to students using injectable insulin and should be outlined in the student’s individualized healthcare plan (IHP) and emergency care plan (ECP).

Although some continuous glucose monitor devices (CGM) are approved to guide treatment decisions, others are not. Review the type of CGM, appropriate FDA approval, and healthcare provider (HCP) orders to determine if additional blood glucose monitoring is needed. Treatment decisions and diabetes care plan adjustments should not be based solely on CGM results. Blood glucose levels should be confirmed with a blood glucose meter. When sustained high blood glucose levels are present with a pump, this may indicate a problem with the pump or the pump set. It is important to have a contingency plan for pump failure which includes an alternative source of insulin, such as an insulin pen.

CGMs require calibration with a blood glucose meter. CGMs should be calibrated at home with the same blood glucose monitor. If the student is attending an extracurricular event



at a time when calibration is required, such as an overnight field trip, special provisions should be made. For students self-managing their diabetes, they may independently take care of calibrations; however, some students may require assistance.

If the CGM sensor/transmitter pod falls off at school, all parts should be collected and stored in a safe place and sent home with the student. No part of the CGM should be discarded. Sensor replacement requires training and should be performed at home. Blood glucose levels should continue to be monitored with a blood glucose meter in accordance with the student's IHP.

Sharing CGM data using a smart device was approved by the FDA in 2015. It is common for students and their families to request to share CGM data with the school nurse or school staff member, or their HCP while the student is at school. It is important to identify specific permissions to include when developing school/district policies.

It is important to note that although families may have the ability of remote coordination of care with their students, remote management does not absolve the school or school nurse in the responsibility of managing the student's immediate type 1 diabetes (T1D) health care needs at school (ADA, 2019).

## Insulin Pumps

Insulin pumps provide a constant basal dose of insulin that is set by the HCP; school personnel will not be involved with the basal settings. A bolus insulin dose is given before or after food intake; it may require assistance from school staff to help calculate the dose. Some children need help from the school staff in remembering to administer their bolus dose, particularly at lunch. Missing bolus doses of insulin is the main reason for hyperglycemia in people who use pumps.

Calculating a bolus dose occurs the same way for insulin pumps as it does for injectable insulin: counting grams of carbohydrate and giving a unit of insulin for a certain number of carbohydrate grams plus the correction bolus calculated. The student's IHP, based on HCP orders, identifies the insulin to carbohydrate ratio and the correction dose.

Insulin pumps are programmed to alarm under various circumstances (e.g., low battery, no insulin delivery, out of insulin). Alarms may also be used to set parameters of responding to high and low blood glucose levels. Students should be permitted to always have audible alarms on insulin pumps or CGM's. Students should also be permitted to respond to the needs indicated by that alarm such as checking blood glucose and treating as needed.

While some students wear their insulin pump during activity/exercise, others engaging in vigorous activity may need to disconnect the pump. The student will need a safe and secure place to store the pump. If activity/exercise occurs for a prolonged period, the student may need to reconnect their pump to administer insulin; thus, the student also needs to have access to their pump of supplies during activity/exercise. Students should also have access to food, water, and fast-acting glucose during activities or athletic events (ADA, 2019).

Insulin pump failure is a potential complication. Pump failure can occur because of

- low batteries,
- mechanical problem with the pump,
- a break, clog, kink, or occlusion in the tubing,
- insulin in the tubing freezing during cold weather,
- the cannula slipping out of the insertion site,
- inflammation or infection at the insertion site, making it harder to absorb insulin, or
- failure to be alerted about a low reservoir.

Because children with insulin pumps only receive short acting insulin, the risk of progression to diabetic ketoacidosis (DKA) is a recognized potential complication. It is important to have a plan in place for an alternate method of insulin administration, such as an insulin pen, to respond to pump failure or damage.

Troubleshooting tips for pump failure include the following:

- If the insulin pump malfunctions, first determine if the pump itself is working.
- If not working, determine how long the pump failure has been an issue. Check the bolus history or verify that the last bolus dose was administered. If the bolus dose was not administered, then a correction dose is needed.
- If the pump is working and the last bolus was administered, check the tubing for bubbles. The pump may provide step-by-step commands for troubleshooting.
- Check infusion site for leakage or a dislodged cannula to rule out mechanical issues. The infusion set may need to be replaced.
- If the mechanism of malfunction cannot be identified, call for technical support for the specific pump and notify the parent/guardian.
- Refer to student's IHP for correction doses with pump failure.

## **Diabetes Technology Training for School Personnel**

Due to the variety in diabetes technology, the school nurse should gain familiarity with the student's CGM, insulin pump, and data sharing components before training school personnel. When unlicensed assistive personnel (UAP) are part of the plan of care for a student with T1D, the school nurse must follow the critical components of nursing delegation which includes providing the training and ongoing supervision of the UAP, and evaluation of the student's health outcomes. In addition to basic technology troubleshooting skills, specific diabetes technology skills, and areas of training could include:

- general technical information about the specific insulin pump
- the number for technical support
- parameters of alarms and how to respond
- safety and handling of the technology
- identification of devices that work together (e.g., diabetes technology and smart devices)
- how to provide oversight or give a correction bolus
- how to give a food bolus
- how to give a combined food and correction bolus

- how to review the bolus history
- how to suspend the insulin pump
- how to change a battery or charge a pump
- when to check for ketones
- when and how to call the school nurse, HCP, and/or family
- plan for insulin pump or site failure
- optional, if being used:
  - how to use the remote meter
  - how to lock and unlock the device
  - how to calibrate with sensor integration

## Student Care Plans

The school nurse collaborates with education and school staff to promote a safe and accommodating school environment for students with T1D. It is the role of the school nurse to interpret a student’s health status, translate healthcare provider orders, and develop and implement plans to support student-centered health and academic goals. The IHP and ECP are created by the school nurse, building on HCP orders. Accommodations in an individual education plan (IEP), 504 plan, or any other written accommodations plan should reference the student’s diabetes technology. The IEP or 504 plans should align with the student’s IHP. Common technology-related accommodations include allowing the use at all school-sponsored educational and extracurricular events, including exams, and allowing use of audible alarms.

In addition, the following considerations and accommodation should be considered when data sharing is requested and outlined in the student’s IHP, IEP plan, and/or 504 plan:

- The student should have continuous access to the CGM receiver.
- The student should be allowed to charge the receiver during school hours, as necessary.
- The student should have access to the secure school wireless network.
- Students with enabled data sharing with parents/guardians should have the capability of remote communication.

## Resources

American Diabetes Association. (n.d.) *School nurse pump training skills checklist*. <https://dev.diabetes.org/sites/default/files/2019-06/school-nurse-pump-training.pdf>

American Diabetes Association. (2019). Diabetes technology: Standards of medical care in diabetes-2019. *Diabetes Care*, 42(Supplement 1), S71-S80. <https://doi.org/10.2337/dc19-S007>

Sherwood, J. S., Russell, S. J., & Putman, M. S. (2020). New and emerging technologies in type 1 diabetes. *Endocrinology and Metabolism Clinics of North America*, 49(4), 667–678. <https://doi.org/10.1016/j.ecl.2020.07.006>

## Diabetes Technology Brand Resources

Product	Online Support	Phone Support
<a href="#">OmniPod®</a>	<a href="#">Customer Support</a>	1-800-591-3455
Medtronic™ <ul style="list-style-type: none"> <li>• <a href="#">MiniMed™770G</a></li> <li>• <a href="#">MiniMed™630G</a></li> <li>• <a href="#">Guardian™</a></li> <li>• <a href="#">Sugar.IQ™</a></li> <li>• <a href="#">INPEN™</a></li> <li>• <a href="#">CareLink™ Software</a></li> </ul>	<a href="#">Customer Support</a>	1-800-646-4633
Tandem Diabetes Care® <ul style="list-style-type: none"> <li>• <a href="#">t: slim x2 Insulin Pump</a></li> <li>• <a href="#">Basal-IQ Technology</a></li> <li>• <a href="#">Control-IQ Technology</a></li> <li>• <a href="#">Software &amp; Apps</a></li> <li>• <a href="#">Infusion Sets</a></li> </ul>	<a href="#">Product Support</a>	877- 801-6901
Dexcom™ <ul style="list-style-type: none"> <li>• <a href="#">Dexcom G6™</a></li> </ul>	<a href="#">Troubleshooting</a>	888-738-3646
Freestyle Libre® <ul style="list-style-type: none"> <li>• <a href="#">Freestyle Libre 2 Kids®</a></li> </ul>		855-632-8658

# Transition from Pediatric to Adult Care for Students with Type 1 Diabetes (T1D)

## SIX CORE ELEMENTS

Transition of care is the process of moving from a care environment supported by family or other caregivers to independent self-management of a chronic disease. From a clinical perspective, it also includes changing from seeing a healthcare provider that treats only children to a healthcare provider who treats adults. The school nurse, a member of the student's multidisciplinary team facilitating effective T1D management, is ideally placed to provide developmentally appropriate support for the anticipated transition of a student from pediatric to adult care throughout the child's entire educational experiences, with heightened attention during the teen years. Consider this as a high school graduation gift from the school nurse.

### Transitioning Youth to an Adult Endocrinologist

Core Element	Age	Activity
<b>1. Transition and Care Policy/Guide</b>	12-14	Develop a transition and care policy/guide with input from the student and family to prepare for discussions with the student's pediatric endocrinologist.
<b>1. Transition and Care Policy/Guide</b>	14-18	Establish criteria to track progress of student and/or family transition preparation through annual updates of a student transition readiness assessment.
<b>3. Transition Readiness</b>	14-18	Conduct transition readiness assessments with student and/or family to identify needs for self-care and differences to anticipate in an adult endocrinologist's practice.
<b>4. Transition Planning</b>	14-18	Develop and regularly update student's transition plan of care (e.g., medical summary; student's goals and prioritized actions; emergency care plan; changes to anticipate in decision making, privacy, and consent; optimal timing of the transition; insurance and community resources).
<i>Steps 5 and 6 are handled by the pediatric endocrinologist.</i>		
<b>5. Transfer of Care</b>	18-21	Address any concerns about transferring to an adult approach to care. Offer education and resources on needed skills identified through a self-care skills assessment. Transfer of care with a completed transfer packet (e.g., transfer letter, updated plan of care and transition goals, medical summary, emergency care plan), including residual pediatric endocrinologist's responsibility. Confirm date of first adult endocrinologist appointment.

