

# **ALABAMA STATE DEPARTMENT OF EDUCATION**

## **ALABAMA HEALTH SERVICES ALABAMA DIABETIC CURRICULUM**



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## TABLE OF CONTENTS

<b>Introduction</b>	<b>6</b>
<b>Background</b>	<b>6</b>
<b>Alabama Laws and Regulations</b>	<b>6</b>
<b>The Nurse Practice Act</b>	<b>7</b>
<b>Alabama Board of Nursing (ABN) Administrative Code</b>	<b>7</b>
<b>Protocol for Training: Administration of Insulin and Glucagon</b>	<b>12</b>
Authorization	
Parameters of Training	
A. Qualifications of Instructional Personnel	
B. Unlicensed Diabetes Assistant Training	
C. Training Materials	
Levels of Training	
A. Tier I	
B. Tier II	
C. Tier III	
<b>Curriculum Overview</b>	<b>13</b>
<b>Content Design</b>	<b>14</b>
<b>Module I: Knowledge Learning Objectives Overview Chart</b>	<b>15</b>
<b>General Guidelines for Diabetic Medical Management at School</b>	<b>20</b>
<b>A. Authorization for Treatment</b>	<b>20</b>
<b>B. Medication Administration</b>	<b>20</b>
Confidentiality and Privacy	
Responsibilities of the School Nurse	
Responsibilities of the Unlicensed Diabetic Assistant	
How to Determine if Nursing Judgement is Necessary	
Specific Rules Related to Medicine	
Necessary Knowledge	
Responsibilities Related to Controlled Substances	
Selection of the Medication Assistant by the School Nurse	

Expected Outcomes Local Education Agency Process School Documents Related to Diabetes	
<b>C. Laws and Regulations (see pages 6-11)</b>	<b>27</b>
<b>D. Introduction to Diabetes</b>	<b>27</b>
<b>E. Nutrition and Physical Activity</b>	<b>28</b>
<b>F. Support of Developmentally Appropriate Self-Management of Diabetes Care</b> Barriers to Appropriate Diabetes Management Age-Appropriate Self-Care Guidelines	<b>31</b>
<b>G. Field Trips and Special Events</b>	<b>34</b>
<b>H. Disaster Planning</b>	<b>34</b>
<b>I. Monitoring Blood Glucose Levels</b> Testing Blood Glucose Procedure for Blood Glucose Testing	<b>35</b>
<b>J. Hypoglycemia</b>	<b>38</b>
<b>K. Hyperglycemia</b>	<b>40</b>
<b>L. Introduction to Ketones</b>	<b>42</b>
<b>M. Insulin Basics</b> Proper Storage of Insulin Types of Insulin Dosage Procedure for Insulin Administration by Syringe Procedure for Insulin Administration by Pen Injector Procedure for Insulin Administration by Pump	<b>43</b>
<b>N. Carbohydrates</b>	<b>48</b>
<b>O. Glucagon</b>	<b>49</b>
<b>Module II: Skills Learning Objectives Chart</b>	<b>50</b>
<b>APPENDICES</b>	
<b>Appendix 1—Glucagon Training</b>	
<b>Appendix 2—Individualized Healthcare Plan (IHP) Packet</b>	
<b>Appendix 3—Handouts</b>	
<b>Appendix 4—Competency and Skills Checklists</b>	
<b>Appendix 5—Staff Training Resources</b>	
<b>Appendix 6—Resources</b>	

## Introduction

The training for administration of injectable medication in the School Settings Training Program provides a framework for local school districts to implement the *Alabama Safe at Schools Act* (Alabama Act No. 2014-437) allowing registered nurses to delegate to unlicensed school personnel in the school setting the nursing act of administration of insulin and glucagon to students. In order to ensure that local school districts are adequately prepared to administer insulin and glucagon to school-age children with diabetes and to provide continuity in training school personnel, the Alabama State Department of Education (ALSDE), in collaboration with the Alabama Board of Nursing (ABN), developed a standardized training program for registered nurses to educate and validate the competency of those unlicensed personnel to whom administration of insulin and glucagon may be delegated. The purpose of this guide is to provide a standardized, evidence-based training program for the school registered nurse to utilize in training diabetes management to the unlicensed staff in schools.

## Background

The purpose of this training program manual is to provide the registered nurse with the tools to equip designated school personnel to competently, safely, and confidently provide care to the student with diabetes when the administration of insulin and glucagon is delegated by a registered nurse to unlicensed school personnel in the school setting.

This training program manual provides information and tools that should be included in training programs for school personnel, resources for further information, and sample documents. This manual provides the registered nurse with a comprehensive teaching tool.

The school nurse has multiple functions in the care of the student with diabetes. The role of the school nurse includes:

1. Case management.
2. Direct care.
3. Development of the Individualized Health Care Plan (IHP).
4. Training, delegation, and supervision of unlicensed school personnel administering insulin and glucagon.
5. Evaluation of care provided to the student.

According to the National Association of School Nurses, “An Individualized Healthcare Plan (IHP) developed by the school nurse documents and communicates the student’s needs and the school’s management strategies for that student in the school setting.” The school nurse develops the IHP based upon the Diabetes Medical Management Plan (DMMP), input from the parent, and a nursing assessment.

## Alabama Laws and Regulations

***Alabama Safe at Schools Act (Act 2014-437), Section 3.(a):*** *No later than the beginning of the 2015-2016 school year, the State Department of Education, in consultation with the*

*Alabama Board of Nursing, shall develop guidelines for the training of school employees in the care needed for students with diabetic medical needs according to the student's Individual Healthcare Plan, the medical authorizations limited to permitting the administration of injectable medications specific to his or her diabetes. No other delegation of injectable medications shall be allowed under this act. These guidelines shall be developed in consideration of the recommendations of the American Academy of Pediatrics, the National Diabetes Education Program, and any other appropriate published medical guidelines.*

## **The Nurse Practice Act**

The Alabama Board of Nursing (ABN) was established in 1915 by the Alabama legislature. The “Nurse Practice Act” is the term used to refer to the statutes that established the Board and the foundational laws for nursing practice. The ABN Administrative Code contains the published regulations. The statute establishes the broad power and authority of the Board of Nursing and the regulations set out specifics. In calendar year 2000, the Board of Nursing began work with school nurses, educators, and school administrators to address who can give medicines in the schools and the methods used. Prior to December 3, 2001, school nurses could teach unlicensed school employees or teachers about medicines but could not *delegate* a nursing task or function to the unlicensed person.

## **ABN Administrative Code**

Delegation is defined in the Board of Nursing regulations. Chapter 610-X-7-.01 (1) states that delegation is “the act of authorizing a competent individual to perform acts supportive to registered nurses or licensed practical nurses in selected situations.” Delegation is a key issue because the licensed nurse retains responsibility for the task delegated to someone else—someone else performs the task but the nurse retains the responsibility for the outcome.

The Alabama Board of Nursing’s legal mandate is the protection of public health, safety, and welfare. The Board of Nursing established a section in the Board of Nursing Administrative Code specific to school nurses. School nurse practice is very different than working in a hospital, nursing home, clinic, or home health. First of all, the school nurse is responsible for the health of children in each school to which he or she is assigned by the local education agency. Giving medicines is only one area of responsibility for the school nurse. The Board of Nursing recognized the special nature of school nursing. The foundation of delegation by a school nurse is found in Alabama Board of Nursing Administrative Code, Chapter 610-X-7, Standards of Nursing Practice—Specific Settings.

### **ABN Administrative Code: Delegation by School Nurses 610-X-7-.02** **610-X-7-.02 Delegation By School Nurses.**

(1) The school nurse is accountable and responsible for the nursing care delivered to students under the nurse’s jurisdiction.



(2) Over-the-counter (OTC) medications may be administered to school children by the school nurse with a parent's written authorization and without a physician's authorization, unless the school system policy requires a physician authorization. Parental authorization requirements require the following documentation:

(a) The purpose of the OTC medication.

(b) The circumstances under which the over-the-counter medication can be administered.

(3) Licensed nurses who provide nursing care in the school setting through the twelfth grade may delegate specific tasks to unlicensed assistive personnel.

(4) The registered nurse is accountable for determining the tasks that may be safely performed by the unlicensed assistive personnel following appropriate training and demonstration of competency.

(5) Delegation of the use of the vagal nerve stimulator (VNS) in selected cases is not prohibited.

(6) The specific delegated tasks shall not require the exercise of independent nursing judgment or intervention. The Specific tasks that require independent nursing judgment or intervention that shall not be delegated include, but are not limited to:

(a) Catheterization, clean or sterile.

(b) Administration of injectable medications, other than premeasured medication for allergic reactions, premeasured injection for opioid-related drug overdose and treatment of diabetes symptoms with insulin and glucagon, as described in Alabama Administrative Code 610-X-7-.10.

(c) Administration of rectal or vaginal medications.

(d) Calculation of medication dosages other than measuring a prescribed amount of liquid medication or breaking a scored tablet.

(e) Tracheotomy care, including suctioning.

(f) Gastric tube insertion, replacement, or feedings.

(g) Invasive procedures or techniques.

(h) Sterile procedures.

(i) Ventilator care.

- (j) Receipt of verbal or telephone orders from a licensed prescriber.
- (7) The task of providing prescribed oral, topical, ear, eye, nasal, and inhalation medications to a student through twelfth grade may be delegated to unlicensed assistive personnel by the school nurse only when the following conditions are met:
- (a) The school nurse identifies the appropriate individual(s) to assist in providing prescribed medications.
- (b) The unlicensed assistive personnel selected by the school nurse shall attend a minimum seven hour course of instruction that includes a curriculum approved by the Board and have demonstrated competency to perform the delegated task.
- (c) The school nurse shall provide periodic and regular evaluation and monitoring of the individual performing the delegated tasks.
- (d) The school nurse shall routinely and periodically conduct quality monitoring of the tasks performed by the unlicensed assistive personnel, including but not limited to:
1. Training.
  2. Competency.
  3. Documentation.
  4. Error reporting.
  5. Performance of the seven (7) rights of medication administration.
- (8) The school nurse delegating the task may, at any time, suspend or withdraw the delegation of specific tasks to unlicensed assistive personnel.
- (9) The School Nurse Consultant or School Nurse Administrator shall submit a report(s) to the Alabama Board of Nursing in a format specified by the Board upon request.

**Author:** Alabama Board of Nursing

**Statutory Authority:** Code of Ala. 1975, §34-21-2(c)(21).

**History:** Filed September 29, 1982. **Repealed:** Filed October 29, 2001; effective December 3, 2001. **New Rule:** Filed November 23, 2009; effective December 28, 2009.

**Repealed and New Rule:** Filed July 25, 2016; effective September 8, 2016. **Amended:** Filed July 20, 2017; effective September 3, 2017.

**ABN Administrative Code: Delegation of Insulin and Glucagon Administration in the School Setting, 610-X-7-.10 (2015)**, The rule specifying the school nurse role in delegation of insulin and glucagon administration in the school setting in response to Alabama Act No. 2014-437. A copy of the rule may be found on the Board's Website, [www.abn.alabama.gov](http://www.abn.alabama.gov), under "Laws" and then **610-X-7-.10 Delegation Of Insulin And Glucagon Administration In The School Setting.**

**610-X-7-.10 Delegation Of Insulin And Glucagon Administration In The School Setting.**

**1. DEFINITIONS**

- (a) *Glucagon: a hormone that raises the level of glucose in the blood and is administered by injection to individuals to treat severe hypoglycemia that is indicated by the inability to eat food or drink, unconsciousness, unresponsiveness and/or seizures or convulsions.*
- (b)
- (c) *Insulin: a hormone made and released by the pancreas that allows glucose to enter the cells where it is used for energy. Students with type 1 diabetes and some students with type 2 diabetes need to administer insulin at regular times and take insulin to cover carbohydrate intake to correct hyperglycemia.*
- (c) *Medication Administration and Safety: See Chapter 610-X-6-.07.*
- (d) *School setting: preschool through 12<sup>th</sup> grade in a public or private school or school activity sponsored by such a school, in which the student is a direct participant.*

**2. GENERAL PRINCIPLES**

- a. *The injection of insulin or glucagon is a nursing task that may be delegated in accordance with the requirements of Act 2014-437 and the student's individualized health plan (IHP). The selection of the type of insulin and dosage levels shall not be delegated.*
- b. *An Individualized Health Plan (IHP) shall be developed for any student diagnosed with diabetes who is in the school setting as provided for in Alabama Act No 2014-437.*
- c. *Delegation of tasks for students with diabetes shall be confined to procedures that do not require nursing assessment, judgment, evaluation, or complex skills.*
- d. *Factors the school nurse shall consider and may include in the IHP are:*
  - 1. *Age of onset and current age of student with diabetes*
  - 2. *Recent hospitalization*
  - 3. *Most recent hemoglobin A1C (HgA1C)*
  - 4. *Recent change in type of insulin, delivery method, and dosage*
  - 5. *If and when glucagon was required*
  - 6. *Comorbidities or other chronic illnesses*
  - 7. *Participation in sports or other school-sponsored activities*
  - 8. *Orders from a legally authorized prescriber*
  - 9. *Carbohydrate counting*
  - 10. *Blood glucose monitoring*
  - 11. *Activation or suspension of an insulin pump*
  - 12. *Usage of insulin pens*
  - 13. *Self-administration evaluation*

14. *Student's comprehension and adherence to treatment*
15. *Parental comprehension and adherence to treatment*
16. *Emergency protocol related to glucagon administration*
17. *Student's overall health needs*
18. *Insulin to carbohydrate ratios and correction factors*
19. *Symptoms and treatment of hypoglycemia and hyperglycemia*
20. *Ketone testing*
- e. *Teaching school personnel about diabetes does not constitute delegation.*
- f. *Insulin and glucagon administration delegation is limited to:*
  1. *The student's Individual Health Plan*
  2. *Trained, Unlicensed Diabetic Assistants who have received training and competency validation for each student assigned to them*
  3. *Specific students*
  4. *Specific identified time frame*
- g. *The delegation shall include documentation of administration of glucagon and insulin and appropriate reporting to the school nurse.*
- h. *If the local education agency determines that school nurses shall provide the care to students with diabetes, delegation may not be required.*

### **3. PROCEDURE**

- a. *The school nurse shall validate the competency of the trained, Unlicensed Diabetic Assistant to whom delegation of administration of insulin and glucagon is given*
- b. *Insulin injection by the Trained, Unlicensed Diabetic Assistant receiving the delegation shall only occur when consistent with the IHP.*
- c. *Dosages of insulin may be injected by the Trained, Unlicensed Diabetic Assistant as designated in the IHP.*
- d. *Non-routine and /or large, correction dosages of insulin may be given by the Trained, Unlicensed Diabetic Assistant only after consulting with the school nurse, parent or guardian, as designated in the IHP and after verifying and confirming the type and dosage of insulin being injected.*
- e. *When the student is not capable of self-administration, routine daily meal boluses (routine correction dosages) of insulin, based on carbohydrate counts and blood glucose levels, may be administered by the Trained, Unlicensed Diabetic Assistant as designated in the IHP.*
- f. *Training of the Trained, Unlicensed Diabetic Assistants shall occur prior to any delegation of administration of glucagon and insulin.*
- g. *The school nurse shall follow the training guidelines developed by the State Department of Education in consultation with the Alabama Board of Nursing.*
- h. *The local education agency, in consultation with the school principal, shall identify any volunteer in each school to the school nurse for possible training.*
- i. *An annual report of the number of Trained, Unlicensed Diabetic Assistants in each school and the delegation of administration of insulin and glucagon to specific Trained, Unlicensed Diabetic Assistants shall be provided to the Board of Nursing by the Lead Nurse of each school system.*

*Author: Alabama Board of Nursing*

*Statutory Authority: Code of Ala. 1975, §34-21-2(c)(21).*

*History: New Rule: Filed March 13, 2015; effective April 17, 2015.*

## **Protocol for Training: Administration of Insulin and Glucagon**

### **Authorization**

The *Alabama Safe at Schools Act* (Alabama Act No. 2014-437) establishes the legal basis for providing diabetes training for “unlicensed diabetic assistants” in the school setting. The *Alabama Safe at Schools Act*, Section 3(5), further defines the Unlicensed Diabetic Assistant as “a school employee or approved volunteer who is trained in accordance with this act, but who is not required to be a health care professional.”

According to the “Curriculum to Teach Unlicensed School Personnel How to Assist with Medications in the School Setting,” the term “**Unlicensed Diabetic Assistant**” will be used to identify any school employee who is trained to assist the school nurse with the administration of daily medication, but who is not required to be a health care professional.

For the sole purpose of training related to care of public school students diagnosed with diabetes, the term “**Unlicensed Diabetes Assistant**” will be used to identify any school employee trained to assist the school nurse with the care needed to support students with diabetic medical needs according to the student’s IHP and medical authorizations up to and including the administration of injectable medications specific to the student’s diabetes.

In addition, the National Diabetes Education Program (NDEP) (2010, p. 3) makes training recommendations to ensure effective diabetes management in the school setting.

### **Parameters of Training**

#### **A. Qualifications of Instructional Personnel**

1. The trainer must be a registered school nurse with a current Alabama license and training and experience in the management of diabetes in children and adolescents.
2. The trainer must have successfully completed the ALSDE/ABN required school nurse “Train-the- Trainer” course for the Diabetic Assistant.

#### **B. Unlicensed Diabetes Assistant Training**

1. The Insulin and Glucagon Administration in School Settings Training Program should be conducted over a sufficient period of time to ensure competency both in

knowledge and skill through competency checklists and an examination. The training course should include competency demonstration.

2. Skills shall be maintained with an annual training session lasting no less than two hours or until competency is demonstrated.
3. Training shall be documented and include the instructor's name, trainee's name, date of training, a skills checklist, and documentation of competency of the trainee to administer insulin and/or glucagon.
4. Emergency Glucagon Training (completion of Appendix 1) may be independent of routine care in specific situations as designated in the IHP.
5. Knowledge and skills may be maintained through an annual course, examination, and competency validation each school year in order to determine competency and for competency to be demonstrated. The degree of delegation to a school employee shall be valid only for the current school year and must be designated in the IHP.

### C. Training Materials

All training materials will be updated annually.

### Levels of Training

**Tier I.** School personnel will receive training that provides a basic understanding of diabetes, how to recognize and respond to the signs and symptoms of low blood glucose (hypoglycemia) and high blood glucose (hyperglycemia), and who to contact in case of an emergency plus additional information regarding individual roles and responsibilities. Tier I training will be conducted annually by a licensed professional nurse employed by the local education agency. A roster of attendees/sign-in sheets should be kept on file to serve as documentation of training and compliance. Tier I training may be done by video or online with documentation of time and personnel receiving the training. Tier 1 sign in sheet must be used.

**Tier II.** Classroom teachers and all school personnel who “need to know” and have responsibility for students with diabetes throughout the school day should receive Tier I training plus additional training on how to carry out their student specific individual roles and responsibilities and what to do in case of a diabetic emergency based on a review of the Individualized Healthcare Plan (IHP). Tier II training will be conducted annually by a licensed professional nurse employed by the local education agency. This student “need to know” information is shared usually in a face-to-face meeting with the teacher and by reviewing the IHP. Once the teacher and other school personnel with a “need to know” have reviewed the IHP, it is required that they sign the document and store it in the health record.

**Tier III.** One or more *volunteer* school staff member(s) may receive training about diabetes, routine or emergency care for students deemed safe and appropriate by the registered nurse. A licensed registered nurse (RN) employed by the local education agency shall provide the training. This training will help ensure that a school staff member is always available to

provide care to each student with diabetes as mandated in the *Alabama Safe at Schools Act*. The degree of delegation must be designated in the IHP.

### Curriculum Overview

The four primary resources that will be utilized to cover all components in the curriculum are as follows:

1. *Diabetes Care Tasks at School: What Key Personnel Need to Know - School Training Modules*. American Diabetes Association (*Safe at School, ADA School Training Curriculum*)
2. *Helping the Student with Diabetes Succeed*. National Diabetes Education Program, available online at:  
<http://ndep.nih.gov/publications/PublicationDetail.aspx?PubId=97#main>
3. Chase, P., *Understanding Diabetes* (aka the Pink Panther Book), UCD Barbara Davis Center for Childhood Diabetes, available online at:  
<http://www.ucdenver.edu/academics/colleges/medicalschoo/centers/BarbaraDavis/OnlineBooks/books/Pages/UnderstandingDiabetes.aspx>
4. *Curriculum to Teach Unlicensed School Personnel How to Assist with Medications in the School Setting*. Alabama State Department of Education and Alabama Board of Nursing (2013). **Please note this is the foundational document for the teaching program.**

### Content Design

The content of the training curriculum has been organized into two modules:

Module 1 – Contains knowledge that the trainees need in order to anticipate and respond to the needs of students with diabetes.

Module 2 - Contains the specific skills the trainees need to perform for a particular student with diabetes.

All trainees must demonstrate accurate understanding of Module 1 content as well as demonstrate mastery of skills in Module 2. When training Glucagon independently, mastery of the skills applies to Appendix 1.

Each component within the curriculum includes learning objectives, training resource post-tests, and/or skills check sheets for assessing and documenting the trainees' knowledge and capability in performing tasks.

## Module I: Knowledge Learning Objectives Overview

COMPONENT	LEARNING OBJECTIVES	TEACHING RESOURCES
Prescriber/ Parent Authorization form (PPA) Valid Physician Order	1. Review general rules for medication administration	<i>Alabama Safe at Schools Act</i>
		Curriculum to teach the Unlicensed Diabetic Assistant– Section 2 (pp. 2-17)
A. Laws and Regulations <ul style="list-style-type: none"> <li>State Law</li> <li>State Regulations</li> </ul>	1. Review Alabama Medication Administration Delegation by School Nurses 4. Describe the documents used to plan diabetes management and accommodations in schools 5. Review Alabama Diabetes IHP and how it incorporates the provider orders, IHP, and EAP 6. Review roles and responsibilities of the trained unlicensed diabetes assistant	ADA School Training Curriculum, Legal Considerations 2008 Diabetes Medical Mgt. Plan 2008
		Curriculum to Teach the Unlicensed Diabetic Assistant– Section 2 (pp. 5-6)
B. Introduction to Diabetes	1. Define diabetes 2. Identify types of diabetes 3. Describe short- and long-term consequences of diabetes 4. Describe effective management at school 5. Describe the basic components of diabetes care at school	ADA School Training Curriculum, Diabetes Basics 2008
		NDEP Helping the Student pp. 11-17
		Pink Panther Book What is diabetes? Type 1; Type 2
C. Nutrition and Physical Activity	1. Discuss meal planning for students with diabetes 2. Describe how insulin dose is dependent on carbohydrate intake	ADA School Training Curriculum; Nutrition and Physical Activity 2008
		NDEP Helping the Student pp. 50-51, 54-56



	<ol style="list-style-type: none"> <li>3. Discuss physical activity benefits for students with diabetes</li> <li>4. Describe physical activity guidelines for students with diabetes</li> </ol>	Pink Panther Book Normal Nutrition, Exercise and diabetes
D. Social and Emotional Issues and Self-Management	<ol style="list-style-type: none"> <li>1. Introduce the various challenges diabetes poses for social and emotional development</li> <li>2. Discuss how to support the student</li> <li>3. Recognize age-appropriate expectations for diabetes self-care</li> <li>4. Identify which diabetes care tasks the student will perform for him/herself</li> <li>5. Discuss the Student Agreement for Independent Care when applicable</li> </ol>	NDEP Helping the Student pp. 58-61
		Pink Panther Book Responsibilities of Children at Different Ages, Teen years
E. Field Trips and Special Events	<ol style="list-style-type: none"> <li>1. Describe appropriate accommodations for field trips, school-sponsored activities, and standardized testing</li> <li>2. Discuss accommodations for field trips, school-sponsored activities, and special events needed for the student</li> </ol>	NDEP Helping the Student pp. 57-58
		Pink Panther Book: The School/Work and Diabetes pp. 256
F. Disaster Planning	<ol style="list-style-type: none"> <li>1. Recognize why an emergency action plan is needed for the student</li> <li>2. Identify emergency supplies needed for the student</li> <li>3. Locate emergency supply kit(s)</li> </ol>	NDEP Helping the Student pp. 49
		Pertinent school disaster preparedness plan information
G. Checking Blood Glucose Levels	<ol style="list-style-type: none"> <li>1. Introduce blood glucose monitoring, its importance, and equipment needed</li> <li>2. Discuss when a student's blood glucose should be checked</li> </ol>	ADA School Training Curriculum, Blood glucose monitoring 2008 slides 1-11
		NDEP Helping the Student pp. 32-35
		Pink Panther Book Monitoring Blood Sugar Control

H. Hypoglycemia	<ol style="list-style-type: none"> <li>1. Define hypoglycemia</li> <li>2. Discuss how it can be prevented</li> <li>3. List the symptoms of low blood glucose</li> <li>4. Describe how hypoglycemia should be treated</li> </ol>	ADA School Training Curriculum, Hypoglycemia
		NDEP Helping the Student pp. 36-40
		Pink Panther Book: Low Blood Sugar
I. Hyperglycemia	<ol style="list-style-type: none"> <li>1. Define hyperglycemia</li> <li>2. Discuss how it can be prevented</li> <li>3. List the symptoms of high blood glucose</li> <li>4. Describe how hyperglycemia should be treated</li> </ol>	ADA School Training Curriculum, Hyperglycemia
		NDEP Helping the Student pp. 41-43
		Pink Panther Book: Monitoring Blood Sugar Control pp. 155-156
J. Introduction to Ketones	<ol style="list-style-type: none"> <li>1. Define ketones and ketoacidosis</li> </ol>	ADA School Training Curriculum, Ketones slides 1-7
		NDEP Helping the Student pp. 43-44
		Pink Panther Book: Ketones and Acidosis
K. Insulin Basics	<ol style="list-style-type: none"> <li>1. Describe the types of insulin</li> <li>2. Describe insulin characteristics by type (onset, peak, and duration)</li> <li>3. Introduce insulin administration and delivery methods</li> <li>4. Describe proper insulin storage</li> <li>5. Describe factors that influence insulin dosing</li> </ol>	ADA School Training Curriculum, Insulin basics
		NDEP Helping the Student pp. 44-49
		Pink Panther Book: Insulin: Types and Activity
L. Carbohydrates <ul style="list-style-type: none"> <li>• Carbohydrate Counting</li> <li>• Correction Dosage Calculations</li> </ul>	<ol style="list-style-type: none"> <li>1. Introduce carbohydrate counting and discuss the carbohydrate counting meal plans</li> <li>2. Discuss correction dosage calculations</li> </ol>	ADA School Training Curriculum 2008, Nutrition and Physical Activity slides 8-10
		NDEP Helping the Student pp. 51-54
		Pink Panther Book: Food Management and Diabetes
M. Glucagon	<ol style="list-style-type: none"> <li>1. Introduce glucagon</li> </ol>	ADA School Training Curriculum 2008, Glucagon Administration

	<p>2. Describe the purpose of glucagon, how it should be stored, and when it is used</p> <p>3. Discuss further care for the student and next steps</p>	<p>Pink Panther Book: Low Blood Sugar pp. 43</p> <p>Alabama Glucagon Administration Protocol (Approved 9/15/14)</p> <p>NY Glucagon Training PPT slides 15-36</p> <p>Glucagon injection demonstration kits are available from the pharmaceutical companies Lilly and Novo Nordisk. To obtain kits, contact the company directly.</p> <p>- Eli-Lilly 1-800-545-5979</p> <p>-Novo Nordisk 1-800-727-6500</p>
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## General Guidelines for Diabetic Medical Management at School

### A. Authorization for Treatment

Authorization for treatment at school must be received prior to care being provided. The Diabetes Medical Management Plan (DMMP) provided by the physician and Provider/Parent Authorization are available at the student's school.

Authorization for treatment must be updated each year by the following:

1. The student's parent or guardian needs to give permission for the student to be treated at school following the IHP requirements.

The *Alabama Safe at Schools Act* (Alabama Act No. 2014-437) states that "the parent or guardian of a student with diabetes is responsible and must supply the signed parental/prescriber authorization and/or medical orders from a physician, certified registered nurse practitioner, or physician assistant, any and all diabetic medication(s) and diabetic supplies to the school. If any or none of these are supplied, the parent will be responsible for providing direct medical care to the student at school or at school-sponsored activities in which the student is a direct participant."

2. The health care provider must provide written authorization for insulin and/or glucagon to be given at school and procedures for treating diabetes.

### B. Medication Administration - (*Curriculum to Teach Unlicensed School Personnel How to Assist with Medications in the School Setting*, Alabama State Department of Education & Alabama Board of Nursing 2013)

This curriculum covers general issues such as assisting with medication administration and should be utilized to teach basic knowledge to the unlicensed personnel who will be administering insulin and glucagon in the school setting.

### Confidentiality & Privacy

Confidentiality is an important legal concept in the school setting. Health records of students are confidential and are kept separate from the school records. Knowing some information from the health record is necessary for the medication assistant. It is important for the Unlicensed Diabetic Assistant to understand that the information provided should not be repeated to other students, school employees, and teachers. Health records contain sensitive information and disclosure without permission can result in legal liability. **Records containing student health information should never be left open on top of a desk. Nor should confidential information be left as a message with a secretary, on voice mail or answering machines, or on an electronic mail system. Regardless of where stored, student health information should be stored in locked file cabinets or secure computer files (ASHA, 2000).**

Privacy is a separate legal concept. If a child tells a teacher or school secretary how he or she feels about having a chronic illness, that is information that should be shared with the school nurse but not disclosed to those who do not have a “need to know.” Students, teachers, and staff spend a great deal of time together over the course of a school year. It is natural for individuals to talk about situations at school. Recognize that health information has a higher level of protection.

There are some practices that help protect the confidentiality and privacy of students, such as:

1. Limit access to school health records as defined by policy.
2. Discuss medication information with appropriate staff only.
3. Require signature for all non-school health employees accessing health records.
4. Secure records, avoid public disclosure. **(FERPA provides parents with access to their child’s school records, including health records, and stipulates that these records may not be released outside the school without specific parental consent ASHA, 2000).**
5. Use appropriate areas for medication free of distraction and avoid discussion in public areas.
6. Ensure storage of emergency action plans (EAP) on school buses, extracurricular activities, and field trips.
7. Refer all release of information requests to the school nurse.

The reason the focus and attention of regulations, policies, and guidelines are directed to medications in the schools is to protect the health, safety, and welfare of the student. Some requirements to protect the student include protecting the student’s rights, managing and monitoring prescribed medicines, using correct methods to identify students and medicines, and following guidelines for safety in assisting the school nurse with medications (including storage of medicines and documentation).

### Responsibilities of the School Nurse

The school nurse has many responsibilities in providing health services to students. The responsibilities of the school nurse include the following:

1. Develops and implements the nursing care plan/individualized healthcare plan (IHP) and emergency action plans (EAP), including assessment, nursing diagnosis, establishment of nursing goals, and evaluation.
2. Reviews student assessment health records.
3. Assesses ongoing evaluation of outcomes and continuously makes updates and revisions to the IHP/EAP.
4. Ensures that any intervention that requires professional nursing knowledge, judgment, and/or skill is not delegated.
5. Assures the availability of resources required to assist with medications, including material resources, an appropriate environment, and supervision.

6. Implements procedures for handling, storing, and disposing of medications per federal, state, and local guidelines.
7. Ensures that the unlicensed diabetic-assistant has successfully completed an Alabama Board of Nursing-approved Unlicensed Diabetic Assistant training program and training specific to the school district and local school and has received student-specific instruction. Glucagon training may be used independently when deemed safe and appropriate by the registered nurse
8. Ensures Unlicensed Diabetic Assistant competency by routine monitoring to include observation of medication assisting techniques, review of the unlicensed school personnel's documentation, and corrective actions taken to promote competence. Evidence of monitoring and corrective actions are documented and stored separately from the student's health record.
9. Determines that it is safe to delegate assistance with medication to the Unlicensed Diabetic Assistant based upon the stability of the student's health status, the complexity of the task, and the competency of the diabetic assistant.
10. Monitors compliance with health records confidentiality.
11. Assures that a clear, written, signed medical order and written parental consent form for medications and treatments are obtained in accordance with local school policies and procedures.
12. Establishes procedures to ensure that the Unlicensed Diabetic Assistant has access to a healthcare professional at all times.
13. Develops procedures for student-specific routine and emergency situations, including assisting with medication while at school, during school-sponsored trips and activities, and during transportation to and from school. Document these procedures in the student's IHP/EAP.
14. Performs delegation in accordance with the Alabama Nurse Practice Act.

### Responsibilities of the Unlicensed Diabetic Assistant

The responsibilities of the Unlicensed Diabetic Assistant include the following:

1. Completes an ABN- and ALSDE approved program for insulin and /or glucagon administration. This training should include issues specific to the school district and local school and training in student-specific issues. Glucagon training may be used independently when deemed safe and appropriate by the registered nurse.
2. Adheres to the policies and procedures of the school and district.
3. Follows the IHP for individual students.
4. Refrains from participating in and avoids activities that require professional nursing judgment, knowledge, or skill, and notifies the school nurse when professional nursing care is required.
5. Notifies the school nurse immediately when there is suspicion of a medication reaction, a medication error, a change in a student's health status, or new medication received at school.
6. Completes timely and accurate documentation of assistance with medication in accordance with state and local policies.

### How to determine if Nursing Judgement is Necessary

1. The intellectual process nurse exercises in forming an opinion and reaching a clinical decision based upon an analysis of evidence or data (ANA, 1992).
2. The task does not involve ongoing assessment, interpretation, or decision-making, which cannot be logically separated from the performance of the task itself (NASN, 1996).
3. The observations regarding the outcome and the student's reaction to the task may be recorded, but nursing judgment is not needed in the performance of the task (NASN, 1996).

### Specific Rules Related to Medicine

1. The medication assistant must successfully complete a training program approved by the Alabama Board of Nursing and the Alabama State Department of Education in order to assist students with medications in the schools.
2. The registered nurses, physicians, or dentists only may delegate assistance with medication to trained unlicensed school personnel in the school setting. A licensed practical nurse may delegate after determination by the registered nurse that delegation is appropriate.
3. No prescription medication may be given without parent authorization, a healthcare provider order, and a pharmacy label (primary healthcare providers are physicians, nurse practitioners, or physician's assistants).
4. The school nurse may accept verbal medical and treatment orders. A written order should be obtained within 48 hours of accepting a telephone order. School nurses should never accept an order or change an order that comes through a third party (e.g., parent or other staff member who is not licensed to receive or give such orders). However, parents may provide information about the student's current health needs and particularly when a student is a diabetic and requires adjustment of insulin dosages so long as the dosage falls within the parameters provided by the physician. Fax and e-mail orders are acceptable and do not require additional orders.
5. The local policies must be reviewed.
6. The school under no circumstances should stock its own supply of over-the-counter (OTC) medicines, such as Tylenol, Hydrocortisone, etc. for student or staff use. The parent must provide the OTC medicine in the original, unopened, sealed container with specific instructions as to when or why such medicines may be necessary. The delegating RN must evaluate and approve all OTC medicines and parental instructions. First aid materials and supplies, including antibacterial ointment, may be maintained in the health room at the discretion of the LEA. The delegating RN will determine if the OTC medicine is appropriate and whether a provider order is also necessary. A standing order from a licensed prescriber does not give permission to stock medications. However, the LEA can determine how to arrange for OTC medications on field trips or overnight trips. In the event student twins, triplets, siblings, etc., have OTC medications, the LEA may determine to allow one bottle of OTC medications for all the siblings.

