Insulin Administration

A. General Guidelines

1. Insulin is a hormone constructed of proteins and is affected by extremes in temperature.

2. Insulin vials should not be exposed to extreme heat or cold temperatures. Insulin that has been left in a hot car or outside in the winter should be thrown away.

3. For field trips, a thermal lunch bag or special case designed for the insulin and a reusable ice pack can be used to keep the insulin cool, but never frozen.

4. When a vial of insulin is opened, the date should be written on it. Open vials should be stored at room temperature below 86 degrees F and thrown out one month after opening.

5. Extra unopened vials should be stored in the refrigerator between 36 – 46 degrees F and are able to be used until the expiration date on the bottle/box.

B. Purpose

1. For those students with Type I Diabetes, maintaining a stable blood glucose level with minimal fluctuations requires coordination of an appropriate diet regimen, blood glucose monitoring, administration of insulin, and consistent follow-up with the health-care provider.

2. In addition to the times of blood glucose monitoring in the school setting, The Diabetes Medical Management Plan includes specific instructions regarding the type, amount, and times for insulin to be administered in the school setting and is established by the health-care provider in consideration of the student's size, diet, activity level, and blood glucose level.

3. Insulin may be administered in the school setting using either a fixed schedule-same amount of insulin at the same time every day, or an adjustable therapeutic regimen-for carbohydrate coverage or for correction of blood glucose levels.

C. Types of Insulin

1. Various types of insulin are available today with differences in the onset, peak, and duration of action times. The type of insulin prescribed is determined by the student's needs and the action time of the insulin.

2. Rapid-acting insulin, such as Humalog, Novolog, and Apidra is often used at meal times for carbohydrate coverage or correction doses. Because these work very quickly, the student must eat the indicated meal or snack immediately after the insulin is administered.
3. ***Action Times***: The time of onset for rapid-acting insulin is generally 5-15 minutes with a peak achieved at approximately 30-90 minutes and a duration less than 5 hours.

4. Short-acting (Regular) insulin is administered for students on a fixed insulin regimen.

5. ***Action Times***: The time of onset for short-acting insulin is 30-60 minutes, with a peak of 2-3 hours and a duration of 5-8 hours.

6. Intermediate-acting (NPH) insulin is also administered on a fixed insulin regimen.

7. ***Action Times***: The time of onset for intermediate acting insulin is 2-4 hours with a peak of 4-10 hours, and the duration of 10-16 hours.

8. Long-acting (basal) insulin, such as Lantus and Levemir, is typically not administered in the school setting but instead are generally administered at home before school or before bedtime.
9. ***Action Times***: The time of onset for long-acting insulin is 2-4 hours for Lantus and 3-8 hours for Levemir with no peak time. These usually last up to 24 hours.
10. Another type is insulin not seen as often in the school setting is a combination insulin such as 70/30. This insulin is a mixture of short-acting (Regular insulin) and intermediate-acting (NPH) insulin.

D. Methods of Delivery

1. A variety of delivery methods are available for insulin administration including injectable, either syringe or an insulin pen, or a continuous delivery system called an insulin pump.

2. The decision for which method of delivery is determined by the prescriber and is based on a number of factors including the stability of the student's blood glucose levels as well as the activity level and maturity level of the student.

E. Injectables

1. This method of administration is given as a bolus dose and involves drawing up a specific amount of insulin from a multi-dose vial of insulin using a syringe or an insulin pen.
   a) *Syringes* – come in various sizes, either 30, 50, or 100 units
   b) *Insulin Pens* –either Prefilled or Reusable (cartridge) pens

2. Insulin injections are given in the subcanteous layer of skin – fat layer between the skin and the muscle
   a. *Common sites*: abdomen, thigh, buttocks, upper arms

3. After injecting prescribed dose of insulin, wait 5 seconds before withdrawing the needle to prevent the insulin from leaking back out of the skin.

4. In order to reduce the risk of scar tissue or a fatty growth formation, injection sites should rotated.

5. Allow student to choose the injection site

6. Dispose of used syringes and needles in a puncture-resistant container in accordance with OSHA guidelines.
   a) Do not recap a used needle
   b) Do not reuse the same needle.

PROCEDURE FOR INSULIN ADMINISTRATION VIA SYRINGE AND VIAL

Essential Steps	Key Points and Precautions
1. Preparation	Organization saves time and prevents the student from being left alone
a) Gather supplies: – Insulin – verify type and expiration date – Syringe with needle – Alcohol wipes – Disposable gloves – Puncture-resistant container	
b) Wash hands and apply gloves	Universal precautions - reduces the risk of disease transmission.
c)..Clean top of insulin vial with alcohol wipe.	Reduces the risk of spreading germs.
d) Allow student to select injection site	Encourages student participation, promotes independence.
e) Clean injection site with alcohol wipe	
f) Review DMMP to determine the dose of insulin to be administered.	Using the 5 Rights of Medication Administration: Right Medication Right Dose Right Individual Right Route Right Time
g) Remove cap from the syringe	
2. Dosing	
a) Pull plunger down to the number of units to be administered.	Collects that amount of air in the syringe.
b) Inject the air into the insulin bottle.	Assists in withdrawing insulin into the syringe.
c) Withdraw the prescribed number of units of insulin as per the DMMP.	According to the 5 Rights of Medication Administration.
3. Injecting	
a) Pinch up the skin.	Reduces the risk of an intramuscular injection.
b) Push needle into skin at a 90^0 angle.	Reduces the risk of leakage.
c) Release the pinched skin.	
d) Push the plunger in.	
e) Count to “5”.	
f) Withdraw the needle and dispose of syringe with needle attached.	In puncture-resistant container to reduce the risk of accidental exposure.
g) Document the time, dosage, site, and blood glucose value.	

Insulin Administration: Injection-Syringe Skills Checklist [ ] Initial [ ] Review

Student's Name: _____ Date of Birth: _____

Person Trained: _____ Position: _____

	Demo Date	Return Demonstration					
		Date	Date	Date	Date	Date	Date
Cleans top of cabinet/cart where medication will be administered							
A. Preparation							
1. Gathers supplies and verify insulin type							
2. Washes hands and apply gloves							
3. Cleans top of insulin vial with alcohol wipe							
4. Allows student to select injection site							
5. Cleans injection site with alcohol wipe							
6. Reviews DMMP to determine the dose of insulin to be administered							
7. Removes cap from syringe							
B. Dosing ***8.*** Pulls plunger down to the number of units to be administered							
9. Injects the air into the insulin bottle							
10. 3.Withdraws the prescribed number of units of insulin as per the DMMP							
C. Injecting 11. Pinches up the skin							
12. Pushes needle into skin at a 90^0 angle							
13. Releases the pinched skin							
14. Pushes the plunger in							
15. Counts to "5"							
16. Removes the needle and dispose of syringe							
17. Documents the time, dosage, site, and blood glucose value							

Comments:_____

Overall Rating: ____**PASS** *Successful completion of a minimum of five demonstrations with 100% accuracy*

____ **FAIL** *Practical must be repeated. Trainer must complete Summary of Skills Form and attach to this checklist.*

_____ _____ _____ _____

Date: School RN Signature Date Employee Signature