<b>6. Transfer Complete</b>	18-26	Contact young adult and family 3 to 6 months after last pediatric visit to confirm attendance at first adult appointment and elicit feedback on their experience with the transition process. Communicate with the adult practice to confirm the transfer and offer consultation assistance as needed.
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White, P.H., Cooley, W.C., Transitions Clinical Authoring Group, American Academy of Pediatrics, American Academy of Family Physicians, American College of Physicians. (2018). Supporting the health care transition from adolescence to adulthood in the medical home. *Pediatrics*, 142(5), e20182587. doi: 10.1542/peds.2018-3610

## Resources

Got Transition® (n.d.) <https://www.gottransition.org/>

# Tiered Diabetes Training for School Personnel

## Overview

**Disclaimer:** NASN's educational material and/or language are intended as examples that may serve as a tool for those responsible for drafting and delivering training for school personnel. The training examples are not authoritarian, nor should they be viewed as complying with any requirements specific or unique to any school or district or state laws. Educational resources and language should not substitute or replace the advice of legal counsel and/or research on applicable federal or local laws, regulations or ordinances. School nurses providing this training must be knowledgeable about state laws pertaining to diabetes care, including delegation of nursing tasks, in the school setting and any required curriculum.

## Levels of Training

There are three levels or tiers of diabetes training for school personnel. This training is essential for effective management of type 1 diabetes (T1D) at school. All school personnel should receive the appropriate level of training based on their responsibilities for the student with diabetes. Training should be designed to include the following elements:

### Level 1

Level 1 training is a foundational diabetes overview intended for all staff working in a building with students with T1D. This training is to provide general information about T1D; compare and contrast T1D and T2D; provide an overview of what 'staying within target range' means for the student with T1D; and describe how to recognize and respond to hypoglycemia and hyperglycemia.

### Level 2

Level 2 training builds on the foundational training in Level 1 and is intended for school personnel who have responsibility for the student with T1D during the school day (e.g., teachers, lunch room staff, coaches, bus drivers). It expands on the Level 1 content to include

- Additional information about T1D, including more about insulin, blood glucose monitoring, and the equipment students usually use.
- General information about the unique needs (developmental, social, and emotional) of students with T1D and how to make accommodations to meet those needs.
- An overview of student emergency care plans for hyper- and hypoglycemia – what they are and how to use them.
- Where to access an outline of the roles and responsibilities of key school personnel.

### Level 3

Level 3 training specifically targets training for the unlicensed assistive personnel (UAP) who will perform student-specific diabetes care tasks at school. This one-on-one training builds on Level 1 and 2, training focuses on the diabetes care tasks outlined in the student's Individualized Healthcare Plan (IHP) and follows the principles of nursing delegation. The following tools in this section of the Toolkit (Planning and Implementing Care for Students with Type 1 Diabetes) can be used to support the school nurse training developing and conducting this Level 3 training:

- Decision Tree: Nursing Delegation in the School Setting
- Nursing Delegation Considerations for the Student with Type 1 Diabetes
- Sample Competency Checklist for Unlicensed Assistive Personnel
- Model Procedures for:
  - Blood Glucose Testing Via Glucometer
  - Blood Ketone Testing
  - Carbohydrate Counting
  - Injectable Glucagon Administration
  - Intranasal Glucagon Administration
  - Insulin Delivery by Syringe
  - Insulin Delivery by Pen
  - Insulin Delivery by Pump
  - Urine Ketone Testing

The following resources found in the Resources section of the Toolkit can also be used:

- Hypoglycemia Fact Sheet
- Hyperglycemia Fact Sheet
- Diabetes Medications Fact Sheet
- Nutrition and Type 1 Diabetes in the School Setting
- General Ability Levels of Type 1 Diabetes Self-Care by Developmental Milestones
- Culture, Ethnic, and Religious Considerations in Type 1 Diabetes Management

### Presenting the Trainings

While it may be appropriate to present Level 1 training to a large group or online, it is recommended to present Level 2 training to a limited number of school staff to allow time for clarifying questions. The Resources section of this Toolkit includes sample PowerPoint slides for Level 1 and Level 2 training. You are encouraged to personalize the slides using local logos and graphics, and tailor content to meet the needs of your school and district. Level 3 training needs to be one-on-one between the school nurse and UAP to allow for training and competency evaluation of student-specific diabetes care tasks, following the principles of nursing delegation. The school nurse establishes a plan for ongoing supervision and evaluation for the need of refreshed trainings for all three levels.



## Resources

American Diabetes Association. (2020). *Helping the student with diabetes succeed: A guide for school personnel*. <https://www.diabetes.org/sites/default/files/2020-06/SchoolguidepdfMay2020.pdf>

Goss, P. W., Middlehurst, A., Acerini, C. L., Anderson, B. J., Bratina, N., Brink, S., Calliari, L., Forsander, G., Goss, J. L., Maahs, D., Milosevic, R., Pacaud, D., Paterson, M. A., Pitman, L., Rowley, E., & Wolfsdorf, J. (2018). ISPAD position statement on type 1 diabetes in schools. *Pediatric Diabetes*, 19(7), 1338–1341. <https://doi.org/10.1111/pedi.12781>

# Type 1 Diabetes (T1D) in Schools

## Evaluating Care

### Evaluating Care for Students with Type 1 Diabetes (T1D)

Evaluation is a systematic, dynamic, and ongoing review of an individual student-centered plan of care, progress toward meeting the goal(s), successes and challenges of implementing the plan, and evaluation of student outcomes. It also involves system-level evaluation of diabetes management at school.

When goals and outcomes are written in the SMART format — Specific, Measurable, Achievable, Realistic, and anchored within a Time Frame — in the student’s individualized-plan of care, much of the evaluation plan is already in place. The cyclic nature of the nursing process is demonstrated as ongoing evaluation leads to the continued assessment of the student’s health status, progress toward goals, and revision of the plan of care as indicated.

Evaluation must also include ongoing evaluation of any delegated nursing tasks when nursing delegation is an intervention used to provide care — evaluating both the unlicensed assistive personnel (UAP) and the student’s health outcomes.

### Evaluating Type 1 Diabetes (T1D) Care in Schools

Identifying, collecting, categorizing, and reporting systems-level data systematically demonstrates the value of sustaining diabetes management programming to key stakeholders in the school and school district such as school administrators, school boards, and community partners.

Consider using the 3S (Student-School Nurse-School Community) Model to identify and categorize data (Wolfe et al., 2019). The 3S Model was developed as a real-world guide for practicing school nurses to understand and accomplish school-specific data collection (Wolfe et al., 2019). (See Figure 2).

Application of the 3S Model to diabetes management includes these measures:

- Structure measures: infrastructure and context focused data related to the **school nurse** (e.g., number of school nurses, school nurse to UAP ratio), **students** (e.g., number of students diagnosed with T1D, who have an IHP and ECP, who receive care from a UAP), and the **school community** and their capacity to provide care (e.g., presence T1D management policies, tiered trainings for school personnel).
- Process measure: the methods by which nursing care is provided; also focused on the timeliness, accuracy, appropriateness of the care provided, and whether or not obstacles or mishaps occurred during care delivery (e.g., emergency response of school staff, tiered school personnel training, health office visits and student disposition, IHP and ECPs developed).

- Outcomes measures: look at whether or not the desired state resulted from the care provided (e.g., academic and psychosocial outcomes of students with T1D, student and family satisfaction, number of students within target ranges).

Remember case studies can be as impactful as statistics.

## Reporting Findings

Aggregated information on structure, process, and outcomes data (3S Model) is useful in understanding what is and what is not working. Adjustments can be made at the point in the process where there are gaps or deficits. Measures can be considered as a moment in time or over a period of time, depending on what is being reported. School nurses should continually evaluate whether or not data collected is useful; consider eliminating data points that are not being used; and should know how, when, and to whom to present the data.

## Resources

Wolfe, L. C., Maughan, E. D., & Bergren, M. D. (2019). Introducing the 3S (student-school nurse-school community) model. *NASN School Nurse, 34*(1), 30-34. doi: 10.1177/1942602X18814233

# Resources for the School Nurse, Student, Family, and School

## Overview

This section of the Toolkit contains a variety of resources to further support the school nurse role with assessment, planning and implementation of care for students with T1D – resources for the school nurse, student, family, and school – as well as resources for the professional development of the school nurse. These resources further support translating into practice the recommendations identified for Nursing Diagnoses, Outcomes Identification, Planning, and Implementation in the *School Nursing Evidence-Based Clinical Practice Guideline: Students with Type 1 Diabetes* (NASN, 2021).

Resources include the following:

### Fact Sheets

- Hypoglycemia Fact Sheet
- Hyperglycemia Fact Sheet
- Diabetes Medications Fact Sheet

### Nutrition and Type 1 Diabetes in the School Setting Guidance Document

### General Ability and Levels of Type 1 Diabetes Self-Care by Developmental Milestones

### Cultural, Ethnic, and Religious Considerations in Type 1 Diabetes Management

### Tiered Diabetes Training for School Personnel – Sample Slide Decks

- Level 1 – Diabetes Training for All School Personnel
- Level 2 – Diabetes Training for School Personnel Who Have Responsibility for a Student with Type 1 Diabetes

### Additional Type 1 Diabetes Resources

- Resources from NASN
- Professional Development Resources for the School Nurse
- School and School Personnel Resources
- Social-Emotional Resources
- Family and Caregiver Resources

# Hypoglycemia Fact Sheet

## What is Hypoglycemia?

Hypoglycemia occurs when blood glucose level falls too low, below the target range specified by the student's healthcare provider. Although low blood glucose may occur in people without diabetes, it can become an emergency for individuals with type 1 diabetes (T1D) taking insulin.

## What Causes Hypoglycemia?

In individuals with T1D, low blood glucose typically occurs as a result of taking too much insulin, not eating enough food, or exercising too vigorously.

## What are the Symptoms of Hypoglycemia?

Although each person is unique, there are some common signs and symptoms of hypoglycemia. Signs of hypoglycemia may initially go unnoticed; but, as hypoglycemia progresses, symptoms may worsen. Symptoms may include the following:

Mild to Moderate Symptoms	Severe Symptoms
<ul style="list-style-type: none"><li>▪ Sweating or clammy skin</li><li>▪ Paleness or flushed face</li><li>▪ Anxiety</li><li>▪ Hunger pangs</li><li>▪ Racing heartbeat</li><li>▪ Shaking</li><li>▪ Headache</li><li>▪ Nausea</li></ul>	<ul style="list-style-type: none"><li>▪ Confusion</li><li>▪ Difficulty speaking</li><li>▪ Difficulty swallowing</li><li>▪ Seizures</li><li>▪ Lightheadedness and fainting</li><li>▪ Coma</li><li>▪ Unresponsiveness</li><li>▪ Slurred speech</li></ul>

## How is Hypoglycemia Treated?

Mild to moderate low blood glucose is treated with fast-acting glucose, such as glucose tablets, or regular sweetened juice or soda. Severe hypoglycemia is treated with emergency glucagon. It is important to defer to a student's individualized healthcare (IHP) and emergency care plan (ECP) for treatment.