### Necessary Knowledge

Knowledge of the following items is essential:

1. It is important to know medications and how they are used.
2. Oral medications are packaged as pills/tablets/capsules. Changing the form of an oral medication can only be done with authorization from the health provider and the delegating school nurse. Cutting, crushing, or sprinklings of the medication are examples of changing the form of an oral medication.
3. Scored tablets can be cut in half to obtain a smaller dose. For example, the prescription may indicate each tablet is 10 milligrams, but the order indicates the student is to take only 5 milligrams (requiring cutting). If a student has medication that must be cut, call the delegating school nurse. Do not try to cut a scored tablet with a knife—a pill cutter is used for that purpose and must be cleaned after each use.
4. Coated tablets are swallowed whole and should not be chewed (example: Advil).
5. Capsules are made to be taken by mouth and swallowed whole—do not take apart, crush, or permit the student to chew unless directed by the licensed prescriber.
6. Information on drug actions and possible negative reactions is crucial.
7. Trained observation skills are important.
8. Be familiar with the use of the Seven Rights: right student, right medication, right dose, right time, right route, right documentation, and right reason.
9. Know the importance of checking the Seven Rights each and every time medication is given: (1) when taking medication from the cabinet, (2) when pouring the medication, and (3) when returning the medication to the cabinet.
10. Know how to make appropriate, accurate, and timely documentation.
11. Know how to obtain assistance from the school nurse and/or other healthcare professionals.
12. Demonstrate an understanding of local policies.



### Selection of the Diabetic Assistant by the School Nurse

Criteria for selection of a medication and diabetic assistant by the school nurse are shown below.

1. The unlicensed school personnel chosen to receive delegation have successfully completed an Alabama Board of Nursing-approved training program.
2. The person assisting children with medications must be able to provide dedicated time in a quiet environment without distractions until the process is complete.
3. The person selected to assist students with medications can successfully verbalize the concept of nursing judgment and the need to notify the school nurse when nursing judgment is required.
4. The medication assistant must be able to demonstrate competence in all aspects of assisting students with medicines as outlined by state and local policies.
5. The medication assistant must be able to establish and maintain communication with the school nurse(s) and verbalize the importance of communication in promoting safe assistance with medications.

### Expected Outcomes

Expected outcomes of unlicensed diabetic assistant are shown below.

1. Assistance with diabetic medication during the school day enables the student to remain in school, to maintain or improve health status, and to improve potential for learning.
2. The student will receive medication as prescribed by a licensed prescriber.
3. The student will demonstrate knowledge of the principle of self-care and responsibility through appropriate self-medication procedures.

### Local Education Agency Process

1. Someone should be responsible for obtaining provider and parental authorization, training o for assisting with any medication to students at school.
2. Someone should ensure that unlicensed school personnel successfully complete the required ABN-approved training (including written examination) prior to being considered eligible for designation to administer insulin and glucagon.
3. Someone should provide periodic and regular monitoring of the procedures and individuals who administer insulin and glucagon.
4. Someone should provide guidance through annual Standard Precautions trainings, i.e., basic tenets of infection control, for school personnel and health professionals.

### School Documents Related to Diabetes

The school documents shown below are related to diabetes:

Healthcare Provider Orders: These are the physician orders for prescribed medications such as insulin or glucagon. , A registered nurse must follow the medical orders prescribed by a

healthcare provider. Diabetes care is complex; therefore, medical orders should include instructions about glucose monitoring, medication management, the student's self-management status, and medical care. The plan must be incorporated into the student's IHP and the DMMP if applicable.

Emergency Action Plan (EAP): Some chronic conditions have the potential to develop into a medical crisis and require an Emergency Action Plan. The EAP is derived from the IHP and provides staff with appropriate action steps in time of crisis. ALSDE standardized Diabetic IHP includes the EAP for each student.

School personnel responsible for the student, such as classroom teachers, resource teachers, bus drivers, and cafeteria staff, should be identified as trained personnel and should receive a copy of the IHP.

Diabetes Medical Management Plan (DMMP) ( or Physician Packet) The DMMP or Physician Packet is a plan that describes the diabetes care regimen and identifies the health care needs of a student with diabetes. The health care provider and ideally a parent/guardian should complete this form. It is the basis for the IHP and provides the school personnel information that is necessary to safely care for the student during the school day, on field trips, and when participating in school-sponsored extracurricular activities. A new DMMP should be completed each school year and it should be in place before the first day of school. If the health care provider makes changes to a student's plan of care during the school year, the school will need a new or updated DMMP form in order to implement the changes.

Individualized Education Plan (IEP): This plan is required by the *Individuals with Disabilities Education Act* (IDEA) and describes the accommodations to be made for a student needing special education services. Not all students with diabetes will have one.

Individualized Healthcare Plan (IHP): The Alabama State Department of Education IHP is required for each student diagnosed with diabetes. The Individual Health Plan is defined as a document that outlines health care to be provided to a student in the school setting, developed by the school nurse in conjunction with the student's parents or guardians and may contain the orders from the physician, certified registered nurse practitioner operating under a valid collaborative agreement, or physician assistant operating with a valid supervisory agreement. An RN must review and sign all diabetic IHP's. RN and LPN staff shall monitor and update IHP's as the student's needs change. The Individual Health Care Plan is the result of the nurse's assessment of the student's needs and prescriber's orders and how best to meet them within the school environment.- The IHP should be developed at least annually and as the student's health care status or needs change. A list of names of unlicensed school personnel who have successfully completed the training for insulin and/or glucagon should be kept in the office of the school nurse or school administrator.

There are four parts to an IHP: (1) healthcare provider orders, (2) algorithms page that describes the standard of care for students with diabetes based on blood glucose range to include emergency care, (3) school/parent part, and (4) optional page school nurses may use to plan coverage for students with diabetes at school.

## **C. Laws and Regulations (see pages 6-11)**

### **D. Introduction to Diabetes**

Diabetes is a lifelong disease that affects over 16 million people in the United States. Diabetes affects the way the body uses food. Normally, food is digested in the stomach and intestines, converted into glucose, and then absorbed into the bloodstream. At the same time, the pancreas produces insulin, allowing glucose to enter cells, which is used for energy. In persons with diabetes this system is flawed, resulting in a build-up of glucose in the blood and an insufficient amount glucose entering cells.

There are two main types of diabetes:

*Type 1 diabetes* – Formerly known as insulin-dependent or juvenile-onset diabetes, it occurs when the pancreas does not produce insulin. With too little or no insulin, glucose cannot enter the cells of the body to be used for energy. Type 1 diabetes is usually treated with insulin injections.

*Type 2 diabetes* – Formerly known as non-insulin dependent or adult-onset diabetes, it occurs when the body does not produce adequate insulin and/or when the insulin-cell-energy delivery process does not work. This is most commonly found in adults, but has been increasing in children. Type 2 diabetes may be treated with diet, oral medication, and/or insulin injections.

Both types of diabetes result in high levels of sugar in the blood. The body attempts to compensate by increasing the amount of water through the kidneys to try to “flush” the excess levels of sugar from the body.

This process will result in symptoms of diabetes: increased thirst; frequent urination; increased hunger (because the body isn’t getting enough energy); weight loss (because the body can’t get sugar into the cells and begins to burn fat and protein for energy); irritability; flushed, dry skin; nausea and vomiting; and weakness and fatigue.

Long- term effects of high blood sugar levels may result in serious complications such as blindness, renal disease, and cardiovascular disease. Therefore, it is important to control blood sugar levels. Management of diabetes consists of an intricate balance between insulin, food intake, physical activity, and emotional stresses. Anything that tips this delicate balance can cause fluctuations in blood sugar.

Effective diabetes management controls blood glucose levels by keeping them within a target range that is determined for each child. For Type 1 diabetes, insulin is administered throughout the day to achieve this control. Many people with Type 2 diabetes manage their diabetes with oral medication, by being physically active, and by managing their diet and

weight. Optimal blood glucose control helps promote normal growth and development and optimal learning. Food intake raises blood glucose while exercise and insulin and/or oral diabetic medications lower blood glucose. Balancing all of these factors may be difficult. It is important to recognize when a student needs assistance.

Routine care for diabetes includes all aspects of energy management to keep blood glucose within a recommended range, taking action if blood glucose levels are too high or too low and managing the situation to avoid out-of-range blood glucose levels where possible.

As appropriate, the student should:

1. Maintain regular eating habits (timing and diet).
2. Regularly check blood glucose levels.
3. Administer insulin (via injections or pump).
4. Be physically active regularly (at least an hour daily).
5. Maintain a healthy weight.

Some students, because of age, developmental level, or inexperience, will need help from school staff with their diabetes management tasks. School staff may assist in day-to-day tasks such as carbohydrate counting, blood glucose monitoring, or insulin administration.

School staff should:

1. Support self-management by the student.
2. Monitor for symptoms of high or low blood sugar and treat appropriately.
3. Respond appropriately to social or emotional concerns.
4. Help plan for field trips and special events.
5. Help plan for disasters; execute these plans if necessary.
6. Intervene as needed in event of a diabetes emergency.

## **E. Nutrition and Physical Activity**

### Nutrition

Blood glucose is normally regulated by nutrient intake and physical activity. The normal interaction is that consuming food causes blood sugar levels to rise, which prompts the release of insulin, which in turn decreases blood glucose levels as glucose moves freely into cells. When someone has diabetes, insulin needs to be administered in a pattern and in amounts similar to what the pancreas would normally produce.

Students with diabetes have the same nutritional needs as other students. All children need to eat a healthy, well-balanced diet to promote optimal growth and development. According to the NDEP (2010, p. 50), the significant difference in meal planning for the student with diabetes is that the timing, amount, and content of the food eaten are carefully matched to

the action of the insulin. The nutritional component of diabetes management should be in the DMMP.

Because carbohydrates (carbs) affect blood glucose levels more than any other nutrient, it is the major focus of most meal planning approaches. It is important to count the total amount of carbs in a meal or snack. Carbs are found in dairy products, starchy vegetables, grains, fruits, juices, and sweets. Be sure to check for “hidden” carbs in foods such as condiments, sauces, and dressings. There are no “forbidden foods.” The NDEP does recommend that students limit “liquid carbs” such as fruit juice and soft drinks with sugar in the treatment of hypoglycemia as these carb-containing foods raise blood glucose levels quickly (2010, p. 50).

Students with diabetes usually have an individualized meal plan based upon carb counting or an exchange system. When the health care provider develops the meal plan portion of the DMMP, he/she takes into account the other components of the DMMP factors such as medication and activity level. The goal is to balance these components of diabetes management to help the student achieve optimal glycemic control. School staff specified in the IHP must be knowledgeable of the student’s meal plan requirements (Southall, 2004).

A “carb choice” or serving is the amount of food that contains 15 grams of carbohydrate. For most starches and fruits this is a ½ cup serving. It is important to read the labels on foods to determine the number of servings in a container and the grams of carbs per serving. Be sure to check the labels on sugar-free products such as cookies, candies, and ice cream. They often contain carb amounts similar to their non-sugar-free counterparts. It is preferable to use regular products in appropriate portions.

Families of students with diabetes may review school lunch menus to determine the carbohydrate content of the meals available. The food service manager should have access to the nutritional content of the food available in the cafeteria. If a food vendor for an item changes or the vendor updates the food label, be sure to check to see if there are differences in the nutritional content of the food item(s). Books such as *The Calorie King Calorie, Fat, & Carbohydrate Counter* (Borushek, 2011) and other resources are available to help with carb counting. If the parent provides food from home, the parent should provide the school with the carb count for the food item or meal (Bulter, 2011). A diabetes educator can also help locate resources for nutritional needs.

Carb counting is most often done in one of two ways: Consistent Carb Intake or Insulin-to-Carb Ratio (NDEP, 2010, pp. 51-52). The DMMP will specify which type of meal plan the student should follow.

#### 1. Consistent Carb Intake Meal Plan

Students who follow this plan are provided a set amount of carbs or carb servings to eat for meals and snacks. Students who take intermediate-acting insulin in the morning or a pre-determined amount at lunch are most likely to use this plan (NDEP, 2010, pp. 52-53). Meal and snack times should remain constant. Insulin doses usually remain

consistent as well. This plan is usually easy to follow, but does not readily allow for flexibility when the unexpected happens or a schedule is disrupted.

## 2. Insulin-to-Carb Ratio Plan

- a. Insulin dosage is based on two calculations: a ratio of insulin-to-carbs eaten and a correction factor. These ratios should be specified in the DMMP by the prescribing healthcare provider.
- b. The insulin-to-carb ratio is the amount of insulin given to cover for a stated amount of carbs that are eaten. The prescriber will commonly express it as a ratio, for example, 1:15. The amount is individualized for each person in his/her DMMP and the ratio may even vary by meal.

### **Sample calculation of an insulin-to-carb ratio:**

The student's lunchtime insulin-to-carb ratio is 1:15. The child ate 60 grams of carbs. The formula is:  $60/15=4$  units of insulin

- c. The correction factor is the amount of insulin the student needs to lower the blood glucose into target range. The target blood glucose is subtracted from the actual pre-meal blood glucose. The prescriber will specify how much insulin is required for results that are over the target blood glucose. This calculation is student-specific and may vary.

It is important to note that a correction dose should not be given within two hours after: eating carbs, a previous correction dose, or treatment for low blood glucose unless there is a specific order from the health care prescriber.

### **Sample calculation of a correction dose:**

The student's pre-meal blood glucose is 300. The student's target blood glucose is 150. The correction dose is 1 unit insulin for every 50/mg/dL over 150. The formula is:  $300 - 150 = 150/50 = 3$  units of insulin

The two calculations are then added together to obtain the insulin dosage for the child. Insulin dosage calculations should be maintained as documentation.

### **Sample calculation of total insulin dose:**

Insulin-to-carb dose plus correction dose = total units. The formula is:  $4 + 3 = 7$  units of rapid-acting insulin

The insulin-to-carb ratio method gives more flexibility to the student, but it may also take more time and attention to track the carbs throughout the day. For younger students, a trained adult should know the child's meal plan and work with the parent to coordinate it with the school's scheduled snack and meal times when possible.

The parent should be notified in advance whenever special events are scheduled that might affect the meal plan. This includes after-school activities and field trips. School days when there is an increased amount of physical activity may necessitate the child having extra snacks such as days when there is physical education class or a "Field Day."

### Physical Activity

In addition to maintaining cardiovascular fitness and controlling weight, physical activity can help to lower blood glucose levels. Students with diabetes should participate fully in physical education classes and team sports.

To maintain blood glucose levels within the target range during extra physical activity, students may need to make adjustments in their insulin and food intake. To prevent hypoglycemia, they also may need to check their blood glucose levels more frequently while engaging in physical activity. Generally, blood glucose levels before exercise should be over 100 and under 250. The DMMP should direct what blood glucose levels are acceptable for exercise. If blood glucose levels are high, ketone testing may be ordered as well as appropriate follow up if ketones are present.

The student with diabetes should eat prior to exercising if it has been more than two hours since the student has eaten. It is best to exercise or take physical education classes 30-60 minutes after a meal to allow time for food to be absorbed. A person with diabetes always needs to have a fast-acting sugar and a complex carbohydrate readily available for treatment of low blood sugar, along with plenty of water. Physical education instructors and sports coaches should be able to recognize and assist with the treatment of hypoglycemia. They also should have a copy of the student's EAP.

Exercise increases the flow of blood in general, but especially to the muscles that are being used the most. Insulin is absorbed more quickly when there is increased blood flow to the exercising muscles. For example, if the insulin is injected in the arm before a run or swim, it may be absorbed quickly and cause low blood sugar. Muscles use stored energy during and after exercise and muscles replace this stored sugar by taking glucose out of the blood. This process may continue for up to 12 hours after exercising.

Students using pumps may disconnect from the pump for sports activities. The IHP should address storage of the pump if it is removed for physical activity. It should be stored in a secure location. If a student keeps the pump on, he/she may set it at a temporary, reduced rate of insulin while he/she is at play. Instructions for temporary basal rates should be addressed in the DMMP. The student's DMMP and IHP should include specific instructions for physical activity (Southall, 2004, pp. 23-24).

## **F. Support of Developmentally Appropriate Self-Management of Diabetes Care**

The NDEP states that in addition to dealing with the usual developmental issues that are associated with growing up, students with diabetes must also learn to manage the complexities of this life-long medical condition (2010, p. 58). Since diabetes impacts all aspects of someone's life, this can complicate how the student works through normal developmental challenges. Individuals will react differently to having diabetes, and the associated emotions may range from accepting to resentful. Students may be open about their condition or try to hide it from others.

Students, in general, do not want to be different from their peers, but having diabetes and the associated self-care tasks can make them feel different. They may feel conflicting pressures to comply with their DMMP but also want to fit in with their peers. It is important that the student feels supported and that staff be aware of emotional or behavioral issues that may need referral.

The student's ability and willingness to learn and assume responsibility for self-care tasks are individualized. The ADA's position (2011a, p. 72) on diabetes care in school is that:

*“Children and youth should be allowed to provide their own diabetes care at school to the extent that it is appropriate based on the student's development and his or her experience with diabetes. The extent of the student's ability to participate in diabetes care should be agreed upon by school personnel, the parent/guardian, and the health care team, as necessary. The ages at which children are able to perform self-care tasks are variable and depend on the individual, and a child's capabilities and willingness to provide self-care should be respected.”*

It is important that even if the student is independent with certain tasks, “supervision by caregivers must continue” (Juvenile Diabetes Research Foundation, 2011). The DMMP and the plans of care will specify which tasks the provider considers the student to have mastered and the ones for which he or she needs assistance. No matter the level of independence, a student experiencing symptoms of either high or low blood glucose may need someone to help.

The following list of ways to support the student's healthy response to diabetes is based upon “Tips for Teachers of Students with Diabetes,” which the ADA adapted from a Virginia document.

1. Understand that all children with diabetes are different and react differently to symptoms of low blood glucose.
2. Try not to draw attention to the child's diabetes.
3. Be inconspicuous in your reminders about snacks and self-care tasks.
4. Do not label children with diabetes. Never refer to the child as the “diabetic kid.”
5. Do sympathize, empathize, and learn what you can do to support them.
6. Always be prepared and have a snack available. Take it with you whenever you leave the classroom.



7. Never leave the child with diabetes alone if they are experiencing symptoms of low blood glucose.
8. If they need to go to the office or see the nurse, send a buddy with them.
9. The child with diabetes needs unrestricted access to the bathroom and to water.
10. Be patient, especially if they have symptoms of low blood glucose. Variations in blood glucose can interfere with the student's ability to organize things or to concentrate.
11. Knowledge is power. Educate yourself about diabetes and keep the lines of communication open.

### Barriers to Appropriate Diabetes Management

Fear or lack of knowledge can be a barrier to appropriate diabetes care. Caring for someone with diabetes can be stressful for the individual and the family. Some people are embarrassed by or afraid of low blood glucose symptoms. They may manage their diabetes by not taking all of their insulin or eating extra carbs. The normal difficulties encountered by parents and their children may be compounded by the stress of diabetes care. Parents need to feel supported and may need help with educational resources.

Students who were previously compliant may rebel or not be totally honest about self-care tasks such as blood glucose testing as they enter their teenage years. In addition, the physiological changes of adolescence may make it more difficult to keep blood glucose in the target range, despite compliance (Juvenile Diabetes Research Foundation, 2011). The ADA cited research that showed it was more difficult to achieve near normal blood glucose levels in teens than in adults (2011b, p. 38). This can lead to the teen with diabetes feeling frustrated and contribute to the student's becoming less engaged or compliant with the DMMP. Teens need support to move toward independence, but they also need supervision to make sure they are caring for themselves properly.

### Age-Appropriate Self-Care Guidelines

Each student is unique in his/her ability to perform self-care tasks. Various factors such as age of diagnosis, current developmental level, and the willingness on the part of the child and parent can influence the age at which the child assumes various self-care tasks. The following is a list of age-appropriate self-care tasks based upon recommendations from the NDEP (2010, pp. 60-61) and the National Association of School Nursing's school nursing text (2006, pp. 775-776):

#### **1. Toddlers and preschool-aged children**

- a. Are usually unable to perform diabetes care tasks independently.
- b. Need an adult to provide all or most aspects of care.
- c. Can usually determine which finger to prick, choose an injection site, and are generally cooperative.
- d. Aged 4 to 5 can collect own urine for ketone check, turn on glucometer, pinch their own skin, help with recording results, and begin to identify symptoms of low blood glucose.

## **2. Elementary school-aged children**

- a. May be able to perform their own blood glucose checks, but still need adult supervision.
- b. Begin to learn, with adult supervision, some self-care tasks such as insulin administration by syringe or pump, meal planning with recognition of foods that contain carbs, carb counting, ketone testing, and record keeping related to self-care tasks.
- c. Begin to understand the impact of insulin, physical activity, and nutrition on blood glucose levels.
- d. Unless they have an inability to recognize symptoms of low blood glucose, should be able to recognize and tell an adult they feel symptomatic.

## **3. Middle and high school-aged children**

- a. Are usually able to provide self-care, depending on the length of diagnosis and the level of maturity.
- b. Should be encouraged and empowered to be independent with self-care.
- c. Will need help if experiencing low blood glucose.

## **G. Field Trips and Special Events**

Students with diabetes should have the same opportunity to go on field trips and participate in special events as other students. Although they should be invited, parents should not be expected to attend these activities. Preferably, the school nurse and/or unlicensed diabetes assistant will need at least two weeks' notice to plan for coverage.

Disrupting the student's routine is a key consideration for field trips and special events. How will regular blood glucose testing, insulin administration, and meals be accommodated? What level of physical activity will be involved?

Students with diabetes on a field trip should always have snacks and supplies with them for checking blood glucose, administering insulin, and treating hypoglycemia.

Check the IHP and, as appropriate, consult the parent/guardian of the student with diabetes about how to handle classroom treats. Students with diabetes prefer not to be treated differently while participating in social events. Encourage the treat provider to offer a healthy choice, which will make it easier for the student with diabetes and healthier for all.

## **H. Disaster Planning**

Disasters are inherently stressful and disrupt routines, which make students with Type 1 diabetes particularly vulnerable and may lead to unpredictable blood glucose levels. Disaster planning should be documented in the appropriate area of the IHP.

Parents are responsible for providing diabetes supplies.

## **I. Monitoring Blood Glucose Levels**

Successful diabetes management depends largely on blood glucose monitoring, which measures the effects of balancing food, exercise, and medication. Diabetes care centers on the blood glucose level while taking into account development and other factors. The physician usually requests that a student check his/her blood glucose levels at various times during the school day such as:

1. Before eating snacks or lunch.
2. Before physical activity.
3. When the student has symptoms of either high or low blood glucose.

Frequent monitoring and recording of blood glucose levels provides the most accurate picture of the student's diabetes control. The blood glucose check provides the information necessary to make appropriate choices about food and activities. The primary health care provider or diabetes educator will provide guidance on how frequently the student's blood glucose should be checked during the day in the DMMP. There is no specific number of blood glucose checks that should be done per day as different people require different treatment options. The student's doctor, school nurse, or other diabetes professional can work with the parent or guardian and student to determine the best plan for treatment. Though it can vary, students taking insulin generally require a minimum of three or four checks per day.

Parents of students with Type 1 diabetes will need to provide the school with all the necessary medication, equipment, and/or supplies required to handle the child's medical needs. These include, but are not limited to, the following:

1. Insulin.
2. Syringes and/or one to two pump change set-ups.
3. Lancing device and lancets.
4. Blood glucose monitor, extra batteries, and strips.
5. Continuous glucose monitoring devices
6. Ketone sticks.
7. Alcohol swabs.
8. Hypoglycemia treatment supplies (e.g., glucose tabs, small juice boxes, crackers).
9. Glucagon emergency kit.

### Testing Blood Glucose

Students with Type 1 diabetes who are participating on sports teams may have to check their blood sugar level more frequently, especially during the first weeks of practice. Changes in the level of physical activity may alter dietary and insulin needs. One of the purposes of

blood glucose monitoring is to keep blood glucose levels in the target range. Blood glucose target ranges are very individualized and are determined by the healthcare provider. The range is customized to the student's needs and will change as growth and diabetes treatment changes.

Monitoring blood glucose levels is just as important for students with Type 2 diabetes. Certain medications used in the treatment of Type 2 diabetes can cause hypoglycemia. Regular blood glucose monitoring can help determine if a change in the student's treatment is needed.

Adult supervision should be provided as indicated by the student's experience with diabetes care and maturity level. Students who demonstrate appropriate blood glucose testing technique and competence in managing insulin requirements should be allowed to self-test in the classroom, at various campus areas, on field trips, and/or other locations as appropriate (National Association of School Nurses, 2006, p. 770). Students should also demonstrate an understanding of school policy and procedure in the performance of self-care tasks (Alabama Self-Administration of Medication Law, 2005). While documentation that a student understands school rules is not law, it does inform all parties of expectations, responsibilities, and right the school has to restrict/revoke the student's permission to carry and self-administer medications if the student does not adhere to the guidelines.

According to the NDEP (2010, p. 94), parents are responsible for providing the school with all equipment, supplies, medications, and plans for care of their student with diabetes. Parents are to be notified in advance when supplies are running low and as soon as possible if equipment needs to be replaced.

Disposable gloves (vinyl only) that meet OSHA requirements for handling body fluids are to be worn if someone is performing the testing other than the student (U.S. Department of Labor, 2008). The employer is responsible for providing personal protective equipment for its employees.

There are a variety of blood glucose meters (glucometers) available. When several students with diabetes are in the school, different types of meters may be used. A RN or physician, knowledgeable in the use of glucose meters, must train unlicensed school personnel who are designated to care for students with diabetes in the proper use of each style of glucose meter. Because of the variety of meters available on the market, each with different features, a copy of the instructions for each student's meter should be kept in the health office (American Diabetes Association, 2008). Additionally, some students may have an implanted continuous glucose monitoring device (CGM) that enables monitoring to occur on a more frequent basis.

Reference materials for meters should be available from the parent or manufacturer's toll-free number. Some manufacturers have instruction manuals available on their web site. As of January 2014, a list of meters with manufacturers' toll-free numbers was available on the ADA web site at:

Blood glucose monitoring is an important component of diabetes care. The benefits of blood sugar monitoring at school include:

1. Immediate test results so that adjustments in food, medication, or activity can be made.
2. Information to assess response to therapy and maximize student's ability to participate in learning opportunities.
3. Confirmation of whether symptoms relate to low (hypoglycemic) or high (hyperglycemic) blood sugar levels.
4. Decreased risk of long-term health complications to the student.

Since the blood glucose test results are the basis for diabetes care, it is important to use the proper procedure to assure accuracy of the results. ~~The ADA webpage lists several causes of inaccurate blood sugar, if you suspect an inaccurate reading notify the nurse immediately.~~

- ~~1. Operator error, such as finger not clean and dry.~~
- ~~2. Poor technique, including inadequate blood drop (not enough blood).~~
- ~~3. Code on test strip does not match code on meter (calibration).~~
- ~~4. Outdated or incorrectly stored test strip.~~
- ~~5. Unclean meter.~~
- ~~6. Product malfunction.~~

#### Procedure for Blood Glucose Testing

**Note: Parent provides necessary equipment and supplies for blood glucose testing.**

1. Review directions for blood testing meter if not familiar with its operation.
2. Wash and dry hands.
3. Assemble supplies:
  - Alcohol pad.
  - Finger lancing device.
  - Blood testing meter (glucometer).
  - Appropriate blood testing strips.
  - Tissue or cotton balls and small bandage.
  - Gloves.
  - Student log.
4. Have student wash and dry hands or test site thoroughly with soap and water. If the caregiver is performing the procedure, he/she should put on gloves. Washing student's hands and test site is sufficient for prepping the site; however, alcohol may be used for further prepping. Make sure the site is dry before testing. Alcohol may cause toughening of the skin or a burning sensation. If moisture (water or alcohol) remains on the skin, test results may be altered.

5. Turn on meter and place glucose testing strip into electronic meter according to manufacturer's instructions. Check strip code, if required.
6. Ready the lancing device according to manufacturer's instructions.
7. Select a test site. If using a finger, use the sides of fingertip. (The pads of the fingertips may be more sensitive.) Hang the arm below the level of the heart for 30 seconds to increase blood flow. **If hypoglycemia is suspected, only use the finger for testing; do not use alternate testing site.**
8. Hold the lancing device to the side of the fingertip and push the button to prick the skin. Gently squeeze the finger in a downward motion to obtain a large enough drop of blood to cover the test pad on the test strip. Avoid squeezing the site excessively because excess squeezing can contaminate the sample with tissue fluid, cause hemolysis of the sample, and traumatize the site.
9. Place blood on testing strip and complete testing according to manufacturer's instructions. Compress lanced area with tissue or cotton ball until bleeding stops.
10. Dispose of test strip and tissue or cotton ball in lined wastebasket. Dispose of lancing device in sharps container.
11. Remove and dispose of gloves. Wash hands.
12. Record results in the student's log. Refer to student's-Physician orders for appropriate actions. Do not refer to the blood glucose readings as "good" or "bad." Refer to the numbers as "in" or "out" of target range, "above" or "below" target range.

**J. Hypoglycemia** (See Glucagon Training, Emergency Action Plan, Glucagon Administration Protocol, and Low Blood Sugar Management Algorithm)

Hypoglycemia, or low blood glucose, is a serious problem that can occur for people with diabetes and is usually defined as blood glucose values below 70 mg/dL. Anyone taking insulin or oral hypoglycemic agents can suffer from low blood sugar, requiring immediate attention. Hypoglycemia is usually mild and easily treated when symptoms are detected early. If untreated, it can become more serious and even life threatening.

*Low blood sugar can occur very quickly* and must be treated immediately. If the blood sugar level falls very low, a person can become unconscious and have convulsions (seizures). When blood sugar falls that low, the person must be treated promptly with the administration of glucagon.

Common causes of low blood sugar include:

1. Too much medication (insulin) in relationship to circulation blood glucose.
2. Change in meal or snack times or not enough food.
3. Skipping or not finishing meals or snacks.
4. Increased physical activity or exercise.

Symptoms of hypoglycemia can range from mild to severe, and may vary from student to student. Many students will not have an awareness of low blood sugar symptoms until around 7 or 8 years old.

<b>Mild Symptoms</b>	<b>Moderate Symptoms</b>	<b>Severe Symptoms</b>
<ul style="list-style-type: none"> <li>• Hunger</li> <li>• Sweating</li> <li>• Feeling shaky</li> <li>• Feeling nervous</li> </ul>	<ul style="list-style-type: none"> <li>• Headache</li> <li>• Behavior changes</li> <li>• Blurred, impaired or double vision</li> <li>• Crabbiness or confusion</li> <li>• Drowsiness</li> <li>• Weakness</li> <li>• Difficulty talking</li> </ul>	<ul style="list-style-type: none"> <li>• Unresponsive (i.e. unable or unwilling to take oral feeding)</li> <li>• Loss of consciousness</li> <li>• Convulsions (seizure activity)</li> </ul>

### Prevention

1. Students should check blood sugar routinely.
2. Testing in the classroom should be allowed.
3. Meals and snacks should be eaten on as regular a schedule as possible.
4. Meals and snacks should not be skipped.
5. Students should be allowed to eat in the classroom.
6. Injection sites should be rotated.
7. The exact amount of insulin administered should be double-checked.
8. There should be a plan for consuming extra food and/or reducing insulin amounts before exercise in accordance with the physician orders.
9. Bedtime snacks on unusually active days should be increased to avoid hypoglycemia during the night while asleep.

### Treatment

Treatment depends on the severity of the symptoms. Since some of the symptoms are similar to those for hyperglycemia, always treat for hypoglycemia if in doubt. Specific treatment should be outlined in the Physician orders and the Individual Health Plan, but it will look similar to the information given below:

#### For students who can swallow, follow the “Rule of 15”

1. Treat with 15 grams of fast-acting carbohydrate source. Examples of appropriate foods:
  - a. 4 oz. juice
  - b. 6-8 oz. regular soda
  - c. 2-4 glucose tablets
  - d. 5-6 Lifesavers or similar candy

- e. 6-8 oz. fat free milk
- 2. Wait 15 minutes and then recheck the blood sugar.
- 3. If the blood sugar is less than the target range, usually less than 70 mg/dL, keep repeating the 15 grams of carbohydrate and rechecking blood sugar level 15 minutes later until the blood glucose level is back in the desired range. If unable to raise the blood glucose to > 70 mg/dL despite fast-acting glucose sources, notify the parents immediately. Refer to the IHP for the number of times to treat before contacting the parent.
- 4. When the blood sugar level is back in the target range, usually over 70 mg/dL, and it is time for a snack or meal, allow the student to eat as usual and cover the meal with insulin as ordered. If the meal or snack is more than an hour away or the student will be participating in physical activity, give a protein and carbohydrate snack. Examples of appropriate foods:
  - a. ½ sandwich with ½ cup milk
  - b. 4 graham cracker squares with peanut butter or cheese
  - c. 6 saltine crackers with peanut butter or cheese

**For students who cannot swallow, this is a medical emergency!!**

They may be unconscious, unresponsive, or having a seizure. Never attempt to give the student food or drink or put anything in the mouth when a student is experiencing these symptoms!

- 1. Call 911.
- 2. Position child on his/her side in a safe area. After administration of glucagon, as the child regains consciousness, nausea and vomiting usually occur.
- 3. Inject glucagon per glucagon protocol.
- 4. Notify parent and EMS

**K. Hyperglycemia**

Hyperglycemia, or high blood sugar, occurs when the blood glucose levels are above the target range as specified by the student's health-care provider. Most students with diabetes will experience blood glucose levels above their target range at various times throughout the day. These elevations may be minimally above the target range and short in duration or they can be in excess of the target range and of longer duration.

Common causes of high blood sugar include:

- 1. Too little medication (insulin) in relationship to circulation blood glucose.
- 2. Food intake that has not been covered by the appropriate dose of insulin.
- 3. Decreased physical activity.
- 4. Illness.
- 5. Infection.



6. Injury.
7. Severe physical or emotional stress.

Symptoms of hyperglycemia can range from mild to moderate. Mild to moderate symptoms are typically short-term and can impair cognitive abilities and adversely affect the student's academic performance. Severe symptoms of hyperglycemia are caused by dehydration and the buildup of ketones in the blood. Severe symptoms may take hours or days to occur. If the blood glucose level remains moderately high in the long term, the risk for serious complications such as kidney failure, blindness, heart disease, stroke, nerve disease, gum disease, and amputations increase significantly.

<b>Mild to Moderate Symptoms</b>	<b>Severe Symptoms</b>
<ul style="list-style-type: none"> <li>• Increased thirst</li> <li>• Dry mouth</li> <li>• Frequent or increased urination</li> <li>• Change in appetite</li> <li>• Nausea</li> <li>• Blurry vision</li> <li>• Fatigue</li> </ul>	<ul style="list-style-type: none"> <li>• Severe abdominal pain with vomiting</li> <li>• Dry mouth and extreme thirst</li> <li>• Fruity breath</li> <li>• Heavy breathing and shortness of breath</li> <li>• Chest pain</li> <li>• Increased sleepiness or lethargy</li> <li>• Decreased level of consciousness</li> </ul>

### Prevention

Timing is very important. The ADA recommends that individuals with diabetes stick to a schedule: eat on time, check blood glucose on time, take medications on time, and exercise on time. Make sure that insulin dosing is accurate to account for meals and snacks.

### Treatment

<b>Mild</b>	<b>Moderate</b>	<b>Severe</b>
<ul style="list-style-type: none"> <li>• Drink zero-calorie fluids (i.e., water)</li> <li>• Check urine ketones</li> <li>• Decrease activity if ketones present</li> <li>• Notify parents</li> </ul>	<ul style="list-style-type: none"> <li>• Drink zero-calorie fluids (i.e., water)</li> <li>• Check urine ketones</li> <li>• Decrease activity, call the doctor, anti-nausea suppository if prescribed</li> <li>• Notify parents</li> </ul>	<ul style="list-style-type: none"> <li>• Call 911</li> <li>• Notify parents</li> <li>• Notify healthcare provider if parent cannot be reached</li> </ul>

Students should have free and unrestricted access to water and sugar-free liquids and the restroom.

Parameters as to when to notify parents and/or the physician should be contained in the DMMP.

Prolonged hyperglycemia can cause a potentially life-threatening condition called diabetic ketoacidosis (DKA). Symptoms of DKA include a fruity breath odor, nausea, vomiting,

stomach pain, and, if untreated, deep breathing, increased sleepiness, coma, and death. Students who use insulin pumps can go into DKA in a matter of hours if their pumps stop delivering insulin appropriately.

## **L. Introduction to Ketones**

Urine testing for glucose is no longer used for diabetic management. It is recommended that urine be tested to detect the presence of ketones. The DMMP will provide authorization and instructions for monitoring the urine for ketones at school. The parent will provide the necessary supplies for testing urine for ketones. When opening a bottle of ketone test strips, be sure to note the date and your initials on the bottle. Ketone strips in a bottle expire six months after opening (National Association of School Nurses, 2011, p. 4.8).

