



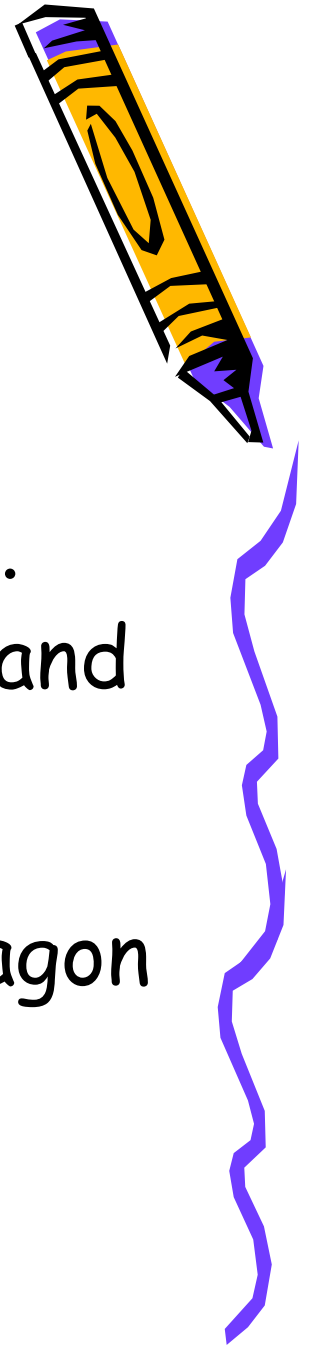
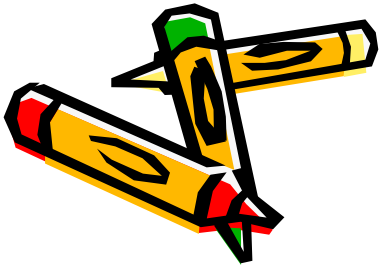
# Children With Diabetes

With Glucagon Training For School  
Staff



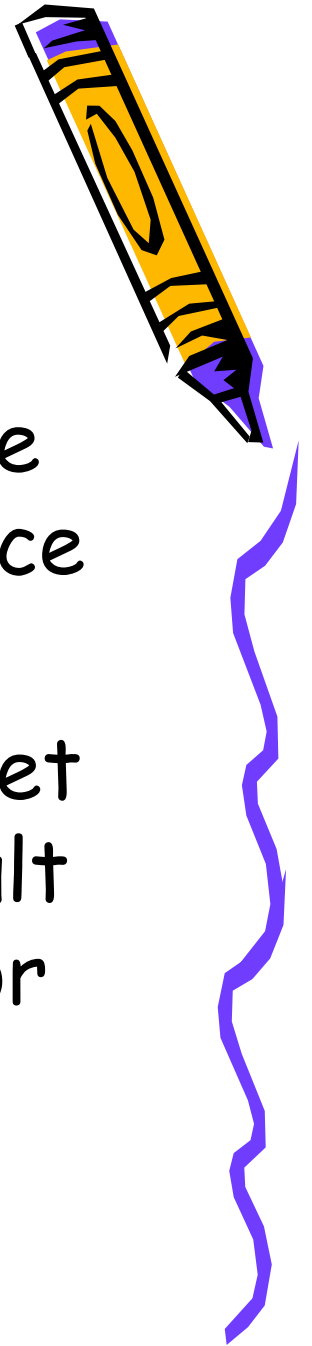
# Goals for today

- Understand what diabetes is.
- Recognize a hypoglycemic reaction.
- Understand the intended purpose and the side effects of a glucagon injection.
- Be able to draw up and inject glucagon as needed.

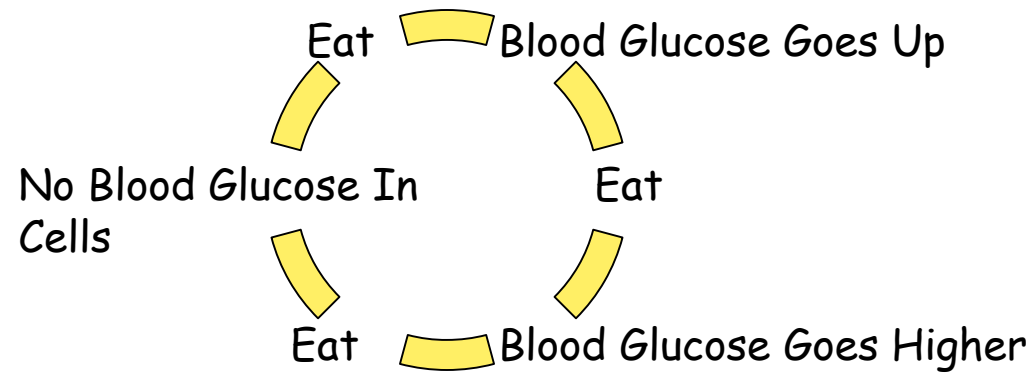


# What is Diabetes

- Diabetes is a condition in which the body cannot use or does not produce enough insulin.
- Without insulin, the body cannot get the blood glucose (that is the result of food digestion) into the cells for energy.