## How is Hypoglycemia Prevented?

Prevention strategies are typically outlined in the student's IHP and ECP. For example, prevention strategies can include:

- consistent monitoring of blood glucose
- understanding early signs of hypoglycemia
- keeping fast-acting glucose close by
- finishing meals
- eating snacks before vigorous activities
- planning with the healthcare provider to adjust insulin if hypoglycemia happens often

## Why is Hypoglycemia Dangerous?

Unidentified, untreated, or rapidly progressing hypoglycemia can lead to seizures, coma and even death. All measures should be taken to prevent hypoglycemic events and prevent progression of hypoglycemia when it occurs.

## Resources

American Diabetes Association. (2021.) *Hypoglycemia (Low blood sugar)*. <https://www.diabetes.org/healthy-living/medication-treatments/blood-glucose-testing-and-control/hypoglycemia>

# Hyperglycemia Fact Sheet

## What is Hyperglycemia?

Hyperglycemia occurs when there is an excess of glucose in the blood resulting in blood glucose levels above the target range specified by the student's healthcare provider.

## What causes Hyperglycemia?

In individuals with type 1 diabetes (T1D), hyperglycemia typically occurs because of insufficient insulin dosage or insulin pump failure. Hyperglycemia may also occur as a response to stress or illness.

## What are the Symptoms of Hyperglycemia?

Symptoms of hyperglycemia may be subtle and vary by person. While hyperglycemia may occur periodically, it is sustained hyperglycemia that typically provokes symptoms and concerns. Below are some symptoms of hyperglycemia and some warning signs associated with ketoacidosis.

Symptoms of Hyperglycemia	Warning Signs of Ketoacidosis
<ul style="list-style-type: none"><li>▪ Increased thirst</li><li>▪ Blurred vision</li><li>▪ Frequent urination</li><li>▪ Headache</li><li>▪ Fatigue</li><li>▪ Weakness</li></ul>	<ul style="list-style-type: none"><li>▪ Vomiting</li><li>▪ Severe abdominal pain</li><li>▪ Ketones in urine</li><li>▪ Dehydration</li><li>▪ Rapid heartbeat</li><li>▪ Confusion and disorientation</li><li>▪ Change in level of consciousness</li><li>▪ Fruity smelling breath</li><li>▪ Hyperventilation</li></ul>

## How is Hyperglycemia Treated?

Treatment for hyperglycemia is highly dependent on the severity of the blood glucose level. Often hyperglycemia can be treated with activity, insulin, and fluid replacement. But in severe cases hospitalization may be needed. Always defer to the student's individualized healthcare plan (IHP) for treatment.

## How is Hyperglycemia Prevented?

Prevention strategies are typically outlined in the student's IHP and ECP. For example, prevention strategies can include:

- following insulin regimens and meal plans
- monitoring blood glucose
- adjusting medication with physical activity
- calibrating, glucose monitors, insulin pumps and CGMs

## Why is Hyperglycemia Dangerous?

Sustained hyperglycemia leads to a medical emergency called diabetic ketoacidosis. A breakdown of fat, along with hyperglycemia, causes a buildup of ketones in the blood which can lead to coma and death.

## Resources

Cleveland Clinic. (2021). *Hyperglycemia (high blood sugar)*. <https://my.clevelandclinic.org/health/diseases/9815-hyperglycemia-high-blood-sugar>



# Diabetes Medications Fact Sheet

Students with type 1 diabetes (T1D) will have healthcare provider orders in their diabetes medical management plan for medication administration at school. Following is an overview of insulin and insulin dosing, glucagon, and fast-acting glucose.

## Insulin Overview

Insulins are categorized by differences.

- **Onset:** The length of time before the insulin acts
- **Peak:** The time when insulin is at its maximum effect of lowering blood sugar
- **Duration:** How long the insulin continues to act

Most often, insulins are categorized by types, which include the following:

- Rapid-acting insulin
- Regular - or short-acting insulin
- Intermediate-acting insulin
- Long-acting insulin
- Ultra long-acting insulin

Type of Insulin	When it Starts Working	Peak Time	Duration	Duration Examples of Generic & Brand Name
<b>Rapid-acting Insulin</b>	Range 5-30 minutes  Common 10-15 minutes	Range 30 minutes-3hrs  Common 30-90 minutes	Range 3-5 hrs.  Common 4 hrs.	Insulin aspart (Fiasp, NovoLog) Insulin glulisine (Apidra), and Insulin lispro (Admelog, Humalog)
<b>Regular or Short-acting Insulin</b>	30-60 minutes	2-4 hrs.	6-9 hrs.	Regular insulin (Humulin R, Novolin R, Velosulin R)
<b>Intermediate-acting insulin</b>	2 -4 hrs.	4-12 hrs.	12-18 hrs.	NPH insulin (Humulin N, Novolin N, ReliOn)
<b>Long-acting insulin</b>	Several hours after injection		18-24 hrs.	Insulin degludec (Tresiba), Insulin detemir (Levemir), and Insulin glargine (Basaglar, Lantus)
<b>Ultra long-acting</b>	6 hours	Does not peak	36 hours	Insulin glargine u-300 (Toujeo)

(American Diabetes Association, 2021)

Insulin doses are typically categorized as

- basal dose,
- correction dose, or
- cover dose.

**Basal Dose** – also referred to as a *background dose* of insulin. For individuals on injectable insulin this is often prescribed in one or two daily doses of long-acting insulin. Individuals with an insulin pump have a daily infusion rate of fast-acting insulin that is delivered in small amounts (UCSF, 2021).

**Correction Dose** – may be referred to as *High Blood Sugar Correction, Insulin Sensitivity Factor, Correction Bolus, or Correction Factor*. A correction dose is defined as how much one unit of rapid-acting insulin will drop the blood glucose level. Correction doses are often prescribed in sliding scales, meaning the higher the blood glucose level, the higher the dose of insulin and the lower the blood glucose level, the lower the dose of insulin (USCF, 2021, ADA, 2021).

**1 unit of insulin for every 50 mg/dL over 150 mg/dL**

Blood Glucose	Insulin Units
150-200	1
201-250	2
251-300	3
301-350	4
351-400	5
401-450	6
451-500	7
501-550	8
551-600	9

Another calculation example:

**0.5 units of insulin for every 75 mg/dL over 150 mg/dL**

Blood Glucose	Insulin Units
150-225	0.5
226-300	1
301-375	1.5
376-450	2
451-525	2.5
526-600	3

**Cover Dose** – a bolus of insulin for food coverage, sometimes also referred to as an insulin to carbohydrate ratio (I:CHO). This ratio defines how many grams of carbohydrates can be covered by one unit of rapid-acting insulin. For example:

**1 unit of insulin per 10 grams of carbohydrates [1:10]**

- Number of meal carbohydrate is 60 grams.
- Divide total number of carbohydrates by 10.
- $60/10=6$

Carbohydrates	Insulin Units
10	1
20	2
30	3
40	4
50	5
60	6
70	7
80	8
90	9
100	10

Another calculation example:

**1 unit of insulin per 8 grams of carbohydrates, to the nearest half unit [1:8]**

- Number of meal carbohydrate is 60 grams.
- Divide total number of carbohydrates by 8.
- $60/8=7.5$

Carbohydrates	Insulin Units
6-11	1
10-13	1.5
14-17	2
18-21	2.5
22-25	3
26-29	3.5
30-33	4
34-37	4.5
38-41	5
42-45	5.5
46-49	6
50-53	6.5
54-57	7
58-61	7.5
62-65	8
66-69	8.5
70-73	9
74-77	9.5
78-81	10

### Calculating Mealtime Dosages

Calculating mealtime dosages must include calculating both the correction dose and cover dose in order to identify the complete insulin bolus dose. For individuals using pumps, this often includes entering the blood glucose level and the carbohydrates in grams directly into the pump where the bolus is automatically calculated. For those with injectable insulin the cover dose and correction dose must both be figured and added together.

#### Cover dose + Correction dose = Mealtime insulin dose

For example: Student with an insulin pen presents for mealtime bolus. The current blood glucose is 268; the order for correction dose is as follows:

**1 unit of insulin for every 40 mg/dl over 140 mg/dl**

Blood Glucose	Insulin Units
141-180	1
181-220	2
221-260	3
261-300	4
301-340	5
341-380	6
381-420	7
421-460	8
461-500	9
500-HIGH	10

In addition, the student's carbohydrate content for their lunch is 74 carbs and their order is **1 unit of insulin per 15 grams of carbohydrates**.

Carbohydrates	Insulin Units
<3	0
4-11	.5
12-18	1
19-26	1.5
27-33	2
34-41	2.5
42-48	3.0
50-56	3.5
57-63	4
64-71	4.5
72-80	5
80-86	5.5
87-15	6
96-101	6.5

This indicates that the cover dose is 4 and the correction dose is 5. Using the cover dose + Correction dose = Mealtime insulin dose **5 units + 4 units = 9 units of insulin**

## Quick-Acting Glucose Overview

For the student receiving insulin therapy providing a quick-acting glucose source can be the treatment for mild to moderate hypoglycemia. Generally, this includes giving 15 grams of simple sugar or carbohydrate (e.g., 3-4 glucose tablets, 4 ounces regular fruit juice, 6 ounces regular soda) every 15 minutes until the blood glucose level is stable.

## Glucagon Overview

For severe hypoglycemia, glucagon is administered to raise blood glucose levels by causing the release of glycogen (a form of stored carbohydrates) from the liver. Glucagon is a hormone that is naturally produced by the body that opposes the actions of insulin. For individuals with T1D, the insulin-glucagon balance is impaired leaving the student receiving insulin therapy at risk for severe hypoglycemia.

Emergency glucagon is a pharmaceutical form of glucagon and may be administered either by subcutaneous injection or intranasal spray.

- Intranasal glucagon is typically pre-dosed and requires administration into the nostril.
- Glucagon auto-injector is pre-dosed auto injector.
- Glucagon kits include a vial of dried glucagon and bottle of diluent to be reconstituted at the time of injection.