When the body can't use glucose, it uses its own fat and muscle tissue for energy. Ketones are acids that are left in the blood when fat is used for energy. This can happen when there is not enough insulin given, during an illness or time of extreme bodily stress, or with dehydration (American Diabetes Association, 2008). If the body does not receive adequate amounts of insulin so that it can utilize glucose, not only will blood glucose rise, but ketones will continue to build up in the blood. Increased levels of ketones result in a condition called *diabetic ketoacidosis*, also referred to as "DKA."

When there are ketones present, the body will try to get rid of them through the kidneys and lungs. The ketones will show up in the urine and may cause the breath to smell fruity. Besides fruity breath, symptoms may include nausea, vomiting, abdominal pain, rapid breathing, thirst, frequent urination, and fatigue/lethargy/drowsiness. It is important to detect and treat the presence of ketones early to prevent the build-up of ketones and progression of symptoms to DKA. "DKA is an emergency and the number one reason for the hospitalization of children with diabetes. Untreated, progression to DKA may lead to severe dehydration, coma, permanent brain damage, or death." (American Diabetes Association, 2008).

DKA usually progresses over hours or days, but may progress more quickly if the student uses an insulin pump or has an illness or infection (American Diabetes Association, 2008). The student is most at risk when symptoms are mistaken for the flu, blood glucose is not checked, and high blood glucose goes untreated.

### Procedure for Testing Urine

1. Review directions for urine ketone testing if not familiar with them. Wash hands.
2. Gather supplies:
  - Bottle of ketone test strips
  - Urine cup
  - Gloves if caregiver performing the test
  - Clock or watch with second hand
3. Have student urinate into cup.

4. Caregiver should wear gloves if performing test for student. Dip the test strip into the urine and shake off excess urine.
5. Wait the specified amount of time as directed on the bottle of test strips, usually 15 seconds.
6. Read the results by comparing the color on the test strip to the chart on the bottle.
7. Record the results on the student's log and take action per the DMMP.
  - a. In general, if results are moderate or severe, the student should not engage in physical activity and the parent/guardian should be called to take the student home for observation and/or medical care.
  - b. If urine ketone results are trace or small, notify the parent, increase the fluid intake, and monitor the child.

## **M. Insulin Basics**

### Proper Storage of Insulin

It is important that insulin be stored properly. According to the ADA (2008), insulin vials should not be kept beyond expiration dates or exposed to extremes in temperature. Extreme temperatures, below 36 F or above 86 F, and excess agitation should be avoided. Freezing results in insulin becoming inactive.

Most types of opened vials of insulin will stay fresh, out of refrigeration, for up to one month, if temperatures do not exceed 86 F (American Diabetes Association, 2008). Opened insulin pen cartridges may last less than 30 days. Unopened vials should be refrigerated and are considered good until their expiration date. Always refer to manufacturer recommendations for appropriate storage instructions.

### Types of Insulin

According to the ADA (2008), there are four basic types of insulin and each is classed by how it works:

1. Rapid-acting - Humalog ®, Novolog ®, Apidra
2. Short-acting - Regular
3. Intermediate-acting - NPH
4. Long-acting - Glargine (Lantus), Detemir (Levemir)

**Rapid-acting insulins** – Take effect quickly, within 10-15 minutes. This type of insulin is used primarily to treat high blood sugars to “cover” an increase in blood sugar after eating and/or right before meals. It is also used in insulin pumps. If the student receives an injection of rapid-acting insulin right before a meal or snack, make sure that it is not delayed for more than 15 minutes. This type of insulin may be referred to as bolus insulin.

**Short-acting insulins** – Similar to rapid-acting ones. They may also be called bolus insulin, but when compared to rapid-acting insulin, their peak is delayed and their duration is longer.

**Intermediate and long-acting insulins** – Called basal insulins. They are not used to treat acute high blood sugar, but rather for coverage during times when the person is not eating, overnight, or between meals.

*See chart was from the ADA Power Point, Insulin Basics 2008. It shows the different types of insulin including peaks and durations.*

### Dosage

Doses of insulin are measured in “units.” “There are 10 milliliters in one vial of insulin, which is equivalent to 1000 units. One unit of insulin can alter blood glucose levels; therefore, *it is imperative that the ordered dosage be EXACT!*” (Southall, 2004). Whenever possible, a second person should verify the insulin dose before it is given. Insulin should only be administered from a properly labeled prescription vial from a pharmacy. Specific written authorization from the student’s health care prescriber and written parental consent is required for insulin administration. Written dosing instructions and consents should be contained in the IHP.

### Procedure for Insulin Administration by Syringe

This injection procedure is for the administration of regular or rapid-acting insulin, not for mixing with other insulin.

Training of the Unlicensed Diabetic Assistant should be done by a registered nurse who has completed the ALSDE/ABN Train-the-Trainer Course. Insulin should be administered only in accordance with the orders of a licensed prescriber and written parental permission. Specific guidelines should be provided by the primary health care provider for the conditions (blood glucose levels) under which it is to be administered. Always remember the seven rights of medication administration.

**Note: Parent provides necessary equipment, supplies, and medications.**

1. Wash hands.
2. Assemble equipment
  - a. Vial of insulin
  - b. Insulin syringe with needle
  - c. Alcohol prep pad
  - d. Cotton balls or spot bandage (optional)
  - e. Gloves, if done by anyone other than the student
  - f. Sharps container
3. If insulin is cold, warm the vial in the palm of the hand to room temperature. Injecting cold insulin may cause pain and may affect absorption.
4. Check insulin type/brand for agreement with the prescriber’s order.

- a. If this is a new bottle of insulin, remove the flat, colored cap. Record the date the bottle is opened and the initials of the individual who opened the bottle on the label. **Do not** remove the rubber stopper or the metal band under the cap.
- b. **Check the expiration date** of the vial of insulin. If the bottle was previously opened, also check the date it was opened.
5. Clean the rubber top of the insulin vial and let dry for a few seconds.
6. Remove the cap from the syringe. Fill the syringe with air to the number of units of insulin needed. Air is always injected into the vial to prevent creating a vacuum inside the vial as insulin is removed. Inject air into the insulin bottle with syringe remaining in bottle, invert and pull plunger back beyond the number of units desired. Keeping the syringe in an upright position, clear any air by pulling plunger back and tapping syringe to raise air bubbles to the top. Push plunger to desired amount of units, ensuring that no air bubbles remain and withdraw the syringe. ***Air bubbles left in the syringe can alter the desired dose.***
7. Slip needle back into cap without touching cap needle if syringe must be re-capped.
8. Put on gloves, select the site to be used, prep with alcohol, and allow to dry. If area is dirty, wash with soap and water and dry. Any subcutaneous tissue can be used for injection sites. The best absorption occurs in the lower abdomen, followed by the upper/outer arms, tops of the thighs, and lastly the upper areas of the buttocks. Exercise and heat (like the warmth from a heating pad or whirlpool) also hastens absorption of an injection area.
9. Pinch up skin and tissue with one hand. With the other hand, hold the syringe with the eye of the needle pointing upward, like a pencil. Dart the needle into the “soft pocket” (area that lies directly in front or behind the pinched up skin) at a 90-degree angle. Push the plunger.
10. Release pinched up skin, count to five, and then remove the needle while applying gentle pressure at the injection site for 10-15 seconds. This will help to prevent leakage from the site. *Take care to avoid injecting into the muscle as it will hasten absorption. Do not massage the area as it irritates the tissue and hastens absorption.*
11. Dispose of the syringe with needle intact into a sharps container. **DO NOT RECAP SYRINGE.** *Recapping a contaminated needle can result in a needle stick injury.*
12. Document in student log the dose of insulin given, time given, site used, and any reactions or problems noted.

#### Procedure for Insulin Administration by Pen Injector



An insulin pen is an insulin delivery system that generally looks like a large pen, uses an insulin cartridge rather than a vial, and uses disposable needles. Insulin pens assist in preventing dose errors that may occur with a syringe and vial. It provides a means of delivering an accurate dose in a convenient manner. Insulin pens should be handled and stored according to manufacturer's instructions. There are several styles of insulin pens depending on the manufacturer, but the procedure for use is similar.

Some pens use replaceable insulin cartridges. When the cartridge is empty a new cartridge is placed in the pen. Other pens do not use replaceable cartridges and the whole pen is disposed of when the cartridge is empty. Most pens use special pen needles that can be extremely short and thin. All pens use replaceable needles.

It is easy to use an insulin pen. If a pen with insulin suspension is used, such as NPH or premixed insulin, gently shake the pen to be sure the insulin is mixed prior to use. Pens are easy enough for students to use and are excellent for use at school or while out and about. Pen needles should be removed after each use to prevent air from entering the cartridge and to prevent insulin from leaking out. There are many different pen needles available in varying lengths and diameters.

The smallest pen needles are very short and very thin and help minimize the discomfort of injection. Pens need to be held in place for several seconds after the insulin is delivered to make sure that no insulin leaks out. Syringe users who switch to pens should pay close attention to the injection site and test their blood glucose often as they become accustomed to pen injections.

While pens offer injection convenience, they don't allow mixing of multiple types of insulin. Pens offer repeated dosing accuracy compared with syringes. Also, because dosing with a pen involves dialing a mechanical device and not looking at the side of a syringe, insulin users with reduced visual acuity can be assured of accurate dosing with a pen.

1. Obtain a blood glucose reading prior to insulin administration.
2. Determine insulin dose with health care provider's orders.
3. Wash hands.
4. Assemble equipment:
  - a. Insulin pen device
  - b. Pen needle
  - c. Alcohol prep pad
  - d. Cotton ball or spot bandage (optional)
  - e. Gloves (if done by anyone other than student)
  - f. Sharps container
5. Check insulin type/brand. This must match health care provider's written orders.
6. Check the level of insulin remaining in the insulin cartridge. *Cartridges are made for multiple doses. Ensure that enough insulin remains in the cartridge for accurate dosing.*
7. Attach new needle. Remove outer plastic cap and plastic needle cover. Place outer cap on a flat surface with open end facing up. *This will assist with needle disposal after insulin is given.*

8. Dial in two (2) units of insulin to perform an “air shot” to “prime” the needle. Insulin should appear at the needle tip; if it does not, repeat the procedure. *Change in temperature can cause air intake. This procedure ensures that any accumulated air will be released, thereby ensuring accurate insulin dosage.*
9. Dial in prescribed dose.
10. Cleanse the skin with alcohol and allow to dry before administering the injection.
11. Pinch up the skin at the selected site and dart the needle into the soft pocket at a 90-degree angle. *The soft pocket lies directly in front or back of the pinched up skin.*
12. Push the plunger down and inject insulin at a steady rate.
13. Release the pinched up skin. Count slowly to three (3) or five (5) and then remove the needle. *Some pen manufacturers require a longer count.*
14. Grasping the pen, place the needle into plastic needle cap that was left upright on flat surface. Unscrew the needle tip and carefully discard into a sharps container. *Do not lift the cap up with fingers to cover needle tip. Leave cap on the counter and use the pen to place the needle into cap to avoid the possibility of a needle stick injury. The needle must be changed after each injection, as leaving the pen needle attached leaves an open passageway into the insulin and contamination may occur.*
15. Document appropriately in student log.

#### Procedure for Insulin Administration by Pump



Insulin pumps are computerized devices about the size of a cell phone or pager that deliver a continuous pulse of insulin. Students frequently wear their pumps hooked to their belts or in their pants or shirt pocket like a cell phone. Insulin is delivered through tubing that ends with a short plastic catheter or metal needle or cannula, inserted just under the skin in the fatty tissue.

The internal workings of a pump are simple; it has a reservoir that looks like a large version of a regular syringe. Typically the reservoir holds a two- to three-day supply of rapid-acting insulin. Pumps immediately supply insulin to the wearer; therefore, medium- or long-lasting insulin is not used. The pump is like a syringe with a plunger that is pushed by a small pump to force the insulin out of the reservoir.

The pump must be told exactly what to do. It is programmed to deliver a “basal” amount of insulin throughout the day and boluses as needed for meals and when the wearer’s blood sugar is high. For example, if the wearer’s meal plan calls for five units to cover a meal, he or she programs that number on the pump’s screen. With this command, the exact amount of insulin is pumped into the thin, clear plastic tubing that delivers the insulin via the cannula resting just below the skin in the fatty tissue of the pump wearer. Newer models may have

calculation and/or reminder “wizard” functions to help users (American Diabetes Association, 2008).

This cannula is changed every two or three days. With the aid of a small needle, the plastic cannula is inserted through the skin into the fatty tissue and then taped in place. In newer products, the needle is removed and only a soft catheter remains in place. The insulin bolus empties out of the cannula and is absorbed into the body in the same way insulin injected through a syringe would be. The infusion set is where the clear plastic tube connects with the cannula. The student can disconnect the tube from the set for sports, showering, or any other short activity.

The pump delivers a basal rate of insulin (the constant base line) in much the same way as the human pancreas. Working with his healthcare team, the student with a pump programs the amount of insulin to be released throughout the day. Not all pumps are the same, but they do work in a similar manner.

These machines do a pretty good job of imitating a pancreas, but unlike a healthy pancreas, pumps can’t work automatically. They can’t decide how much insulin you need or when you need it. This makes the user the most important part of the pump. Every action a pump makes starts with the user. So everything that is important in controlling diabetes by using insulin and syringes is just as important when wearing a pump. To use a pump, one must be willing to check blood glucose levels frequently and learn how to make adjustments in insulin, food, and physical activity in response to those test results. The student may or may not need assistance with these tasks. It depends upon the individual (American Diabetes Association, 2008).

Each pump is different and those trained to administer insulin need to be trained on the individual student’s model. The IHP should specify where at school the student will store the backup pump supplies and alternate means of administering insulin in case there is a problem such as the pump malfunctions, cannula comes loose, the blood glucose is well above the target range, or there are ketones in the urine (American Diabetes Association, 2008). Staff should also know how to suspend or disconnect the pump in case the student becomes unconscious or has a seizure.

As truly remarkable as a pump is, it is not a cure for diabetes. It is simply a different way to deliver needed insulin. For some people, it’s a better way.

## **N. Carbohydrates**

There are three types of nutrients: carbohydrates, fats, and protein. Carbohydrate is the nutrient that has the most significant effect on blood glucose levels. Food with carbohydrates can be grouped into four categories: natural sugar (in fruit and milk), starches with fiber (raw vegetables, beans, whole grains), starches without fiber (white flour and refined grain products), and concentrated sugar (cake, candy and non-diet soft drinks).

When counting carbohydrates, include BOTH sugars and starches.



## O. Glucagon

Glucagon is a hormone made in the pancreas that frees sugar stored in the liver and raises the blood glucose level. Glucagon is used in an emergency situation to raise the blood glucose level in an unresponsive, hypoglycemic student.

The first thing you need to know is that the best way to give glucagon is to not have to give it! Preventing such a low blood sugar that glucagon is required is actually the goal. **Glucagon is only given when the student with diabetes is unconscious.** If the student is awake and talking but has a low blood sugar (you should always check blood sugar before even thinking about glucagon), a soda with sugar in it, sugar tablets, or sugar gel are all acceptable methods of rapidly bringing up a blood sugar.

Some of the things you can do before thinking about glucagon with a student that has a low blood sugar are as follows:

- Give a glass of orange juice. Try a sip first to be sure the student can swallow without vomiting.
- Give a soda with sugar in it such as a Coke or Pepsi or some other brand that is readily available.
- Use sugar gel and rub it on the student's gums or inside of cheeks. The sugar gel is rapidly absorbed through the mucous membranes in the mouth.
- Give the student sugar tablets if that is what the parents sent. Sugar tablets are grainy and dry so have something available for the student to drink.

## Module II: Skills Learning Objectives

COMPONENT	LEARNING OBJECTIVES	TEACHING RESOURCES	ASSESSMENT	HANDOUTS
A. Review Student's IHP	1. Discuss <ul style="list-style-type: none"> <li>• Provider orders</li> <li>• Algorithms</li> <li>• Emergency Action Plan</li> </ul>	Student's IHP	Post-Test on Diabetes Mgt. at School for the Unlicensed Diabetes Assistant	
B. Monitoring Blood Glucose	1. Review equipment used to monitor blood glucose 2. Describe the different types of glucose meters and basic operation 3. Perform a blood glucose check 4. Interpret test results	ADA School Training Curriculum 2008, Blood Glucose Monitoring slides 12-20	Glucose Monitoring Checklist	
C. Checking Ketones	1. Recognize the importance of monitoring ketones 2. Demonstrate how to perform a ketone test	ADA School Training Curriculum 2008, Ketones Slides 8-14	Urine Ketone Monitoring Checklist	
D. Counting Carbohydrates	1. Review carbohydrate counting 2. Describe factors that influence insulin dosing 3. Demonstrate carbohydrate counting	ADA School Training Curriculum 2008, Nutrition and Physical Activity 2008, Slides 8-10	Carbohydrate Counting and Correction Dosage Checklist	
		NDEP Helping the Student, pp. 51-54		

	4. Demonstrate correction dose determination based on the student's IHP	Pink Panther Book: Food Management and Diabetes		
E. Insulin by Syringe	1. Identify types of syringes 2. Discuss injection sites and site rotation 3. Demonstrate preparation steps for insulin administration <ul style="list-style-type: none"> <li>• Check IHP for correct dose</li> <li>• How to dose insulin with a syringe</li> <li>• How to administer insulin with a syringe</li> </ul>	ADA School Training Curriculum 2008 , Insulin by syringe and vial	Insulin Administration by Syringe Checklist	
		Pink Panther Book: Drawing Up and Giving Insulin, pp. 77-86		
F. Insulin by Pen	1. Identify types of insulin pens 2. Discuss injection sites and site rotation 3. Demonstrate preparation steps for insulin administration by pen <ul style="list-style-type: none"> <li>• Check IHP for correct dose</li> <li>• How to dose insulin with an insulin pen</li> <li>• How to administer insulin via insulin pen</li> </ul>	ADA School Training Curriculum 2008, Insulin by Pen	Insulin Administration by Pen Checklist	
		Pink Panther Book: Drawing Up and Giving Insulin, pp. 86-88		
		Wisconsin Dept. of Public Instruction, PowerPoint – Insulin Administration Using an Insulin Pen <a href="http://sspw.dpi.wi.gov/sites/default/files/imce/sspw/ppt/sninsulinpen.ppt">sspw.dpi.wi.gov/sites/default/files/imce/sspw/ppt/sninsulinpen.ppt</a>		

G. Insulin by Pump	<ol style="list-style-type: none"> <li>1. Review insulin pumps</li> <li>2. Identify supplies students using a pump need to have available</li> <li>3. Demonstrate basic operating functions of the pump <ul style="list-style-type: none"> <li>• Check IHP for correct dose</li> <li>• How to select the correct insulin dose</li> <li>• How to administer insulin via insulin pump appropriately</li> </ul> </li> </ol>	<p>ADA School Training Curriculum 2008, Insulin by Pump, Slides 1-10</p> <p>Pink Panther Book: Insulin Pumps</p>	Insulin Administration by Pump Checklist	
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H. Glucagon Appendix 1	<ol style="list-style-type: none"> <li>1. Review equipment used to monitor blood glucose</li> <li>2. Describe the different types of glucose meters and basic operation</li> <li>3. Perform a blood glucose check</li> <li>4. Interpret test results</li> <li>5. Recognize the importance of monitoring ketones</li> <li>6. Demonstrate how to perform a ketone test</li> </ol>	<p>Alabama Glucagon Administration Protocol (approved 9/15/14) Revised August 2018</p> <p>NY Glucagon Training PPT, Slides 15-36</p> <p>ADA School Training Curriculum 2008, Glucagon Administration</p> <p>Pink Panther Book: Low Blood Sugar, p. 43</p> <p>Glucagon injection demonstration kits are available from the pharmaceutical companies Lilly and Novo Nordisk. To obtain kits, contact the company directly. -Eli-Lilly 1-800-545-5979 -Novo Nordisk 1-800-727-6500</p>		
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## **Module II: Skills Learning Objective**

### **Training Materials Needed**

This guide indicates where to locate training information about each component in the curriculum from at least one resource. School nurses should use at least one source below when training an unlicensed school staff member to perform a diabetes task. Once the trainee knows the material and can safely perform the skill in question, reviewing the alternative sources should be voluntary.

This curriculum draws on three primary resources; none of them has information specific to all of the curriculum components:

1. *Diabetes Care Tasks at School: What Key Personnel Need to Know. School Training Modules*\* American Diabetes Association (*Safe at School, ADA School Training Curriculum*)

These linked PowerPoint presentations with accompanying video clips were designed to help school nurses prepare school personnel to provide appropriate care to students with diabetes. The video DVD modules supplement the PowerPoint modules on the CD and could be used as an introduction to the skills taught in Module 1 of the curriculum. Many of the checklists for assessing skills included in this curriculum are based on an *ADA School Training Curriculum* presentation/video clip. Unless otherwise noted in the curriculum, the entire PowerPoint Presentation should be used when teaching a component.

2. *Helping the Student with Diabetes Succeed*. National Diabetes Education Program (available online at: <http://ndep.nih.gov/publications/PublicationDetail.aspx?PubId=97#main>)

This manual takes a comprehensive approach to diabetes management at school. As a result, it provides information for all manner of school personnel (bus drivers, coaches, etc.) and parents. It has less specific how-to direction than *ADA School Training Curriculum*. It is the primary source for much of the knowledge section in this curriculum. The reference page numbers for this document are from the printed version, not the .pdf (printed page 1 = .pdf page 7).

3. Chase P. *Understanding Diabetes* (aka the Pink Panther Book). UCD Barbara Davis Center for Childhood Diabetes (available online at: <http://www.ucdenver.edu/academics/colleges/medicalschoo/cen/BarbaraDavis/OnlineBooks/books/Pages/UnderstandingDiabetes.aspx>; must purchase (\$25) to print)

This book is often used by healthcare providers to educate families about diabetes, so many parents may be familiar with it. Its content is excellent and highly detailed. School nurses may find that some of the content is extraneous to their training needs.

Some additional resources are available to support instruction for a particular task. These materials are included in the pertinent sections of the curriculum.

**Appendix 1 – Glucagon Training**  
**Revised August 2018**



Student Name: \_\_\_\_\_ School: \_\_\_\_\_  
Local Education Agency: \_\_\_\_\_ School Year: \_\_\_\_\_  
Registered Nurse/Instructor: \_\_\_\_\_  
Unlicensed Diabetes Assistant: \_\_\_\_\_

## Emergency Glucagon Administration Protocol

This protocol addresses the training of the Unlicensed Diabetes Assistant to administer glucagon injections to students experiencing severe hypoglycemia (low blood sugar). The training session must allow enough time for the trainee (trained unlicensed diabetic assistant) to read through the protocol, observe the procedure for administering glucagon, provide a return demonstration, ask questions, and complete the evaluation tool. The trainee's past experience with giving injections and/or their current comfort level should be assessed to determine how to best demonstrate the procedure and provide a viable practice opportunity.

### TWO KEY OUTCOMES:

- The trainee will be trained to recognize signs and symptoms of severe hypoglycemia.
- The trainee will successfully administer glucagon using a glucagon demonstration kit.

### Overview of Diabetes

Diabetes is a lifelong disease that affects millions of people in the United States. Diabetes affects the way the body uses food. Normally, food is digested in the stomach and intestines, changed into glucose, and then absorbed into the bloodstream. At the same time, the pancreas produces insulin, allowing glucose to enter cells which is used for energy. In persons with diabetes, this system is flawed, resulting in a build-up of glucose in the blood, and a lack of glucose entering cells.

#### There are two main types of diabetes:

*Type 1 diabetes* – most often found in children and young adults. It is caused when the pancreas does not make insulin. With too little, or no insulin, glucose cannot enter the cells of the body to be used for energy. Type 1 diabetes is usually treated with insulin injections.

*Type 2 diabetes* – most commonly found in adults, but has been seen increasing in children. It is caused when a person's cells do not respond to insulin or produce little insulin. Type 2 diabetes may be treated with diet, oral medication and/or insulin injections.

Both types of diabetes result in high levels of sugar in the blood. The body attempts to compensate by increasing the amount of water through the kidneys to try to "flush" the excess levels of sugar from the body. This process will result in symptoms of diabetes: increased thirst; frequent urination; increased hunger (because the body isn't getting enough energy); weight loss (because the body can't get sugar into the cells and begins to burn fat and protein for energy); irritability; flushed, dry skin; nausea and vomiting; and weakness and fatigue. Over the long term, high blood sugar levels may cause serious complications such as blindness, renal disease, and cardiovascular disease. Therefore, it is important to control blood sugar levels. Management of diabetes consists of an intricate balance between insulin, food intake, physical activity, and emotional stresses. Anything that tips this delicate balance can cause fluctuations in blood sugar.

Revised August 2018



## GLUCAGON PROTOCOL CONTINUES: PREVENTION IS THE GOAL



YOUTH NAME: \_\_\_\_\_ School: \_\_\_\_\_

Local Health Agency: \_\_\_\_\_ School Year: \_\_\_\_\_

Registered Nurse/Instructor: \_\_\_\_\_

Related Unlabeled/Diabetic Supplies: \_\_\_\_\_

### Hypoglycemia (low blood sugar)

Hypoglycemia, or low blood sugar, is a serious problem that can occur for people with diabetes. Anyone taking insulin or oral hypoglycemic agents can suffer from low blood sugar, requiring immediate attention. Hypoglycemia is usually mild and easily treated when symptoms are detected early. If untreated, it can become more serious and even life threatening.

*Low blood sugar can occur very quickly* and must be treated immediately. If the blood sugar level falls very low, a person can become unconscious and have convulsions (seizures). When blood sugar falls that low, the person must be treated promptly with the administration of glucagon. Common causes of low blood sugar include:

- Too much medication (insulin) in relationship to circulation blood glucose
- Change in meal or snack times or not enough food
- Skipping or not finishing meals or snacks
- Increased physical activity or exercise
- Illness

Symptoms of hypoglycemia can range from mild to severe, and include any or all of the following. It is important to note that symptoms of hypoglycemia may vary from person to person.

### Steps for treating Severe Hypoglycemia

1. Determine if the person with diabetes is having severe symptoms of hypoglycemia. **When in doubt – treat!**
2. If the person is unwilling or unable to take oral feeding, is unresponsive or unconscious, or is experiencing respiratory distress, call appropriate emergency response system (911).
3. DO NOT attempt to give any food or liquid to a person who cannot swallow or is unconscious/unresponsive.
4. Obtain **Glucagon Emergency Kit** and prepare for glucagon injection. **Suspend or disconnect pump if applicable, and as directed by IHP and provider order.**

Symptoms of hypoglycemia can range from mild to severe, and include any or all of the following. It is important to note that symptoms of hypoglycemia may vary from person to person.

## GLUCAGON PROTOCOL CONTINUES: PREVENTION IS THE GOAL



Student Name: \_\_\_\_\_ of \_\_\_\_\_  
 Local Education Agency: \_\_\_\_\_ School Year: \_\_\_\_\_  
 Registered Nurse/Instructor: \_\_\_\_\_  
 Trained, Unlicensed Diabetic Assistant: \_\_\_\_\_

Mild Symptoms	Moderate Symptoms	Severe Symptoms Glucagon Administration
<ul style="list-style-type: none"> <li>• Hunger</li> <li>• Sweating</li> <li>• Feeling shaky</li> <li>• Feeling nervous</li> </ul>	<ul style="list-style-type: none"> <li>• Headache</li> <li>• Behavior changes</li> <li>• Blurred, impaired or double vision</li> <li>• Crabbiness or confusion</li> <li>• Drowsiness</li> <li>• Weakness</li> <li>• Difficulty talking</li> </ul>	<ul style="list-style-type: none"> <li>• Unresponsive (i.e. unable or unwilling to take oral feeding)</li> <li>• Loss of consciousness</li> <li>• Convulsions (seizure activity)</li> </ul>

### Administration of Glucagon

Glucagon is available in a prepared package which includes everything needed for administration. This package is called a **Glucagon Emergency Kit**, and can only be obtained with a physician's prescription. The **Glucagon Emergency Kit** contains a bottle of glucagon in powder form, and a syringe filled with a special diluting liquid.

The **Glucagon Emergency Kit**: The glucagon powder is not to be mixed with the diluting solution until just immediately before administration. Glucagon is administered by injection. Any unused portion should be discarded.

### Preparing for Glucagon Injection

1. Remove the flip-off seal from the vial of powdered glucagon.
2. Remove the needle cover from the syringe filled with diluting fluid.
3. Insert the needle into the center of the rubber stopper on the vial of powdered glucagon.
4. Push the plunger on the syringe to inject the entire contents of the liquid solution into the vial of powder glucagon.
5. **Do not remove** needle/syringe from the vial.
6. Without removing the syringe, hold syringe and vial in one hand and gently swirl the vial until all powder is dissolved and solution is clear.

***Glucagon should not be used unless the solution is clear and of a water-like consistency.***

7. Slowly withdraw the correct amount of solution from the vial into the syringe as specified in the Physician Parental Authorization form in the student's Individual Health Care Plan.
8. Clean injection site on upper arm, or thigh with alcohol swab.

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## GLUCAGON PROTOCOL CONTINUES: PREVENTION IS THE GOAL



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

Local Education Agency: \_\_\_\_\_ School Year: \_\_\_\_\_

Registered Nurse/Instructor: \_\_\_\_\_

Trained Unlicensed Diabetic Assistant: \_\_\_\_\_

9. Pinch the skin at the site of injection, hold syringe like a pen, quickly insert needle at a 90 degree angle into cleansed area and inject solution. Withdraw needle, then apply light pressure at injection site.
10. **DO NOT RECAP THE NEEDLE**. Discard into a sharps container, or if sharps container is unavailable, PLACE back into the Glucagon Emergency Kit.

*Note: It may be difficult to give an injection to a person who is having a seizure or is demonstrating combative behavior. In this situation, it is best to have assistance from another caregiver.*

Revised August 2018



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

Local Education Agency: \_\_\_\_\_ School Year: \_\_\_\_\_

Registered Nurse/Instructor: \_\_\_\_\_

Trained Unlicensed Diabetic Assistant: \_\_\_\_\_

### **Care of the Person after Administration of Glucagon**

1. Turn the person on his/her side. Ensure 911 has been notified. One of the most common side effects of glucagon is vomiting. Therefore, positioning on the side will prevent possible choking and allow for drainage of secretions from the mouth.
2. Give the child a fast acting sugar such as juice or cake icing when he or she is able to swallow.
3. Glucagon is a fast-acting drug, and the person will usually improve within 20 minutes. Warning: Many times after a person has received glucagon, he/she may experience nausea and vomiting.
4. Do not leave the student unattended. Remain with the student until emergency medical services arrive. Upon their arrival, give a detailed verbal report. Emergency service personnel will take over medical control.
5. It may take 20 minutes for the glucagon to work so when paramedics arrive, let them know you gave the child glucagon. The paramedics may start an IV and administer more glucose.

**Link to the American Diabetic Association module and training:**

<http://www.diabetes.org/living-with-diabetes/parents-and-kids/diabetes-care-at-school/school-staff-trainings/>

**Watch this video for detail:**

[https://www.health.ny.gov/diseases/conditions/diabetes/docs/glucagon\\_training.pdf](https://www.health.ny.gov/diseases/conditions/diabetes/docs/glucagon_training.pdf)

Registered Nurse: \_\_\_\_\_ Date: \_\_\_\_\_

Trained UDA: \_\_\_\_\_ Date: \_\_\_\_\_

Revised August 2018

# EMERGENCY GLUCAGON SKILLS CHECKSHEET



Patient Name: \_\_\_\_\_ School: \_\_\_\_\_

Local Education Agency: \_\_\_\_\_ School Year: \_\_\_\_\_

Trained UDA: \_\_\_\_\_ Registered Nurse/Instructor: \_\_\_\_\_

Glucagon Delegation Training	Initial Annual Training Reviewer Signature	Quarterly Return Demonstration Reviews by Registered Nurse			
		Quarter 1 Review Date /Initial of Reviewer	Quarter 2 Review Date /Initial of Reviewer	Quarter 3 Review Date /Initial of Reviewer	Quarter 4 Review (If Applicable) Date /Initial of Reviewer
<b>A. PREPARATION:</b>					
1. Reviews standard precautions					
2. Identifies when Glucagon is to be administered for severe hypoglycemia. (Student is unconscious/unable to eat or drink fluids/Seizure or jerking movements)					
3. Identifies expiration date of Glucagon					
4. Identifies accompanying steps:					
a. Sends someone to call EMS/911, notify school nurse & parent/guardian					
b. Maintain open airway and injects Glucagon					
c. Give fast acting glucose (cake icing) when student is awake and able to swallow. (Fast acting glucose as directed by IHP, Diabetic Management Plan and/or Provider order).					



## EMERGENCY GLUCAGON SKILLS CHECKSHEET



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

Local Education Agency: \_\_\_\_\_ School Year: \_\_\_\_\_

Trained MDA: \_\_\_\_\_ Registered Nurse/Instructor: \_\_\_\_\_

Glucagon Delegation Training	Initial Annual Training Reviewer Signature	Quarterly Return Demonstration Reviews by Registered Nurse			
		Quarter 1 Review Date /Initial of Reviewer	Quarter 2 Review Date /Initial of Reviewer	Quarter 3 Review Date /Initial of Reviewer	Quarter 4 Review (If Applicable) Date /Initial of Reviewer
d. Remain with student until EMS arrives					
<b>B. IDENTIFIES SUPPLIES:</b>					
1. Glucagon Kit					
2. Alcohol wipes					
3. Sharps container					
4. Gloves					
<b>C. PROCEDURE:</b>					
1. Washes hands or use hand sanitizer to clean hands, if possible					
2. Suspends or disconnects pump if applicable (according to IHP, Diabetic Management Plan and/or Provider Order)					
3. Gathers supplies ( gloves, Glucagon kit, alcohol wipe)					
4. Puts on gloves					

# EMERGENCY GLUCAGON SKILLS CHECKSHEET



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

Local Education Agency: \_\_\_\_\_ School Year: \_\_\_\_\_

Trained LIDA: \_\_\_\_\_ Registered Nurse/Instructor: \_\_\_\_\_

Glucagon Delegation Training	Initial Annual Training Reviewer Signature	Quarterly Return Demonstration Reviews by Registered Nurse			
		Quarter 1 Review Date /Initial of Reviewer	Quarter 2 Review Date /Initial of Reviewer	Quarter 3 Review Date /Initial of Reviewer	Quarter 4 Review (If Applicable) Date /Initial of Reviewer
5. Removes flip-off seal from vial of Glucagon powder.					
6. Remove needle cover from syringe.					
7. Injects entire content of syringe into vial of Glucagon powder (held upright).					
8. Swirls vial gently until dissolved/clear.					
9. Holds vial upside down, and withdraw proper dose from the vial into syringe.					
10. Withdraws needle from vial, hold syringe upright, and remove air/bubbles from syringe.					
11. Exposes injection site (upper, outer area of thigh or arm, may inject through clothes only if necessary).					
12. Holds syringe safely; use other hand to clean injection site with alcohol wipe.					