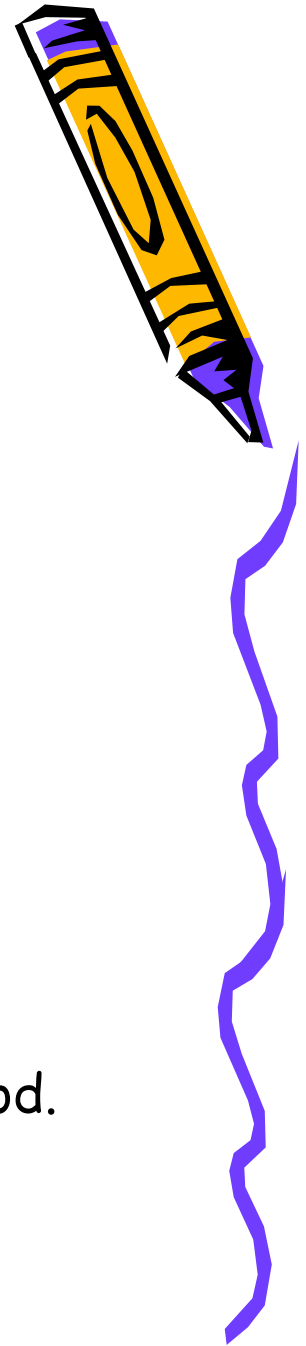


# Without Insulin

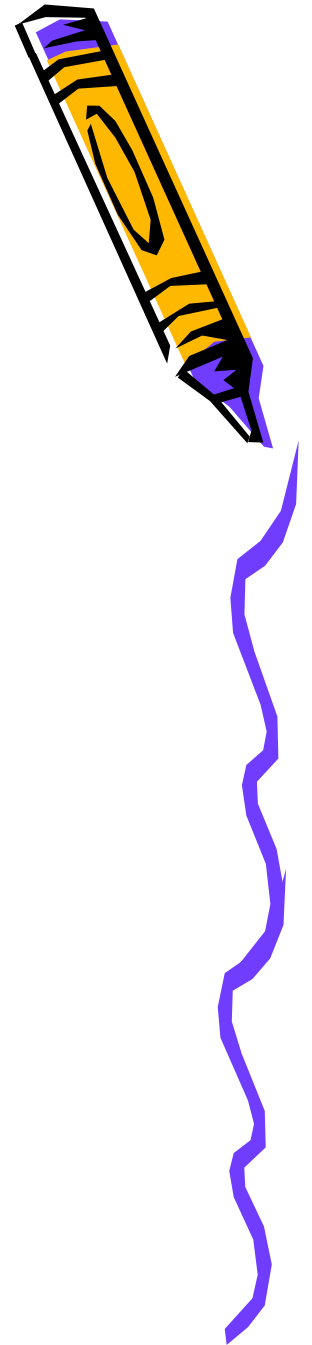


High levels of blood glucose build up in the blood.

The blood glucose cannot get into the cell to provide energy.



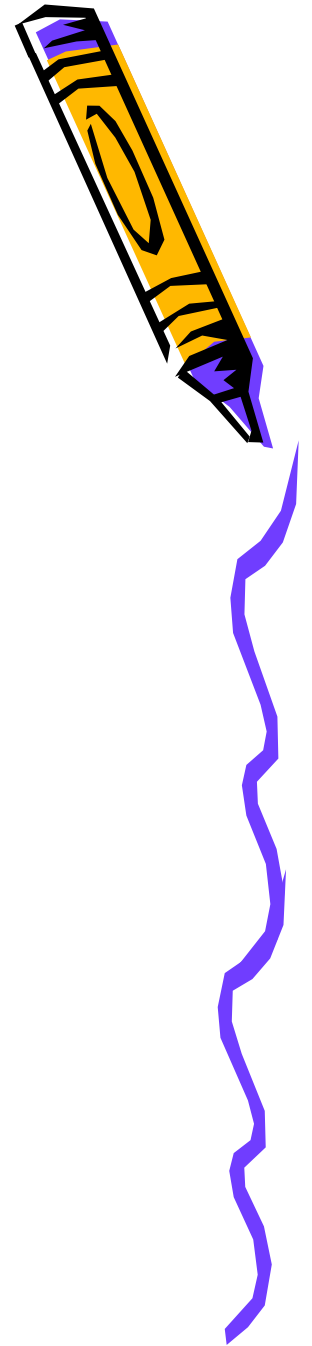
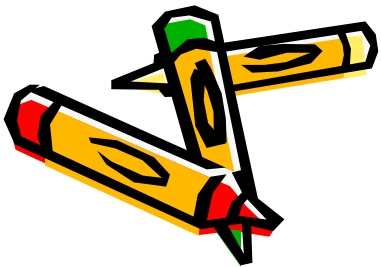
This is called  
Hyperglycemia



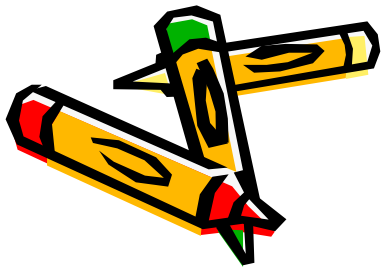
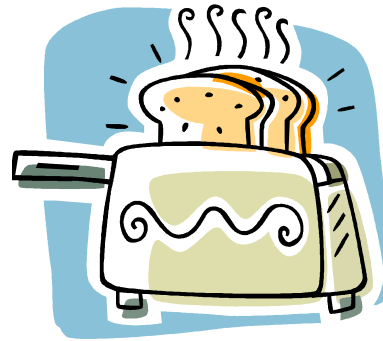
# HYPERGLYCEMIA

## Signs and symptoms

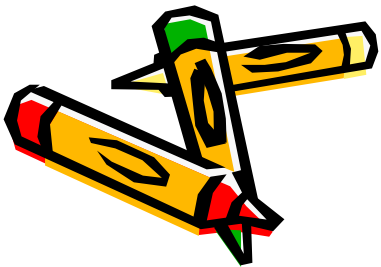
- Frequent urination
- Increased thirst
- Increased hunger
- Fatigue/weakness
- Weight loss
- Blurry vision
- Fast, deep breathing
- Slow or confused thinking