## Checklist for Diabetes Medications at School

### State laws reviewed for the administration of

- Insulin
- Glucose
- Glucagon

### Medications to be administered at school identified, such as

- Insulin
- Glucose
- Glucagon
- Other

### Current healthcare provider orders reviewed for

- Insulin
- Glucose
- Glucagon
- Other

### Authorizations (healthcare provider; parent/guardian) completed per school/district policy for administration of

- Insulin
- Glucose
- Glucagon
- Other

### **Training UAP prerequisites identified for**

- Insulin
- Glucose
- Glucagon
- Other

### **UAP training/delegation completed (if allowed by state law) for**

- Insulin
- Glucose
- Glucagon
- Other

### **Logistics addressed**

- IHP/ECP current
- Supply location(s) for daily medications/supplies/emergency medications identified
- Emergency procedures coordinated with building administrator
- Inventory process determined for medication and supplies
- Appropriate documentation process identified

## **Resources**

American Diabetes Association. (2021) *Insulin basics*. <https://www.diabetes.org/healthy-living/medication-treatments/insulin-other-injectables/insulin-basics>

Association of Diabetes Care and Education Specialists. (2020):

[Understanding Insulin](#)

[Insulin Injection](#)

[Pro Tips and Tricks for Easier and Better Insulin Injections](#)

University of California San Francisco. (2021). *Calculating insulin dose*. <https://dtc.ucsf.edu/types-of-diabetes/type2/treatment-of-type-2-diabetes/medications-and-therapies/type-2-insulin-rx/calculating-insulin-dose/>

# Nutrition & Type 1 Diabetes (T1D) in the School Setting

## GUIDANCE DOCUMENT

### Overview

Insulin-carbohydrate (carb) balance is a primary factor in glycemic control and safety at school for students with type 1 diabetes (T1D). Insulin dosing is based on an insulin-to-carb ratio that is individualized for each student and outlined in the healthcare provider orders. Contrary to common assumptions, children with diabetes do not have a contraindication for consumption of sugar and carbohydrates, rather they must account for their consumption of carbs. Children with T1D, like all children, benefit from eating a highly nutritious diet that is limited in refined sugars. Nutrition education is important to inform school staff and students on glycemic stability and dispelling myths.

### Identifying Carbohydrate Content

An agreed upon process must be established to identify carbs eaten at school. Counting carbs is a critical element of calculating insulin dosages. This may include parents/guardians providing carb content in a school lunch or school snack, the school nutrition department identifying carb counts for school meals, or obtaining a reliable nutrition app (e.g., MyPlate, Calorie Counter, Nutrition Facts) to carb count with students.

### Counting Carbohydrates for Meals

Carb counting is an important element of daily T1D care. There are two primary means of meal planning with carbohydrate counts:

1. Following a designated carb meal plan with the same amount of carbs and insulin at each meal.
2. Changing carb intake and calculating carbs and insulin at each meal (insulin-to-carb ratio) per healthcare provider orders.

The process of counting carbs includes: (refer to the example in Appendix A)

- identifying the carb content for each serving,
- identifying the number of servings that will be consumed,
- itemizing the number of carbs in all food items, and
- adding up the total number of carbs from all sources in grams.

## Accommodations

A student assessment is key to identifying the level of independence in carb counting and determining accommodations that may be needed at school. Accommodations may include

- school nutrition services providing carb counts for school meals,
- providing extra time before meals for the student to check blood glucose, calculate carbs, and administer insulin,
- providing an extra snack before activities, physical education, or athletics,
- allowing free access to snacks and fast-acting carb, and
- planning a process for notifying parents/guardians in advance of parties or events with food at school.

## Nutrition Checklist for Students with T1D

- Complete a student assessment of nutrition knowledge and level of self-care.
- Identify specific nutrition needs, for example, due to comorbidities such as Celiac Disease or food allergies.
- Identify whether the child will be bringing lunches from home or eating lunches provided by the school nutrition program.
- For school meals, identify a process for obtaining nutrition and carbohydrate information for school meals (e.g., for the entire school lunch menu, or have student select menu items at the beginning of the day and notify the cafeteria).
- For food from home, identify a process for someone from home to identify carb counts.
- Identify how many snacks the child will routinely eat at school.
- Identify student's schedule and when extra snacks may be necessary (e.g., physical education classes, recess).
- Identify where snacks will be kept.
- Establish a communication process for parties and events with food in order to appropriately plan and accommodate.
- Identify locations for snacks/glucose for emergencies
- Provide and document training for school staff on carb counting and nutrition accommodations.
- Collaborate with IEP and 504 teams to ensure accommodations are appropriately reflected in plans.

## Resources

Hess-Fischle, A. (2020). *Meal planning for children with type 1 diabetes: Understanding carbohydrates for optimal blood glucose management.* <https://www.endocrineweb.com/guides/type-1-children/meal-planning-children-type-1-diabetes>



# Appendix A

## Carbohydrate Counting

### Calculating Carbohydrate Example: Turkey Sandwich, Bag of Chips, Grape Juice

Nutrition Facts	
14 servings per container	
Serving size 1 slice (32g)	
Amount Per Serving	
<b>Calories 110</b>	
% Daily Value*	
Total Fat 6g	9%
Saturated Fat 0.5g	3%
Trans Fat 0g	0%
Cholesterol 25mg	8%
Sodium 180mg	8%
<b>Total Carbohydrate 3g</b>	<b>3%</b>
Dietary Fiber 4g	14%
Total Sugars 0g	0%
Includes 0g Added Sugars	0%
<b>Protein 4g</b>	
Vitamin D 0.2mcg	0%
Calcium 50mg	4%
Iron 0.7mg	4%
Potassium 120mg	2%

Nutrition Facts	
3 servings per container	
Serving size 5 slices (52g)	
Amount per serving	
<b>Calories 100</b>	
% Daily Value*	
Total Fat 3.5g	4%
Saturated Fat 0g	0%
Trans Fat 0g	0%
Cholesterol 0mg	0%
Sodium 310mg	13%
<b>Total Carbohydrate 4g</b>	<b>1%</b>
Dietary Fiber 1g	4%
Total Sugars 1g	0%
Includes 0g Added Sugars	0%
<b>Protein 13g</b>	
Vit. D 0mcg 0%	Calcium 20mg 2%
Iron 1.1mg 6%	Phos. 430mg 10%

Nutrition Facts	
About 9 servings per container	
Serving size 1 slice (22g)	
Amount per serving	
<b>Calories 90</b>	
% Daily Value*	
Total Fat 7g	9%
Saturated Fat 4.5g	23%
Trans Fat 0g	0%
Cholesterol 25mg	7%
Sodium 115mg	13%
<b>Total Carbohydrate 41g</b>	<b>6%</b>
Dietary Fiber 0g	0%
Total Sugars 0g	0%
Includes 0g Added Sugars	0%
<b>Protein 1g</b>	
Vitamin D 0mcg	0%
Calcium 126mg	10%
Iron 0mg	0%
Potassium 25mg	0%

Nutrition Facts	
About 23 servings per container	
Serving size 1 Tbs (15g)	
Amount per serving	
<b>Calories 90</b>	
% Daily Value*	
Total Fat 10g	12%
Saturated Fat 1.5g	7%
Trans Fat 0g	0%
Cholesterol 0mg	1%
Sodium 170mg	8%
<b>Total Carbohydrate 1g</b>	<b>2%</b>
Dietary Fiber 0g	0%
Total Sugars 0g	0%
Includes 0g Added Sugars	0%
<b>Protein 0g</b>	
Vitamin D 0mcg	0%
Calcium 0mg	0%
Iron 0mg	0%
Potassium 0mg	0%

Nutrition Facts	
1 servings per container	
Serving size 1 Bag (34g)	
Amount Per Serving	
<b>Calories 130</b>	
% Daily Value*	
Total Fat 3g	4%
Saturated Fat 0.26g	1%
Trans Fat 0g	0%
Polysaturated Fat 0.88g	0%
Monounsaturated Fat 1.84g	0%
Cholesterol 0mg	0%
Sodium 240mg	10%
<b>Total Carbohydrate 19g</b>	<b>7%</b>
Dietary Fiber 4g	14%
Total Sugars 2g	4%
Includes 2g Added Sugars	4%
<b>Protein 7g</b>	
Vitamin D 0mcg	0%
Calcium 7mg	0%
Iron 0.3mg	2%
Potassium 30mg	0%
Vitamin A 121mcg	15%

Nutrition Facts	
8 servings per container	
Serving Size 1 Drink Box	
Amount Per Serving	
<b>Calories 60</b>	
% Daily Value	
Total Fat 0g	0%
Sodium 30mg	1%
<b>Total Carbohydrate 16g</b>	<b>6%</b>
Total Sugars 14g	0%
Includes 0g Added Sugars	0%
<b>Protein 0g</b>	
Potassium 120mg 2%	Vitamin C 77%