# EMERGENCY GLUCAGON SKILLS CHECKSHEET



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

Local Education Agency: \_\_\_\_\_ School Year: \_\_\_\_\_

Trained UDA: \_\_\_\_\_ Registered Nurse/Instructor: \_\_\_\_\_

Glucagon Delegation Training	Initial Annual Training Reviewer Signature	Quarterly Return Demonstration Reviews by Registered Nurse			
		Quarter 1 Review Date /Initial of Reviewer	Quarter 2 Review Date /Initial of Reviewer	Quarter 3 Review Date /Initial of Reviewer	Quarter 4 Review (If Applicable) Date /Initial of Reviewer
13. Inserts needle straight into the tissue of injection site and inject Glucagon					
14. Withdraws needle and press gently with alcohol wipe at injection site					
15. Turns child on side as vomiting may occur; Stay with student until 911/EMS arrives					
16. Puts used syringe and vial in sharps container					
17. Documents events and completes unusual occurrence report					

Trained Unlicensed Diabetic Assistant Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Registered Nurse Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Revised August 2018





## Competency of Emergency Glucagon Provider Training for Unlicensed Diabetic Assistant

Appendix 1

*May be used independently or in addition to routine care*

Name of Trained Unlicensed Diabetic Assistant: \_\_\_\_\_ Student Delegated: \_\_\_\_\_

School: \_\_\_\_\_ Year: \_\_\_\_\_ Local Education Agency: \_\_\_\_\_

This document identifies you as an individual designated to provide emergency medical assistance to students with diabetes who are experiencing severe hypoglycemia. This documentation of training in the "Emergency Medication – Glucagon provider for unlicensed diabetic assistants, provides documentation that you have received training by a licensed registered nurse employed by the Local Education Agency, demonstrates competency in identified procedure/skills and is adequately prepared to perform these duties in the event of a hypoglycemic emergency. This documentation must be completed on an annual basis with quarterly reviews of procedures documented on the skills check sheet.

### Emergency Medication – Glucagon Skills Check sheet

KNOWLEDGE SETS	Date	Successfully Verbalizes or Demonstrates Competency/ Initials of Trainee	Comments (Repeat competency date, if applicable)
Describes the importance of blood glucose control			
Reviews symptoms of hypoglycemia (mild, moderate, severe)			
Identifies treatment based on symptoms (mild, moderate, severe)			
Identifies treatment supplies (fast-acting glucose, carbohydrate/protein appropriate snacks, glucagon kit)			
States purpose of glucagon and when it should be used			
Understands side effects of glucagon and potential side effects			

<b>SKILL SET</b>	<b>Date</b>	<b>Demonstrated Competency</b>	<b>Comments</b> <i>(Repeat competency date, if applicable)</i>
Recognizes Symptoms of hypoglycemia			
Calls 911			
Positions student on side			
Demonstrates proper preparation of glucagon solution			
Demonstrates proper injection technique ( clean site, inject at 90°, apply pressure)			
Knows to keep student on side and remain with students until EMS assumes control			
Notifies parent/guardian			
Documentation of event			
Completes unusual occurrence report and sends to LEA's Lead Nurse			

I have trained the above employee to administer glucagon in accordance with the approved training, and he/she is competent to respond appropriately in the event of such an emergency.

\_\_\_\_\_  
**Printed Name of Registered Nurse**

\_\_\_\_\_  
**Signature of Registered Nurse**

\_\_\_\_\_  
**Date**

I have received the "Emergency Medication- Glucagon Training" outlined above and believe I am competent to provide emergency assistance to a student experiencing severe hypoglycemia. I understand that if I have any questions I will immediately contact the registered nurse. If for any reason I feel that I am not adequately trained, or need a review, I agree to immediately notify the registered nurse or school administrator.

\_\_\_\_\_  
**Printed Name of Designated Trained Personnel**

\_\_\_\_\_  
**Signature of Designated Trained Personnel**

\_\_\_\_\_  
**Date**

Revised August 2018



Student Delegated \_\_\_\_\_  
UDA Name: \_\_\_\_\_  
System Name: \_\_\_\_\_ Date: \_\_\_\_\_  
School Name: \_\_\_\_\_ School Year: \_\_\_\_\_

## **Emergency Medication Glucagon Training for Trained Unlicensed Diabetic Assistant**

### **Post Test:**

1. The most common causes of low blood sugar (hypoglycemia) are:
  - a. skipping or not finishing meals or snacks
  - b. taking too much insulin
  - c. changes in meal or snack times
  - d. getting more exercise or physical activity than usual
  - e. all the above
2. Unless corrected, hypoglycemia can lead to
  - a. unconsciousness
  - b. convulsions
  - c. possible death
  - d. all of the above
3. How to avoid giving glucagon?
  - a. recognizes signs and symptoms of low blood sugars
  - b. management of blood glucose level
  - c. regular snacks as needed
  - d. all of the above
4. When is glucagon given?
  - a. during an episode of hypoglycemia
  - b. when the diabetic student has lost consciousness during severe hypoglycemia
  - c. when the student with diabetes has not taken insulin, but has eaten a full meal
  - d. when the school age child is hungry
5. Immediately after giving glucagon the school personnel should:
  - a. call the parents of the child
  - b. call the doctor
  - c. take the child's blood pressure
  - d. dial 911 and turn child to the side

Revised August 2018



Student Delegated: \_\_\_\_\_

UDA Name: \_\_\_\_\_

System Name: \_\_\_\_\_ Date: \_\_\_\_\_

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

6. Before giving glucagon, it is necessary to:
  - a. weigh the child
  - b. check a blood sugar
  - c. mix the diluent with a powdered glucagon and draw the mixture in a syringe
  - d. get a verbal order from the physician to give the glucagon
7. When should Glucagon powder be mixed?
  - a. glucagon powder is not to be mixed with the diluting solution until just immediately before administration
  - b. daily in the medication room
  - c. prior to field trips
  - d. before lunch
8. After giving glucagon injection, the student with diabetes may regain consciousness within:
  - a. an hour
  - b. 30 minutes
  - c. 20 minutes
  - d. 2 minutes
9. The designated school personnel to be trained in assisting with giving glucagon will receive training:
  - a. daily
  - b. annually with reviews quarterly
  - c. quarterly
  - d. monthly
10. 911 is called when a student is unconscious and glucagon is given.. True or False

Revised August 2015



## DELEGATION TO TRAINED UNLICENSED DIABETIC ASSISTANTS (UDAs)

*Assisting Students with Diabetes Care*

School: \_\_\_\_\_ For the \_\_\_\_\_ School Year

The following unlicensed (nonmedical) personnel are eligible for delegation for certain medications to students:

**Note: Degree of Delegation must be noted on this page and in the Individual Health Care Plan, include specific student and specific time frame.**

Name of UDA	Date Eligible (Tier I)	Date Eligible (Tier II)	Date Eligible (Tier III)	Job Title	Degree of Delegation	Dates Monitored/ Comments <i>(RN Supervising Delegation Practice)</i>	Date Delegation Suspended or Revoked

Signature of Delegation RN: \_\_\_\_\_ Date: \_\_\_\_\_

*Revised August 2018*

## Alabama Individualized Healthcare Plan - DIABETES

### Instructions:

The Alabama Individualized Healthcare Plan (IHP) is for all students with diabetes that monitor blood glucose at school and/or are on insulin or other hypoglycemic medication and/or have a glucagon prescription. It is the result of the nurse's assessment of the student's needs and prescriber's orders and how best to meet them within the school environment.

The IHP should be updated annually and as the student's health care status or needs change. While current, this form should be filed in the school health record. A list of name of unlicensed school personnel who have successfully completed the training for insulin and/or glucagon should be kept in the office of the school nurse or the school administrator. A registered nurse (RN) **must** prepare the plan.

The IHP consists of four parts:

### 1. Healthcare Providers Orders

Healthcare provider orders should prescribe a particular treatment regime, which should:

- a. Provide the medical parameters for management of an individual student's diabetes in the school setting including medication(s) to be administered in the school setting.
- b. Document the ability level of the student to self-manage their diabetes.

### 2. Standard of Care for School Staff

Standards of care for school staff should:

- a. Provide algorithm for blood glucose results based on blood sugar ranges that include an **Emergency Action Plan (EAP)**. NOTE: The standard of care represents the care to follow in most cases; any individualization of clinical care for the student will be reflected in the *Healthcare Provider Orders*.
- b. Emergency Action Plan (EAP)
- c. Document the ability level of the student to self-manage their diabetes.
- d. To support quality assurance of school health services.
- e. To document diabetes supplies needed at school, and parental responsibility for maintaining certain supplies at school.
- f. To facilitate a safe process for the delegation of diabetes-management tasks to the Unlicensed Diabetic Assistant (UDA).

### 3. Authorizations and Agreements

Providers, parents, students and school nurses sign and date authorization and agreements that include:

- a. School Medication Prescriber/Parent Authorization Form
- b. Agreement for Student Independently Managing Their Diabetes

### 4. School Nurse and Parent- Authorized Trained Staff Coverage

The school nurse and unlicensed diabetic assistant may use the IHP schedule worksheet:

- a. To identify times when the school nurse will not be available to provide diabetes management assistance and plan for coverage by trained school staff.

## Diabetes Individualized Healthcare Plan

SECTION I			
Student:			WT:
			HT:
Grade:	D.O.B	Any Known Allergies	
School:			
District:		Bus (check one) <input type="checkbox"/> YES <input type="checkbox"/> NO	
		Bus #AM	Bus #PM
School Nurse:		Pager #	Cell #
Medication taken at home: (please list)			
<b>Contacts</b>			
Mother	Home #	Work #	Pager/Cell #
Father	Home #	Work #	Pager/Cell #
Guardian/Custodian	Home #	Work #	Pager/Cell #
Home Address		City #	Zip
Emergency Contact (Relationship)		Home #	Work #
Physician		Phone #	Fax#
Physician Address		City	Zip
<b>Date</b>	<b>Special Notes</b>		



**Individualized Healthcare Plan for Management of Diabetes at School****SECTION II (Completed with Parent and Student)**

Student	DOB	School	Grade
Diabetic Routines at School Per Parent Request/Consent	<b>Daily Snacks:</b> <u>Time(s) Type Here</u> Place specified <u>Type Here</u> <input type="checkbox"/> Done independently <input type="checkbox"/> Needs reminder <input type="checkbox"/> Needs daily compliance verification  • <b>Extra Snacks:</b> <input type="checkbox"/> Before exercise <input type="checkbox"/> After exercise <input type="checkbox"/> 10 gms. CHO every 30 minutes during vigorous exercise <input type="checkbox"/> Needs daily compliance verification  • <b>Daily Blood Test:</b> <input type="checkbox"/> Before Meals <input type="checkbox"/> Prior to Exercise <input type="checkbox"/> As Needed  • <b>Location for testing:</b> <input type="checkbox"/> Classroom <input type="checkbox"/> Health Office  Student is to be tested in his/her current location if Hypoglycemic: <input type="checkbox"/> By student independently <input type="checkbox"/> Adult verifies results <input type="checkbox"/> Needs assistance (specify) <u>Type Here</u>  <input type="checkbox"/> Refer to Algorithm for Blood Glucose Results, (attach sheet).  • <b>Exercise:</b> <input type="checkbox"/> None if blood glucose test results are below <u>Type Here</u> mg/dl  • <b>Lunch Eaten At (time)</b> <u>Type Here</u> <input type="checkbox"/> May amend snack and meal times according to school schedule. Please specify <u>Type Here</u>  • <b>In Event of Classroom/School Parties, food treats will be handled as follows:</b> <input type="checkbox"/> Student will eat the treat <input type="checkbox"/> Student will eat modified snack <input type="checkbox"/> Replace with parent supplied alternative <input type="checkbox"/> Do not eat snack  • <b>Scheduled After-School Activities:</b> <u>Type Here</u>  <b><u>The School Nurse Must Be Notified Preferably Two Weeks Before The Field Trip To Plan For Qualified Personnel To Provide Procedures</u></b>		
Training and Notifying School Employees of Diabetes Basic Training Program	The following personnel will be notified of my child's medical condition and participate in Diabetes Basic Training Program: <input type="checkbox"/> All School Personnel <input type="checkbox"/> School Personnel that have contact with my child <input type="checkbox"/> Cafeteria Staff <input type="checkbox"/> Other <u>Type Here</u>		
Other 504 <input type="checkbox"/> YES <input type="checkbox"/> NO	(Specify): <u>Type Here</u> Student has unrestricted use of the bathroom and water.		



# Diabetes Individualized Healthcare Plan

Alabama State Department of Education

Individualized Health Care Plan

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

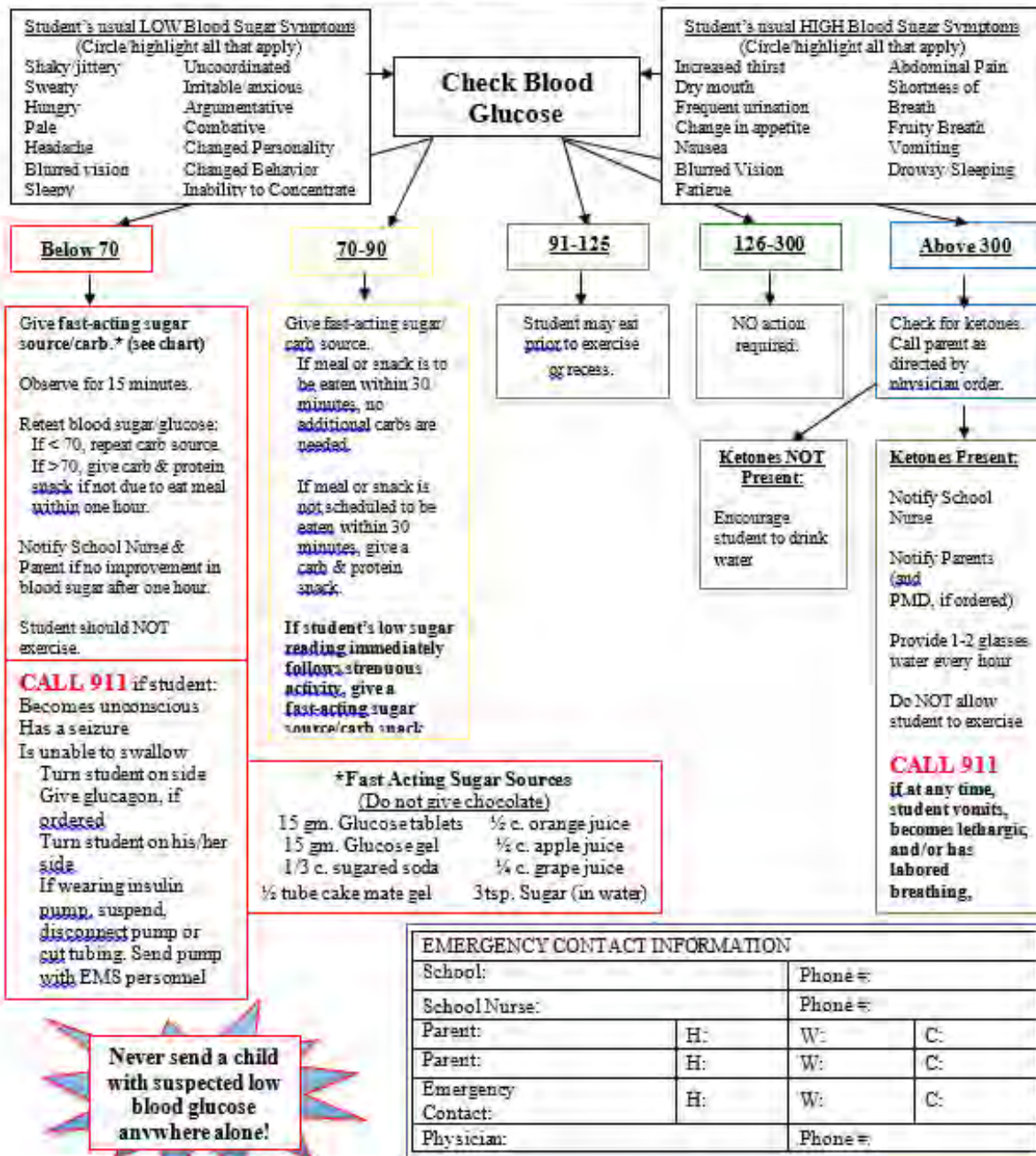
School Year: \_\_\_\_\_

## Individualized Healthcare Plan For Management of Diabetes at School (Continued)

SECTION II Continued (Completed with Parent and Student)			
Student	DOB	School	Grade
Equipment and supplies to be provided by parent	<b>Daily Snacks</b> (for AM/PM snack times) Specify: <a href="#">List Snacks Here</a> <a href="#">List Snacks Here</a>		<b>Insulin Supplies</b>  <input type="checkbox"/> Insulin pen <input type="checkbox"/> Insulin and syringes <input type="checkbox"/> Extra pump supplies such as: <input type="checkbox"/> Vial of insulin, syringes <input type="checkbox"/> Pump syringe <input type="checkbox"/> Pump tubing/needle <input type="checkbox"/> Batteries <input type="checkbox"/> Tape <input type="checkbox"/> Sof-Serter  Insulin supplies stored: <a href="#">List Supplies Here</a> <a href="#">List Supplies Here</a>
	<b>Blood Glucose Meter Kit</b> (Includes meter, testing strips, lancing device with lancet, cotton balls, spot Band-Aids, alcohol prep pads) <b>Brand/Model:</b> <a href="#">Type Here</a>  <b>Low Blood Glucose Supplies:</b>  <input type="checkbox"/> <b>Fast Acting Carbohydrate Drinks:</b> (Apple juice and/or orange juice, sugared soda pop-NOT diet), at least 6 containers.  <input type="checkbox"/> <b>Glucose Tablets</b> , 1 package or more.  <input type="checkbox"/> <b>Glucose Gel Products</b> <b>Note:</b> Do not use if student is having difficulty swallowing.  <input type="checkbox"/> <b>Gel Cakemate</b> <b>Note:</b> Do not use if student is having difficulty swallowing.  <input type="checkbox"/> <b>Prepackaged Snacks</b> (such as crackers with cheese or peanut butter, <del>nite</del> bite, etc.), 5 - 6 servings or more.  <b>High Blood Glucose Supplies</b>  <input type="checkbox"/> Ketone Test Strips/Bottle <input type="checkbox"/> Urine cup <input type="checkbox"/> Water bottle <input type="checkbox"/> Protein Snack (Meat or cheese sticks)		
		<b>Emergency Supplies</b>  <input type="checkbox"/> <b>Glucagon:</b> YES or NO  <b>Kit stored:</b> <a href="#">Type Here</a>  <input type="checkbox"/> <b>3 day disaster food supply stored:</b> <a href="#">List Supplies Here</a> <a href="#">List Supplies Here</a>  School may include a copy of the IHP for Diabetes Management with the Disaster Supplies. Stored as follows: <a href="#">Type Here</a>  <b>Other Supplies and Special Needs</b> <a href="#">List Supplies Here</a> <a href="#">List Supplies Here</a>	

## EMERGENCY ACTION PLAN

## SECTION III (Individualize to Student According to Physician's Orders)



**Individualized Healthcare Plan  
For Management of Diabetes at School (Continued)**  
Completed With Parent and Pupil

<b>SECTION IV</b>			
<b>Effective Date of IHP:</b>		<b>End Date of IHP:</b>	
<b>Student Name:</b>		<b>DOB:</b>	
<b>Parent/Provider Authorization on File:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No  <b>Physician Orders on File:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No  <b>If Yes, see attached Physician Orders.</b>  <b>If No, parent must provide diabetic management until physician orders received.</b>		<b>DIABETIC HEALTHARE PROVIDER:</b>  Name:  Phone:  Fax:  E-mail:	
<b>Nurse Assessment of Student DM Skills</b>			
<b>Skill</b>	<b>Independent Care</b>	<b>Assisted Care</b>	<b>Dependent Care</b>
Check Blood Glucose			
Count Carbs			
Calculate insulin dose			
Change infusion set			
Injection			
Trouble shoot alarms, malfunctions			
NOTES:			
If student is managing diabetes independently, is Student Agreement attached? <input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>Plan for Field Trips</b>		<b>Scheduled After – or – Before – School Activities</b>	
<input type="checkbox"/> Bus <input type="checkbox"/> Nurse <input type="checkbox"/> Unlicensed Diabetic Assistant <input type="checkbox"/> Parent /Guardian <input type="checkbox"/> Student may test BG and self-manage DM  <b>In Event of Field Trips</b> , all diabetic supplies are taken and care is provided according to this IHP (a copy is taken on trip)		List of clubs, sports, after school care programs etc. that student participates.     	
<b>Bus Transportation Plan</b>			
Bus Transportation: <input type="checkbox"/> To School Daily <input type="checkbox"/> Home <input type="checkbox"/> Occasionally rides the Bus <input type="checkbox"/> Student may test BG and self-manage DM while on the bus  In the event of Bus Transportation: Orders <input type="checkbox"/> BG tested <u>Type Here</u> minutes before boarding. <i>If less than or equal to <u>Type Here</u>, follow MD Orders</i> <input type="checkbox"/> BG test not required			



Individualized Health Care Plan

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

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

**SECTION V****Schedule for Onsite School Nurse (Typical Week)**

M-F

Nurse available during Academic Day

☐ YES☐ NO**Schedule for Onsite School Unlicensed Diabetic Assistant**

Name of UDA

Plan if student is off campus

Plan if student is off campus

Day	Time	Coverage
Field Trip		
Before School		
After School		
Other		

Day	Time	Coverage
Field Trip		
Before School		
After School		
Other or N/A		

**Written Notes/Addendum to Plan of Care**

Date	Notes	Nurses Signature

\_\_\_\_\_  
Signature of Parent or Guardian\_\_\_\_\_  
Date\_\_\_\_\_  
Signature of School Nurse\_\_\_\_\_  
Date\_\_\_\_\_  
Signature of Unlicensed Diabetic Assistant\_\_\_\_\_  
Date

## AGREEMENT FOR STUDENTS INDEPENDENTLY MANAGING THEIR DIABETES

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

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

### Student

- I agree to dispose of any sharps either by keeping them in my kit and taking them home, or placing them in the sharps container provided at school.
- If so indicated in my Individualized Healthcare Plan, I will notify the health office if my blood sugar is below \_\_\_\_\_ mg/dl or above \_\_\_\_\_ mg/dl.
- I will not allow any other person to use my diabetes supplies.
- I plan to keep my diabetes supplies:
  - With me
  - In the school health office
  - In an accessible and secure location (\_\_\_\_\_)
- I will seek help in managing my diabetes from \_\_\_\_\_ if I need it.
- I understand that the freedom to manage my diabetes independently is a privilege and I agree to abide by this contract.

**Student's signature:** \_\_\_\_\_

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

### Parent/Guardian

- I agree that my child can self-manage his/her diabetes and can recognize when he/she need to seek help from a staff member.
- I authorize my child to carry and self-administer diabetes medications and management supplies and I agree to release the school system and school personnel from all claims of liability if my child suffers any adverse reactions from self-management of storage of diabetes medications and blood glucose management products.
- I will provide back-up supplies to the health office for emergencies.
- I understand that this contract is in effect for the current school year unless revoked by my son/daughter's physician or my son/daughter fails to meet the above safety guidelines.

**Parent's signature:** \_\_\_\_\_

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

### School Nurse

- I will assure that school staff members that have the need to know about the student's condition and the need to carry their diabetes supplies with them have been notified.

**School Nurse's signature:** \_\_\_\_\_

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





Individualized Health Care Plan

Student Name: Tyler Brown

School Year: 2018-2019

**Communication of the Individualized Health Care Plan**

**SECTION VI**

☐ Check this Box if Read Receipt is used to communicate Individualized Health Care Plan to staff.

\* Nurse to attach Read Receipt document to this packet.

☐ Check this box if staff receives and signs below for Individualized Health Care Plan.

I have read and understand this student's Individualized Healthcare Plan, and have printed a copy to be maintained in my confidential folder/binder of instructions for substitute teachers.

I have been given the opportunity to ask questions.

I understand my role in addressing this students medical needs.

I am aware the school nurse is available to help clarify any future concerns

Employee Name	Employee Signature	Position	Date

## **Appendix 3 - Handouts**

## Carbohydrate Counting and Correction Dosage Calculation Handout

### I. Overview

There are three types of nutrients: carbohydrates, fats and protein. Carbohydrate is the nutrient that has the most significant effect on blood glucose levels. Food with carbohydrate can be grouped into four categories: natural sugar (in fruit and milk), starches with fiber (raw vegetables, beans, whole grains), starches without fiber (white flour and refined grain products), and concentrated sugar (cake, candy and non-diet soft drinks).

When counting carbohydrates, include BOTH sugars and starches.

The student may perform this procedure independently if indicated on the INDIVIDUALIZED HEALTHCARE PLAN - DIABETES, and if the student has signed a STUDENT SELF-MANAGEMENT AGREEMENT.

### II. Supplies

- A. Student's glucose meter and needed supplies.
- B. IHP
- C. School menu or other resource for counting carbohydrate from meal
- D. Pencil/paper; calculator (optional)
- E. Insulin, syringe and disposal equipment

### III. Preparation

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Review IHP	All specialized procedures conducted in the school setting require written licensed health care provider orders and parent/guardian consent. The IHP also contains specific information about the student's target blood glucose level and standard of care instructions based on the test results.
B. Review Universal Precautions	Refer to <a href="#">Universal Precautions Handout</a>

### IV. Procedure

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
K. Gather supplies	
L. Observe or assist student in performing blood glucose test <ul style="list-style-type: none"><li>• Document blood glucose result on student's individual treatment record – student goes to lunch.</li></ul>	Refer to <a href="#">Glucose Monitoring Handout</a>
M. Student returns from lunch with tray.	Nurse or trained staff may check with student in the lunchroom.



ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
N. Count the amount of carbohydrate intake based upon school menu and/or other resource.	Use school menu and/or other resource to count amount of carbohydrates. When reading labels, determine count based on <u>total</u> carbohydrates and serving size.
O. Determine amount of insulin needed for carbohydrate intake based on student's insulin to carbohydrate ratio in IHP.	Example of insulin needed for carbohydrate eaten: The student's lunchtime insulin-to-carbohydrate ratio is 1:15, and the child ate 60 grams of carbohydrates. The calculation is: $60 \div 15 = 4$ units of insulin.
P. Determine amount of insulin needed for blood glucose level – recheck healthcare provider order in IHP to verify student's correction insulin dose calculation.	<p>Examples for insulin correction dose: The student's pre-meal blood glucose is 300. The student's target blood glucose is 150.</p> <ul style="list-style-type: none"> <li>• If DIABETES WITH INJECTION IHP and... <ul style="list-style-type: none"> <li>○ IHP uses <i>correction scale</i> example: Use the insulin units indicated for the range.</li> <li>○ IHP uses <i>formula</i> example: Blood Glucose (300) – target (150) <math>\div 50 = 3</math> units of insulin.</li> </ul> </li> </ul>
Q. Determine the TOTAL amount of insulin dose	Example of total insulin dose: Insulin-to-carb dose plus correction dose = total units. The formula is: $4 + 3 = 7$ units of rapid-acting insulin.
R. Verify insulin dose with another staff	
S. Complete documenting procedure on student's individual treatment record.	<ol style="list-style-type: none"> <li>1. Date and time.</li> <li>2. (Blood glucose results recorded earlier)</li> <li>3. Carbohydrate intake.</li> <li>4. Insulin calculated.</li> <li>5. Action taken and student's response.</li> <li>6. Signature of personnel performing.</li> </ol>

## Continuous Glucose Monitoring Device (CGM) Handout

### I. Overview:

A Continuous Glucose Monitor (CGM) uses a tiny sensor inserted under the skin to check glucose levels in the interstitial fluid (under the skin) in real time. Glucose levels are displayed in 5 minute or 1 minute intervals. The sensor stays in place for several days to a week then must be replaced. A CGM usually reads within 20% of a finger stick blood sugar value. It can be programmed to alert (vibrate or alarm) for high and low glucose levels. CGM is meant to provide additional glucose information. **It is not approved for use in making treatment decisions; a user must confirm glucose levels with a meter before making a change in treatment.**

CGM supplies include a sensor site, inserter, tegaderm, charger and battery, for turning it on. Since the CGM is not used in treatment, these supplies typically do not come to school. Also, if a CGM malfunctions while a student is at school, the absence of the information it provides does not change the execution of other diabetes management tasks.

### II. Supplies

- A. CGM Manufacturer's booklet, if available.
- B. IHP

### III. Preparation

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Review student's IHP	All specialized procedures conducted in the school setting require written licensed prescriber orders and parent/guardian consent. The IHP also contains specific information about the student's target blood glucose level and standard of care instructions based on the test results.
B. Review <i>Universal Precautions</i> .	These measures are designed to prevent spreading infectious disease. Refer to <a href="#">Universal Precautions</a>

### IV. Procedures:

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Calibration reminder sounds	<ul style="list-style-type: none"><li>• Check IHP</li><li>• Use CGM manufacturer's booklet to help student calibrate the CGM.</li></ul>

<p>B. CGM operation errors</p> <ol style="list-style-type: none"> <li>1. Dead battery</li> <li>2. Pump sensor becomes dislodged</li> </ol>	<ul style="list-style-type: none"> <li>• Check IHP.</li> <li>• If directed, follow CGM manufacturer instructions for replacing battery or to “find lost sensor.”</li> <li>• If CGM remains out of operation, continue finger stick blood glucose tests and take action based on the IHP.</li> <li>• IF CGM sensor is dislodged, send the transmitter home and dispose of catheter properly.</li> </ul>
<p>C. Alert Settings</p> <ol style="list-style-type: none"> <li>1. CGM will alert audibly if interstitial glucose is above or below set numbers.</li> <li>2. Arrows: Some continuous monitors show arrows on the screen to indicate the speed at which the glucose levels are changing. <ul style="list-style-type: none"> <li>• Arrows on the face of the monitor pointing straight downward indicate a rapidly falling glucose level.</li> <li>• Arrows pointing straight up indicate a rapidly increasing glucose level.</li> <li>• A horizontal or 45 degree arrow (or one arrow in contrast to two arrows) may mean that the glucose level is not changing as rapidly.</li> </ul> </li> </ol>	<p>Since this device should not be used for treatment purposes, <u>always</u> do a finger stick blood glucose test before taking action.</p>

## Glucagon Administration Handout

I. Overview: Glucagon is a hormone made in the pancreas which frees sugar stored in the liver and raises the blood glucose level. Glucagon is used in an emergency situation to raise the blood glucose level in an unresponsive, hypoglycemic student.


### II. Supplies:


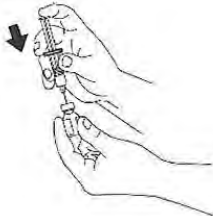
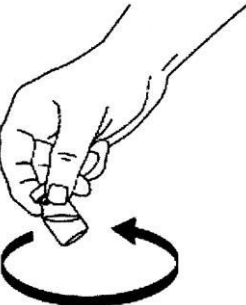
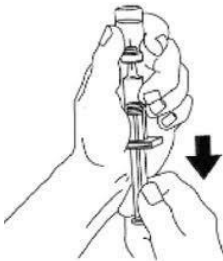
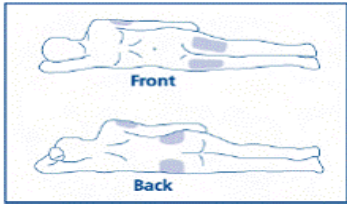
- A. Glucagon kit
- B. Alcohol wipe, cotton ball
- C. Sharps container
- D. Gloves
- E. IHP

### III. Preparation

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Review Universal Precautions	These measures are designed to prevent spreading infectious disease. Refer to <a href="#">Universal Precautions Handout</a> .
B. Review student's IHP, particularly the ALGORITHM page.  Identify when procedure is indicated	All specialized procedures conducted in the school setting require written licensed prescriber orders and parent/guardian consent. The IHP also contains specific information about the student's target blood glucose level and standard of care instructions based on the test results. Glucagon is needed if the student is unconscious, seizes, or is unable to swallow.
C. Obtain glucagon and ensure it has been stored appropriately and has not expired.	Store at room temperature (68-70 degrees). Avoid direct sunlight. Check expiration date.

### IV. Procedure

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Send someone to call 911.	
B. Place student on his/her side.	To prevent aspiration. Nausea and vomiting is a common side effect after glucagon administration.
C. Gather supplies	
D. Wash hands, put on gloves.	Refer to <a href="#">Universal Precautions Handout</a> .

<p>E. Remove cap from glucagon vial, pull needle cover off syringe.</p>	
<p>F. Insert needle through rubber stopper on vial of glucagon and inject entire contents of syringe into vial of glucagon powder.</p>	<p>Diluting solution may be in a vial or prepackaged in a syringe.</p> 
<p>G. Leaving syringe in place, swirl gently until dissolved (solution should be clear and colorless).</p>	
<p>H. Hold vial upside down and slowly withdraw the amount of solution from the vial into the syringe as specified in the student's IHP.</p>	
<p>I. Check for air bubbles in the syringe. Tap any visible air to the top of the syringe and gently push on the plunger until the</p>	
<p>J. Select appropriate injection site (buttock, arm, or thigh) and cleanse with alcohol wipe, if possible. Insert needle at 90 ° angle and inject into the tissue.</p>	

K. Withdraw needle, apply slight pressure to injection site with cotton ball.	
L. Keep student positioned on side in recovery position. If student is on an insulin pump, place pump on 'suspend' or disconnect.	
M. Dispose of sharps appropriately. Do NOT recap needle. <ul style="list-style-type: none"> <li>Remove gloves and wash hands.</li> </ul>	Refer to <a href="#">Universal Precautions Handout</a> .
N. Wait 15 minutes, monitor level of consciousness and breathing. Check blood glucose, if able. Stay with student until EMS arrives. <ol style="list-style-type: none"> <li>If no response and another dose is available, repeat glucagon procedure.</li> <li>If responsive and alert enough to swallow safely, offer juice. Wait 15 minutes and give protein and carbohydrate snack if the student is not nauseous or vomiting.</li> <li>Notify school nurse and parent.</li> </ol>	<p>After administering glucagon, student should be transported to hospital (in remote area, nearest medical facility). Continued monitoring is important.</p> <p>Student should regain consciousness in 15 minutes. You must be prepared to administer CPR. Do not be surprised if the blood glucose level is high (over 200), nausea or vomiting occurs, the student is incoherent or does not recall being unconscious, and/or if the student has a headache. The student needs to be fed additional simple and complex carbohydrates, as tolerated, to prevent another hypoglycemic episode.</p>
O. Document procedure in student's individual treatment record.	<p>Record:</p> <ol style="list-style-type: none"> <li>Date and time.</li> <li>Amount and type of glucagon given.</li> <li>Site of administration.</li> <li>Student's response and action taken.</li> <li>Signature of personnel performing.</li> </ol>

## Glucose Monitoring Handout

### I. Overview:

Successful diabetes management depends largely on blood glucose monitoring, which measures the effects of balancing food, exercise, and medication. All diabetes care centers on the blood glucose level. Blood glucose results are measured in milligrams per deciliter (mg/dL). The health care provider usually requests that the student self-check blood glucose levels at various times during the day, such as: before eating snacks or lunch, before physical activity, and when the students has symptoms of either high or low blood glucose levels.

### II. Supplies

- Meter (child's personal meter or meter provided by family)
  - o Manufacturer's instruction booklet, if available
- Meter strips or cartridges
- Lancing device
- Disposable Gloves
- Tissue or cotton ball, adhesive bandage if needed
- Sharps container or disposal plan
- IHP

### III. Preparation:

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Review student's IHP.	All specialized procedures conducted in the school setting require written licensed health care provider orders and parent/guardian consent. The IHP also contains specific information about the student's target blood glucose level and standard of care instructions based on the test results.
B. Review <i>Universal Precautions</i>	These measures are designed to prevent spreading infectious disease. Refer to <a href="#">Universal Precautions Handout</a> .

#### IV. Procedure

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Gather supplies	
B. Prepare work area.	Work area should be clean and well-lit. When possible, assure cleanliness by covering surface with a paper towel or disposable drape.
C. Wash hands and put on gloves	Refer to <a href="#">Universal Precautions Handout</a> .
D. Have student wash hands with warm soapy water and thoroughly dry them.	<ul style="list-style-type: none"> <li>• Washing with soap and water prevents infection and removes any substance that might alter the blood glucose results.</li> <li>• Washing in warm water will increase the blood flow to the finger.</li> </ul>
E. Turn meter on, insert strip and check codes (if applicable)	Follow manufacturer's instructions for specific machine.
F. Insert new lancet into the lancet device and "cock" or load it. (NOTE: student may choose to use a lancet more than once, but this is not recommended). Poke finger/alternative site with lancing device.	Follow directions for specific monitor and readying the cancelling device. Finger puncture should be lateral to fingertip (the pads of the fingertips may be more sensitive). Most inaccurate glucose readings are a result of insufficient blood samples. Hang the arm below the level of the heart for 30 seconds to increase blood flow. If hypoglycemia is suspected, only use the finger for testing, do not use alternate testing site.
G. Apply blood to strip.	Gently squeeze the finger in a downward motion to obtain a large enough drop of blood to cover the test pad on the test strip. Many test strips pull in the required amount of blood. Avoid squeezing the site excessively as this may contaminate the sample with tissue fluid and traumatize the site.
H. Place cotton ball or tissue over lanced area, applying slight pressure until	Prevent contamination of blood to other surfaces.