# Treatment



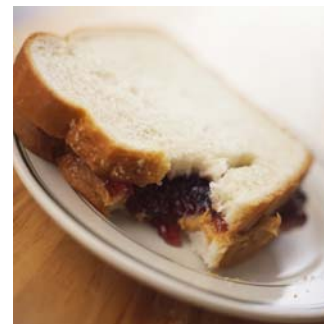
# So... Hyperglycemia





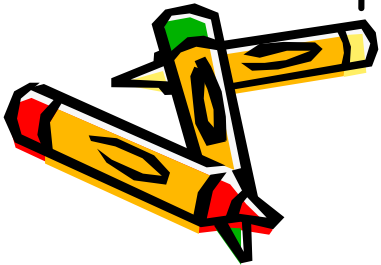
# Meal Plans

- Good nutrition is important to everyone, however a student with diabetes must plan their meals carefully.
- A balanced diet, with a moderation of concentrated sweets is the best.
- Counting the carbohydrates in foods is called Carb Counting.
- Insulin is given according to the carbs eaten.



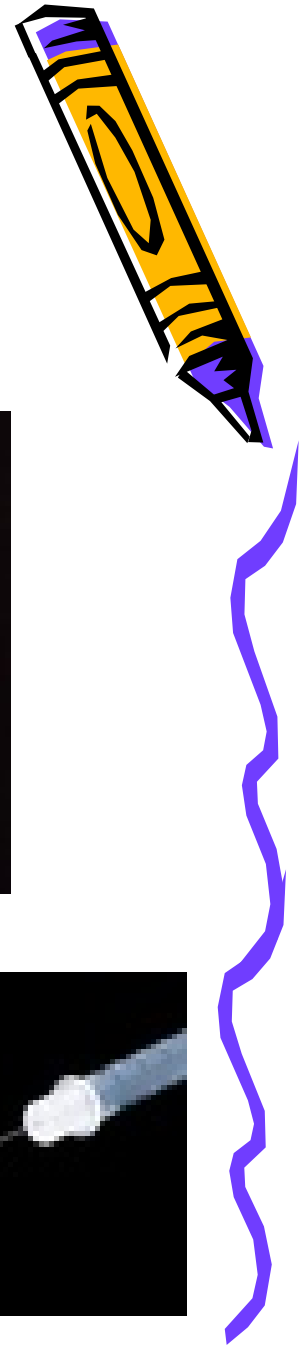
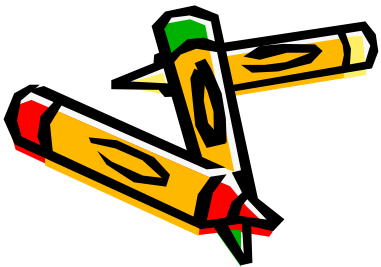
# Blood glucose checking

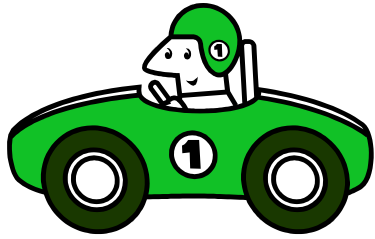
- Daily blood glucose checking is an important part of diabetes control.
- Blood glucose checks are usually done before meals, at bedtime, and with exercise.
- When in doubt, **CHECK** the blood glucose if the student is not feeling well or is complaining of feeling "low".



# Insulin

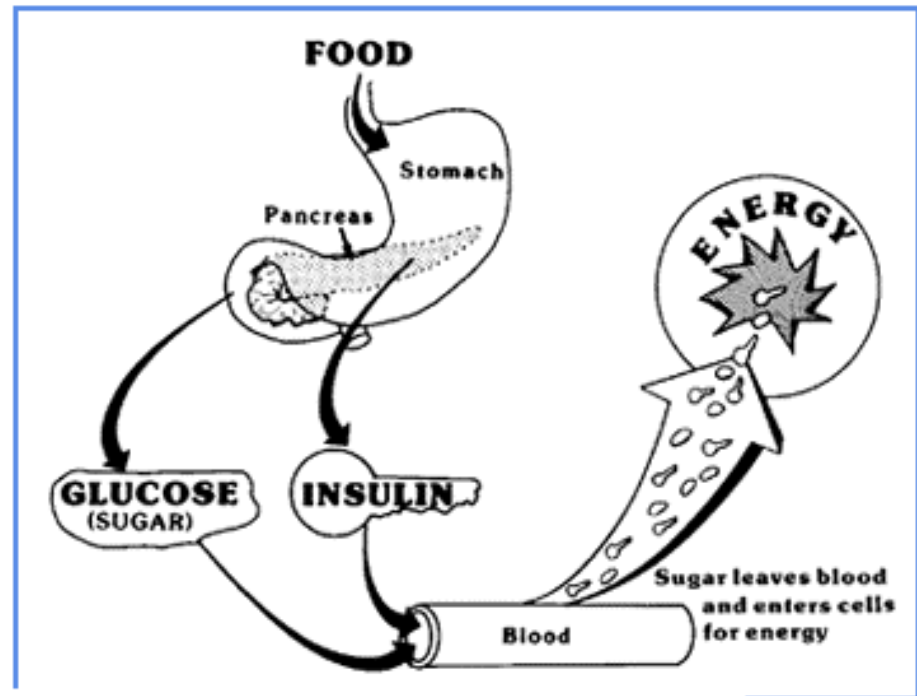
- Insulin is a hormone secreted by the pancreas. With diabetes it must be given as an injection.
- The dose will vary with the blood glucose level, food intake and exercise.