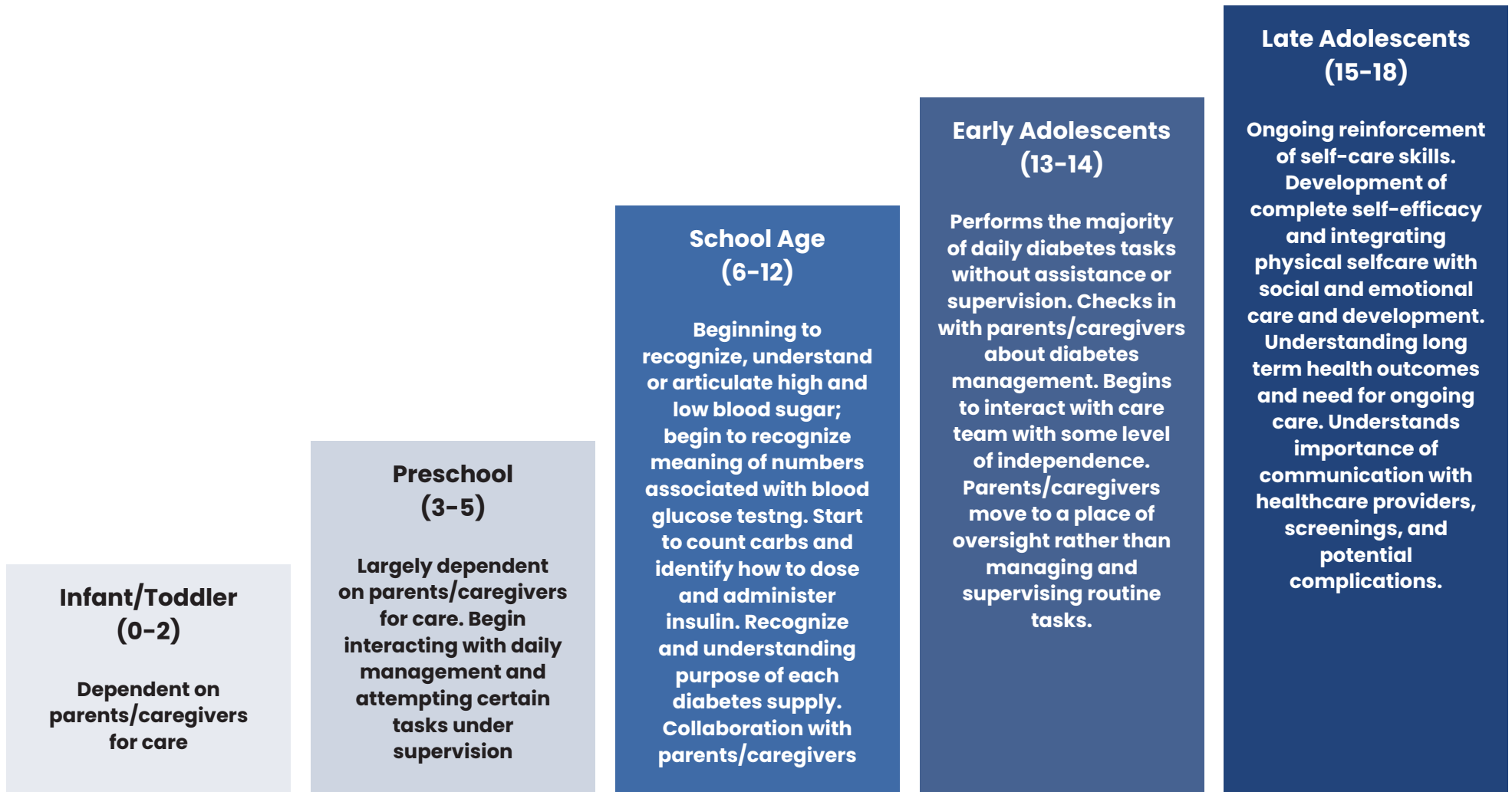
Turkey Sandwich:	
2 slices of bread (2 x 8g)	16 g
5 Slices of Turkey Lunch Meat	4g
American Cheese (<1g)	0g
Mayonnaise	1g
Chips	19 g
Juice Box	16 g
<b>Total</b>	<b>56 g</b>



## Carbohydrate Counting

- 1 Identify the TOTAL carbohydrates (in grams) for each item to be consumed (do not calculate dietary fiber and sugar separately, they are part of the total carbohydrates).
- 2 Identify the carbohydrates based on the number of servings provided (i.e., 2 slices of bread rather than one).
- 3 Itemize each serving total of carbohydrates in grams.
- 4 Add all items together for the **total carbohydrate count** for the meal.

# General Ability and Levels of Type 1 Diabetes (T1D) Self-Care by Developmental Milestones



## Resources:

Markowitz, J. T., Garvey, K. C., & Laffel, L. M. (2015). Developmental changes in the roles of patients and families in type 1 diabetes management. *Current Diabetes Reviews*, 11(4), 231–238. <https://doi.org/10.2174/157339981166615042114146>

# Cultural, Ethnic, and Religious Considerations in Type 1 Diabetes (T1D) Management

Cultural, ethnic, and religious implications are significant in chronic disease management – including the management of T1D. While no one set of beliefs is captured by one culture, ethnic, or religious group, there are some common belief models. Consider the following when doing the nursing assessment of the family and student to identify potential barriers to effective diabetes management.

Broad Cultural, Ethnic, or Cultural Group	Perceptions	Familial	Social	Religious
<b>Hispanic</b>	<p>Fear of insulin or injections</p> <p>Insulin use is indicative of failure.</p> <p>Diabetes is self-caused.</p>	<p>Fatalistic views related to diagnosis or use of insulin</p> <p>There may be opposition to insulin use; a lack of familial support.</p> <p>Confusion about T1D and T2D; may assume lifestyle will impact glycemic control exclusively</p>	<p>Chronic diagnosis or medication regimen may be viewed as being burdensome on the family.</p> <p>Diabetes management can be regarded as interfering with life or may be perceived as humiliating.</p>	<p>Chronic diagnoses may be viewed as a punishment.</p> <p>Prayer may be thought to help manage or cure diabetes.</p>
<b>African American</b>	<p>Insulin may be thought to cause negative emotions or organ damage.</p>	<p>Family support is critical.</p> <p>Fatalistic views related to diagnosis or use of insulin</p>	<p>Diabetes may be an embarrassing diagnosis.</p> <p>Insulin may be perceived as embarrassing or inconvenient.</p>	<p>Prayer may be viewed as a source of facilitating behavior change.</p>
<b>Asian</b>	<p>Diagnosis and need for insulin are regarded as failures.</p> <p>Insulin may be regarded as the cause of diabetic complications.</p> <p>Fear of injectable devices and regimens</p>	<p>Family support may be a challenge.</p>	<p>Diabetes may be regarded as a handicap.</p> <p>Diabetes may be regarded as a burden and barrier to personal life.</p>	<p>Diabetes regimens may interfere with religious obligations.</p>

<b>Muslim</b>	Perception of health versus illness	Family support may be unattainable.  Individuals are an extension of their family.	Gender preferences in medical management	Concern for interference with religious practice  Dietary practices  Apprehensive about insulin origin
<b>Orthodox Judaism</b>	Abstain from sugar except for sacred meals  Disease may be worsened when others are aware of their diagnoses.	Family support may be a challenge, specifically in the context of religious settings.	Often lack of support in religious communities  Diagnosis is regarded as embarrassing.  Diabetes is a personal and private diagnosis.	Religious laws and diabetes regimens may not align.  Religious leaders may be seen as the highest source of knowledge.  Measuring blood glucose and administering insulin may not be permitted over religious holidays.  Sickness and health are in God's hands.
<b>Native American</b>	May connect diagnoses to certain life events  Diagnosis may be regarded as an implication to colonization.	Familial and community support are critical for positive outcomes.	Diabetes is a new condition.  Diabetes is not treatable.	Potential for superstition around diabetes diagnosis, regimen and complications, dependent upon tribe
<b>Fundamental Christian Groups</b>	Disbelief in diagnosis  Diagnosis may reflect sin.	Familial patriarchy and hierarchy may be prevalent.	Medical distrust may be prevalent.  There may be opposition to disclosing health information.  The church may not believe in medical treatment.	Disease processes are God's will.  Prayer is the primary therapeutic intervention.  Renewed relationship with God may restore physical harmony.

## Resources

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- Attum, B., Hafiz, S., Malik, A., & Shamoan, Z. (2021). Cultural competence in the care of Muslim patients and their families. *StatPearls* [Internet]. <https://www.ncbi.nlm.nih.gov/books/NBK499933/>
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- Newlin Lew, K., Arbauh, N., Banach, P., & Melkus, G. (2015). Diabetes: Christian worldview, medical distrust and self-management. *Journal of Religion and Health*, 54(3), 1157-1172. <https://doi.org/10.1007/s10943-015-0022-9>
- Rebolledo, J. A., & Arellano, R. (2016). Cultural differences and considerations when initiating insulin. *Diabetes Spectrum*, 29(3), 185-190. <https://doi.org/10.2337/diaspect.29.3.185>

# Tiered Diabetes Training for All School Personnel

## Level 1

**Disclaimer:** This sample slide deck is for those responsible for drafting diabetes management training for school personnel to implement recommendations in the *School Nursing Evidence-Based Clinical Practice Guideline: Students with Type 1 Diabetes* (NASN, 2021). The slides are not authoritarian, nor should they be viewed as complying with requirements specific or unique to any school or district. Training content should not substitute or replace the advice of legal counsel and/or any applicable federal, state, or local laws, regulations or ordinances.

### Purpose of Level 1 Training

- Provide all staff with general information about type 1 diabetes (T1D)
- Compare and contrast T1D from T2D
- Provide an overview of what 'staying within target range' means
- Know how to recognize a diabetes emergency and what actions to take
- **Ultimate Goal:** to create a positive school culture for students with T1D to ensure they are healthy, safe, ready to learn, and able to participate in all school-sponsored events

## Tiered Diabetes Training for School Personnel

Level 1 – Diabetes Training for All School  
Personnel

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# Tiered Diabetes Training for School Personnel

Level 1 – Diabetes Training for All School  
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# What All Staff Need To Know About T1D

# Type 1 Diabetes (T1D)

- Chronic immune system disease
- Insulin production – a hormone needed to live - stopped
- Needs management 24/7
- Requires balancing insulin administration with activities of daily living

# T1D versus T2D

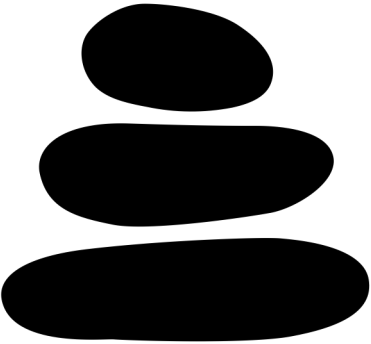
## TYPE 1 DIABETES

- Previously referred to as juvenile diabetes
- More common in children
- Can be diagnosed at any age
- Autoimmune disease
- Pancreas stops producing insulin

## TYPE 2 DIABETES

- Previously referred to as adult-onset diabetes
- More common in adults
- Can be diagnosed at any age
- Insulin resistance
- Major risk factors include obesity and sedentary lifestyle

# Blood Glucose Target Range



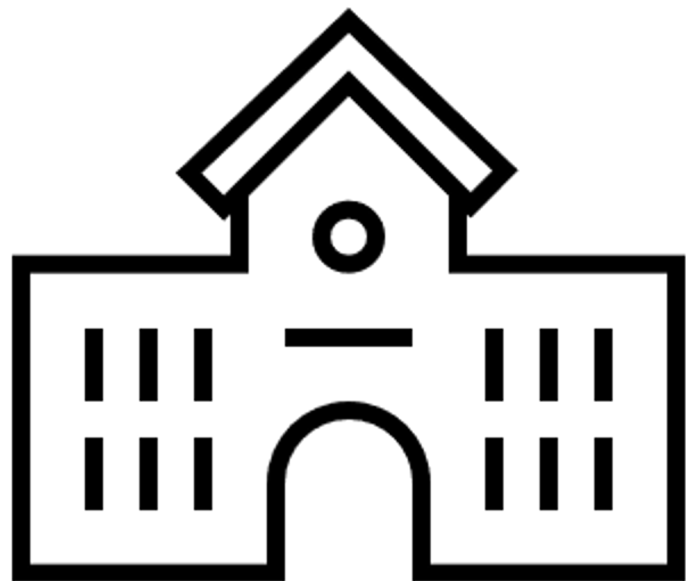
# Two Types of Diabetes Emergencies

Hyperglycemia (High Blood Glucose)