I. Read result displayed in monitor window (correctly).	Appropriate diabetes interventions are dependent on correctly reading the results.
J. Remove strip and lancet dispose of them properly	Dispose of lancet in sharps container and strip in appropriate container. Refer to <a href="#">Universal Precautions Handout</a> .
K. Dispose of other supplies appropriately.	Testing supplies should be re-stored securely.
L. Inspect area for blood spills and follow district/program protocol for cleaning.	Refer to <a href="#">Universal Precautions Handout</a> .
M. Follow IHP for action plan.	
N. Document procedure on student's individual treatment record.	Record: 1. Date and time. 2. Blood glucose reading. 3. Action taken and student's response. 4. Signature of personnel performing

## Insulin Administration by Pen Handout

### I. Overview

Insulin therapy involves the subcutaneous injection of insulin to reduce hyperglycemia and prevent diabetic ketoacidosis (DKA).

The student may perform this procedure independently if indicated on the INDIVIDUALIZED HEALTHCARE PLAN - DIABETES, and if the student has signed a STUDENT SELF-MANAGEMENT AGREEMENT.


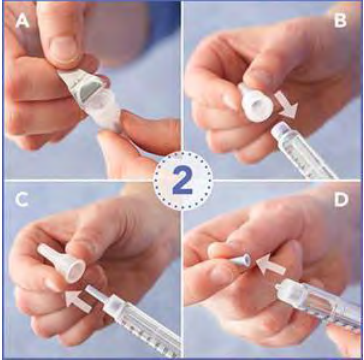
### II. Supplies


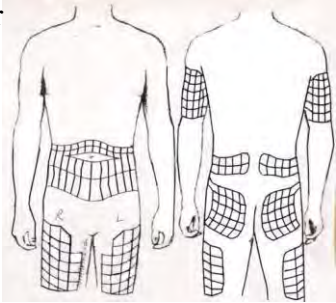
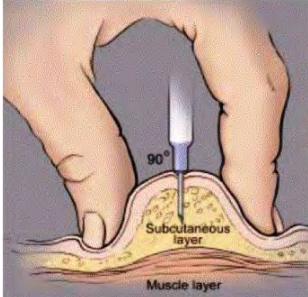
- A. Insulin cartridge as prescribed by healthcare provider
- B. Insulin pen, pen needles, and pen manufacturer's operating instructions, if available
- C. Sharps disposal container
- D. Gloves, alcohol swabs, cotton balls
- E. Student's IHP
  - o Carbohydrate coverage and correction scale and/or formula prescribed by health care provider.

### III. Preparation

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Review Universal Precautions	These measures are designed to prevent spreading infectious disease. Refer to <a href="#">Universal Precautions</a>
B. Review student's IHP. 1. Determine the insulin dose from the HEALTH CARE PROVIDER ORDERS	All specialized procedures conducted in the school setting require written licensed prescriber orders and parent/guardian consent. The IHP also contains specific information about the student's target blood glucose level and standard of care instructions based on the test results. <ul style="list-style-type: none"><li>• Review the dosage prescribed for covering carbohydrate intake and the insulin correction scale or formula to cover excess blood glucose.</li><li>• Refer to <a href="#">Carbohydrate Counting and Correction Dosage Calculation Handout</a>.</li></ul>
C. Acquire blood glucose reading.	Refer to <a href="#">Glucose Monitoring Handout</a> .

#### IV. Procedure

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
<p>A. Gather supplies</p>	<p>Insulin pens vary by manufacturer. Types of insulin pens include:</p> <ul style="list-style-type: none"> <li>• Pre-filled disposable pen (insulin cartridge is already in pen.)</li> <li>• Reusable (non-disposable) pen (insulin cartridge is loaded into the pen for use)</li> </ul> 
<p>B. Wash hands, put on gloves.</p>	<ul style="list-style-type: none"> <li>• Refer to <a href="#">Universal Precautions Handout</a>.</li> </ul>
<p>C. Inspect insulin pen:</p> <ul style="list-style-type: none"> <li>• Check to be sure it has the student's name on the label. If the cartridge is new, add student's name to the label.</li> <li>• Check to be sure insulin is the correct type and that its expiration date has not passed</li> <li>• If the student uses prefilled disposable pens: cartridge is already in the pen.</li> <li>• If the student uses a reusable pen: the insulin cartridge will often be in the pen. If not, load pen cartridge into</li> </ul>	<p>Prevents medication errors.</p> <p>Insulin should be discarded after 30 days.</p>
<p>D. Remove insulin pen cap, clean rubber stopper with another alcohol swab.</p> <p>E. Take out new packaged needle, remove its protective tab. Do not touch where the needle will attach to the pen.</p> <p>F. Carefully screw on the needle onto the end of the insulin pen and remove protective cap.</p>	

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
<p>G. Prime the needle.</p> <ol style="list-style-type: none"> <li>1. Pulling out plunger on the end of the pen and dialing the pen to '2'.</li> </ol> <p>H. Point pen away from people and press the plunger until dose selector returns to zero. Liquid should come out of the needle; if it doesn't repeat priming process.</p>	
<p>I. Verify the dose</p> <ol style="list-style-type: none"> <li>A. Recheck IHP</li> <li>B. Check that the dose selector is set at zero, and then dial number of units needed.</li> <li>C. Check dialed dose on pen</li> </ol>	
<p>J. Verify dosage with another staff member.</p>	
<p>K. Use pen to inject insulin</p> <ol style="list-style-type: none"> <li>1. Assist the student in selecting the injection site. The area should be clean; alcohol wipe may be used.<sup>7</sup> Injection sites should be rotated.</li> </ol>	<p>Systematic rotation of sites will keep the skin supple and favor uniform absorption of insulin. Absorption is quicker from the abdomen and arms than the thighs or buttocks</p> 
<ol style="list-style-type: none"> <li>2. Pinch skin and insert insulin pen needle at 45-90° angle.</li> </ol>	<p>Thin people require pinching a skin fold and injecting at 45°. Injecting at 90° into taut skin is recommended for heavier people. Avoid pinching skin tightly to avoid trauma. Aspiration is not necessary.</p> 

3. Push the injection button down completely to deliver insulin and count 10 seconds with skin pinched and needle in place.	If the child is having trouble with leaking insulin, turn the pen (spin it around) before pulling it out
4. Remove insulin pen from skin. Apply slight pressure to the injection site with cotton ball, if needed.	
L. Do not replace the protective needle cap; carefully unscrew pen needle to remove from pen and dispose of needle in sharps container.	Refer to <a href="#">Universal Precautions Handout</a> .
M. Put insulin pen cap back on pen for storage and return pen to storage area.	Some insulin may require refrigeration.
N. Document procedure in student's individual treatment record.	Record: 1. Date and time. 2. Blood glucose level. 3. Amount and type of insulin given. 4. Site of administration. 5. Student's response and action taken. 6. Signature of personnel performing.

Note: The practice of wiping an injection site with alcohol is not as automatic as it once was. Certainly, the area should be clean and alcohol can help.

## **Insulin Administration by Pump Therapy Handout**

### **I. Overview**

The insulin pump is a programmable microcomputer which delivers a continuous subcutaneous injection of rapid-acting insulin. The insulin pump is about the size of a pager, powered by a battery and capable of delivering exact amounts of insulin, in as small as 0.025 unit. Delivery occurs from the reservoir or cartridge contained in the pump through a specialized tubing (or infusion set) to the subcutaneous site which is usually in the abdomen (other sites may be used). An introducing needle is used initially to insert the infusion set into the selected site; the needle is usually removed after placement leaving a small plastic catheter in place. Some insertion sets leave the needle in after pump placement. Insulin is pumped through this tubing at a prescribed rate of infusion. This basal rate mimics the small amount of insulin that is continuously secreted by a healthy pancreas. When food is ingested, the grams of carbohydrates are calculated and a prescribed amount of insulin is given by bolus dose to maintain a prescribed blood glucose level. If the blood glucose level exceeds acceptable levels, a correction bolus may be prescribed.

The student may perform this procedure independently if indicated on the INDIVIDUALIZED HEALTHCARE PLAN - DIABETES, and if the student has signed a STUDENT SELF-MANAGEMENT AGREEMENT.

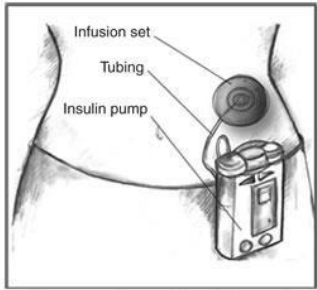
### **II. Supplies:**

- A. Insulin pump with rapid-acting insulin and manufacturer's instruction booklet.
- B. Extra batteries and other pump supplies (e.g., infusion set and inserter, reservoir and insulin) specific to student for pump maintenance.
- C. Injectable insulin supply and syringes or insulin pen in event of pump or site failure.
- D. Meter, lancets, strips, and alcohol wipes.
- E. Sharps container
- F. Disposable medical gloves
- G. Student's IHP
- H. Phone number of pump manufacturing company in case of pump malfunction.

### III. Preparation

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Review Universal Precautions	These measures are designed to prevent spreading infectious disease. Refer to <a href="#">Universal Precautions Handout</a> .
B. Review student's IHP. 1. Determine the insulin dose from the HEALTH CARE PROVIDER ORDERS	All specialized procedures conducted in the school setting require written licensed prescriber orders and parent/guardian consent. The IHP also contains specific information about the student's target blood glucose level and standard of care instructions based on the test results. <ul style="list-style-type: none"> <li>Review the dosage prescribed for covering carbohydrate intake and the insulin correction scale or formula to cover excess</li> </ul>
C. Acquire blood glucose reading.	Document the newest blood glucose measurement. Refer to <a href="#">Glucose Monitoring</a>

### IV. Procedure

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
V. Review and follow basic operating functions of the pump listed below based on the manufacturer's instructions: A. Identify insertion set, tubing, and cartridge components of pump. B. Check the status of the pump C. Suspend the pump D. Verify time of last bolus E. Verify the pump is not in 'no delivery' mode F. Change the batteries in the pump G. Check insulin reservoir and insertion site	 <p>Refer to manufacturer's instruction booklet</p>

<p>VI. Review and follow how to give a bolus per IHP following the manufacturer's instructions:</p> <ul style="list-style-type: none"> <li>• If using the insulin dose calculator (Bolus Wizard) function in the pump (if present), review how to look at pump dose calculations for dose of insulin, verify dose is within parameters and activate to administer dose.</li> <li>• Document procedure on individual student's treatment</li> </ul>	<p>Refer to manufacturer's instruction booklet and IHP.</p> <p>Record:</p> <ol style="list-style-type: none"> <li>1. Date and time.</li> <li>2. Blood glucose level.</li> <li>3. Amount and type of insulin given.</li> <li>4. Student's response and action taken.</li> <li>5. Signature of personnel performing.</li> </ol>
<p>VII. Troubleshoot pump malfunction</p> <ul style="list-style-type: none"> <li>• Review pump alarms/functioning. <ul style="list-style-type: none"> <li>• For hypoglycemia, <ul style="list-style-type: none"> <li>• Assess for pump malfunction.</li> <li>• Turn off or suspend pump if it is not functioning properly.</li> <li>• Notify parent/guardian and school nurse.</li> <li>• Refer to student's IHP for appropriate interventions.</li> </ul> </li> <li>• For hyperglycemia, <ul style="list-style-type: none"> <li>• Assess for clogged or kinked tubing</li> <li>• Assess for infusion site failure.</li> <li>• Follow IHP for appropriate interventions.</li> <li>• Notify parent/guardian and school nurse</li> <li>• Administer insulin by injection for hyperglycemia, according to health care provider order</li> </ul> </li> </ul> </li> </ul>	<p>Signs of pump malfunction may include pump alarms, clicking noise.</p> <ul style="list-style-type: none"> <li>• Check basal rate and last bolus dose given.</li> <li>• Refer to Manufacturer's instruction booklet.</li> </ul> <p>Signs may include: pump not infusing, leaks or kinks in infusion set tubing, empty insulin cartridge, redness and tenderness at site, or leakage around insertion site.</p> <p>Act as directed by the IHP HEALTHCARE PROVIDER ORDER.</p> <ul style="list-style-type: none"> <li>• Infusion set and/or insertion site should <i>only</i> be changed by school nurse, parent, or student (if student has signed a STUDENT SELF- MANAGEMENT AGREEMENT).</li> <li>• Check blood glucose. Refer to <a href="#">Glucose Monitoring Handout</a>.</li> </ul> <p>Administer insulin by another means if needed. Refer to <a href="#">Insulin Administration by Syringe Handout</a> or <a href="#">Insulin Administration by Pen Handout</a> as appropriate.</p>



## V. Additional Resources

Medtronic: *A Reference Guide for School Nurses with the Medtronic Minimed Insulin Pump*

<http://www.professional.medtronicdiabetes.com/sfc/servlet.shepherd/version/download/068C0000000K6p8>

Animas User Guides (Animas webpage search results):

## Insulin Administration by Syringe Handout

### I. Overview

Insulin therapy involves the subcutaneous injection of insulin to reduce hyperglycemia and prevent diabetic ketoacidosis (DKA).

The student may perform this procedure independently if indicated on the INDIVIDUALIZED HEALTHCARE PLAN - DIABETES, and if the student has signed a STUDENT SELF-MANAGEMENT AGREEMENT.

### II. Supplies


- A. Insulin supply as prescribed by healthcare provider.
- B. Insulin syringe with needle.
- C. Sharps disposal container
- D. Gloves, alcohol swabs, cotton balls
- E. Student's IHP
  - o Carbohydrate coverage and correction scale and/or formula prescribed by health care provider.

### III. Preparation

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Review Universal Precautions	These measures are designed to prevent spreading infectious disease. See <a href="#">Universal Precautions Handout</a> .
B. Acquire blood glucose reading.	Refer to <a href="#">Glucose Monitoring Handout</a>

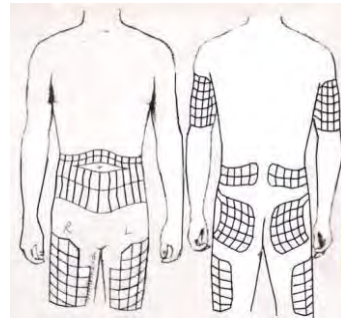
<p>C. Review student's IHP. Determine the insulin dose from the HEALTH CARE PROVIDER ORDERS</p>	<p>All specialized procedures conducted in the school setting require written licensed prescriber orders and parent/guardian consent. The IHP also contains specific information about the student's target blood glucose level and standard of care instructions based on the test results.</p> <ul style="list-style-type: none"> <li>Review the dosage prescribed for covering the carbohydrate intake and the correction scale or formula for covering excess glucose level.</li> </ul> <p>Refer to <a href="#">Carbohydrate Counting and Correction Dosage Calculation Handout</a></p>
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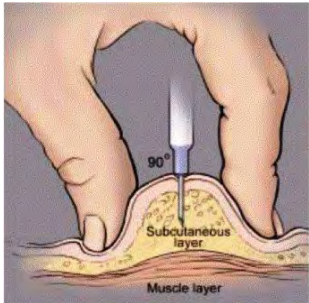
#### IV. Procedure

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Gather supplies.	
B. Wash hands and put on gloves.	Refer to <a href="#">Universal Precautions Handout</a> .
<p>C. Prepare insulin</p> <ol style="list-style-type: none"> <li>1. Check to be sure you have the correct type and that the expiration date has not passed.<sup>5</sup></li> <li>2. Remove insulin bottle lid. Wipe rubber top of bottle with alcohol wipe and let dry for 5 seconds.</li> <li>3. Label insulin with student's name and date.</li> </ol>	<p>Insulin should be discarded after 30 days.</p> <p>Prevents medication errors.</p>
<p>D. Verify the dose</p> <ol style="list-style-type: none"> <li>1. Re-check IHP</li> <li>2. Pull air into the syringe by pulling back on the plunger until its black tip is even with the line showing the dose needed.</li> </ol>	
E. Place the vial of insulin flat on table, wipe rubber top of vial with alcohol swab, and push the needle through the center of the rubber top of the insulin.	

F. Push the plunger so that the air goes from the syringe into the bottle. Leave the syringe in the bottle.	
G. Turn the insulin bottle and syringe upside down.	
H. Pull insulin into the syringe by slowly pulling back on the plunger until the top of its black tip is even with the line showing required number of units.	
I. Look for air bubbles. If present, tap the syringe to raise air bubbles to the top, push the air bubbles back in the bottle and repeat steps 'G' 'H'.	
J. Check to make sure the correct number of units is in the syringe and remove the syringe from the bottle.	

<sup>5</sup> Students are rarely on NPH insulin, and those who are on NPH rarely administer it at school. If a student does have NPH, it may need to be mixed with another insulin. If mixing insulins, gently roll the bottle between the palms or turn the bottle over from end to end at least 20 times. Do not shake. If any clumps are visible, do not use. When using mixed insulins, withdraw clear insulin first and then withdraw cloudy insulin. This practice prevents dosage errors.

K. Verify dosage with another staff member.	
L. Use syringe to inject insulin <ol style="list-style-type: none"> <li>1. Assist the student in selecting the injection site. The area should be clean; alcohol wipe may be used.<sup>6</sup> Injection sites should be rotated.</li> </ol>	<p>Systematic rotation of sites will keep the skin supple and favor uniform absorption of insulin. Absorption is quicker from the abdomen and arms than the thighs or buttocks.</p> 

<p>2. Pinch skin and insert insulin syringe needle at 45-90° angle.</p>	<p>Thin people require pinching a skin fold and injecting at 45°. Injecting at 90° into taut skin is recommended for heavier people. Avoid pinching skin tightly to avoid trauma. Aspiration is not necessary.</p>  <p>The diagram shows a hand pinching a fold of skin. A needle is shown inserted at a 90-degree angle into the subcutaneous layer, which is the layer of fat just below the skin. The muscle layer is shown below the subcutaneous layer. Labels include '90°', 'Subcutaneous layer', and 'Muscle layer'.</p>
<p>3. Push plunger in to deliver insulin and count 10 seconds with skin pinched and needle in place.</p> <p>4. Remove insulin syringe and needle from skin. Apply slight pressure to the injection site with cotton ball as needed.</p>	
<p>M. Dispose of syringe with needle intact into a sharps container. Do not recap needle.</p>	<p>Refer to <a href="#">Universal Precautions Handout</a>.</p>
<p>N. Store remaining insulin according to manufacturer's recommendations.</p>	<p>Some insulin may require refrigeration.</p>
<p>O. Document procedure on student's individual treatment record.</p>	<p>Record:</p> <ol style="list-style-type: none"> <li>1. Date and time.</li> <li>2. Blood glucose level.</li> <li>3. Amount and type of insulin given.</li> <li>4. Student's response and action taken.</li> <li>5. Signature of personnel performing.</li> </ol>

The practice of wiping an injection site with alcohol is debated in the literature. Use of alcohol is optional depending on parent's preferred practice and environmental cleanliness. The site should be clean and not visibly soiled.

## Universal Precautions Handout

### I. Overview

Occupational Health and Safety Administration's (OSHA) *Universal Precautions* refers to a set of protocols for handling body fluids properly to protect against bloodborne pathogens. Bloodborne pathogens are infectious microorganisms in human blood that can cause disease in humans. These pathogens include but are not limited to hepatitis B (HBV), hepatitis C (HCV), and human immunodeficiency virus (HIV). Bloodborne pathogens can be found in blood, semen, vaginal secretions, and breast milk. Body fluids that do NOT pose a risk of bloodborne pathogen transmission unless visibly contaminated with blood include: urine, stool, saliva, emesis, nonpurulent respiratory secretions, tears, sweat or nasal discharge. Even though these other body fluids may not contain bloodborne pathogens, other infectious pathogens that cause other diseases may be present. Therefore, all blood, body fluids, secretions (including respiratory secretions), excretions (except sweat), non-intact skin and mucous membranes should be handled in a way that will prevent contamination with transmissible infectious agents (NOTE: this method is the Center for Disease Control and Prevention's *Standard Precautions* which evolved from Universal Precautions with additional protective standards).

These precautions include protocols to treat all body fluids as if they are contaminated.

Protocols include:

- Good hand washing technique
- Personal Protective Equipment (PPE)
- Cleaning and disposing of body fluids

### II. Supplies (for the purpose of medication administration):

- A. Warm, running water.
- B. Liquid soap.
- C. Paper towels.
- D. Plastic-lined and covered waste containers.
- E. Alcohol-based hand sanitizer, if running water not accessible
- F. Disposable gloves designed for medical use (latex or, because of the potential for allergy, non-latex [e.g., nitrile]).
- G. Brooms and dustpans.
- H. Approved germicidal solutions.

### III. Procedures


## Hand Washing

Hands must be washed with soap and water prior to beginning and after any planned procedure or when hands are visibly soiled. Good hand hygiene is the single-most effective procedure to prevent the spread of communicable disease in the school setting.

ESSENTIAL STEPS	KEY POINTS-PRECAUTIONS
A. Wet hands using warm, running water.	Warm water combined with soap makes better suds than cold water. Running water is necessary to carry away dirt and debris that contain microorganisms.
B. Apply liquid soap and lather well.	Bacteria can grow on bar soap and in soap dishes. Use plain non-antimicrobial liquid soap for most circumstances; use anti-microbial soap for specific circumstances, e.g., control of outbreaks
C. Rub hands together in a circular motion for 20 seconds.	Friction from rubbing hands together along with the effect of the soap loosening of the germs from the skin work together with the running water for good hand hygiene. Front and back of hands, between fingers and
D. Rinse hands well under running water.	Let water drain from wrists to fingertips.
E. Dry hands thoroughly with an air dryer or pat them dry with a fresh paper towel.	Use paper towels to turn off the water faucet, to open any exit door and to turn off bathroom lights. Dry skin may be cracked and potentially harbor microorganisms. Lotion is recommended after several
<b>OR</b>	
A. Apply alcohol-based hand rub to the palm of one hand, then rub hands together covering all surfaces of hands and fingers until dry.	Hand sanitizers should never replace standard hand washing with soap and water but ethanol alcohol-based hand sanitizer can be used when hand washing facilities are not available. Hand sanitizers must have an alcohol base of at least 60% in order to be effective. Apply enough of the product (fragrance-free gel or foaming form preferred) to the palm of the hand that will wet the hands for at least 15 seconds (or longer according to the manufacturer).
B. Wash hands with soap and water as soon as possible.	Follow directions on the label to determine how many applications are recommended before washing hands with soap and water.

### A. Gloves – Use and Removal

Gloving prevents blood and body fluids that may contain disease-producing microorganisms, from coming in contact with the caregiver's skin and prevents the spread of microorganisms to others.

ESSENTIAL STEPS	KEY POINTS-PRECAUTIONS
A. Wash hands.	Refer to <i>Hand Washing</i> procedure.
B. Apply gloves to both hands.	Individuals with open skin lesions should cover lesions with waterproof bandage prior to applying the gloves. Ensure gloves are intact without tears.
C. Gloves must be worn during entire time when handling body fluids.	Gloves are most often worn during diapering, administering first aid and certain medications, and cleanup of body fluids.  Do not touch items with contaminated gloves that you or other people will be touching with your hands later. For example: water faucets, doorknobs, counter tops or other clothing.
D. To remove gloves after use: <ol style="list-style-type: none"><li>1. Grasp outside of glove with opposite gloved hand; peel off;</li><li>2. Hold removed glove in gloved hand;</li><li>3. Slide ungloved fingers under the remaining glove at the wrist; peel off and discard</li><li>4. Drop gloves into plastic-lined trash container.</li></ol>	Do not touch skin with contaminated gloves. 
E. Repeat hand washing.	Refer to <i>Hand Washing</i> procedure in this handout.

### B. Cleaning and Disposing of Body Fluids

Items soiled with blood, body fluids, secretions, or excretions should be handled, transported, and processed in a manner that prevents skin and mucous membrane exposure and contamination of clothing.

ESSENTIAL STEPS	KEY POINTS-PRECAUTIONS
A. Wash hands.	Refer to <i>Hand Washing</i> procedure in this handout.
B. Put on gloves when handling or touching body fluids, mucous membranes or non-intact skin of others in the school setting, or handling items or surfaces soiled with body fluids.	<ul style="list-style-type: none"> <li>Refer to <i>Gloves - Use and Removal</i> procedure in this handout.</li> <li>Individuals with open skin lesions should cover lesions with a waterproof bandage prior to applying the gloves.</li> </ul>
C. Sharp items (e.g., needles, lancets) must be handled with extreme care to avoid puncturing the skin.	Sharp items are regulated waste and should be disposed of in a sharps container labeled BIOHAZARD. Regulated waste should then be disposed of according to school district policy.
D. Blood and other body fluids can be flushed down the toilet or carefully poured down a drain connected to a sanitary sewer.	
<p>E. Other items for disposal that are contaminated with blood or other body fluids that cannot be flushed down the toilet should be placed in a lined waste receptacle.</p> <ul style="list-style-type: none"> <li>✓ If saturated to the point of releasing blood or other body fluids if compressed (regulated waste), place in closable plastic container that is:</li> <li>✓ Constructed to contain all contents and prevent leakage during handling, storage, transport or shipping</li> <li>✓ Labeled with the standard fluorescent orange or orange-red BIOHAZARD label or color-coded in red bags or red containers</li> </ul>	<p>Immediately tie off the bag from the trash receptacle and dispose of it in appropriate general waste away from students.</p> <p>Bandages that are not saturated to the point of releasing blood or other potentially infectious materials if compressed would not be considered regulated waste. Regulated waste should then be disposed of according to school district policy.</p>
<ul style="list-style-type: none"> <li>✓ Closed before removal to prevent spillage or protrusion during handling, storage, transport or shipping.</li> <li>✓ Placed in a secondary container if leakage is possible.</li> </ul>	



ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
F. Body fluid spills should be cleaned up promptly, removing all visible debris first.	Wipe up as much of the visible matter as possible with disposable paper towels and carefully place them in a leak-proof plastic bag that has been securely tied or sealed. This prevents multiplying of microorganisms.
G. For hard surfaces, immediately use a detergent to clean the spill area and follow with a disinfectant	
H. For soft, non-washable surfaces, such as rugs and upholstery, apply sanitary absorbing agent, let dry, and vacuum.	Cover spills with absorbent material, leave for a few minutes to absorb, gently sweep up and discard in a plastic bag or vacuum. Blot to remove body fluids from the fabric or carpet as quickly as possible; then disinfect by spot-cleaning with a combination detergent/ disinfectant, and shampooing, or steam-cleaning the contaminated surface.
I. Handle soiled, washable material (i.e. clothing and towels) as little as possible, at the location where it was used.	<p>Send soiled clothing home with the student in a sealed, plastic bag.</p> <p>Wash and dry contaminated school-owned towels separately from non-contaminated laundry. Wash in soap and hot water (140- 160 degrees F) AND either liquid sodium hypochlorite bleach or dry bleach (which will not affect fabric colors). Dry on warm temperature setting.</p>
J. Rinse non-disposable cleaning equipment (dustpans, buckets), clean with detergent followed by the disinfectant.	Non-disposable rags or mops should be treated as contaminated laundry.
K. Remove and discard gloves into covered, plastic-lined waste container.	Refer to <i>Gloves - Use and Removal</i> procedure in this handout.
L. Wash hands.	Refer to <i>Hand Washing</i> procedure in this handout.

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### **Urine Ketone Testing Handout**

#### **I. Overview**

Ketones are acids that are produced by the body when it does not have enough insulin and uses fats for energy. Without sufficient insulin, ketones continue to build up in the blood and result in diabetic ketoacidosis (DKA), which is a medical emergency. DKA is the

primary reason why children with type 1 diabetes are hospitalized, but it can be prevented with appropriate action.

Test for ketones when a student's blood glucose test result is above 300 for consecutive tests 3 hours apart, or when a student has abdominal pain, nausea, or vomiting.

The student may perform this procedure independently if indicated on the INDIVIDUALIZED HEALTHCARE PLAN - DIABETES, and if the student has signed a STUDENT SELF-MANAGEMENT AGREEMENT.

## II. Supplies

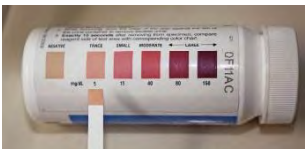
- A. Gloves
- B. Testing strips and comparison chart
- C. Cup for urine
- D. Protected testing area (waterproof disposable pad)
- E. Timing device (watch)
- F. IHP

## III. Preparation

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Review IHP	All specialized procedures conducted in the school setting require written licensed health care provider orders and parent/guardian consent. The IHP also contains specific information about the student's target blood glucose level and standard of care instructions based on the
B. Review Universal Precautions.	Refer to <a href="#">Universal Precautions Handout</a> .

## IV. Procedure

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Gather supplies.	
B. Prepare work area.	
C. Wash hands, put on gloves	Refer to <a href="#">Universal Precautions Handout</a> .
D. Student collects urine	
E. Place cup of urine on protected area (waterproof disposable pad)	Refer to <a href="#">Universal Precautions Handout</a> .
F. Dip ketone testing strip in urine, tap off	
G. Time appropriately	Follow the specific instructions on the bottle, usually 15 seconds.

H. Compare strip to comparison chart, accurately read results	
I. Dispose of all supplies appropriately  Remove gloves, wash hands	Refer to <a href="#">Universal Precautions Handout</a> .
J. Follow IHP for action plan.	Refer to health care provider orders and standard of care algorithm for
K. Document procedure on student's individual treatment record.	<ol style="list-style-type: none"> <li>1. Date and time.</li> <li>2. Blood glucose reading.</li> <li>3. Ketone results.</li> <li>4. Action taken and student's response.</li> <li>5. Signature of personnel performing.</li> </ol>

## Urine Ketone Testing Handout

### V. Overview

Ketones are acids that are produced by the body when it does not have enough insulin and uses fats for energy. Without sufficient insulin, ketones continue to build up in the blood and result in diabetic ketoacidosis (DKA), which is a medical emergency. DKA is the primary reason why children with type 1 diabetes are hospitalized, but it can be prevented with appropriate action.

Test for ketones when a student's blood glucose test result is above 300 for consecutive tests 3 hours apart, or when a student has abdominal pain, nausea, or vomiting.

The student may perform this procedure independently if indicated on the INDIVIDUALIZED HEALTHCARE PLAN - DIABETES, and if the student has signed a STUDENT SELF-MANAGEMENT AGREEMENT.

### VI. Supplies

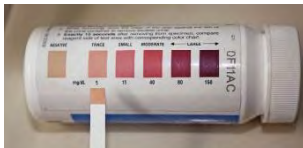
- A. Gloves
- B. Testing strips and comparison chart
- C. Cup for urine
- D. Protected testing area (waterproof disposable pad)
- E. Timing device (watch)
- F. IHP

### VII. Preparation

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
-----------------	------------------------

A. Review IHP	All specialized procedures conducted in the school setting require written licensed health care provider orders and parent/guardian consent. The IHP also contains specific information about the student's target blood glucose level and standard of care instructions based on the
B. Review Universal Precautions.	Refer to <a href="#">Universal Precautions Handout</a> .

#### VIII. Procedure

ESSENTIAL STEPS	KEY POINTS/PRECAUTIONS
A. Gather supplies.	
B. Prepare work area.	
C. Wash hands, put on gloves	Refer to <a href="#">Universal Precautions Handout</a> .
D. Student collects urine	
E. Place cup of urine on protected area (waterproof disposable pad)	Refer to <a href="#">Universal Precautions Handout</a> .
F. Dip ketone testing strip in urine, tap off	
G. Time appropriately	Follow the specific instructions on the bottle, usually 15 seconds.
H. Compare strip to comparison chart, accurately read results	
I. Dispose of all supplies appropriately  Remove gloves, wash hands	Refer to <a href="#">Universal Precautions Handout</a> .
J. Follow IHP for action plan.	Refer to health care provider orders and standard of care algorithm for
K. Document procedure on student's individual treatment record.	6. Date and time. 7. Blood glucose reading. 8. Ketone results. 9. Action taken and student's response. 10. Signature of personnel performing.

## **Appendix 4 – Competency and Skills Checklists**



Alabama State Department of Education  
Competency Checklist – Unlicensed Diabetic Assistant (UDA)  
Diabetes Management in the School Setting

Name of Unlicensed Diabetic Assistant: \_\_\_\_\_

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

The successful completion of this checklist certifies that you are competent to assist the diabetic student in diabetic care while in the school setting. Return demonstration is required until competency is attained. This competency must be renewed-annually and/or as needed throughout the year.

KNOWLEDGE SETS	Date	Trainer Initials	Comments
<b>Describes what diabetes is:</b> <ul style="list-style-type: none"> <li>Type I</li> <li>Type II</li> </ul>			
<b>Hypoglycemia and Hyperglycemia:</b> <ul style="list-style-type: none"> <li>Verbalizes symptoms of hypoglycemia (mild, moderate, severe)</li> <li>Verbalizes treatment for mild-moderate hypoglycemia</li> <li>Verbalizes treatment of severe hypoglycemia.</li> <li>Certified in glucagon training</li> <li>Verbalizes symptoms of hyperglycemia</li> <li>Verbalizes treatment of hyperglycemia</li> </ul>			
<b>Verbalizes typical needs for the student with diabetes during school hours:</b> <ul style="list-style-type: none"> <li>Bathroom</li> <li>Water, snacks &amp; blood glucose testing in classroom if appropriate</li> <li>Field trip accommodations/plans</li> <li>504 and IHP</li> <li>After school/extracurricular activities</li> </ul>			
<b>Verbalizes who should be contacted if suspect a student with diabetes needs assistance:</b> <ul style="list-style-type: none"> <li>Identifies school nurse &amp; contact info</li> <li>Identifies student's diabetes trained Unlicensed Diabetic Assistants &amp; contact info</li> <li>Describes procedure for activating Emergency Medical Services (EMS)</li> </ul>			
<b>Verbalizes location of orders-in the student specific IHP</b>			

<b>Blood Glucose Monitoring:</b> <ul style="list-style-type: none"> <li>• Verbalizes purpose of the blood glucose monitoring procedure</li> <li>• Understands and verbalize appropriate times to do monitoring according to IHP</li> <li>• Identifies supplies needed to do blood glucose monitoring</li> <li>• Verbalizes and demonstrates the proper procedure to do a blood glucose monitoring</li> </ul>			
<b>Urine Ketones:</b> <ul style="list-style-type: none"> <li>• Verbalizes purpose of urine ketone monitoring</li> <li>• Understands and verbalizes appropriate times to do urine ketone monitoring according to IHP</li> <li>• Verbalizes what, if anything, needs to be done for each level of ketones present</li> <li>• Verbalizes and demonstrates the proper procedure to do a urine ketone monitoring.</li> </ul>			
<b>Insulin administration via insulin pen</b> <ul style="list-style-type: none"> <li>• Verbalizes the purpose of the procedure</li> <li>• Refers to and verbalizes from the IHP proper timing and dosing of insulin with insulin pen</li> <li>• Identifies supplies needed to deliver insulin with an insulin pen</li> <li>• Verbalizes and demonstrates the procedure for delivering insulin with an insulin pen</li> </ul>			
<b>Insulin administration via insulin syringe</b> <ul style="list-style-type: none"> <li>• Verbalizes the purpose of this procedure</li> <li>• Refers to and verbalizes from the IHP proper timing and dosing of insulin with insulin syringe</li> <li>• Identifies supplies needed to deliver insulin with an insulin syringe</li> <li>• Verbalizes and demonstrates the procedure for delivering insulin with an insulin syringe</li> </ul>			
<b>Insulin Pumps</b> <ul style="list-style-type: none"> <li>• Verbalizes understanding of proper use of student specific insulin pump</li> <li>• Demonstrates how to correctly enter carbohydrates into insulin pump</li> <li>• Demonstrates how to correctly scroll through screens/menus to properly use bolus calculator</li> <li>• Demonstrates how to properly give bolus using bolus calculator and verifies that dose calculations are within parameters as stated in IHP</li> <li>• Demonstrates how to check bolus history</li> <li>• Demonstrates how to disconnect pump at insertion site “by pulling site off like a “band-aid” in case of severe low blood sugar</li> <li>• Verbalizes understanding of need for increased monitoring of blood sugar when blood sugars are high as indicated in IHP</li> <li>• Verbalizes understanding of how to respond to pump alerts and alarms and when to contact parent and/or school nurse</li> <li>• Verbalizes and demonstrates understanding of continuous glucose monitoring if ordered with student’s insulin pump</li> <li>• Verbalizes and demonstrates blood glucose monitoring via fingerstick if student’s continuous glucose monitoring is out of range according to IHP.</li> </ul>			



<b>Carbohydrate Counting</b> <ul style="list-style-type: none"> <li>• Verbalizes the purpose of carbohydrate (carb) counting</li> <li>• Refers to IHP and verbalizes student specific insulin to carb ratio as ordered</li> <li>• Identifies where carb resources may be obtained</li> <li>• Verbalizes and demonstrates understanding of students who use insulin pen or syringe to dose for carbs <b>before</b> eating, as ordered</li> <li>• Verbalizes and demonstrates for students who use insulin pen or syringe to dose insulin for carbs <b>after</b> eating, as ordered</li> <li>• Verbalizes and demonstrates for students who are on an insulin pump</li> </ul>			
<b>Successful Completion of Glucagon Protocol</b>			
<b>Successful Completion of Written Examination</b>			
<p>I, _____ certify that on _____, I completed training  <i>Printed Name of UDA</i> <i>Signature of UDA</i> <i>Date</i>  per the competency guidelines above and that I am competent to assist in the care of diabetic students in in the school setting. I agree to immediately notify the school nurse assigned or school administrator should I have questions, or need a refresher.</p>			
<p>I, _____ certify that on _____, the above employee  <i>Printed Name of RN</i> <i>Signature of RN</i> <i>Date</i>  has completed training and is competent to assist in the care of diabetic students in the school setting.</p>			

## Glucose Monitoring Skills Checklist

Staff member: \_\_\_\_\_

Initial Training Date: \_\_\_\_\_

Skill	RN initials	learner initials	Re-assessments		
			Date + initials x 2	Date + initials x 2	Date + initials x 2
I. State name and purpose of task and location of supplies					
II. Identify supplies					
A. IHP					
B. Meter (student's personal meter or meter provided by family)					
C. Manufacturer's instruction booklet, if available.					
D. Meter strips or cartridges					
E. Lancing device					
F. Disposable Gloves					
G. Tissue or cotton ball, adhesive bandage if needed					
H. Sharps container or disposal plan					
III. Preparation					
A. Review IHP					
B. Review Universal Precautions					
IV. Procedure					
A. Gather supplies					
B. Prepare work area					
C. Wash hands and put on gloves					
D. Student washes hands in warm, soapy water					
E. Turn meter on, insert strip and check codes (if applicable)					
F. Insert lancet and "cock" device. Puncture finger/alternative site with					
G. Apply blood to strip.					
H. Place cotton ball or tissue over lanced area.					
I. Read result (correctly)					
J. Remove strip and lancet, dispose of it properly.					
K. Dispose of other supplies appropriately.					
L. Inspect area for blood spills and follow district/program protocol for cleaning.					