# Insulin should...

- Lower the blood glucose.
- Facilitate the blood glucose getting into the cells to provide energy.



# Exercise

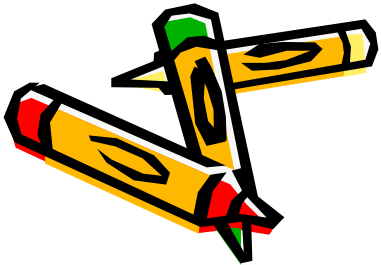


When the student exercises, the body uses the blood glucose more effectively, which can lead to low blood glucose (hypoglycemia).



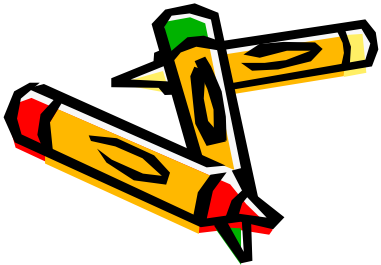
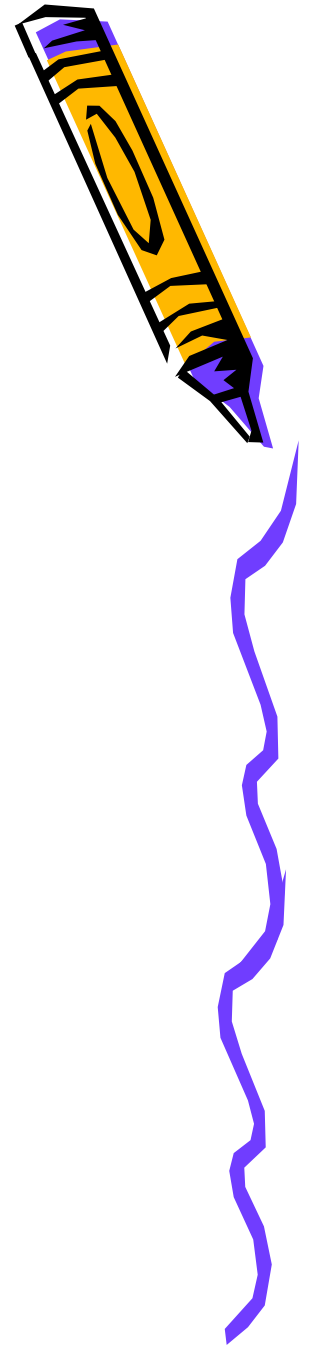
# Insulin can cause blood glucose to fall too low when:

- Too much insulin is given.
- Not enough food is eaten.
- Too much exercise



# This is called hypoglycemia

- Hypoglycemia can be life threatening if not treated because the only energy source for the brain is blood glucose.



# Symptoms for hypoglycemia

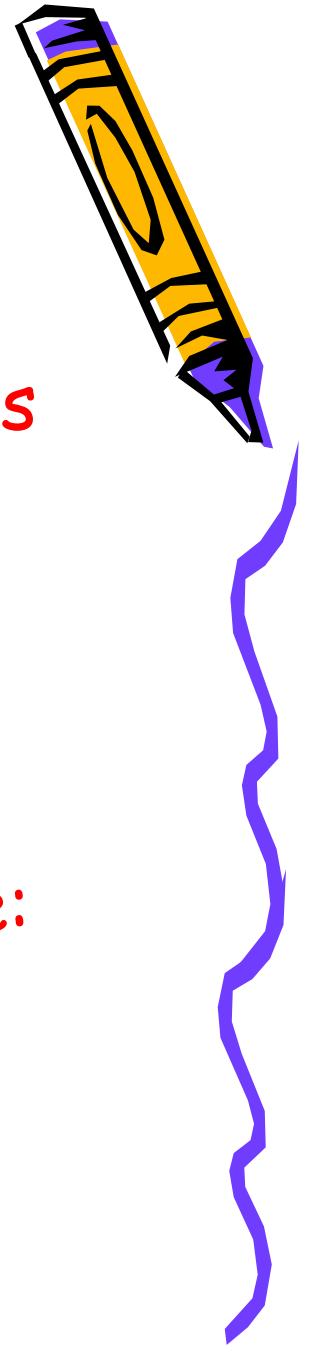
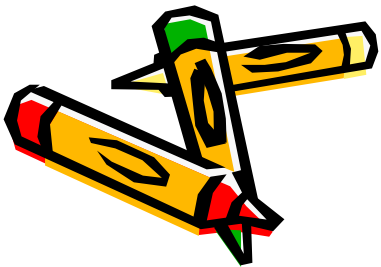
- Paleness
- Shakiness
- Hunger
- Headache
- Tingling
- Mood Change
- Sleepiness

Symptoms can progress to:

- Confusion
- Blurred Vision

Late stages of hypoglycemia include:

- Coma
- Seizure
- Death





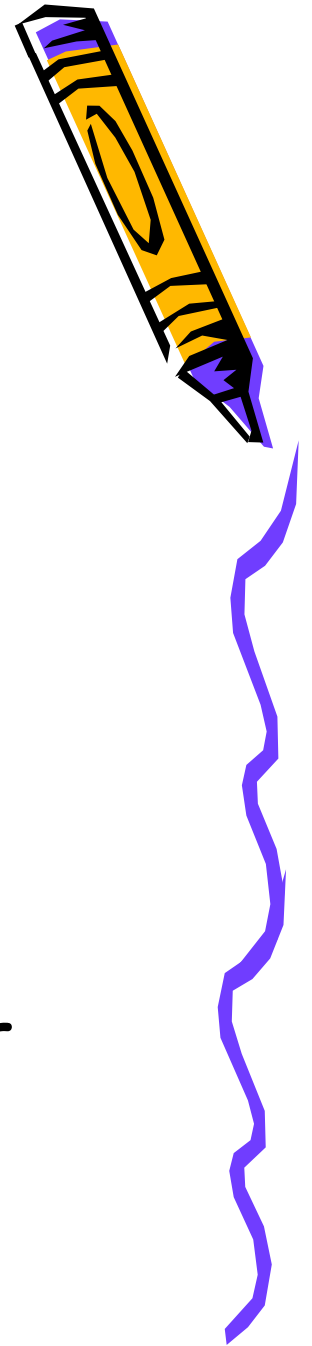
# Treatment for Hypoglycemia for a conscious person:

- If you can, check the blood glucose. If it is below 70 mg/dL, treat as a hypoglycemic reaction.
- When in doubt or unable to check the blood glucose, treat as a hypoglycemic reaction.



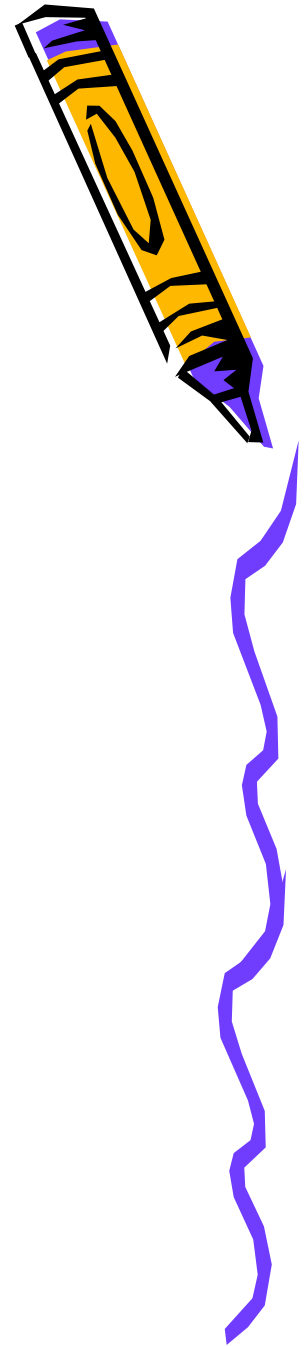
# Treatment for Hypoglycemia for a conscious person:

- Give a drink high in sugar
  - 6oz. of regular soda pop (not diet),
  - 1/2-2/3 cup fruit juice
  - 3-4 glucose tablets.
- Follow with a milk and protein - or send them to lunch if they can eat within 10 to 15 minutes.



# Stay with the child!

- You should see a response within 15 - 20 minutes.
- You can repeat the treatment in 15 minutes if symptoms are still present or if they become worse.

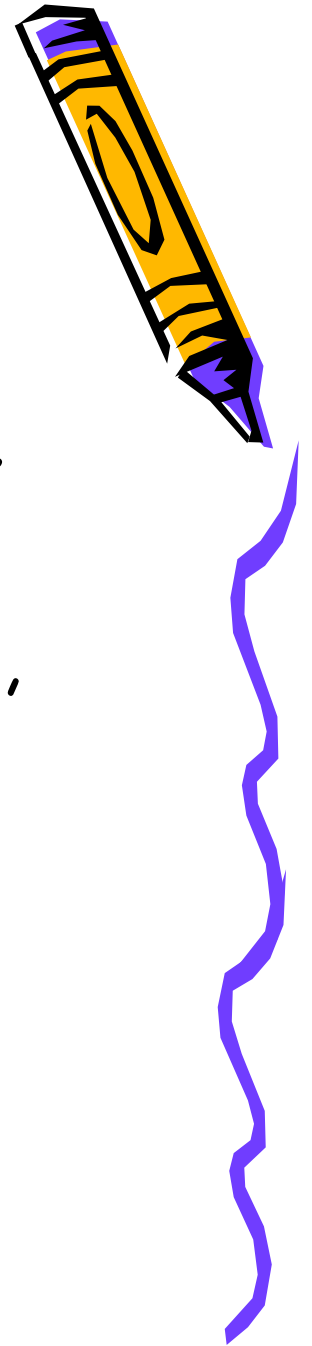


# Hypoglycemia with decreased awareness

- Glucose gels and/or tablets can be used to treat hypoglycemia

Examples: Insta-glucose, Glucose 15, Glucose tablets, Dextrose tablets

- Gels are placed in the student's mouth toward the cheek and back teeth.



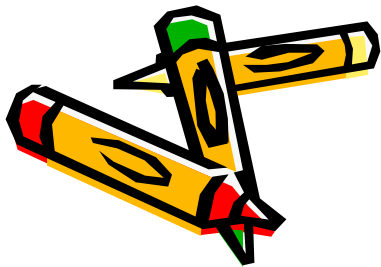
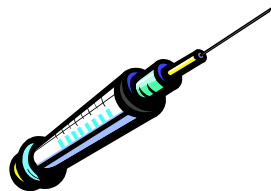
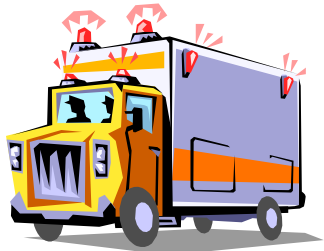
# Treatment for an unconscious student:

Identify someone to call 9-1-1

Turn him/her on their side

Give Glucagon

Call the parent

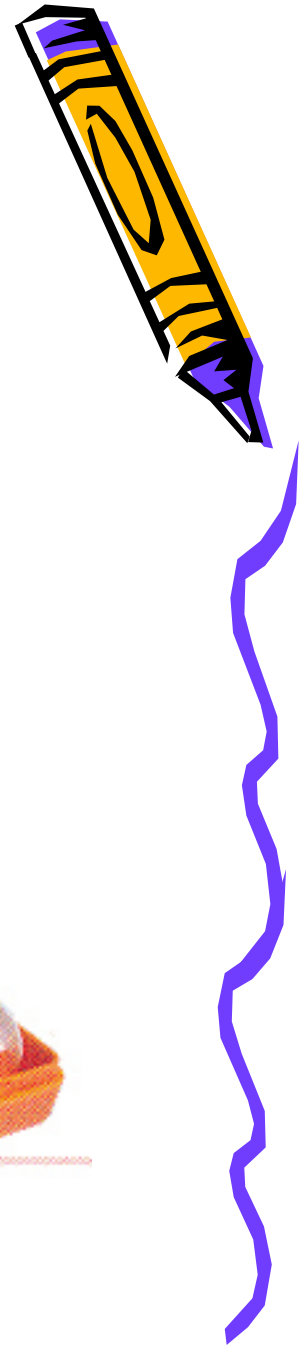


# Glucagon



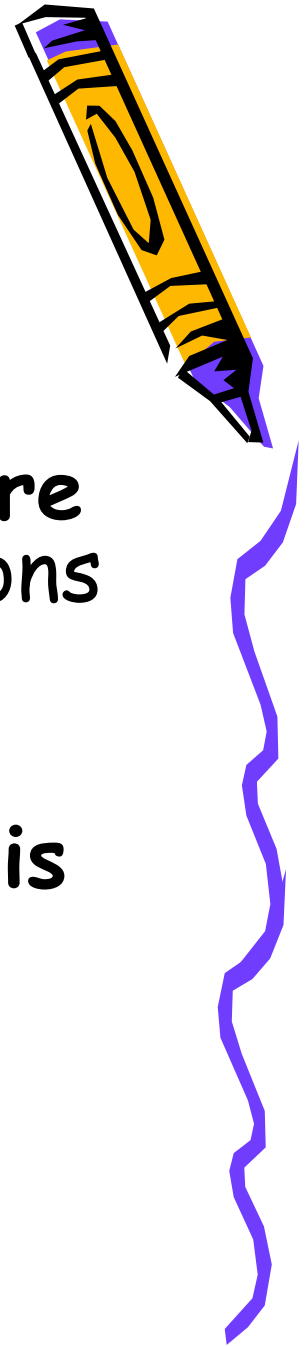
Lilly® Glucagon  
Emergency Kit

Novo Nordisk®  
GlucoGen® HypoKit™



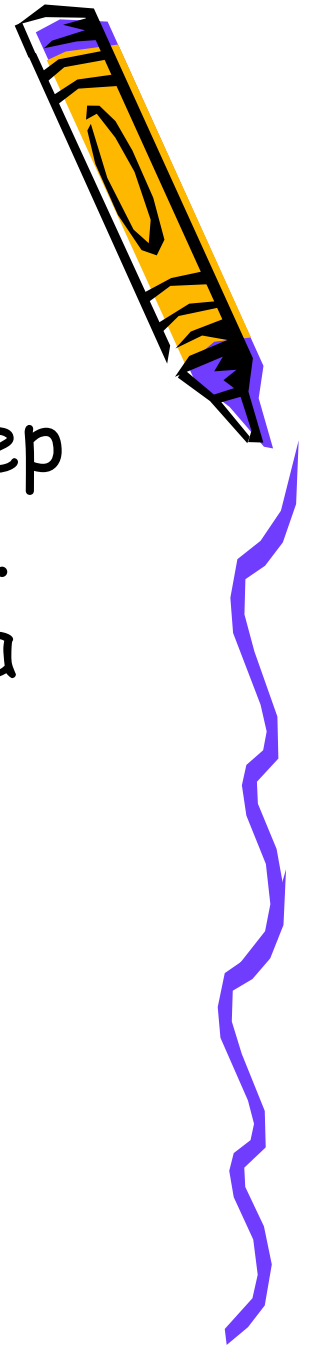
# Glucagon Adverse Reactions

- The most common side effects are **nausea and vomiting**. These reactions may also occur with hypoglycemia.
- Keep the student positioned on his or her side.



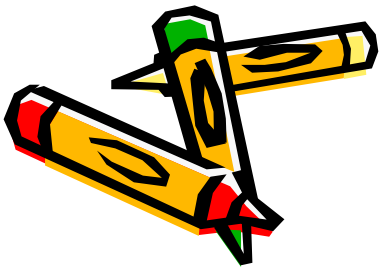
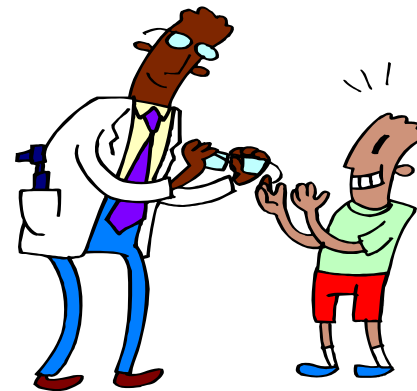
# Why has this become necessary

- The goal of diabetes care is to keep the blood glucose closer to normal. Despite best efforts hypoglycemia will occur.
- Glucagon is the fastest means to raise the blood glucose level.