Hypoglycemia (Low Blood Glucose)





## Hyperglycemia at School (High Blood Glucose)

- CAN lead to a diabetes emergency
- Blood glucose is higher than the target range
- Happens when:
  - Not enough insulin
  - Excess food
  - Low activity
  - Stress or illness

# Symptoms of Hyperglycemia

## EARLY SYMPTOMS

- Frequent urination
- Increased thirst
- Blurred vision
- Headache
- Fatigue
- Warm skin
- Stomachache
- Mood changes

## SUSTAINED HYPERGLYCEMIA

- Fruity smelling breath
- Nausea and vomiting
- Dry mouth
- Weakness
- Abdominal pain
- Rapid shallow breathing
- Confusion
- Coma



# Treating Hyperglycemia



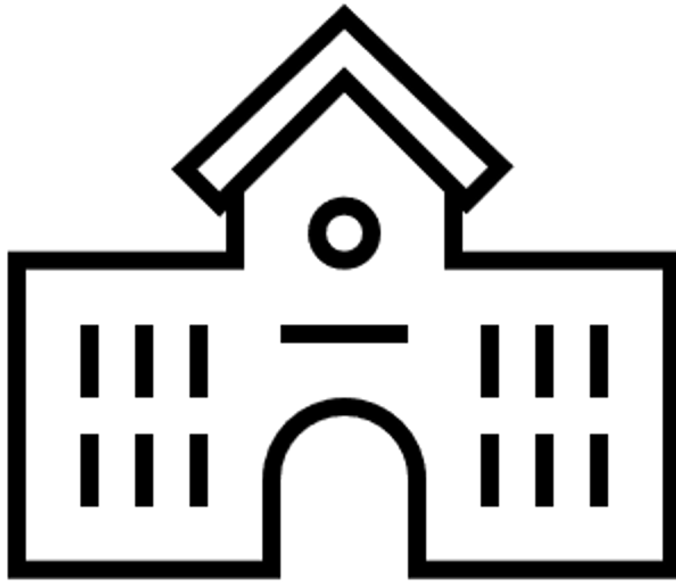
- Notify the school nurse



- Extra liquids
- Bathroom access
- Light activity



- Notify family and/or emergency medical services



# Hypoglycemia at School (Low Blood Glucose)

- Greatest immediate danger for students with T1D
- Blood sugar is below the target range
- Usually occurs:
  - Too much activity
  - Too much insulin
  - Not enough food
- More likely to occur :
  - Before lunch
  - End of the day
  - During or after PE
  - Unanticipated physical activity

# Mild to Moderate Symptoms of Hypoglycemia

Shakiness

Dizziness

Sweating

Hunger

Fast  
heartbeat

Inability to  
concentrate

Confusion

Irritability or  
moodiness

Anxiety

Headache

Weakness

Pale Skin

# Severe Symptoms of Hypoglycemia

Clumsiness or jerky movements

Dizziness

Unable to concentrate

Seizures

Argumentative

Changed personality

Inability to eat or drink

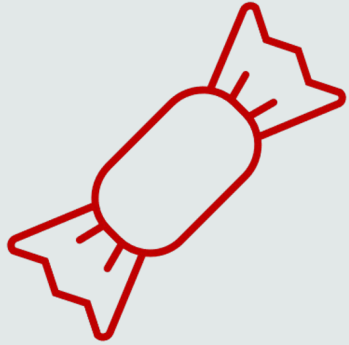
Unconscious

Difficulty speaking or slurred speech

Drowsiness

Weakness

Death



# Treating Mild to Moderate Hypoglycemia

When  
in  
doubt,  
treat

- With or without a school nurse
- With or without an emergency care plan

Provide

- Fast-acting sugar
- Glucose tablets
- 4 ounces fruit juice
- 4-6 ounces soda

Stay

Never leave student alone or send anywhere alone or with another student.

# Treating Severe Hypoglycemia

Severe hypoglycemia is an emergency.

Act immediately.

Stay with student.

Place student in recovery position.

Call the school nurse or UAP.

Call emergency medical services.



# In Summary

## What Do All Staff Need to Know About T1D?

T1D is a serious chronic disease.

T1D and T2D are different.

Goal: Stay in the target range.

Recognize and respond to hypoglycemia.

Recognize and respond to hyperglycemia.

# Resources

- American Association of Diabetes Educators. (2019). Management of children with diabetes in the school setting. *The Diabetes Educator*, 45(1), 54–59. <https://doi.org/10.1177/0145721718820943>
- American Diabetes Association. (2020). *Helping the student with diabetes succeed: A guide to school personnel*. <https://www.diabetes.org/sites/default/files/2020-02/NDEP-School-Guide-Full-508.pdf>
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# Resources

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- Mayo Clinic. (2021). *Type 1 diabetes*. <https://www.mayoclinic.org/diseases-conditions/type-1-diabetes/symptoms-causes/syc-20353011>
- Mayo Clinic. (2021). *Type 2 diabetes*. <https://www.mayoclinic.org/diseases-conditions/type-2-diabetes/symptoms-causes/syc-20351193>

# Tiered Diabetes Training for School Personnel Who Have Responsibility for a Student with Type 1 Diabetes (T1D)

## Level 2

**Disclaimer:** This sample slide deck is for those responsible for drafting diabetes management training for school personnel to implement recommendations in the *School Nursing Evidence-Based Clinical Practice Guideline: Students with Type 1 Diabetes* (NASN, 2021). The slides are not authoritarian, nor should they be viewed as complying with requirements specific or unique to any school or district. Training content should not substitute or replace the advice of legal counsel and/or any applicable federal, state, or local laws, regulations or ordinances.

### Purpose of Level 2 Training

- Provide additional information about type 1 diabetes (T1D)
- Increase awareness of the unique needs of students with T1D and how to make accommodations to meet those needs
- Provide an overview of student emergency care plans – what they are and how to use them to recognize and respond to a diabetes emergency
- Provide a resource that outlines the key roles and responsibilities for all school personnel
- **Ultimate Goal:** to create a positive school culture for students with T1D to ensure they are healthy, safe, ready to learn, and able to participate in all school-sponsored events

## Tiered Diabetes Training for School Personnel

Level 2 – Diabetes Training for School  
Personnel Who Have Responsibility for a  
Student with  
Type 1 Diabetes

# Disclaimer

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# Tiered Diabetes Training for School Personnel

Level 2 – Diabetes Training for School  
Personnel Who Have Responsibility for a  
Student with  
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# Purpose of Level 2 Training

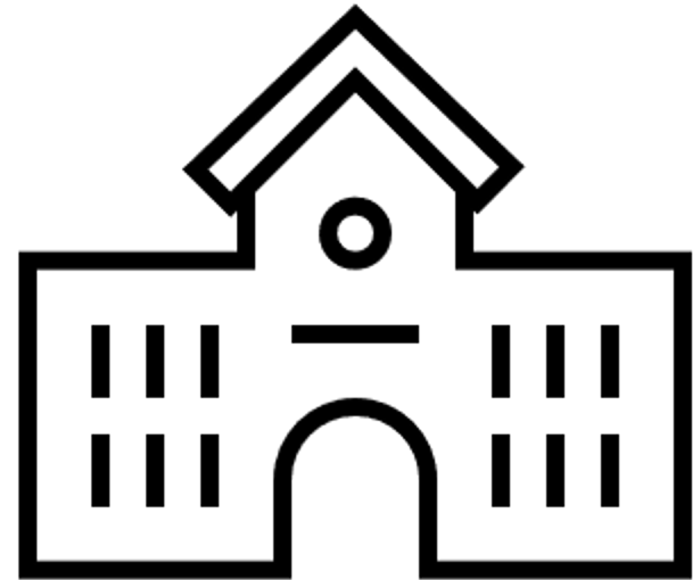
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# Expanded Look at Type 1 Diabetes (T1D)

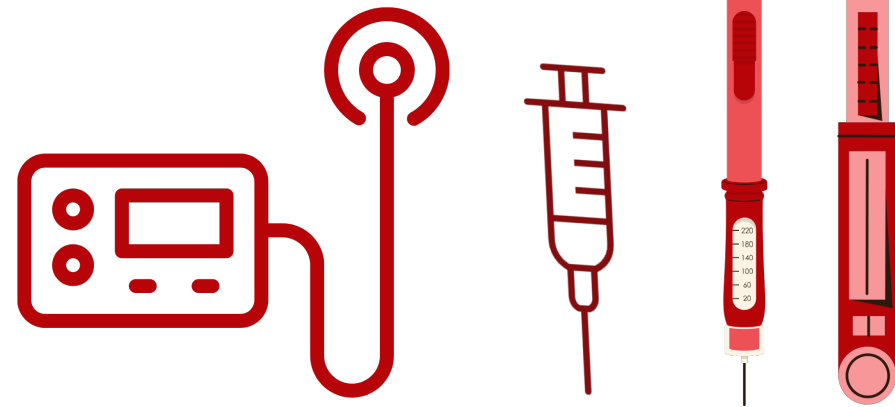
# Type 1 Diabetes – In Review

- Chronic immune system disease
  - Uncertain what triggers this
- No known cure
- You will have students with T1D in your school.
- Schools can be important detectives.
- Requires management 24/7



# A Bit More About Insulin

- Students with T1D **NEED** insulin during the school day
- Type and how often ordered by the healthcare provider
- Insulin delivered by
  - Insulin syringe
  - Insulin pen
  - Insulin pump

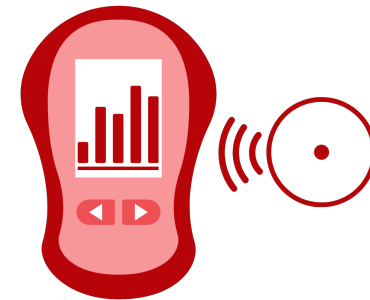





# Blood Glucose Monitoring



- Important part of managing T1D
- How often ordered by healthcare provider and in response to student symptoms
- Monitoring devices include
  - Glucometer
  - Continuous glucose monitor (CGM)
- Preferred monitoring sites at school: any school activity throughout the day

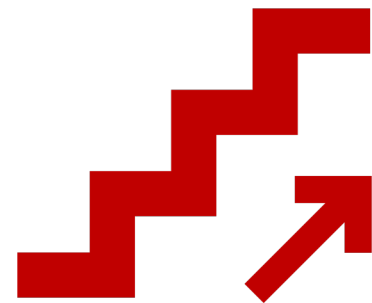


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# Addressing the Needs of Students with T1D

# Developmental Issues

- Diabetes care depends on self-management.
- Levels of self-care differ by age.
  - Preschool-age student – need support
  - Elementary-age student – can perform tasks with supervision
  - Middle- and high school-age student – level of self-care varies
- There are times when all students need assistance.