Skill	RN initials	learner initials	Re-assessments		
			Date + initials x 2	Date + initials x 2	Date + initials x 2
M. Remove gloves, wash hands					
N. Follow IHP for action plan.					
O. Document procedure on student's individual treatment record.					

Staff member signature \_\_\_\_\_ Initials \_\_\_\_\_

School nurse signature: \_\_\_\_\_ Initials \_\_\_\_\_

**Alabama Department of Education**  
**Competency Checklist – Unlicensed Diabetic Assistant**  
**Glucagon Training**

Name of Unlicensed Diabetic Assistant: \_\_\_\_\_

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

The successful completion of this checklist certifies that you are competent to provide emergency medical assistance to students with diabetes who are experiencing severe hypoglycemia. Return demonstration is required until competency is attained. This competency must be renewed annually and/or as needed throughout the year.

KNOWLEDGE SETS	Date	Demonstrated Competency Trainer Initials	Comments (Repeat competency date, if applicable)
Describes the importance of blood glucose control			
Reviews symptoms of hypoglycemia (mild, moderate, severe)			
Identifies treatment based on symptoms (mild, moderate, severe)			
Identifies treatment supplies (fast-acting glucose, carbohydrate/protein appropriate snacks, glucagon kit)			
States purpose of glucagon and when it should be used			
Understands side effects of glucagon and potential complications			
SKILLS SETS	Date	Demonstrated Competency Trainer Initials	Comments (Repeat competency date, if applicable)
Recognizes Symptoms of hypoglycemia			
Calls 911			
Positions student on side			
Demonstrates proper preparation of glucagon solution			
Demonstrates proper injection technique (clean site, inject at 90° apply pressure)			
Knows to keep student on side and remain with students until EMS assumes control			
Notifies parent/guardian			
Documentation of event			
Completes unusual occurrence report and sent to LEA's Lead Nurse			

I, \_\_\_\_\_, certify that on \_\_\_\_\_, I completed training Printed Name of UDA  
*Signature of UDA* *Date*  
 per the competency guidelines above and that I am competent to provide emergency medical assistance to students with diabetes who are experiencing severe hypoglycemia in the school setting. I agree to immediately notify the school nurse assigned or school administrator should I have questions, or need a refresher.

I, \_\_\_\_\_, certify that on \_\_\_\_\_, the above employee has completed training  
*Printed Name of RN* *Signature of RN* *Date*  
 and is competent to assist in the care of diabetic students in the school setting.

## Insulin Administration by Pen Skills Checklist

Staff member: \_\_\_\_\_ Initial Training Date: \_\_\_\_\_

Skill	RN initials	Learner initials	Re-assessments		
			Date + initials x	Date + initials x	Date + initials x
I. State name and purpose of task, and location of supplies					
II. Identify supplies					
A. IHP					
B. Insulin cartridge					
C. Insulin pen, pen needles, manufacturer's instruction booklet, if available					
D. Sharps disposal container					
E. Gloves, alcohol swabs, cotton balls					
III. Preparation					
A. Review IHP - determine the insulin dose from health care provider orders					
B. Review Universal Precautions					
C. Acquire blood glucose reading					
IV. Procedure					
A. Gather supplies					
B. Wash hands, put on gloves.					
C. Determine type of pen that is used: <ul style="list-style-type: none"> <li>Check cartridge level, to be sure it's the correct type, and expiration date has not passed</li> <li>Prefilled disposable pen: cartridge is already in the pen.</li> <li>Reusable pen: most of the time insulin cartridge will be in the pen. If not, load pen cartridge into pen.</li> </ul>					
D. Remove insulin pen cap, clean rubber stopper with another alcohol swab.					
E. Take out new packaged needle, remove its protective tab. Do not touch where the needle will attach to the pen.					
F. Carefully screw on the needle onto the end of the insulin pen and remove protective cap.					

Skill	RN initials	Learner initials	Re-assessments		
			Date + initials x	Date + initials x	Date + initials x
G. Prime the needle. 1. Pulling out plunger on the end of the pen and dialing the pen to '2'. 2. Point pen away from people and press the plunger until dose selector returns to zero. Liquid should come out of the needle; if it doesn't repeat priming process.					
H. Verify the dose 1. Recheck IHP 2. Check that the dose selector is set at zero, then dial number of units needed. 3. Check dialed dose on pen					
I. Verify dosage with another staff member.					
J. Use pen to inject insulin					
1. Assist the child in choosing the injection site and swab with alcohol, if used. The area should be clean. Injection sites should be rotated.					
2. Pinch skin and insert insulin pen needle at 45-90° angle.					
3. Push the injection button down completely to deliver insulin and count ten seconds with skin pinched and needle in place.					
4. Remove insulin pen from skin. Apply slight pressure to the injection site with cotton ball, if needed.					
K. Do not replace the protective needle cap; carefully unscrew pen needle to remove from pen and dispose of needle in sharps container.  Remove gloves and wash hands.					
L. Put insulin pen cap back on pen for storage and return pen to storage area. (If insulin needs to be refrigerated, store entire pen in refrigerator.)					
M. Document procedure in student's individual treatment record.					

Staff member signature \_\_\_\_\_ Initials \_\_\_\_\_

School nurse signature \_\_\_\_\_ Initials \_\_\_\_\_

## Insulin Administration by Pump Therapy Checklist

Staff member: \_\_\_\_\_ Initial Training Date: \_\_\_\_\_

Skill	RN initials	Learner initials	Re-assessments		
			Date + initials x 2	Date + initials x 2	Date + initials x 2
I. State name and purpose of task and location of supplies					
II. Identify supplies					
A. Student IHP					
B. Meter, lancets, strips, and alcohol wipes.					
C. Sharps container					
D. Disposable medical gloves					
E. Injectable insulin supply and syringes or insulin pen in event of pump or site failure.					
F. Extra batteries and other pump supplies (e.g., infusion set and inserter, reservoir and insulin) specific to student for pump maintenance.					
III. Preparation					
A. Review Universal Precautions					
B. Review student's IHP. 1. Determine the insulin dose from the HEALTH CARE PROVIDER ORDERS					
C. Acquire blood glucose reading.					
IV. Procedure					
A. Demonstrate basic operating functions of the pump based on manufacturer's instructions:					
1. Identify insertion set, tubing, and cartridge components of pump.					
2. Check pump status					
3. Identify the last bolus given					
4. Suspend the pump					
5. Verify the pump is not in 'no delivery' mode					
6. Change the batteries in the pump					
7. Check insulin reservoir and insertion site					

Skill	RN initials	Learner initials	Re-assessments		
			Date + initials x 2	Date + initials x 2	Date + initials x 2
<p>A. Demonstrate using pump to give bolus</p> <ul style="list-style-type: none"> <li>• If using the insulin dose calculator (Bolus Wizard) function in the pump (if present), review how to look at pump dose calculations for dose of insulin, verify dose is within parameters and activate to administer dose.</li> <li>• If not using Wizard feature, demonstrate how to give a manual bolus based on the carbohydrate intake and blood glucose correction calculations</li> <li>• Document procedure on student's individual treatment record.</li> </ul>					
B. Troubleshoot pump malfunctions					
1. Describe symptoms of severe hypoglycemia and appropriate pump interventions.					
2. Describe symptoms of severe hyperglycemia and appropriate pump interventions.					

Staff member signature \_\_\_\_\_ Initials \_\_\_\_\_

School nurse signature \_\_\_\_\_ Initials \_\_\_\_\_



## Urine Ketone Monitoring Skills Checklist

Staff member: \_\_\_\_\_ Initial Training Date: \_\_\_\_\_

Skill	RN initials	Learner initials	Re-assessments		
			Date + initials x 2	Date + initials x 2	Date + initials x 2
I. State name, purpose of task and location of supplies.					
II. Identify Supplies					
A. IHP					
B. Gloves					
C. Testing strips and comparison chart					
D. Cup for urine					
E. Protected testing area (e.g., waterproof disposable pad)					
F. Timing device (watch or clock with a second hand)					
III. Preparation					
A. Review Universal Precautions					
B. Review IHP					
IV. Procedure					
A. Gather supplies.					
B. Prepare work area.					
C. Wash hands puts on gloves					
D. Student collects urine					
E. Place cup of urine on protected area (waterproof disposable pad)					
F. Dip ketone testing strip in urine, tap off excess					
G. Time appropriately					
H. Compare strip to comparison chart, accurately read results					
I. Dispose of all supplies appropriately, remove and dispose of gloves, wash hands					
J. Follow IHP for action plan					
K. Document procedure on student's individual treatment record.					

Staff member signature \_\_\_\_\_ Initials \_\_\_\_\_

School nurse signature \_\_\_\_\_ Initials \_\_\_\_\_

## **Appendix 5 – Staff Training Resources**



**ALABAMA BOARD OF  
NURSING RULE 610-X-7-.10  
DELEGATION OF INSULIN AND GLUCAGON ADMINISTRATION IN THE  
SCHOOL SETTING**

***610-X-7-.10 Delegation Of Insulin And Glucagon Administration In The School Setting.***

**1. DEFINITIONS**

- a. Glucagon: a hormone that raises the level of glucose in the blood and is administered by injection to individuals to treat severe hypoglycemia that is indicated by the inability to eat food or drink, unconsciousness, unresponsiveness and/or seizures or convulsions.*
- b. Insulin: a hormone made and released by the pancreas that allows glucose to enter the cells where it is used for energy. Students with type 1 diabetes and some students with type 2 diabetes need to administer insulin at regular times and take insulin to cover carbohydrate intake to correct hyperglycemia.*
- c. Medication Administration and Safety: See Chapter 610-X-6-.07.*
- d. School setting: preschool through 12<sup>th</sup> grade in a public or private school or school activity sponsored by such a school, in which the student is a direct participant.*
- e. Trained, Unlicensed Diabetic Assistant: a school employee who volunteers to receive delegation of administration of insulin and glucagon in the school setting and receives the approved training.*

**2. GENERAL PRINCIPLES**

- a. The injection of insulin or glucagon is a nursing task that may be delegated in accordance with the requirements of Act 2014-437 and the student's individualized health plan (IHP). The selection of the type of insulin and dosage levels shall not be delegated.*
- b. An Individualized Health Plan (IHP) shall be developed for any student diagnosed with diabetes who is in the school setting as provided for in Alabama Act No 2014-437.*
- c. Delegation of tasks for students with diabetes shall be confined to procedures that do not require nursing assessment, judgment, evaluation, or complex skills.*
- d. Factors the school nurse shall consider and may include in the IHP are:*
  - 1. Age of onset and current age of student with diabetes*
  - 2. Recent hospitalization*
  - 3. Most recent hemoglobin A1C (HgA1C)*
  - 4. Recent change in type of insulin, delivery method, and dosage*
  - 5. If and when glucagon was required*
  - 6. Comorbidities or other chronic illnesses*
  - 7. Participation in sports or other school-sponsored activities*
  - 8. Orders from a legally authorized prescriber*
  - 9. Carbohydrate counting*
  - 10. Blood glucose monitoring*
  - 11. Activation or suspension of an insulin pump*
  - 12. Usage of insulin pens*
  - 13. Self-administration evaluation*
  - 14. Student's comprehension and adherence to treatment*

- 15. Parental comprehension and adherence to treatment
- 16. Emergency protocol related to glucagon administration
- 17. Student's overall health needs
- 18. Insulin to carbohydrate ratios and correction factors
- 19. Symptoms and treatment of hypoglycemia and hyperglycemia
- 20. Ketone testing
- e. Teaching school personnel about diabetes does not constitute delegation
- f. Insulin and glucagon administration delegation is limited to:
  - 1. The student's Individual Health Plan
  - 2. Trained, Unlicensed Diabetic Assistants who have received training and competency validation for each student assigned to them
  - 3. Specific students
  - 4. Specific identified time frame
- g. The delegation shall include documentation of administration of glucagon and insulin and appropriate reporting to the school nurse.
- h. If the local education agency determines that school nurses shall provide the care to students with diabetes, delegation may not be required.

### **3. PROCEDURE**

- a. The school nurse shall validate the competency of the trained, Unlicensed Diabetic Assistant to whom delegation of administration of insulin and glucagon is given
- b. Insulin injection by the Trained, Unlicensed Diabetic Assistant receiving the delegation shall only occur when consistent with the IHP.
- c. Dosages of insulin may be injected by the Trained, Unlicensed Diabetic Assistant as designated in the IHP.
- d. Non-routine and /or large, correction dosages of insulin may be given by the Trained, Unlicensed Diabetic Assistant only after consulting with the school nurse, parent or guardian, as designated in the IHP and after verifying and confirming the type and dosage of insulin being injected.
- e. When the student is not capable of self-administration, routine daily meal boluses (routine correction dosages) of insulin, based on carbohydrate counts and blood glucose levels, may be administered by the Trained, Unlicensed Diabetic Assistant as designated in the IHP.
- f. Training of the Trained, Unlicensed Diabetic Assistants shall occur prior to any delegation of administration of glucagon and insulin.
- g. The school nurse shall follow the training guidelines developed by the State Department of Education in consultation with the Alabama Board of Nursing.
- h. The local education agency, in consultation with the school principal, shall identify any volunteer in each school to the school nurse for possible training.
- i. An annual report of the number of Trained, Unlicensed Diabetic Assistants in each school and the delegation of administration of insulin and glucagon to specific Trained, Unlicensed Diabetic Assistants shall be provided to the Board of Nursing by the Lead Nurse of each school system.

***Author:*** Alabama Board of Nursing

***Statutory Authority:*** Code of Ala. 1975, §34-21-2(c)(21).

***History: New Rule:*** Filed March 13, 2015; effective April 17, 2015.

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



American Diabetes Association  
Cure • Care • Community

**INSULIN BY SYRINGE  
AND VIAL**

## Goal: Optimal Student Health and Learning



Accurate and timely insulin dosing is a vital piece of a comprehensive plan.

## Learning Objectives

Participants will be able to understand:

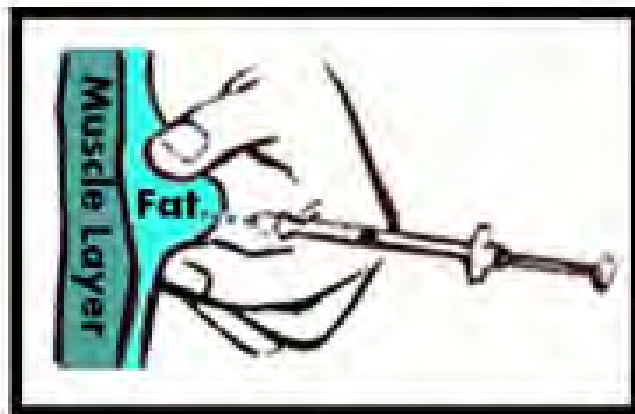
- *Types of syringes*
- *Where on the body to inject insulin*
- *Preparation steps for syringe injection*

Participants will be able to demonstrate:

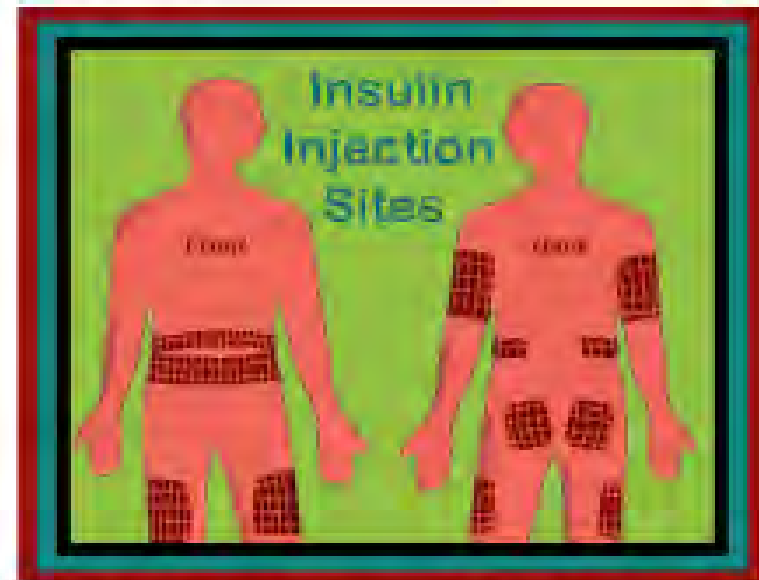
- *How to dose with a syringe*
- *How to inject with a syringe*



## On Target!



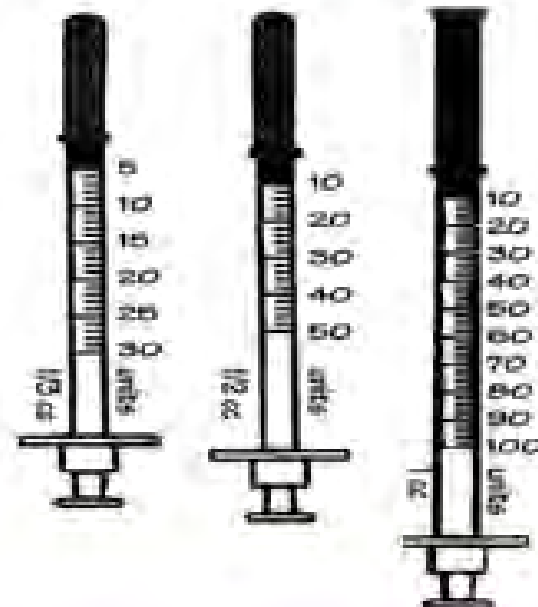
- Inject into fat layer under skin
- Rotate sites
- Student should choose site



- Common sites: abdomen, thigh buttocks, upper arms

## Insulin Syringes

- Sizes – 30, 50, 100 units
- Disposal
  - *Do not reuse*
  - *Do not recap*



## Syringe & Vial: Preparation

### 1. Get Supplies

- *Insulin (Verify type of insulin)*
- *Syringe*
- *Alcohol wipe*
- *Disposable gloves*
- *Sharps container*



## Syringe & Vial: Preparation

2. Wash hands and apply gloves



3. Clean the insulin vial



## Syringe & Vial: Preparation

4. Have student select injection site
5. Clean the injection site



## Syringe & Vial: Preparation

6. Check the insulin dose



7. Remove the cap from syringe

## Syringe & Vial: Dosing

8. Pull the plunger down to number of units to be administered

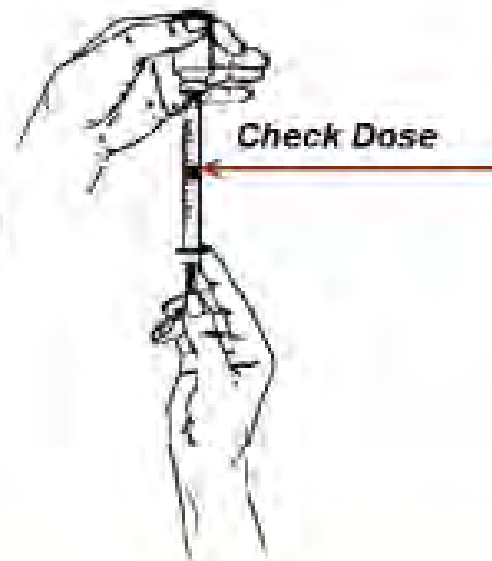


9. Inject air into bottle



## Syringe & Vial: Dosing

10. Draw out prescribed number of units of insulin as per DMMP





## Syringe & Vial: Injecting

11. Pinch up the skin
12. Push needle into skin at 90°
13. Release pinch
14. Push the plunger in
15. Count to “5”
16. Remove needle and dispose of syringe
17. Document time, dosage, site, and blood glucose value



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



American Diabetes Association  
Cure • Care • Commitment

## INSULIN BASICS

## Goal: Optimal Student Health and Learning



Accurate and timely insulin dosing is a vital piece of a comprehensive plan.

## Learning Objectives

Participants will be able to understand:

- *What insulin does*
- *Types of insulin*
- *Insulin delivery methods*
- *Storing insulin*
- *Factors that influence insulin dosing*

## Vocabulary

**Target Range:** A range of numbers that represents an individual's ideal blood glucose level; determined by health care team with the individual (child with diabetes and parent/guardian)

**Basal Insulin:** Sometimes called "background" insulin, the insulin working steadily throughout the day

**Bolus Insulin:** a single dose of insulin, given for one of two reasons:

- **Carb or Meal/Snack Bolus:** Insulin dosed when food is eaten
- **Correction Bolus:** Insulin dosed when blood glucose level is too high and needs to be corrected (made lower)



## Insulin in Schools Today

- Most students need to take insulin in school
- Insulin dosing varies from student-to-student and changes over time
- Student's need for assistance will vary as the student progresses in self-management
- Insulin dosing and timing will be specified in the DMMP; physician orders may include provisions for the parent/guardian and/or capable students to modify dosing
- Specific school procedures for administration should be documented

## What is Insulin?

Insulin is a hormone that is necessary:

- *Moves glucose from blood into cells for energy*

Students with type 1 diabetes do not produce insulin

Without enough insulin, high blood glucose results:

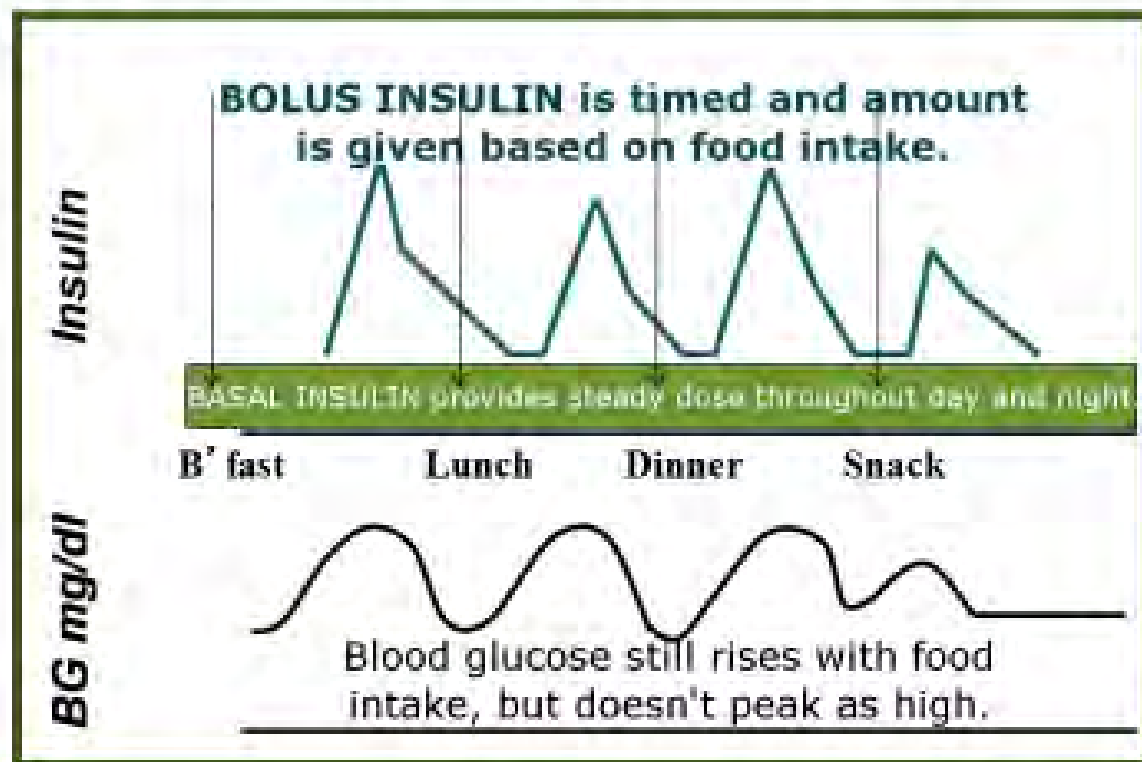
- *Energy levels are low*
- *Dehydration*
- *Complications*

## Insulin Delivery Methods

- Insulin Syringe
- Insulin Pen
- Insulin Pump or Pod
- Jet Injector

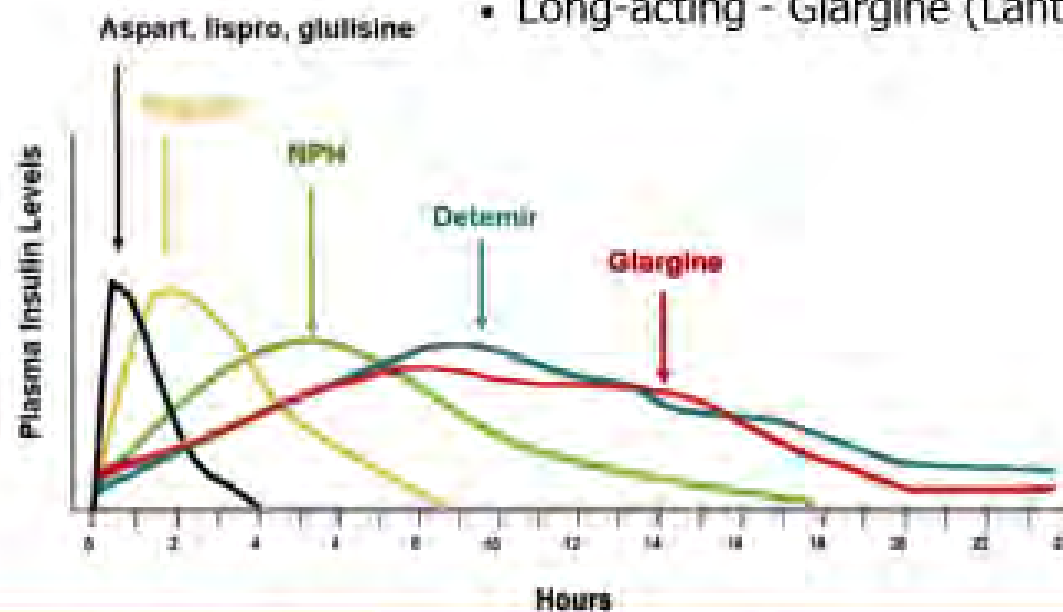


## Basal and Bolus Insulin



## Insulin Types

- Rapid-acting - Humalog ®, Novolog ®, Apidra
- Short-acting - Regular
- Intermediate - NPH
- Long-acting - Glargine (Lantus), Detemir (Levemir)



## Storing Insulin

- Review the product storage instructions and check the expiration date
- Generally store at room temperature less than 86 degrees
- Refrigerate unopened vials and insulin pens
- Be careful NOT to freeze

## When to Give Insulin

DMMP should specify dosing clearly

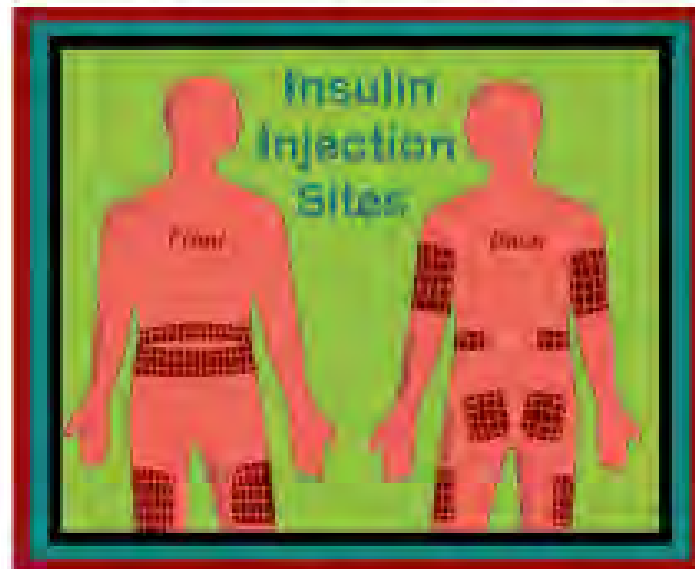
Generally:

- *Before meals or snacks*
- *For blood glucose levels significantly above target range*
- *For moderate or large ketones*

## Where to Give Insulin: On Target!



- Inject into fat layer under skin
- Rotate sites
- Student should choose site



- Common sites: abdomen, thigh buttocks, upper arms

## Dosing Insulin at School

**Generally, students will only take rapid or short acting insulin at meal or snack times:**

- Some students will use a standing insulin dose
- Others will have a varied dose, depending upon:
  - *what food is eaten (carb bolus)*
  - and/or
  - *whether blood glucose is within the target range (correction bolus)*

## Carb Bolus to Cover Meals, Snacks

**The insulin to carb ratio varies student to student, is specified in the DMMP:**

- **Recorded** as 1 unit insulin per X gms of carb
- **Example:** 1:10 ratio; 1 unit of insulin for every 10 grams of carb eaten
- **Calculate:** Meal of 60 grams CHO
  - $60/10 = 6$
  - *6 unite of insulin are needed to cover this meal*

## Correction Bolus to Lower Blood Glucose

**Amount to lower blood glucose to target, usually calculated by sliding scale or correction factor:**

- **Sliding scale:** give units of insulin for each interval of BG
  - *Example: 1 unit 150-200, 2 units 201-250, 3 units 250+*
- **Correction factor:** Blood glucose level – target blood glucose/correction factor = units insulin to be given
  - *Example: BG=150 (actual) minus Target BG (100) = 50 divided by Correction factor (50) = 1 unit insulin needed*



## **Insulin Bolus for Both Carbs and Correction**

- For some students, dosing at meal time may include both a carbohydrate ratio dose and a correction dose
- Total dose = Carb ratio dose + Correction dose
- If student's blood glucose is below target range, the correction may mean giving less than the usual dose

## After Giving Insulin

- Check site for leakage
- Document on log sheet
- Correction doses:
  - *Retest per DMMP to check effectiveness*
- Meal/snack doses:
  - *Timeliness in relation to eating*
  - *Supervision of food amount per DMMP*

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



American Diabetes Association  
Cure • Care • Commitment

**HYPERGLYCEMIA**

## Goal: Optimal Student Health and Learning



Managing hyperglycemia is a vital piece of a comprehensive plan.

## Learning Objectives

Participants will be able to understand:

- *Symptoms of high blood glucose*
- *Treatment of high blood glucose*
- *Prevention of high blood glucose*
- *Short and long-term risks and complications*

## Vocabulary

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

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

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

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

**Glucose** - a simple sugar found in the blood. The fuel that all body cells need to function

## **HYPERglycemia = HIGH Glucose (Sugar)**

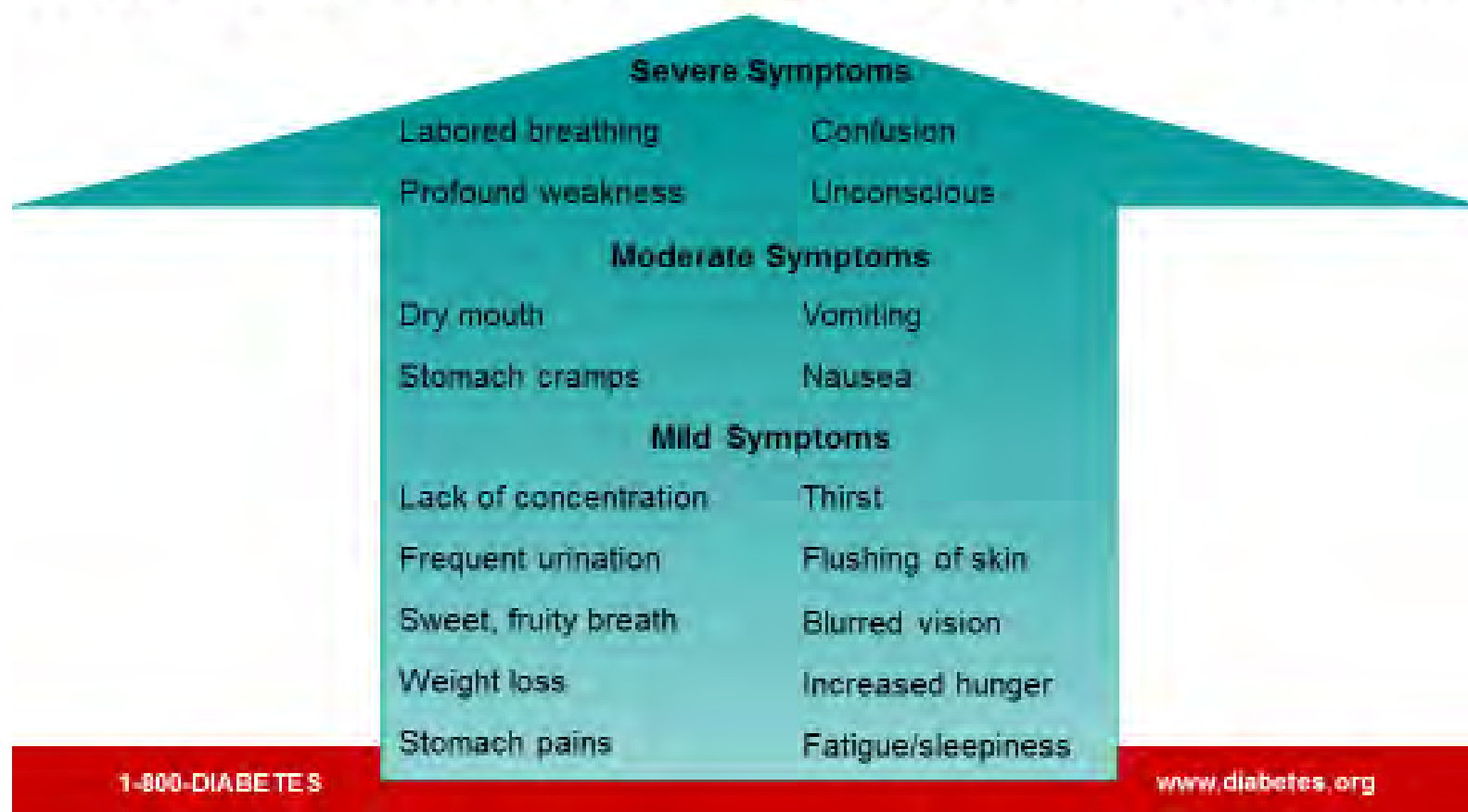
### **Onset:**

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

### **DMMP will specify signs and action steps at each level of severity:**

- Mild
- Moderate
- Severe

## Hyperglycemia: Possible Signs & Symptoms





## **Hyperglycemia: Risks & Complications**

- Hyperglycemia, which if untreated can lead to DKA and potentially to coma and/or death (mainly in type 1)
- Interferes with a student's ability to learn and participate
- Serious long-term complications develop when glucose levels remain above target range over time or are recurring

## Hyperglycemia: What to do

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

### **Action steps, following DMMP**

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

## Hyperglycemia: Possible Causes

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

## Hyperglycemia: Prevention

- **Timing** is very important – stick to the schedules:
  - Meal time, insulin administration, physical activity
- **Accuracy** is very important
  - Insulin dose, monitoring the amount and type of food eaten
- **Changes** should only be made after consultation with the parent/guardian and/or school nurse
  - Snack, meal, or insulin or physical activity times or amounts

## Information for Teachers

- Students with hyperglycemia or hypoglycemia often do not concentrate well
- Students should have adequate time for taking medication, checking blood glucose, and eating
- During academic testing, provide accommodations as per 504 plan or IEP
  - Check blood glucose before and during testing, per plan
  - Access to food/drink and restroom
  - If a serious high or low blood glucose episode occurs, students should be excused with an opportunity for retake

## “Make the Right Choice the Easy Choice”

Eliminate barriers to diabetes management:

- Become familiar with and following students' written plans
- Eliminate barriers to:
  - snacking
  - blood glucose checks
  - access to water and bathrooms
  - insulin administration
- Avoid “good or bad” judgments based on individual blood glucose readings
- Communicate with parent/guardian and school nurse



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



American Diabetes Association®  
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**DIABETES MEDICAL  
MANAGEMENT PLAN**

## Goal: Optimal Student Health and Learning



Each student should have a Diabetes Medical Management Plan (DMMP) as the foundation for all school-based care.