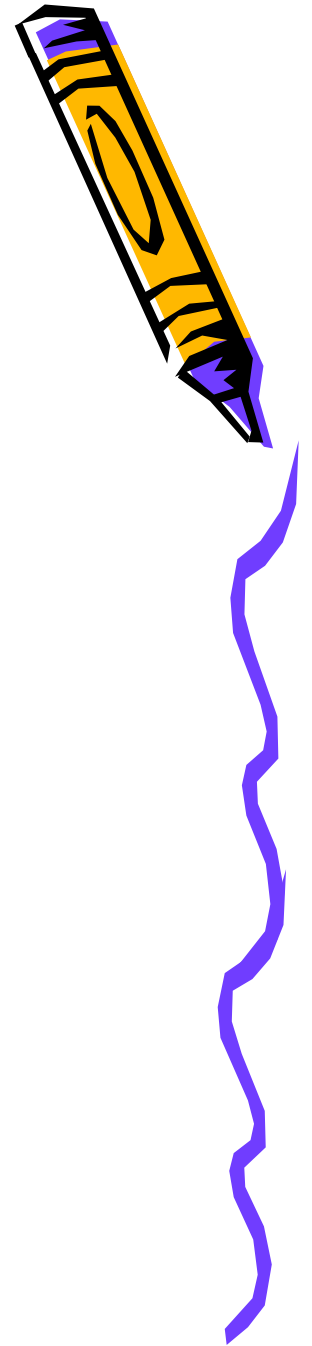




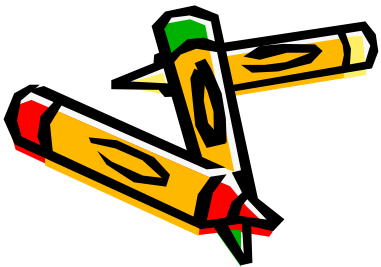
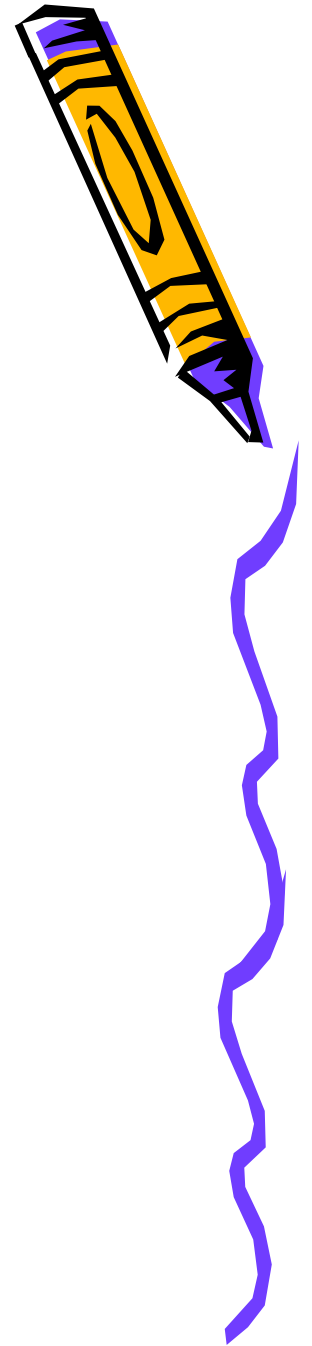
# Illness and Stress affect Diabetes



There is no cure for  
diabetes

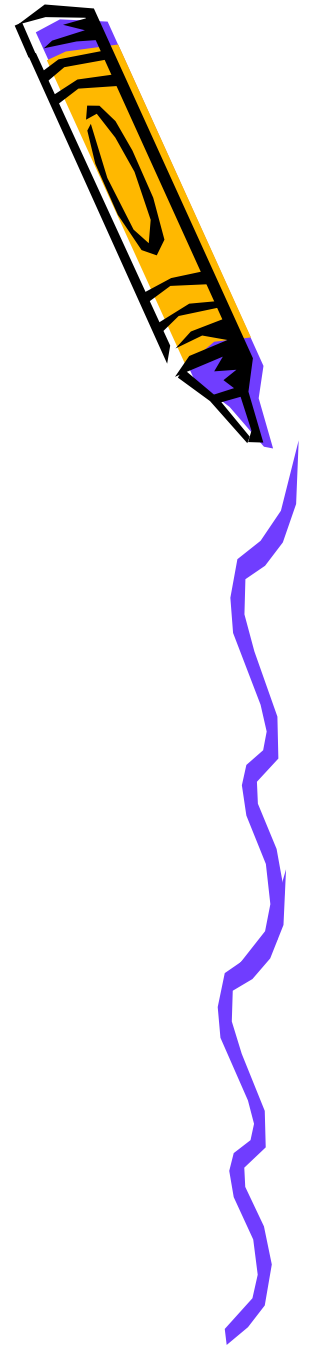
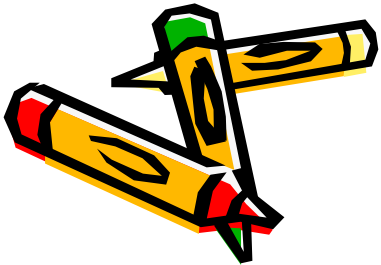