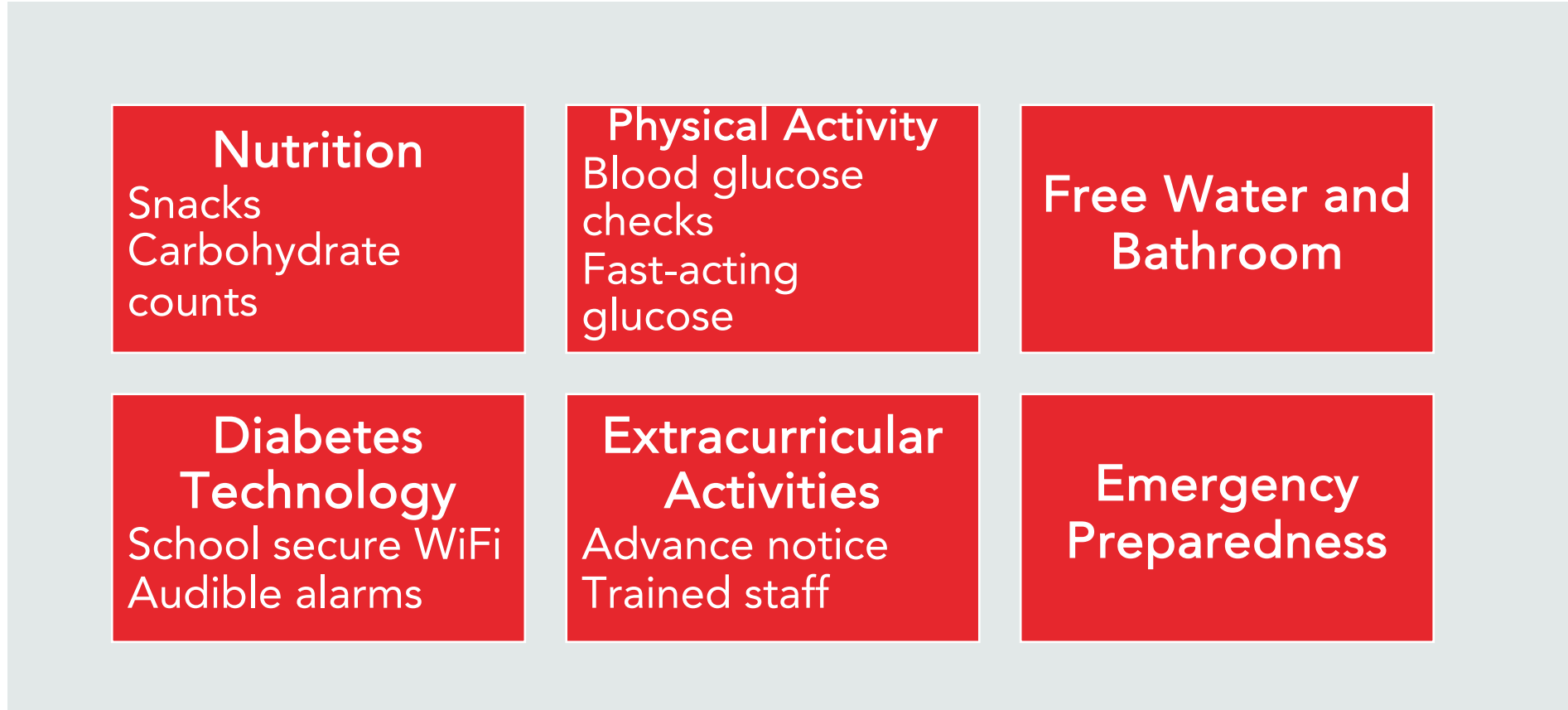


# Emotional and Social Issues

- Wide range of emotions
- Potential family stress
- Social needs
- Students react differently at different times.
- Action steps
  - Be aware of these potential issues.
  - Raise awareness to the school health team.



# Sample Accommodations



Goal: Create an equitable academic environment

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# Expanded Look at Diabetes Emergencies

# Diabetes Emergencies Review

## HYPERGLYCEMIA – DIABETIC KETOACIDOSIS

- Serious complication
- Occurs with sustained high blood glucose levels over time
- Cells do not get enough glucose because of lack of insulin
- Body breaks down fat causing ketones to form.
- High levels of ketones poison the body.

## HYPOGLYCEMIA – SEVERE HYPOGLYCEMIA

- Blood glucose levels that are so low they impact functioning and level of consciousness
- May occur rapidly
- Occurs from too much insulin, not enough food, more than typical exercise
- Potentially fatal if not treated immediately

# Hyperglycemia (High Blood Glucose) – Expanded View

- Causes of hyperglycemia (high blood glucose):
  - Not enough insulin
  - Too much food
  - Reduced activity
  - Stress or illness
- If treated, not a medical emergency
- If untreated, diabetic ketoacidosis (DKA) can lead to coma or death.





# Hyperglycemia Emergency Care Plan

- Student specific symptoms
- Actions for treating hyperglycemia
- Expect to receive a copy and instructions on your role and responsibility



## SAMPLE HYPERGLYCEMIA EMERGENCY CARE PLAN (ECP)

Student  
Picture

Student's Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_ Medical Diagnosis: \_\_\_\_\_  
Allergies: \_\_\_\_\_  
Grade: \_\_\_\_\_ School Year: \_\_\_\_\_ Grade/Teacher: \_\_\_\_\_ Date of Plan: \_\_\_\_\_

### Emergency Contact Information:

Parent/Guardian 1: \_\_\_\_\_ Email Address: \_\_\_\_\_  
Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_  
Parent/Guardian 2: \_\_\_\_\_ Email Address: \_\_\_\_\_  
Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_  
Healthcare Provider: \_\_\_\_\_ Phone: \_\_\_\_\_  
School Nurse: \_\_\_\_\_ Phone: \_\_\_\_\_

### If the student exhibits or reports any of the following (tailor to student):

- Increased thirst, urination, or appetite
- Tired or drowsy
- Blurred vision
- Warm, dry, or flushed skin
- Nausea or vomiting

### Take the following emergency actions (per DMMP):

- Notify the school nurse
- Never leave the student alone or send anywhere alone or with another student
- If student uses a pump, check to see if connected and functioning properly
- Check blood glucose (BG)
- If BG is between 250 mg/dL and 300 mg/dL
  - Have student drink 8-16 ounces of water as tolerated
  - Administer insulin: \_\_\_\_\_
  - Check urine or blood ketones
  - Recheck BG after 30-60 minutes to ensure downward trend
  - Continue to monitor
- If BG is above 300 mg/dL
  - Check urine or blood ketones
  - Administer insulin: \_\_\_\_\_
  - If student symptomatic notify parent/guardian and HCP immediately
  - If student asymptomatic and no ketones, may return to class
  - Continue to monitor
- Call 911 if student is getting worse or is not improving
- Notify parent/guardian

Reviewed with: \_\_\_\_\_ Date: \_\_\_\_\_  
Signature of school personnel: \_\_\_\_\_ Signature of school nurse: \_\_\_\_\_

# Hypoglycemia (Low Blood Glucose) – Expanded View

- Causes of hypoglycemia
  - Too much activity
  - Too much insulin
  - Not enough food
- Most likely to occur
  - Before lunch
  - At the end of the day
  - During or after PE
  - With unanticipated physical activity
- Can occur any time, come on suddenly, and progress rapidly
- Mild to Moderate Hypoglycemia
- Severe Hypoglycemia

# Hypoglycemia Emergency Care Plan

- Student-specific symptoms
- Actions for treating hypoglycemia
- Expect to receive a copy and instructions on your role and responsibility.

SAMPLE HYPOGLYCEMIA EMERGENCY CARE PLAN (ECP)

Student  
Picture

Student's Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_ Medical Diagnosis: \_\_\_\_\_  
 Allergies: \_\_\_\_\_  
 Grade: \_\_\_\_\_ School Year: \_\_\_\_\_ Grade/Teacher: \_\_\_\_\_ Date of Plan: \_\_\_\_\_

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 Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_  
**Healthcare Provider:** \_\_\_\_\_ Phone: \_\_\_\_\_  
**School Nurse:** \_\_\_\_\_ Phone: \_\_\_\_\_

**If the student exhibits or reports any of the following (tailor to student):**

• Change in personality or behavior	• Clamminess, sweating, or pale	• Weak, shaky, or dizzy
• Tired, drowsy, or fatigue	• Rapid heart rate	• Headache
• Nausea, vomiting, or loss of appetite	• Blurred vision	• Inattention, confusion, or disoriented
• Slurred speech	• Argumentative or combative	• Loss of consciousness or seizures

**Take the following emergency actions (per DMMP):**

- Notify the school nurse
- Never leave the student alone or send anywhere alone or with another student
- Check blood glucose (BG), if possible
- Treat if BG is below 80 mg/dL (per DMMP)
  - o Give 15 grams of carbohydrates (3-4 glucose tablets, 4 ounces fruit juice, glucose gel)
  - o Recheck BG in 15 minutes
  - o Repeat treatment if BG is not to target range
  - o If BG remains below 80 mg/dL after second treatment, call 911 - continue to monitor and treat
  - o When BG is in target range, provide snack of 15-20 grams carbohydrate if more than 1 hour until next meal, snack, or if going to an activity (PE or recess)
  - o If students become unconscious or have a seizure
    - Position student on side
    - Administer glucagon: \_\_\_\_\_
    - Call 911
- Call 911 if student is getting worse or is not improving
- Notify parent/guardian

Reviewed with: \_\_\_\_\_ Date: \_\_\_\_\_  
 Signature of school personnel: \_\_\_\_\_ Signature of school nurse: \_\_\_\_\_

# Emergency Medication for Severe Hypoglycemia: Glucagon

- State laws provide direction.
- Hormone that raises blood glucose
- Glucagon is an emergency medication for Severe Hypoglycemia.
- Types: Injection and Nasal spray
- Action steps (according to student's ECP):
  - Position student on side.
  - Give nothing by mouth.
  - Notify school nurse, family, healthcare provider.
  - Stay with the student.