## Learning Objectives

Participants will be able to understand:

- *Why the Diabetes Medical Management Plan is important*
- *What other kinds of plans are most often used*
- *The purpose, content, and person(s) responsible for each kind of plan*

## **Diabetes Medical Management Plan (DMMP)**

- Basis for all school-based diabetes care plans
- Developed by the student's personal health care team and parent/guardian and signed by a member of student's personal health care team
- Individualized
- Implemented collaboratively by the school diabetes team:
  - school nurse
  - the student
  - parent/guardian
  - other school personnel

## DMMP Information

- Emergency contact information
- Level of self-care
- Blood glucose monitoring
- Insulin/medication administration
- Glucagon administration
- Meal and snack schedule
- Physical activity and sports
- Recognition and treatment of hypoglycemia and hyperglycemia

## Other Written Plans

- Section 504 Plan
- Individualized Education Program (IEP)
- Individualized Health Care Plan (IHP)
- Quick Reference Emergency Plan

## Needs Addressed by 504 Plan/IEP

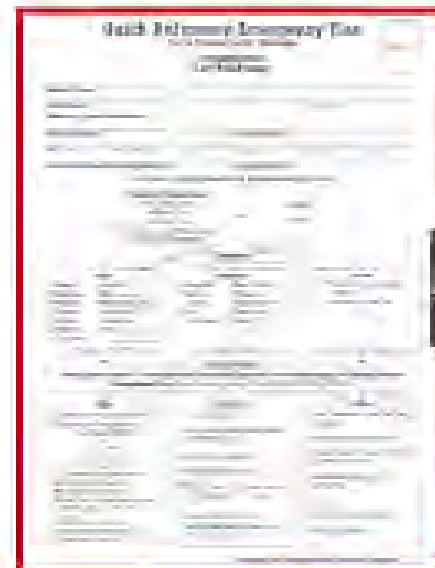
- Location and timing of blood glucose monitoring and insulin administration
- Identity of trained diabetes personnel
- Location of diabetes supplies
- Free access to water and restroom
- Nutritional needs, meals and snacks
- Full participation in all school-sponsored activities
- Access to blood glucose checks and treatment supplies during exams
- Alternative times for academic exams if student is experiencing hypoglycemia or hyperglycemia
- Absences without penalty for doctors' appointments and diabetes-related illness
- Maintenance of confidentiality and student's right to privacy

## **Individualized Health Care Plan (IHP)**

- The school nurse may develop to implement the DMMP
- Based on Diabetes Medical Management Plan (DMMP) or “medical/physician’s orders”
- Communicates the nursing management strategies for the student in the school setting

## Quick Reference Emergency Plan

- Summarizes to how to recognize and treat hypoglycemia and hyperglycemia
- Based on information from DMMP
- Distributed to all personnel who have responsibility for student with diabetes



## Written Plans for Diabetes Management

Plan	What it covers	Who writes it
<b>DMMP</b>	<i>"Doctor's Orders"</i> – details all aspects of routine and emergency diabetes care.	Personal health care team
<b>504 Plan</b>	<i>Education plans</i> - details both health care and educated related aids, services, accommodations, and special education services the student needs.	504 team
<b>IEP</b>		IEP team
<b>IHP</b>	<i>School nursing care plan</i> - specifies how diabetes care as prescribed in the DMMP will be delivered in the school	School nurse
<b>Quick Reference Emergency</b>	<i>Tool for school staff</i> - how to recognize and treat hypoglycemia or hyperglycemia	School nurse



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



American Diabetes Association  
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## DIABETES BASICS

1-800-DIABETES

[www.diabetes.org](http://www.diabetes.org)

## Goal: Optimal Student Health and Learning



All school staff members should have basic knowledge of diabetes and know who to contact for help.

## Learning Objectives

Participants will be able to understand:

- *What is diabetes?*
- *Why care at school is required*
- *Basic components of diabetes care at school*
- *Short and long term consequences of diabetes*

## What is Diabetes?

In diabetes:

*Body does not make or properly use insulin*

Insulin is needed to:

*Move glucose from blood into cells for energy*

If insulin isn't working, high blood glucose results:

*Energy levels are low*

*Dehydration*

*Complications*

## Type 1 Diabetes

- Autoimmune disorder
- Insulin-producing cells destroyed
- Daily insulin replacement necessary
- Age of onset: usually childhood, young adulthood
- Most common type of diabetes in children and adolescents

## Type 1 Diabetes



## Type 2 Diabetes

Insulin resistance – first step

Age at onset:

- Most common in adults
- Increasingly common in youth
  - *overweight*
  - *inactivity*
  - *genes*
  - *ethnicity*

## Type 2 Diabetes

### **ONSET:**

variable timeframe  
for children

### **SYMPTOMS:**

tired, thirsty, hunger,  
increased urination

- **some children show no symptoms at diagnosis**
- **others are symptomatic with very high blood glucose levels**



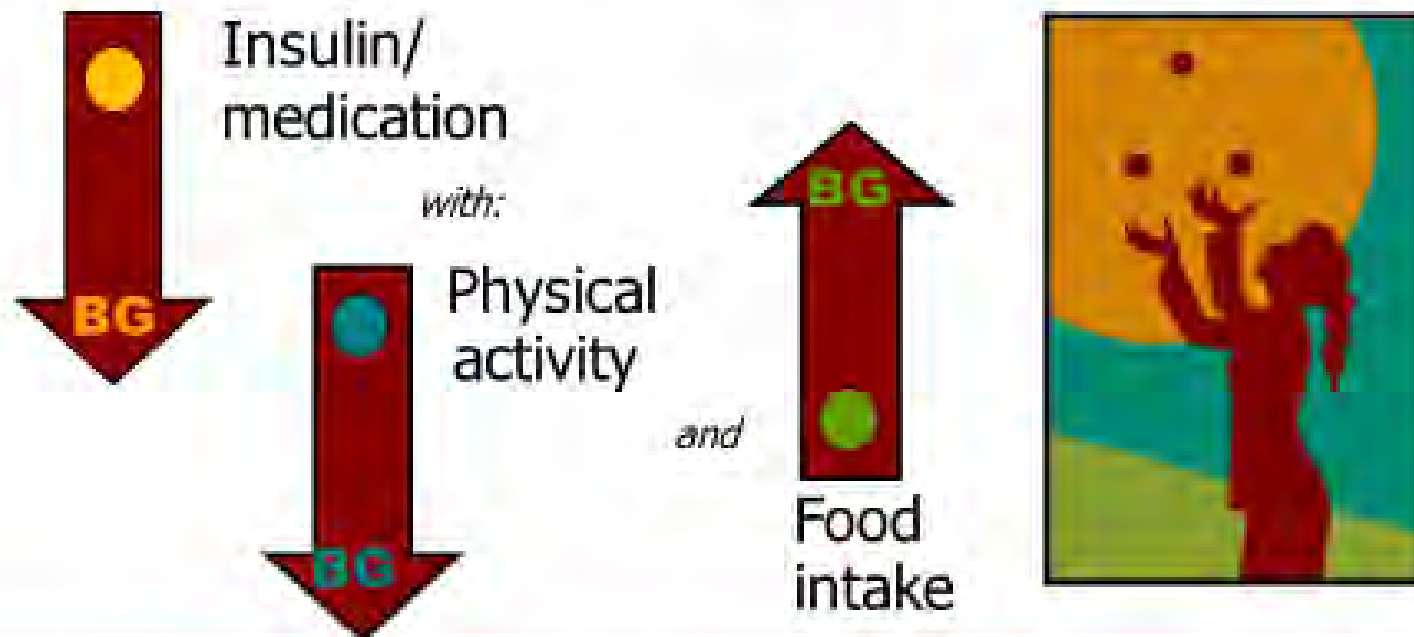
## **Diabetes is Managed, But it Does Not Go Away.**



### **GOAL:**

Maintain target  
blood glucose

## Diabetes Management Constant Juggling - 24/7



# Diabetes Management

## **Routine Care:**

- Many students will be able to handle all or almost all routine diabetes care by themselves
- Some students will need school staff to perform or assist with routine diabetes care

## **Emergency Care:**

- ALL students with diabetes will need help in the event of an emergency situation

## Care in the Schools: School Nurses and Others

### A School nurse is most appropriate to:

- Coordinate diabetes care
- Supervise diabetes care
- Provide direct care (when available)
- Communicate about health concerns to parent/guardian and health care team

***However, a school nurse is not always available.***

### Non-medical school staff can be trained to assist students:

- For both routine and emergency care
- Including insulin and glucagon administration



## Diabetes Medical Management Plan (DMMP)

- Basis for all school-based diabetes care plans
- Developed by student's personal health care team and parent/guardian
- Signed by a member of student's personal health care team
- Individualized
- Implemented collaboratively by the school diabetes team:
  - *School nurse*
  - *Student*
  - *Parent/guardian*
  - *Other school personnel*

## **Where to Get More Information**

***American Diabetes Association***

1-800- DIABETES

[www.diabetes.org](http://www.diabetes.org)

***National Diabetes Education Program/NIH***

[www.ndep.nih.gov](http://www.ndep.nih.gov)

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



American Diabetes Association  
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## BLOOD GLUCOSE MONITORING

## Goal: Optimal Student Health and Learning



Blood glucose monitoring (BGM) is a vital piece of a comprehensive management plan.



## Learning Objectives

Participants will be able to understand:

- *Why blood glucose is monitored*
- *When blood glucose should be monitored*
- *How to perform a blood glucose check*
- *Required equipment*

## Blood Glucose Monitoring

### GOAL:

- maintain blood glucose within target range

### IMMEDIATE BENEFIT:

- maximize learning and participation
- identification, treatment, and prevention of lows and highs

### LONG-TERM BENEFIT:

- decrease risk of long-term complications
- maximize health

### CHALLENGE:

- many variables impact blood glucose

## Role of the School

In accordance with DMMP:

- Facilitate blood glucose monitoring
- Act on blood glucose check results
- Document results of blood glucose monitoring when assistance or supervision is provided
- Communicate blood glucose results to parent/guardian or school nurse to monitor for trends

## Any Time, Any Place Monitoring

For students who can self-check:

- Improved blood glucose control
- Safer for student
- Student gains independence
- Less stigma
- Less time out of class
- Assists decision making in response to result

## Blood Glucose Monitoring Technology

- Simply, easy to use
- Small meters
- Reliable results (with smaller samples)
- Options for alternate (to finger poke) site testing
- Enhanced electronic functions to record, share, and analyze data

Limitation – don't know blood glucose between checks

## Continuous Glucose Monitoring (CGM)

### How it works:

- A tiny glucose-sensing device called a "sensor" is inserted just under the skin
- The sensor measures glucose in the tissue and sends the information to a pager-sized device
- The system automatically records an average glucose value every 5 minutes for up to 3, 5, or 7 days
- Finger stick pokes and regular meter needed to calibrate
- Alarms signal when glucose is out of target range

Limited, but increasing use; emerging technology

## Basic Steps

- **Know** the target range per DMMP
- **Check** at times specified in DMMP
- **Immediate Action** – Treatment to get back within target range

## When to Check?

**DMMP specifies for an individual student**

Regularly scheduled checks:

- Routine monitoring before meals and snacks
- Before, during and/or after physical activity



## When to Check?

Per DMMP, extra checks may be necessary:

- Hypoglycemia or hyperglycemia symptoms
- Change in diabetes management
- Periods of stress or illness
- Prior to academic tests
- Early or delayed release from school
- CGM alarms

## Lancing Devices



### Pen-type Lancing Devices



## Know the Meter



- Features vary:
  - *Sample size*
  - *Wait time*
  - *Alternate-site testing capacity*
  - *Communication with other devices – pumps, continuous glucose monitors*
- Become familiar with operation of meter  
1-800 number on back of meter

## Preparation

1. Gather blood glucose monitoring supplies:

- *Lancet*
- *Test strips*
- *Meter*



2. Student washes hands and dries thoroughly
3. If assisting or performing for student, put on disposable gloves



## Readying the Meter

4. Turn the meter on
5. Check code # *(if required)*
6. Insert a strip into the meter



## Lancing the Finger

7. Hold the lancet device to the side of the finger and press the button to stick the finger.

- **Alternative site (per DMMP)** the school nurse and/or parent/guardian will give further instructions which sites are appropriate
- **Note: In the case of suspected hypoglycemia, only the finger should be used for blood glucose sampling**

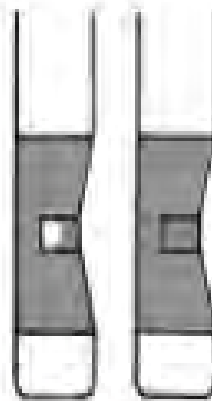


## Applying Blood to Strip

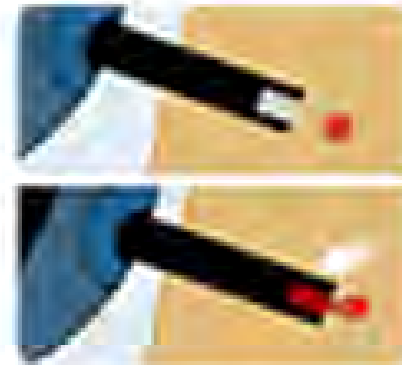
8. Follow instructions included with the meter when applying blood to strip



Drop,  
not smear



Cover **ALL** of  
test strip  
window



Some strips wick  
blood onto the  
strip

## Results

9. Wait until blood glucose results displayed
10. Dispose of lancet and strip
11. Record blood glucose results, take action per DMMP





## What Does the Display Mean?



- Check manual
- Contact manufacturer (1-800; Website)

## What Does the Number Mean?

- Reference student's target range
  - *Individualized for student*
  - *May vary throughout day*
  - *Take action per DMMP*
- Communicate sensitively
- Recognize value may vary according to time since eating, insulin, or physical activity

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



American Diabetes Association  
Cure • Care • Community

**NUTRITION AND  
PHYSICAL ACTIVITY**

## Goal: Optimal Student Health and Learning



Managing nutrition and physical activity are vital pieces of a comprehensive plan.

## Learning Objectives

Participants will be able to understand:

- *Basic meal plans for students with diabetes*
- *Nutrition calculation methods*
- *Physical activity benefits for students with diabetes*
- *Physical activity guidelines for students with diabetes*

## **Nutrition: Why be concerned?**

- Good nutrition is important for everyone for optimal health
- Nutrition planning is essential for good diabetes control:
  - maintain blood glucose within target range
  - to prevent or delay complications
  - to help children and teens grow and develop properly
  - to achieve healthy weight
  - promote optimal learning

## **School Nutrition Management**

- Student's parent/guardian and health care team determine an individualized meal plan
- A diagnosis of diabetes does NOT always limit which foods a student can eat
- Meals & snacks need to be carefully timed to balance physical activity and insulin/medications
- Encourage healthy eating for all students

## School Nutrition Management

Students with type 2 diabetes may need additional accommodations to help manage lipids, blood pressure and weight:

- May need support at meals and snacks to achieve calorie level targets and consistent carb amounts
- Assure that healthy foods such as whole grains, low-fat protein and dairy, fruits, and vegetables are available



## Basic Meal Plans

**Key:** Balance insulin/medications with carb intake

- Most students have flexibility in WHAT to eat
  - *Basic Carbohydrate Counting*
  - *Advanced Carbohydrate Counting*
- Many students have flexibility in WHEN to eat
  - *More precise insulin delivery (pumps, pens)*
  - *Rapid-acting insulins*
  - *Time dosing of insulin according to DMMP*

## Basic Carbohydrate Counting

- Calories from:
  - *carbohydrate*
  - *protein*
  - *fat*
- Each nutrient type affects blood glucose differently
- Carbohydrate has the biggest effect on blood glucose
- TOTAL carbohydrate matters more than the source (sugar or starch)

# Advanced Carbohydrate Counting

## **USING THE INSULIN-TO-CARB RATIO**

The insulin-to-carb ratio:

- Varies from student to student
- Is determined by the student's health care team
- Should be included in the DMMP
- Usually stated as a ratio of 1 unit of insulin to x grams carbohydrate
- May vary from meal to meal for a student

## Using Insulin-to-Carb Ratio

### Example: 1:10 Ratio

1 unit of insulin to be given  
per 10 grams of carbohydrate eaten

60 gm meal / 10 gms = 6 units of insulin needed

## School Meals & Snacks

- Provide school menus and nutrition information to student/parent/guardian in advance.
- Provide sufficient time for eating.
- Monitor actual food intake per DMMP
  - *young or newly diagnosed*
  - *picky eaters*
- Respect, encourage independence.



## Nutrition Information at School

The approximate carbohydrate content of school meals can be determined in advance by the school nutrition director and can be indicated on the school menu for each item.



## Beyond the Routine: School Parties

- Provide parent/guardian with advance notice of parties/special events
- Follow the student's DMMP, 504 Plan or IEP
- Some may prefer to bring their own foods, but may eat what is available.
- Provide nutritious party snacks or non-food treats for all
- Limit use of food as reward



## Beyond the Routine: Field Trips

- Notify school nurse as soon as trip is scheduled to allow for consultation with parent/guardian about food and/or insulin adjustments
- Bring plenty of quick-acting sugar sources to treat hypoglycemia
- Bring lunch as appropriate
- Bring diabetes equipment and supplies, including glucagon, if specified in DMMP
- Bring list of emergency contacts, copy of emergency care plan



## Activity & Diabetes

Everyone benefits from physical activity.

Students with diabetes should fully participate.

In general, activity lowers blood glucose levels.

If there is insufficient insulin, physical activity can raise blood glucose.

- May need to make adjustments to insulin/medications and food intake, per DMMP
- A quick-acting source of glucose, glucose meter, and water should always be available
- PE teachers and coaches must be familiar with symptoms of both high and low blood glucose

## Activity & Blood Glucose Monitoring

Check before, during, and after physical activity per DMMP:

- Especially when trying a new activity or sport
- If blood glucose starts to fall, student should stop and have a snack or quick-acting source of sugar
- Students with pumps may disconnect or adjust the basal rate downward temporarily, prior to physical activity

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



American Diabetes Association®  
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**INSULIN BY PUMP**

## Goal: Optimal Student Health and Learning



Accurate and timely insulin dosing is a vital piece of a comprehensive plan.

## Learning Objectives

Participants will be able to understand:

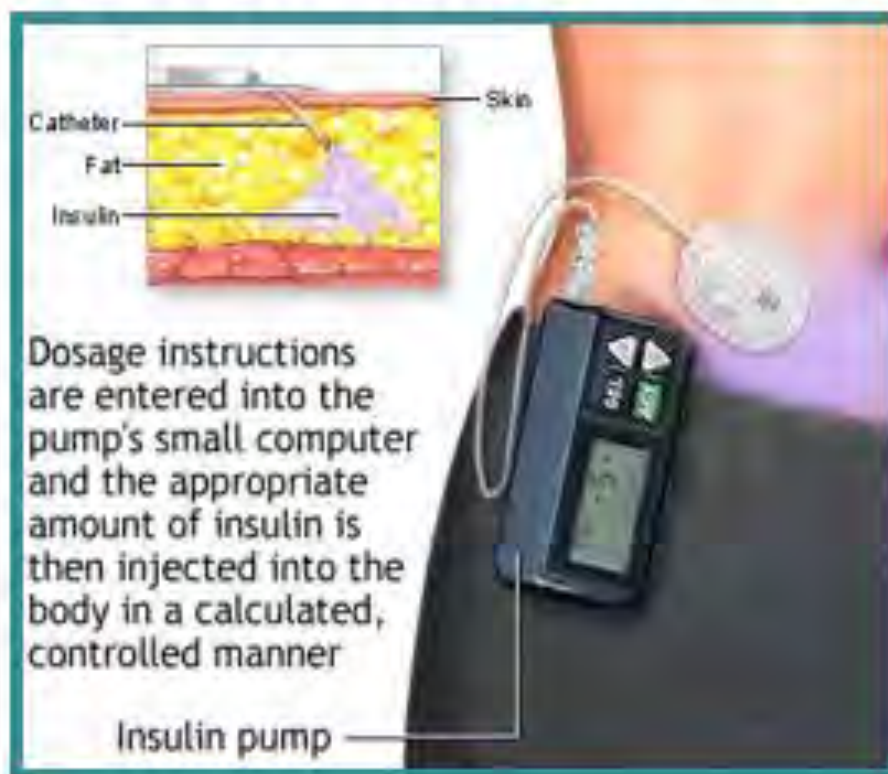
- *Basic types and features of insulin pumps*
- *What pumps do*
- *Essential information and skills for key school personnel who might perform or assist in entering data or delivering insulin with a pump*

## What Is an Insulin Pump?

- Battery operated device about the size of a pager
- Reservoir filled with insulin
- Computer chip with user control of insulin delivery
- Worn 24 hours per day
- Delivers only rapid-acting insulin



## Dosing with an Insulin Pump



## Insulin Pump Therapy

- Based on what body does naturally
  - *Small amounts of insulin all the time (basal insulin)*
  - *Extra doses to cover each meal or snack (bolus insulin)*
- Precision, micro-drop insulin delivery
- Flexibility
- Ease of correction for high blood glucose levels



## What Pumps Do

### “Bells and Whistles”

- Many pumps will calculate bolus dosages
- Some pumps communicate with blood glucose meters, or continuous glucose monitors
- Tracking active insulin
- Temporary basal rates

### Limitations:

- Pumps rely on input from humans to calculate dosing; the user can override pump-calculated doses

## What Key Personnel Need to Know About an Insulin Pump

- How to deliver routine boluses for carbs and high blood glucose
- Signs/symptoms that pump site may need to be changed
- When an injection by pen or syringe is indicated
- How to disconnect or “suspend” the pump
  - *in event the student becomes unconscious or seizes or*
  - *if instructed by the parent/guardian or diabetes care provider, e.g. during P.E.*

## Sampling of Pumps



## Pump Supplies at School

- Infusion set
- Reservoir
- Insulin
- Skin prep items
- Alcohol wipes
- Syringe (in case of malfunction)
- Pump batteries
- Inserter (if used)
- Manufacturers manual, alarm card

In cases where the pump is disconnected (for example in PE) it should be placed in a secure place as designated in the student's written plan.

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



American Diabetes Association  
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INSULIN BY PEN

## Goal: Optimal Student Health and Learning



Accurate and timely insulin dosing is a vital piece of a comprehensive plan.

## Learning Objectives

Participants will be able to understand:

- *Types of insulin pens*
- *Where on the body to inject insulin*
- *Preparation steps for insulin pen injection*

Participants will be able to demonstrate:

- *How to dose with an insulin pen*
- *How to inject with an insulin pen*

## Insulin Pens

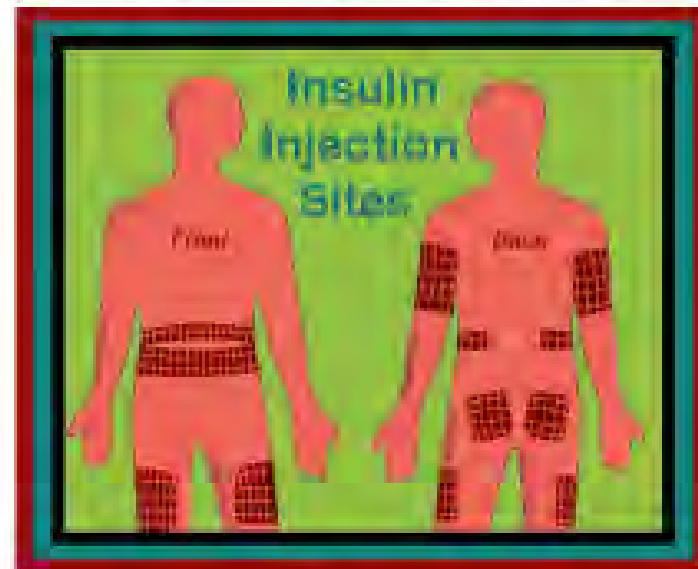
- Techniques for dosing and insulin delivery are similar for both types of pen devices:
  - *Prefilled pens*
  - *Reusable (cartridge) pens*
- Both long-acting or basal insulin and rapid-acting or bolus insulin are available in pens
- Most students will only take rapid-acting or bolus insulin in school



## Where to Give Insulin: On Target!



- Inject into fat layer under skin
- Rotate sites
- Student should choose site



- Common sites: abdomen, thigh buttocks, upper arms

## Insulin Pen: Preparation

1. Gather supplies. Verify insulin type
  - *pen device (with cartridge)*
  - *pen needle*
  - *alcohol wipe*
  - *sharps container*
2. Wash hands
3. Apply gloves
4. Have student chose injection site
5. Clean injection site
6. Screw on pen needle



## Insulin Pen: Dosing

7. Prime: Dial “2” units. *If the pen is being used for the first time, prime 4-6 units as per manufacturer’s instruction*
8. Hold upright. Remove air by pressing the plunger. *Repeat “Prime” if no insulin shows at end of needle*
9. Dial number of units to be administered as per DMMP

## Insulin Pen: Injecting

10. Pinch up the skin
11. Push the needle into the skin at 90°
12. Release pinched skin
13. Push down on the plunger
14. Count to "5"
15. Remove and dispose of pen needle
16. Document time, dose, site, and blood glucose value

**Alabama State Department of Education**  
**Delegation Decision-Making Grid**  
 UNLICENSED DIABETIC ASSISTANT

Elements for Review	Name: _____	Score
<b>Level of Student Stability</b>	Score the student's level of stability: 0. Student's condition is chronic/stable/predictable 1. Student's condition has minimal potential for change 2. Student's condition has moderate potential for change 3. Student's condition is unstable/acute/strong potential for change	
<b>Level of UDA Competence</b>	Score the UDA competence in completing delegated care activities in the school setting: 0. UDA - expert in activities to be delegated in the school setting 1. UDA - experienced in activities to be delegated in the school setting 2. UDA - experienced in activities, but not in the school setting 3. UDA – novice in performing activities and in the school setting	
<b>Potential for Harm</b>	Score the potential level of risk the care activity has for the student : <i>(risk is probability of suffering harm)</i> 0. None 1. Low 2. Medium 3. High	
<b>Level of Decision-Making</b>	Score the level of decision-making needs related to the student's cognitive and physical status: 0. Does not require decision making 1. Minimal level of decision making 2. Moderate level of decision making 3. High level of decision making	
<b>Ability for Self-Care</b>	Score the student's level of assistance needed for self-care activities: 0. No assistance 1. Limited assistance 2. Extensive assistance 3. Total care of constant attendance	
<b>Response Time</b>	Score the estimated time for access to the Emergency Medical System 0. Average response time of 3 minutes or less 1. Average response time of 3 minutes – 10 minutes 2. Average response time greater than 10 minutes	
Adapted from Colorado Kids with Diabetes Care and Prevention Collaborative <b>Total Points Scored:</b> <i>Score of 9 or less required for delegation</i>		
<b>RN Signature</b> _____ <b>Date</b> _____		

**DELEGATION TO TRAINED UNLICENSED DIABETIC ASSISTANTS (UDAs):  
ASSISTING STUDENTS WITH DIABETES CARE**

**SCHOOL:** \_\_\_\_\_

**For the \_\_\_\_\_ year the following unlicensed diabetic assistant are eligible for delegation of certain medications to students:**

NAME OF UDA	DATE ELIGIBLE	JOB TITLE	DATES MONITORED COMMENTS (RN Supervising Delegation Practice)	DATES DELEGATION SUSPENDED/REVOKED

\_\_\_\_\_  
**SIGNATURE OF DELEGATING RN**

**Training Roster**  
**Unlicensed Diabetic Assistant**

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

Location: \_\_\_\_\_

Instructor(s): \_\_\_\_\_

<b>Name</b> <b>PLEASE PRINT</b>	<b>Address</b>	<b>Name of School/System</b>	<b>Job Title</b>

## Test for Unlicensed Diabetes Care Assistants

Name \_\_\_\_\_ Date \_\_\_\_\_

**Instructions: check only one answer for each question**

### Diabetes Basics

1. Diabetes is:

- ☐ a) an endocrine disorder in which either the pancreas no longer secretes insulin or the body does not use insulin properly
- ☐ b) a disease of the liver
- ☐ c) a disease of the gall bladder

2. The three main types of diabetes are:

- ☐ a) type 1, type 2, and metabolic syndrome
- ☐ b) type 1, type 2, type A
- ☐ c) type 1, type 2, and gestational diabetes
- ☐ d) none of the above

3. The main function of the pancreas is to:

- ☐ a) produce enough insulin to allow glucose to enter the body's cells
- ☐ b) produce enough insulin to keep glucose values within a normal range
- ☐ c) a and b

4. You can tell if a student has diabetes just by looking at him/her.

- ☐ True      ☐ False

5. Students with type 1 diabetes must take insulin

- ☐ True      ☐ False

6. Students with type 1 diabetes are

- ☐ a) usually in the first grade
- ☐ b) usually in middle school
- ☐ c) any age

7. Students with type 2 diabetes may or may not take insulin

- ☐ True      ☐ False



8. Students with diabetes must check their blood glucose

- ☐ a) three times a day
- ☐ b) five times a day
- ☐ c) four times at school and four times at home
- ☐ d) as outlined in their medical management and treatment plan

9. Diabetes is managed by

- ☐ a) following a recommended eating plan
- ☐ b) taking medication as prescribed
- ☐ c) getting physical activity
- ☐ d) seeing a healthcare provider routinely
- ☐ e) all of the above

10. The goal of good diabetes management is to:

- ☐ a) be as healthy as possible
- ☐ b) avoid the complications associated with diabetes
- ☐ c) fully participate in all academic and extracurricular activities
- ☐ d) keep blood glucose levels within an acceptable range
- ☐ e) all of the above

11. Physical activity can help to:

- ☐ a) control weight
- ☐ b) maintain cardiovascular fitness
- ☐ c) lower blood glucose levels
- ☐ d) increase insulin sensitivity
- ☐ e) all of the above

### **Diabetes Management**

12. Students with diabetes are required to have an individual health plan (IHP)

- ☐ True      ☐ False

13. The IHP should include the following:

- ☐ a) a list of all the medicines the student is to take while at school
- ☐ b) a schedule of when medicines are to be administered
- ☐ c) doses of medicines that will be taken at school
- ☐ d) ranges of glucose values and steps to take when the values are out of range
- ☐ e) when and how often the student is to have snacks
- ☐ f) name and phone number of treating healthcare provider
- ☐ g) a, c, and d
- ☐ h) a, e, and f
- ☐ i) all of the above

14. Insulin may be administered by using

- ☐ a) insulin syringes
- ☐ b) an insulin pump
- ☐ c) insulin pens
- ☐ d) all of the above

15. Students with diabetes cannot eat foods with sugar

☐ True      ☐ False

16. Students with diabetes may dispose of their blood testing equipment

- ☐ a) by taking lancets home, using safe needle disposal recommendations
- ☐ b) by taking lancets to the nurse's office, using safe needle disposal recommendations
- ☐ c) by adhering to the district policy related to safe needle disposal
- ☐ d) by throwing away in the regular trash
- ☐ e) all of the above
- ☐ f) a, b, and c only

17. Symptoms of mild to moderate hypoglycemia may include:

- ☐ a) hunger
- ☐ b) headache
- ☐ c) dizziness
- ☐ d) excessive sweating

- ☐ e) trembling
- ☐ f) inability to concentrate
- ☐ g) confusion
- ☐ h) all of the above

18. Mild to moderate hypoglycemia is determined by:

- ☐ a) testing the student's blood glucose
- ☐ b) looking at the child and asking her/him how she/he feels

19. Mild to moderate hypoglycemia is treated by:

- ☐ a) eating
- ☐ b) administering insulin
- ☐ c) following the IHP
- ☐ d) a and c

20. Symptoms of severe hypoglycemia should be suspected if:

- ☐ a) the student collapses
- ☐ b) has a seizure
- ☐ c) a and b

21. Treating severe hypoglycemia should include:

- ☐ a) administering fast-acting glucose, if the student can swallow
- ☐ b) administering glucagon, if the student is unconscious
- ☐ c) a and b

22. Before and while engaging in physical activity, a student with diabetes should:

- ☐ a) monitor blood glucose levels before, during and after the scheduled physical activity
- ☐ b) adjust his/her insulin dose according to the IHP
- ☐ c) have a snack available as well as a source of fast-acting glucose to prevent an episode of hypoglycemia
- ☐ d) all of the above

23. Symptoms of hyperglycemia include:

- ☐ a) thirst
- ☐ b) increased urination
- ☐ c) drowsiness
- ☐ d) irritability
- ☐ e) ketones in the urine
- ☐ f) blurred vision
- ☐ g) all of the above
- ☐ h) a, b, and c only

24. Hyperglycemia is determined by:

- ☐ a) the student's appearance
- ☐ b) the student's blood glucose value

25. The treatment of hyperglycemia may include:

- ☐ a) administering insulin
- ☐ b) following the IHP
- ☐ c) a and b

### **Diabetes and the Law**

26. The Alabama Legislature passed the *Alabama Safe at Schools Act* (Act#2014-437) April 2014

☐ True      ☐ False

27. The *Alabama Safe at Schools Act* was passed to ensure compliance with federal laws addressing the protection of diabetic students and the rights of such students to appropriate programs and services within the public school system.

☐ True      ☐ False

28. The *Alabama Safe at Schools Act* requires public school to

- ☐ a) train unlicensed diabetes care assistants to care for students with diabetes in schools
- ☐ b) ensure students with diabetes in schools have access to necessary health services at all times while in the school setting, including on field trips, during bus transportation,

after-school programs, school sporting events, and all school-sponsored trips and activities.