# Steps for Glucagon Administration



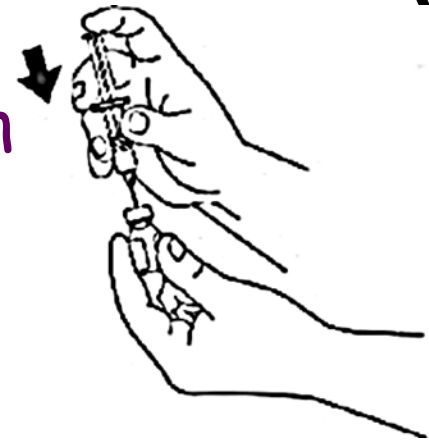
# Preparation

1. Remove flip top seal from vial containing dry powder
2. Remove needle protector from syringe

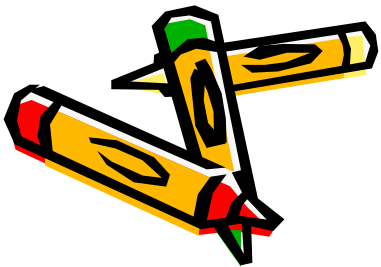


# Mixing Solution

3. Slowly inject all sterile water in syringe into the bottle containing the powder

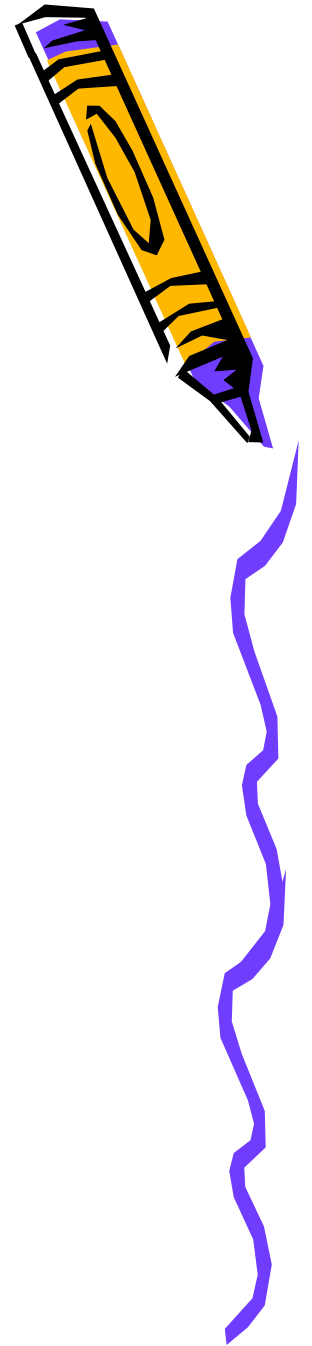
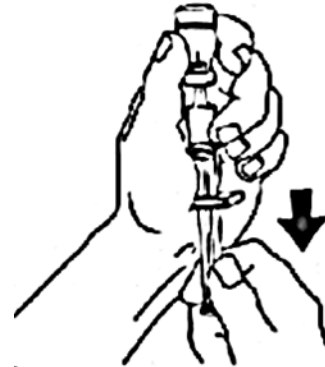


4. Gently swirl vial until all powder is dissolved and solution is clear (don't shake vial)



# Drawing Out & Positioning

5. Withdraw all glucagon solution from vial
6. Turn student on his/her side



# Dosing & Injecting

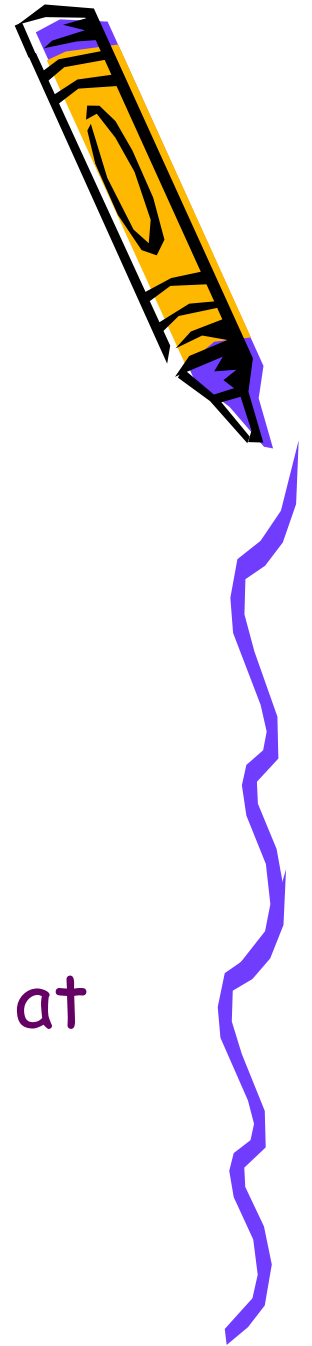
7. Insert needle straight in (90 degree angle)

arm (deltoid) muscle

leg (outer thigh)

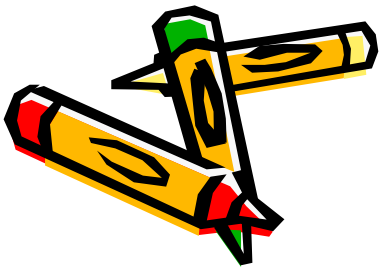
Note: Inject through clothing only if necessary

8. Withdraw needle, apply light pressure at injection site



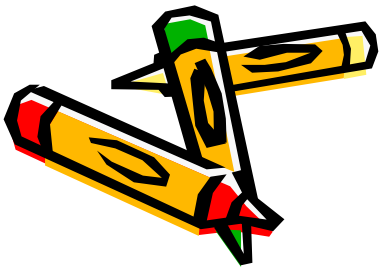
# Completing the Procedure

9. Place used needle back in kit and close the lid (do not recap)
10. Give used kit to EMS personnel





Let's Practice



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