# Roles and Responsibilities of School Personnel

**Helping the Student with Diabetes Succeed:**

A Guide for School Personnel

ENGLISH





# Roles and Responsibilities of School Personnel

- District Administrator
- Principal or School Administrator
- School Nurse
- Unlicensed Assistive Personnel
- Teacher
- Physical Education Teacher, Coach, and Athletic Trainer
- Food Service Manager
- Transportation Manager
- Bus Driver
- School Psychologist, Guidance Counselor, and Social Worker
- Parents/Guardians
- Student with Diabetes



## In Summary

# What Do School Personnel Who Have Responsibility for a Student with T1D Need to Know?

Students with T1D are in school.

Insulin and blood glucose monitoring are key.

Provide accommodations.

Recognize and respond to diabetes emergencies.

Know your role and responsibilities.

# Resources

- American Association of Diabetes Educators. (2019). Management of children with diabetes in the school setting. *The Diabetes Educator*, 45(1), 54–59. <https://doi.org/10.1177/0145721718820943>
- American Diabetes Association. (2020). *Helping the student with diabetes succeed: A guide to school personnel*. <https://www.diabetes.org/sites/default/files/2020-02/NDEP-School-Guide-Full-508.pdf>
- BMJ Best Practice. (2020). *Diabetic ketoacidosis*. <https://bestpractice.bmj.com/topics/en-gb/3000097>
- Canadian Pediatric Society. (2021). *Diabetes at school*. <https://www.diabetesatschool.ca/tools/video-series>
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# Resources

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- Mayo Clinic. (2021). *Type 2 diabetes*. <https://www.mayoclinic.org/diseases-conditions/type-2-diabetes/symptoms-causes/syc-20351193>

# Additional Type 1 Diabetes (T1D) Resources

## Resources from NASN

<b><u>School Nursing Evidence-Based Clinical Guidelines</u></b>
Students with Type 1 Diabetes
Medication Administration in Schools
<b><u>Toolkits and Manuals</u></b>
Emergency Medications Toolkit
Medication Administration in Schools Toolkit
Improving Care Coordination for Students with Chronic Health Conditions Toolkit
A Model for School Nurse-Led Case Management Manual
<b><u>Continuing Professional Development (NCPD) Continuing Nursing Education (CNE)</u></b>
School Nurse-Led Case Management – Application to the Nursing Process (1.0 NCPD CNE)
Skills-Based Approach to Managing Chronic Health Conditions in School (4.25 NCPD CNE)
Technology Tips, Tricks and Troubles – What to Expect with Additional Diabetes Devices at School (1.5 CNE)
<b><u>NASN School Nurse Article</u></b>
Schaumleffel, C. (2021). Pharmacology update: Emergency medications for hypoglycemia in diabetes. <i>NASN School Nurse</i> , 36(3), 149-154. doi.org/10.1177/1942602X20981643
<b><u>NASN Partner – Association of Diabetes Care and Education Specialists (ADCES)</u></b>
<a href="#">Danatech</a> – NASN in collaboration with ADCES brings Danatech resources to NASN members to support technology access and assessment needs of school nurses.
<a href="#">Speaking the Language of Diabetes</a>
<b><u>NASN Partner – Lilly</u></b>
This activity is supported by a contribution from <a href="#">Lilly</a> .

## Professional Development Resources for the School Nurse

Source	Topic
<b>Association of Diabetes Care &amp; Education Specialists</b>	<a href="#">CE Webinars</a> <a href="#">Insulin Delivery Education Resources</a> <a href="#">Diabetes Education Training</a>
<b>Wild Iris Medical Education Incorporation</b>	<a href="#">Diabetes Type 1</a> <a href="#">Patient Care for Nurses and Other Healthcare Professionals</a> <a href="#">Online Continuing Education Course</a>
<b>NurseCE4Less</b>	<a href="#">Diabetes Type I - Current Modalities of Treatment</a>
<b>Centers for Disease Control and Prevention</b>	<a href="#">Free Diabetes Videos and Webinars</a>
<b>Novo Nordisk</b>	<a href="#">Continuing Education Activities</a>
<b>Nurse CEU Finder</b>	<a href="#">Diabetes and Endocrine System Continuing Education Courses</a>
<b>Nurse.com</b>	<a href="#">Diabetes CEU Courses</a>
<b>My CME</b>	<a href="#">Diabetes and Endocrinology CE</a>
<b>University of California, San Francisco</b>	<a href="#">Diabetes Education Online: What is an Insulin Pump?</a> <a href="#">Diabetes Education Online: T1D</a>
<b>Joslin Diabetes</b>	<a href="#">School Nurse Education Program</a> <a href="#">Resources for School Nurses</a>
<b>American Diabetes Association</b>	<a href="#">Training Resources for School Staff</a> <a href="#">Tips for School Nurses</a> <a href="#">Common Issues Involving Diabetes Care Tasks at School, Childcare, or Camp</a> <a href="#">Helping the Student with Diabetes Succeed: A Guide for School Personnel</a>
<b>National Association of Chronic Disease Directors</b>	<a href="#">Diabetes School Health Resources</a>

## School and School Personnel Resources

Source	Topic
<b>American Diabetes Association</b>	<a href="#">Children with Diabetes: Information for School and Childcare Providers</a> <a href="#">Diabetes Management in Schools</a> <a href="#">Extracurricular Activities and Field Trips</a> <a href="#">FAQs for Schools</a> <a href="#">Religious Schools</a> <a href="#">Actions for School Personnel, Parents/Guardians, and Students in Helping the Student with Diabetes in School Succeed: A Guide for School Personnel</a> <a href="#">Training Resources for School Staff</a> <a href="#">Tips for Teachers of Students with Diabetes</a>
<b>Centers for Disease Control and Prevention</b>	<a href="#">Managing Diabetes at School</a>
<b>Juvenile Diabetes Research Foundation</b>	<a href="#">School</a> <a href="#">504 Plans for T1D</a> <a href="#">13 Things All Teachers Should Know About Type 1 Diabetes</a>
<b>Canadian Paediatric Society</b>	<a href="#">Diabetes at School</a>
<b>Beyond Type 1</b>	<a href="#">A Teacher's Guide For Kids with Type 1 Diabetes</a> <a href="#">School Resources</a>

## Social-Emotional Resources

Source	Topic
<b>American Diabetes Association</b>	<a href="#">Mental Health &amp; Living with Type 1</a> <a href="#">The Use of Language in Diabetes Care and Education</a>
<b>Association of Diabetes Care &amp; Education Specialists</b>	<a href="#">Behavioral Health &amp; Diabetes</a>
<b>Beyond Type 1</b>	<a href="#">Overcoming Fear of Hypoglycemia</a> <a href="#">Mental Health</a>

<b>Diabetes UK</b>	<a href="#">Dealing with Denial</a> <a href="#">Diabetes Distress and Burnout</a>
<b>Endocrineweb</b>	<a href="#">Depression, Anxiety, and Eating Disorders Are Common in Teens and Young Adults with Type 1 Diabetes</a>
<b>Healthy Kids</b>	<a href="#">Coping with Chronic Disease &amp; Disability</a>
<b>Juvenile Diabetes Research Foundation</b>	<a href="#">Resilience for Better Coping with Type 1 Diabetes</a> <a href="#">Type 1 Diabetes and Eating Disorders</a>
<b>Nemours Kids Health</b>	<a href="#">Diabetes: Dealing with Feelings</a>
<b><i>The American Psychologist</i> (article)</b>	Wiebe, D. J., Helgeson, V., & Berg, C. A. (2016). <a href="#">The social context of managing diabetes across the life span. <i>The American Psychologist</i>, 71(7), 526–538. <a href="https://doi.org/10.1037/a0040355">https://doi.org/10.1037/a0040355</a></a>

## Family & Caregiver Resources

<b>Online Family Support</b>
<a href="#">Children with Diabetes</a> has online chat rooms for children, youth, and parents.
<a href="#">Juvenation Online chat rooms</a> where youth (13 years and older) with T1D can connect with peers for support.
<b>Juvenile Diabetes Research Foundation’s</b> (JDRF) <a href="#">Support for Newly Diagnosed Children</a>
<a href="#">TuDiabetes</a> , a program of Beyond Type 1, is a social network for support, education, and sharing the steps taken every day to stay healthy while living with T1D and T2D.
<b>Camps</b>
<b>DASH Camp</b> is a place for youth with diabetes ages 8-16 and up to 2 friends to play competitive sports in a safe and supervised environment. Contact <a href="mailto:Lucas@dashcamp.org">Lucas@dashcamp.org</a> ; call 510-982-9006; or visit <a href="http://www.DASHCamp.org">www.DASHCamp.org</a> .
<b>Diabetic Youth Foundation</b> provides support and services to those affected by diabetes. Activities include weekend camps, summer camps, Spanish-speaking family diabetes camp, educational seminars, family events, year-round programs, and day events. Contact <a href="mailto:info@dyf.org">info@dyf.org</a> ; call 925-680-4994; or visit <a href="http://www.dyf.org">www.dyf.org</a> .

## Mentors

**JDRF FAMILY MENTORS** are volunteer mentors who provide one-to-one assistance to families and children who are newly diagnosed with T1D via phone, email, or face-to-face meetings. Contact [ceisen@jdrf.org](mailto:ceisen@jdrf.org) or call 415-597-6317.

**JDRF TEEN MENTORS** are ambassadors for children with T1D ages 6-18 who want to spread awareness about diabetes and support JDRF. They meet 3-4 times during the school year in various locations. Contact [ceisen@jdrf.org](mailto:ceisen@jdrf.org) or call 415-597-6317.

## College Students

**College Diabetes Network Online** supports students with T1D transitioning to college and provides ongoing peer support that includes information and resources. Families can also obtain information and resources. Contact [croth@collegediabetesnetwork.org](mailto:croth@collegediabetesnetwork.org) or visit [www.collegediabetesnetwork.org](http://www.collegediabetesnetwork.org).

## Canine Companions

**Dogs4Diabetics** train dogs to identify and act upon the subtle scent changes that hypoglycemia creates in body chemistry. Children with diabetes must be at least 12 years old. Contact [info@dogs4diabetics.com](mailto:info@dogs4diabetics.com); call 925-246-5785; or visit [www.dogs4diabetics.com](http://www.dogs4diabetics.com).

**Early Alert Canines** aims to improve the health, safety, and well-being of individuals living with T1D through creating partnerships with low blood-sugar alert dogs. Children with diabetes can be under 12 years of age with parental involvement. Contact [info@EarlyAlertCanines.org](mailto:info@EarlyAlertCanines.org); call 925-349-5190; or visit [www.EarlyAlertCanines.org](http://www.EarlyAlertCanines.org).