- ☐ c) prepare an individual health plan for a student diagnosed with diabetes requiring assistance with diabetic management while at school
- ☐ d) a and c
- ☐ e) a, b, and c

29. The *Alabama Safe at Schools Act* requires parents to come to school and go on field trips to care for their children who have diabetes

☐ True      ☐ False

30. The *Alabama Safe at Schools Act* requires that a student with diabetes go to the nurse's office to care for his/her condition

☐ True      ☐ False

31. Students with diabetes cannot participate in extracurricular activities.

☐ True      ☐ False

33. Students with diabetes cannot attend school until the school nurse has received all medical orders from the medical provider and all diabetic supplies from parents/guardians.

☐ True      ☐ False

# **Glucagon Emergency Administration Training Tool**

**A Resource for School  
Nurses and School  
Personnel**

prevent and control diabetes

**LIFE** 

**This training has been developed by the  
NYS Department of Health in  
collaboration with the New York State  
Board of Nursing and the New York  
Statewide School Health Services Center.**

The NYS Education Department notes that districts should obtain Board of Education approval prior to use of this Glucagon Emergency Training Tool.

## Safety and Reassurance

- My daughter felt a little low at tennis practice and checked her blood sugar. It was dangerously low. She was able to treat herself with glucose tablets, but what if she had waited to check herself? Luckily, she had glucagon in her gym bag, and her coach knew how to give it to her. It is reassuring to know there is a trained volunteer on hand so that she can safely participate in a sport she loves.



## Full Participation

- My daughter wants to attend a field trip to Washington, D.C. It was suggested that I go on the trip to ensure my daughter's safety. I am a single mother and have another child to care for. Thankfully, a teacher who will be going along volunteered to be trained to inject glucagon in anticipation of an emergency. My daughter can now enjoy the much anticipated trip.

## **Overall Goal:**

### **Optimal Student Safety at School and School-Sponsored Events**

- Americans with Disabilities Act (ADA) of 1992
- Individuals with Disabilities Education Act (IDEA) of 1991
- Section 504 of the Rehabilitation Act of 1973

## Basic Principles of the Good Samaritan Law

“Any person who, in good faith, renders emergency medical care or assistance to an injured person at the scene of an accident or other emergency without the expectation of receiving or intending to receive compensation from such injured person for such service, shall not be liable in civil damages for any act or omission, not constituting gross negligence, in the course of such care or assistance.”

## Learning Objectives

### Participants will learn:

- Diabetes basic care
- Symptoms and treatment of hypoglycemia (low blood glucose)
- Procedure for the emergency administration of glucagon

## Diabetes Basics

**Diabetes is a disease where the body does not produce insulin or does not use insulin properly.**

**Insulin** is a hormone normally made by the body. It helps glucose (sugar) enter cells where it can be used for energy.

**Without insulin**, glucose remains in the blood stream and cannot be used for energy by cells.

# Two Main Types of Diabetes

## Type 1 Diabetes

- ▶ Pancreas makes too little or no insulin

- Autoimmune\*
- Genetics
- Environmental
- More common in children

## Type 2 Diabetes

- ▶ Cells do not use insulin well (insulin resistance)
- ▶ Ability for pancreas to make insulin decreases over time

- Obesity
- Heredity
- Inactivity
- More common in adults



## Diabetes Basics

- Children with diabetes must monitor their blood glucose levels.
- Safe blood glucose levels are achieved through a careful **balance of food intake, exercise and insulin.**
  - Insulin and exercise - ↓ blood glucose
  - Food - ↑ blood glucose
  - Stress, illness or injury - ↑ ↓ blood glucose

## Diabetes Basics

- Sometimes, blood glucose levels are too high resulting in a condition called **hyperglycemia**.
- If this happens, insulin must be administered to lower blood glucose levels. **Insulin administration** for children with type 1 diabetes is essential for survival.
- Sometimes, blood glucose levels drop below the safe range resulting in a condition called **hypoglycemia**.



## Diabetes Care in Schools

### **Emergency Hypoglycemia Care Plan\***

summarizes symptoms and treatment for hypoglycemia and provides emergency contact information.

The student's individual **Emergency Hypoglycemia Care Plan\*** (developed from the Diabetes Medical Management Plan) will be distributed to the appropriate trained volunteers and made available to administrators and staff as appropriate.

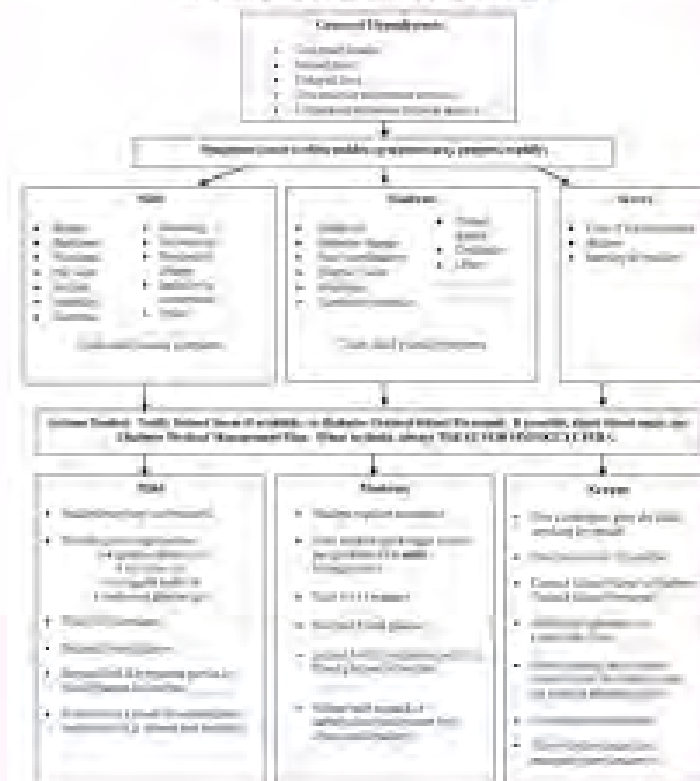
\*We highly recommend that Best Practices be followed: All Emergency Hypoglycemia Care Plans should have a permission section or form for parental consent allowing the information to be shared with appropriate school personnel on an as needs basis.

### Emergency Hypoglycemia (Low Blood Glucose) Care Plan For a Student with Diabetes

**Annals of the Entomological Society of America**

Student's Name \_\_\_\_\_  
 Grade \_\_\_\_\_  
 Teacher \_\_\_\_\_  
 Date of Filing \_\_\_\_\_  
 Emergency Contact Information:  
 Parent(s) Name(s) \_\_\_\_\_  
 Home Phone \_\_\_\_\_ Work Phone \_\_\_\_\_  
 Cell Phone \_\_\_\_\_  
 E-mail Address \_\_\_\_\_  
 Home Phone \_\_\_\_\_ Work Phone \_\_\_\_\_  
 Cell Phone \_\_\_\_\_  
 School Nurse \_\_\_\_\_ Telephones \_\_\_\_\_  
 Hospital/ Urgent Care/ Doctor \_\_\_\_\_  
 Name \_\_\_\_\_ Telephones \_\_\_\_\_  
 Name \_\_\_\_\_ Telephones \_\_\_\_\_  
 Name \_\_\_\_\_ Telephones \_\_\_\_\_  
 Name \_\_\_\_\_ Telephones \_\_\_\_\_  
 Name \_\_\_\_\_ Telephones \_\_\_\_\_

There are three possible ways to interpret the results. First, the results suggest that the effect of the intervention is not significant. Second, the results suggest that the effect of the intervention is significant. Third, the results suggest that the effect of the intervention is significant.



## Diabetes Care in Schools (cont.)

The **school nurse** is the most appropriate person to provide routine and emergency care when needed.

However, a school nurse is not always available and hypoglycemia can occur at **ANY** time.

# Hypoglycemia (Low Blood Glucose)

**Hypoglycemia** poses the most immediate risk to a student with diabetes because onset is sudden, it is not always preventable, and may progress to unconsciousness and convulsions if left untreated.

## Possible Causes:

- Too much insulin
- Too little food or delayed meal or snack
- Extra physical activity
- Illness
- Medications
- May occur for no apparent reason

# Hypoglycemia: Signs & Symptoms



As blood  
glucose  
levels  
drop,  
symptoms  
become  
more  
severe.

## Mild Symptoms

Hunger	Sleepiness	Sweating
Shakiness	Changed behavior	Anxiety
Weakness	Paleness	Blurry vision
Dilated pupils	Increased heart rate/palpitations	

## Moderate Symptoms

Excessive Yawning	Extreme tiredness/fatigue	Confusion
Restlessness	Irritability/frustration	Sudden crying
Dazed Appearance	Refusal to take anything by mouth	

## Severe Symptoms

Unconsciousness      Seizures (convulsions)

Inability to swallow

## Mild and Moderate Hypoglycemia

When mild or moderate symptoms occur, **immediate treatment** is required to prevent progression to severe hypoglycemia:

- **Treat at onset of symptoms by having student eat or drink fast acting carbohydrates (if able to swallow).**
- **NEVER leave the student unattended.**

## Quick Acting Glucose for Mild to Moderate Hypoglycemia

**Treatment: Give 15 grams of carbohydrates by mouth if able to swallow\***

- 4 oz. fruit juice
- 3-4 glucose tablets
- 1 tube of glucose gel
- 6-8 oz. of sports drink
- 1 tablespoon of honey
- 6 oz. regular (not diet) soda (about half a can)
- 3 teaspoons table sugar (3 packets)
- One-half tube of cake gel

**\*After this treatment, utilize the school district policy and procedures for medical emergency care. Contact the appropriate medical staff for assessment of the student.**

## Severe Hypoglycemia

If a student exhibits unconsciousness or unresponsiveness, seizures (convulsions), or is unable to swallow, this is an **EMERGENCY**:

- **TREAT, then follow district policy for medical emergency care.** Inform that you are treating a child with a hypoglycemic diabetes emergency. Intervene promptly. A student experiencing severe hypoglycemia will **ALWAYS** need assistance. **When in doubt, TREAT.**
- Treat on the spot and **NEVER** leave the student unattended.



## Responding to Severe Hypoglycemia

If severe hypoglycemia develops, a **LIFE-  
SAVING** injection of **glucagon** (a hormone that raises blood glucose levels) must be given.

If the school nurse is not available, other school personnel should be **trained to administer glucagon** in the case of a severe hypoglycemic emergency.

## Glucagon Kit Storage



**As designated in the student's Diabetes Medical Management Plan, the kit should be:**

- **accessible to trained volunteer school personnel**
- **stored at room temperature**
- **monitored for expiration date**

## Emergency Kit Contents:

**1 mg of freeze-dried glucagon (Vial)**

**1 ml of water for reconstitution (Syringe)**



**Glucagon - Lilly**



**GlucaGen - Novo Nordisk**

**Combine glucagon and water immediately before use and discard any unused portion after injection.**

## First Steps

- Position student safely on side for comfort and protection from injury.
- NEVER attempt to place ANYTHING into the student's mouth.
- Notify the designated volunteer personnel trained to give glucagon.
- While treating, have another person follow the district policy for medical emergency care and contact parents/guardian per Emergency Hypoglycemia Care Plan.

### Preparation

- Remove cap from vial (glass bottle) of glucagon dry powder.
- Pull needle cover off syringe.

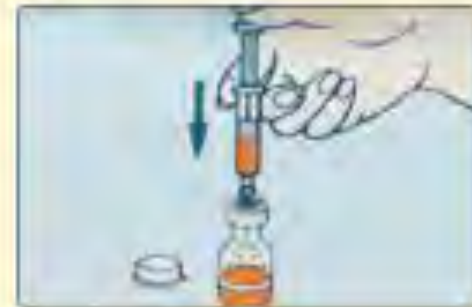




# Administering Glucagon:

## Mixing Solution

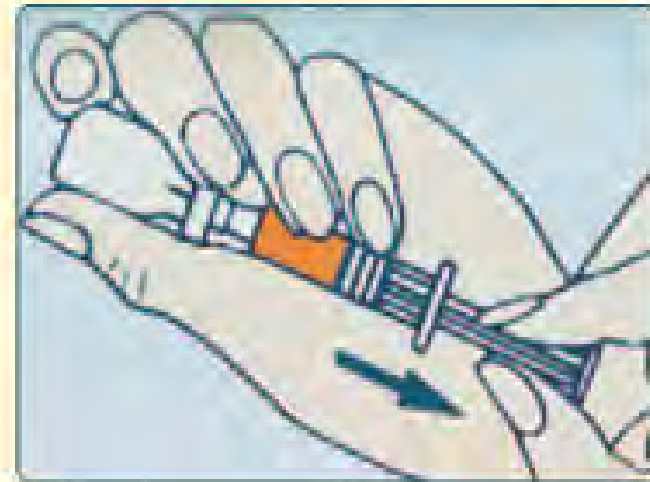
- Insert needle through rubber stopper on vial of glucagon and inject entire contents of syringe into vial of powder.
- Without removing the syringe, hold syringe and vial in one hand and gently shake until all powder is dissolved and solution is clear.



# Administering Glucagon:

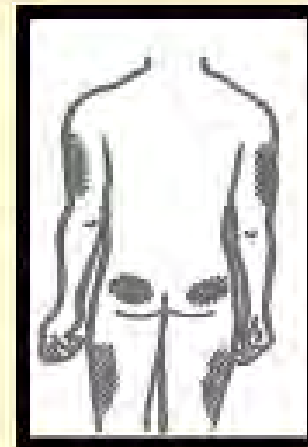
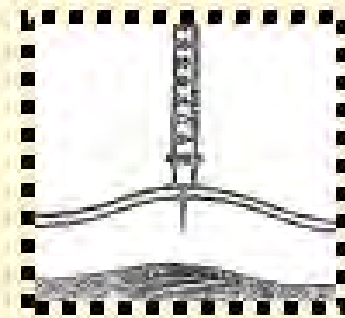
## Withdrawing Solution

- Inspect. Solution must be clear and colorless.
- Slowly withdraw the amount of solution from the vial into the syringe as specified in the student's Emergency Hypoglycemia Care Plan.
- Check for air bubbles in syringe. Tap any visible air to the top of the syringe and push gently on the plunger until air is removed.



# Injecting Glucagon

- Clean injection site on buttock, upper arm, or thigh with alcohol swab, if available.
- Insert needle at a 90-degree angle and inject glucagon into large muscle (upper arm, thigh or upper outer area of buttock).





# Injecting Glucagon

- Withdraw needle, then apply slight pressure at injection site. Discard needle into a sharps container or, if unavailable, back into its case.
- Do **not** recap needle.

### After Injecting

- It may take 10-15 minutes for the student to regain consciousness.
- Vomiting may occur - keep the student positioned on side to prevent choking.
- Remain with student until Emergency Medical Services (EMS) assumes control.

# How To Administer Glucagon!



## Next Steps

- Once the student is awake and able to drink, give sips of fruit juice or regular soda and advance diet as tolerated.
- Remain with the student until emergency medical services assumes control. The student should not resume normal activities.
- Notify appropriate parties of incident details and attend debriefing meeting with school nurse. School nurse will document incident in appropriate health records.

## Don't Be Surprised If. . .

- The student does not remember being unconscious or is incoherent or lethargic.
- The student feels nauseated, vomits, or has a headache.

## Considerations

Recovery time from a severe hypoglycemic episode varies according to the duration and level of the blood glucose prior to treatment.

Some signs and symptoms, such as headache, may persist for several hours, although the blood sugar level is satisfactory. Continued monitoring is important.

## Quick Review

- Mild to moderate hypoglycemia can be treated with a quick acting source of carbohydrate (15 grams).
- Signs of severe hypoglycemia include:
  - Unconsciousness
  - Seizures
  - Inability to swallow

## Quick Review, continued

- Severe hypoglycemia is a medical emergency requiring immediate administration of glucagon.
- Treat, then follow the district policy for medical emergency care.



# Thank you!

*“I feel more confident in sending my child to school knowing that he will be well taken care of in the event he has a low blood sugar. I am grateful to the school nurse and volunteers who are looking out for my son.”*



## **Train the Trainer Course**

Curriculum to Teach Unlicensed Diabetic Assistant (UDA)

How to Assist With Care of the Diabetic Student in the School Setting



**Alabama Board of Nursing**

**Alabama State Department School Nurse Consultants**

## Background

- In the US, diabetes is on the rise among children and youth younger than 20 years, with an estimated 215,000 having the disease (Type 1 or Type 2) or about 0.26% of this age group.<sup>1</sup>
- A national estimate of diabetes prevalence found that 0.079% of US children aged nine or younger have diagnosed diabetes, as do 0.280% in the 10 - 19 age group.
- The American Academy of Pediatrics (AAP), National Association of School Nurses (NASN) and the American Nurses Association (ANA) offer: When a school nurse is not available at all times, trained and supervised UAP who have the required knowledge, skills, and composure should deliver specific school health services under the guidance of a licensed RN.
- Diabetes is generally a self-managed disease and many students with diabetes are able to perform most of their own diabetes care tasks; such students should be permitted to do so in the school setting.

## Background

- Diabetes is generally a self-managed disease and many students with diabetes are able to perform most of their own diabetes care tasks; such students should be permitted to do so in the school setting.
- However, some students, because of age, inexperience, or other factors need help with some or all of diabetes care tasks and all students will need help in the event of a diabetes emergency.
- Experts agree the school nurse should be the key coordinator and primary provider of care.

## Background

- Experts also agree that the school nurse should coordinate the training of an adequate number of school personnel to ensure that if the school nurse is not present, there is at least one adult present who is trained to perform these procedures in a timely manner. This is needed in order to enable full participation in school activities.
- These school personnel need not be health care professionals, literature provides support for the contribution unlicensed staff make in schools when there is adequate training and supervision.<sup>9</sup>
- Purpose of training program is to provide the RN with the tools to equip school personnel to provide care to the student with diabetes when the administration of insulin and glucagon is delegated by a RN to a UDA.

## Safe at School Act 2014-437

- Section 3 (a) No later than the beginning of the 2015-2016 school year, the ALSDE, in consultation with the Alabama Board of Nursing, shall develop guidelines for the training of school employees in the care needed for students with diabetic medical needs according to the student's Individual Health Care Plans, the medical authorization of which are limited to permitting the administration of injectable medication specific to his or her diabetes.

## Safe at School Act 2014-437

- Each local board of education shall ensure that diabetes training programs are provided for all school nurses and unlicensed diabetic assistants (UDAs) at school under its jurisdiction.
- Section 5(a)
  - The LEA shall ensure that each student in the school or system receives appropriate care as specified in the IHP.
  - The lead nurse of the school system may recommend the placement of a school nurse based on the overall health needs of that student.
  - School employees shall not be required to serve as(UDAs).



# Rescind: Attorney General Opinion 2006-127



2006-127

STATE OF ALABAMA  
OFFICE OF THE ATTORNEY GENERAL  
August 11, 2006

TRIST RAMO  
ATTORNEY GENERAL

ALABAMA STATE BAR  
11 SOUTH GUNN STREET  
MONTGOMERY, AL 36102  
LEGAL COUNSEL  
205-261-0111

THIS OPINION HAS BEEN WITHDRAWN  
12/13/13

Honorable James R. Scals, Attorney  
Montgomery County Board of Education  
Hill, Hill, Carter, Franco, Cole and Black, P.C.  
Post Office Box 116  
Montgomery, Alabama 36101-0116

Education; Boards of - Schools - Students -  
Health Care - Nurses

To comply with the Alabama Board of Nursing Standards of Nursing Practice, a board of education has the authority to adopt reasonable rules and regulations that place students at schools other than a school in the students' attendance district to provide the students with the necessary nursing services to accommodate their health-care needs. The board of education retains the authority to transfer a student who requires nursing services to a school with a full-time nurse over the parent's or guardian's objection to the transfer.

**NEW ABN Administrative Code: Delegation of Insulin and  
Glucagon Administration in the School Setting  
610-X-7-10 (2015)**

- Proposed new rule specifying the school nurse role in delegation of insulin and glucagon administration in the school setting.
- A copy of proposed amended rule may be found on the Boards website, [www.abn.alabama.gov](http://www.abn.alabama.gov), under “Laws” and the “Proposed Rule Changes.”

**10-X-7-.10    Delegation Of Insulin And Glucagon Administration In The School Setting.**

**(1)            DEFINITIONS**

(a)            Glucagon: a hormone that raises the level of glucose in the blood and is administered by injection to individuals to treat severe hypoglycemia that is indicated by the inability to eat food or drink, unconsciousness, unresponsiveness and/or seizures or convulsions.

(b)            Insulin: a hormone made and released by the pancreas that allows glucose to enter the cells where it is used for energy. Students with type 1 diabetes and some students with type 2 diabetes need to administer insulin at regular times and take insulin to cover carbohydrate intake to correct hyperglycemia.

(c)            Medication Administration and Safety: See Chapter 610-X-6-.07.

(d)            School setting: preschool through 12<sup>th</sup> grade in a public or private school or school activity sponsored by such a school, in which the student is a direct participant.

(e)            Trained, Unlicensed Diabetic Assistant: a school employee who volunteers to receive delegation of administration of insulin and glucagon in the school setting and receives the approved training

(2) **GENERAL PRINCIPLES**

(a) The injection of insulin or glucagon is a nursing task that may be delegated in accordance with the requirements of Act 2014-437 and the student's individualized health plan (IHP). The selection of the type of insulin and dosage levels shall not be delegated.

(b) An Individualized Health Plan (IHP) shall be developed for any student diagnosed with diabetes who is in the school setting as provided for in Alabama Act No 2014-437.

(c) Delegation of tasks for students with diabetes shall be confined to procedures that do not require nursing assessment, judgment, evaluation, or complex skills.

(d) Factors the school nurse shall consider and may include in the IHP are:

1. Age of onset and current age of student with diabetes
2. Recent hospitalization
3. Most recent hemoglobin A1C (HgA1C)
4. Recent change in type of insulin, delivery method, and dosage
5. If and when glucagon was required
6. Comorbidities or other chronic illnesses
7. Participation in sports or other school-sponsored activities
8. Orders from a legally authorized prescriber
9. Carbohydrate counting
10. Blood glucose monitoring

11. Activation or suspension of an insulin pump
12. Usage of insulin pens
13. Self-administration evaluation
14. Student's comprehension and adherence to treatment
15. Parental comprehension and adherence to treatment
16. Emergency protocol related to glucagon administration
17. Student's overall health needs
18. Insulin to carbohydrate ratios and correction factors
19. Symptoms and treatment of hypoglycemia and hyperglycemia

20. Ketone testing

(e) Teaching school personnel about diabetes does not constitute delegation.

(f) Insulin and glucagon administration delegation is limited to:

1. The student's Individual Health Plan,

2. Trained, Unlicensed Diabetic Assistants who have received training and competency validation for each student assigned to them.

3. Specific students

4. Specific identified time frame

(g) The delegation shall include documentation of administration of glucagon and insulin and appropriate reporting to the school nurse.

(h) If the local education agency determines that school nurses shall provide the care to students with diabetes, delegation may not be required.

(3) **PROCEDURE**

(a) The school nurse shall validate the competency of the trained, Unlicensed Diabetic Assistant to whom delegation of administration of insulin and glucagon is given

(b) Insulin injection by the Trained, Unlicensed Diabetic Assistant receiving the delegation shall only occur when consistent with the IHP.

(c) Dosages of insulin may be injected by the Trained, Unlicensed Diabetic Assistant as designated in the IHP.

(d) Non-routine and /or large, correction dosages of insulin may be given by the Trained, Unlicensed Diabetic Assistant only after consulting with the school nurse, parent or guardian, as designated in the IHP and after verifying and confirming the type and dosage of insulin being injected.

(e) When the student is not capable of self-administration, routine daily meal boluses (routine correction dosages) of insulin, based on carbohydrate counts and blood glucose levels, may be administered by the Trained, Unlicensed Diabetic Assistant as designated in the IHP.

(f) Training of the Trained, Unlicensed Diabetic Assistants shall occur prior to any delegation of administration of glucagon and insulin.

(g) The school nurse shall follow the training guidelines developed by the State Department of Education in consultation with the Alabama Board of Nursing.

(h) The local education agency, in consultation with the school principal, shall identify any volunteer in each school to the school nurse for possible training.

(i) An annual report of the number of Trained, Unlicensed Diabetic Assistants in each school and the delegation of administration of insulin and glucagon to specific Trained, Unlicensed Diabetic Assistants shall be provided to the Board of Nursing by the Lead Nurse of each school system.

**Author:** Alabama Board of Nursing

**Statutory Authority:** Code of Ala. 1975, §34-21-2(c)(21).

**History: New Rule:** Filed March 13, 2015; effective April 17, 2015.

## Alabama Diabetic Curriculum Review: Table of Contents

- Introduction
- Background
- Alabama Laws and Regulations
- Protocol for Training
- Curriculum Overview



## Alabama Diabetic Curriculum Review: Table of Contents

- **Module I: Knowledge Learning Objectives**
  - **Diabetes Management of the Student**
    - Introduction to Diabetes
    - Nutrition (Carbohydrate Management
    - Physical Activity
    - Support of Developmentally Appropriate Self-Management of Diabetes Care
    - Field Trips and Special Events
    - Disaster Planning

## Alabama Diabetic Curriculum Review: Table of Contents

- **Procedures for Management of the DM Student**
  - Monitoring Blood Glucose Levels
  - Hypoglycemia
  - Hyperglycemia
  - Introduction to Ketones
  - Insulin Basics

## Alabama Diabetic Curriculum Review: Table of Contents

- **Module II: Skills Learning Objectives**

- Training Materials Needed

- Appendix 1 – Glucagon Training Curriculum
    - Appendix 3 – Individualized Healthcare Plan Packet
    - Appendix 3 - Handouts
    - Appendix 4 – Competency and Skills Checklists
    - Appendix 5 Staff Training Resources add Training Sign in Sheet
    - Appendix 6 - Resources

## Alabama Diabetic Curriculum Review: Protocol for Training

- Parameters of Training
  - Qualification of instructional personnel
    - Registered Nurse, current AL nursing license, experience in management of diabetes in children
    - Successfully completed ALSDE/ABN required Train the Trainer Course
  - Unlicensed Diabetes Assistant Training
    - Successful completion of the Alabama Diabetic Curriculum based on knowledge and skills competency
    - Skills maintained with annual training
    - Training sessions no less than 2 hours or until competency is demonstrated
  - All training materials will be update annually

## Alabama Diabetic Curriculum Review: Protocol for Training

- **Levels of Training**

- Tier I

- School personnel will receive training that provides basic understanding of diabetes
    - Conducted annually by licensed professional nurse

- Tier II

- Classroom teachers and all personnel who “need to know”
    - All training contained in Tier 1 plus additional training on how to carry out their student specific individual roles and responsibilities/what to in case on diabetic emergency
    - Review of IHP

## Alabama Diabetic Curriculum Review: Protocol for Training

- **Levels of Training**

- Tier III

- *One or more volunteer school staff member(s)*
    - *Training consists of diabetes and routine emergency care for each student with diabetes from a licensed registered nurse (RN)*

## Alabama Diabetic Curriculum Review: Curriculum Overview

- *Diabetes Care Tasks At School: What Key Personnel Need to Know – School Training Modules*
  - *Helping the Student with Diabetes Succeed, National Diabetes Education Program available online @*  
<http://ndep.nih.gov/publications/PublicationDetail.aspx?PubId=97#main>
  - *Understanding Diabetes (aka the Pink Panther Book) UCD Barbara Davis Center for Childhood Diabetes, available online at:*  
<http://www.ucdenver.edu/academics/colleges/medicalschool/centers/BarbaraDavis/OnlineBooks/books/Pages/UnderstandingDiabetes.aspx>
  - *Curriculum to Teach Unlicensed School Personnel How to Assist with Medications in the School Setting. Alabama State Department of Education & Alabama Board of Nursing (2013).*
- (Please note this is the foundational document for the teaching program)**

## Alabama Diabetic Curriculum Review: Content Design

- The content of the training curriculum has been organized into two modules:
- *Module 1* – contains knowledge that the trainees need in order to anticipate and respond to the needs of students with diabetes.
- *Module 2* - contains the specific skills the trainees need to perform for a particular student with diabetes.
- All trainees must demonstrate accurate understanding of Module 1 content as well as demonstrate mastery of skills in Module 2.
- Each component within the curriculum includes learning objectives, training resources, pre/post-tests and/or skills checklists for assessing and documenting the trainees' knowledge and capability in performing tasks.



## Alabama Diabetic Curriculum Review: Appendices

- **Appendix 1 – Glucagon Training Curriculum**
  - Glucagon Training Curriculum
  
- **Appendix 2 – IHP**
  - Form Instructions IHP
  - Individualized Healthcare Plan
  - Provider/Parent Authorization
  - Agreement UDA
  - Agreement Student Independently Managing Their Diabetes
  
- **Appendix 3 – Handouts**
  - Carbohydrate Counting and Correction Dosage Calculation Handout
  - Continuous Glucose Monitoring Device
  - Glucagon Administration Handout
  - Insulin Administration by Pen Handout
  - Insulin Administration by Pump Handout
  - Insulin Administration by Syringe Handout
  - Safe at Schools Act# 2104-437
  - Universal Precautions Handout
  - Urine Ketone Testing Handout

## Alabama Diabetic Curriculum Review: Appendices

- **Appendix 4 – Competency and Skills Checklists**
  - Carbohydrate Counting and Correction Dosage Checklist
  - Diabetes Management Checklist
  - Glucagon Administration Checklist
  - Glucagon Competency Checklist
  - Glucose Monitoring Checklist
  - Insulin Administration by Pen Checklist
  - Insulin Administration by Pump Checklist
  - Insulin Administration by Syringe Checklist
  - Urine Ketones Testing Checklist

## Alabama Diabetic Curriculum Review: Appendices

- **Appendix 5 – Staff Training Resources**
  - Delegation to Train UDA
  - Diabetic Delegation Decision-Making Grid
  - Module 2 – NY Glucagon Training Slides
  - New – Proposed ABN Admin Code 610-X-7-.10
  - Post Test/Answer Key
  - UDA Training List
  - Sign-in Training Roster
  - Tier1/Tier 2 PowerPoint
  - Train the Trainer PowerPoint

# **Managing Diabetes in the School Setting**

Alabama State Department of Education  
Alabama Board of Nursing

## Diabetes Mellitus: **Type I Diabetes**

- Previously called Insulin-dependent or Juvenile Onset Diabetes
- Pancreas does not make enough insulin (a hormone secreted by the pancreas)
  - If the body has too little or no insulin then glucose cannot enter the cells of the body to be used for energy
- **Symptoms include:**
  - ❖ fatigue
  - ❖ increased thirst
  - ❖ Frequent urination
- **Treatment includes:**
  - ❖ Blood glucose monitoring
  - ❖ Administration of long and/or rapid-acting insulin
  - ❖ Diet, exercise and rest

## Diabetes Mellitus: **Type II Diabetes**

- Previously called Adult Onset Diabetes
- Insulin resistance
  - ❖ Decreased ability of insulin (a hormone secreted by the pancreas) to move glucose (blood sugar) from our bloodstream into our cells.
- Risk factors include:
  - ❖ Family history
  - ❖ Lifestyle choices (diet, exercise, obesity)
- Treatment includes:
  - ❖ Blood glucose monitoring
  - ❖ Diet management and exercise
  - ❖ Oral medications (Glucophage, Actos, etc.)
  - ❖ Insulin

## Hypoglycemia (Low blood sugar)

- Blood glucose less than or equal to 80 mg/dl **OR** symptoms
- *Usual* symptoms of hypoglycemia:
  - ❖ Shaky or jittery
  - ❖ Sweaty
  - ❖ Hungry
  - ❖ Pale
  - ❖ Headache
  - ❖ Blurry vision
  - ❖ Sleepy
  - ❖ Dizzy

# Hypoglycemia: Treatment

- Can occur very quickly
- Must be treated immediately
- Prevention:
  - Regular blood sugar monitoring/in classroom if necessary
  - Meals/Snacks eaten on regular schedule/not skipped/in classroom if necessary
- Treatment of hypoglycemia:
  - ❖ If student is able to swallow and follow directions, treat with a fast-acting carbohydrate (CHO) source.
    - Mini box of juice
    - 8 oz. carton low or no-fat milk
    - ½ can soda (sweetened)
    - 3-4 glucose tablets
- Remain with student until he/she is able to safely resume normal activity.



## Hypoglycemia: **Emergency**

- If student **becomes unconscious: EMERGENCY**
  - ❖ Student will be unable to swallow and follow directions
  - ❖ Turn student onto his/her side
  - ❖ Remain with the student until the on-site School Nurse/Trained Unlicensed Diabetic Assistant arrives OR until EMS arrives
  - ❖ If no School Nurse or Trained Unlicensed Diabetic Assistant available - **CALL 9-1-1**
- Treatment of **EMERGENT** hypoglycemia:
  - ❖ Administer Glucagon injection (if ordered by physician)
  - ❖ Glucagon is a hormone that when injected raises the blood sugar quickly
  - ❖ Glucagon **may only be administered** by a School Nurse or a Trained Unlicensed Diabetic Assistant
- Students must be accompanied by a School Nurse or Unlicensed Diabetic Assistant or Parent if participating on a Field Trip or Extracurricular Activity

## Hyperglycemia (High blood sugar)

- Blood glucose greater than or equal to 300 mg/dl **OR** symptoms
- *Usual* symptoms of hyperglycemia:
  - ❖ Increased thirst, dry mouth
  - ❖ Frequent or increased urination
  - ❖ Change in appetite, nausea
  - ❖ Blurry vision
  - ❖ Fatigue

# Hyperglycemia: Treatment

- Slower leading to medical emergency (diabetic ketoacidosis)
- Occurs when symptoms persist without treatment
- Prevention:
  - ❖ Regular blood sugar monitoring/in classroom if necessary
  - ❖ Meals/Snacks eaten on regular schedule/not skipped/in classroom if necessary
  - ❖ Insulin/Medications taken on time
  - ❖ Exercise on time
- Treatment of hyperglycemia:
  - ❖ If student is able to swallow and follow directions, treat with the following:
    - ❖ zero calorie fluid (i.e. water)

## Hyperglycemia: **Emergency**

- If student **becomes unconscious: EMERGENCY**
  - ❖ Student will be unable to swallow and follow directions
  - ❖ Turn student onto his/her side
  - ❖ Remain with the student until the on-site School Nurse/Trained Unlicensed Diabetic Assistant arrives OR until EMS arrives
  - ❖ If no School Nurse or Trained Unlicensed Diabetic Assistant available - **CALL 9-1-1**
- Treatment of **EMERGENT** hyperglycemia:
  - ❖ School Nurse or a Trained Unlicensed Diabetic Assistant will follow physician orders regarding administration of insulin/medication
- Students must be accompanied by a School Nurse or Unlicensed Diabetic Assistant or Parent if participating on a Field Trip or Extracurricular Activity

## Appendix 6 - Resources



## Resources

This curriculum is built on the shoulders of others, with much appreciation to them all for their hard work paving the way! In particular, we used the Alaska Diabetes Management Guide for Training Unlicensed School Staff website (<http://dhss.alaska.gov/dph/wcfh/Documents/school/assets/Diabetes.Management.Guid.e.for.Training.Unlicensed.School.Staff.pdf>) and the Virginia Department of Education Manual for Training Public School Employees in the Administration of Insulin and Glucagon website

Training materials from the American Diabetes Association (*School Training Curriculum*), the National Diabetes Education Program (*Helping the Student with Diabetes Succeed*), the UCD Barbara Davis Center for Childhood Diabetes (*Pink Panther Book*) and other sources are listed and/or linked specific sections of the curriculum.

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<sup>14</sup> Kentucky Board of Nursing (2014). *Insulin Administration in School Settings Training Program Manual 2014 Edition*.

<sup>15</sup> MedicineNet.com, printed 8/3/2012

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<sup>19</sup> Resha, C. Developing a Policy for Delegation of Nursing Care in the School Setting. *The Online Journal of Issues in Nursing*; 2010, Vol.15 Issue 2, p5-5, 1p

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