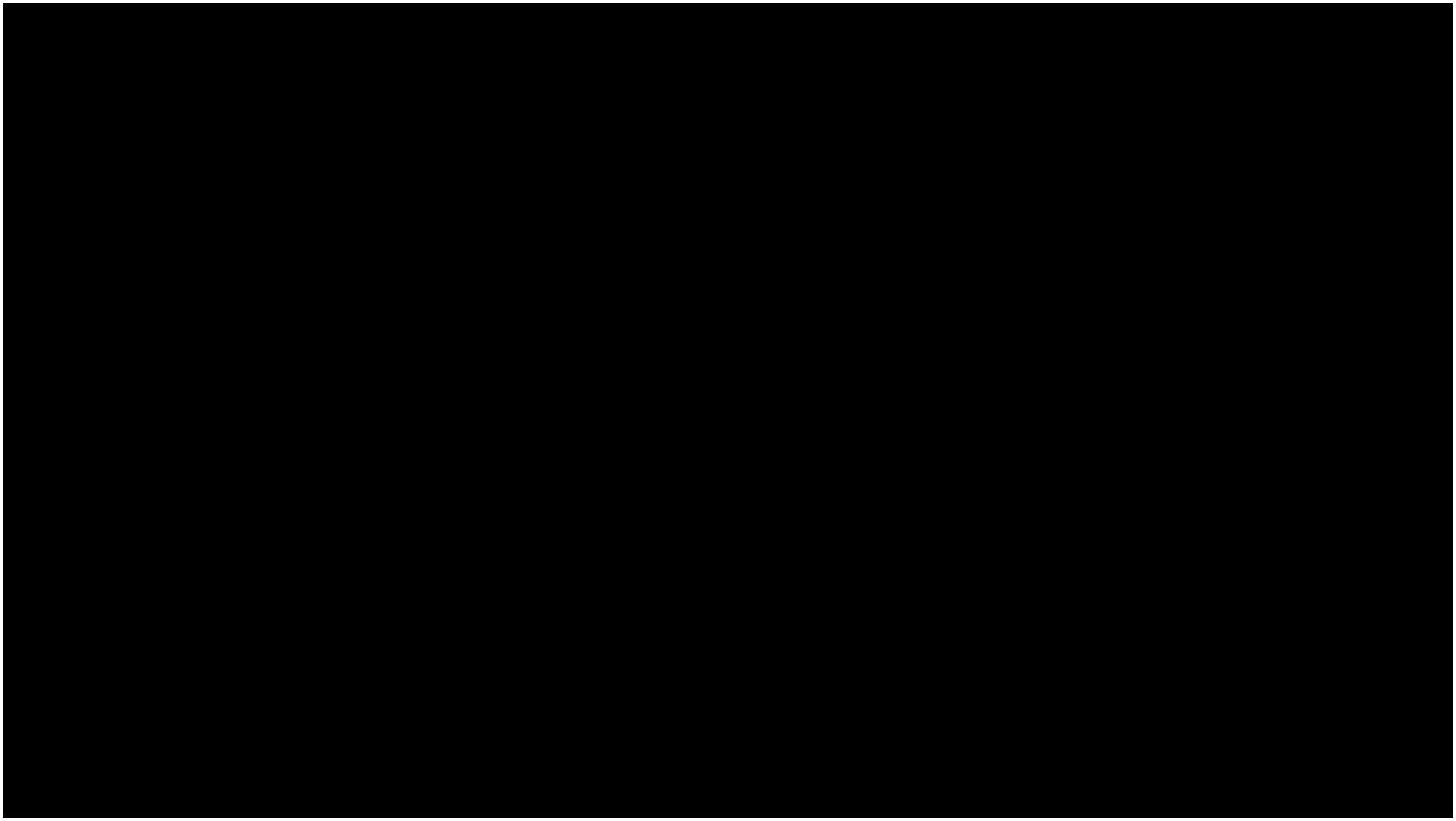
Safe at School™ American Diabetes Association®

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

American Diabetes Association®
Cure • Care • Commitment®

DIABETES BASICS



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

- Occurs when the pancreas does not produce insulin
- An autoimmune disorder
- Requires multiple doses of insulin every day – via shots or an insulin pump
- Accounts for 5 to 10% of all cases of diabetes and is the most prevalent type of diabetes among children and adolescents

Type 1 diabetes cannot be prevented.

Type 2 diabetes

- Occurs when the pancreas does not produce enough insulin or use insulin properly
- Increased type 2 diagnoses among children and adolescents in the U.S.
- African Americans and Hispanic/Latino Americans are at higher risk
- Managed with insulin shots, oral medication, diet and other healthy living choices

Type 2 diabetes may be prevented.

Possible long-term complications

- Heart disease
- Stroke
- Kidney disease
- Blindness
- Nerve disease
- Amputations
- Impotence

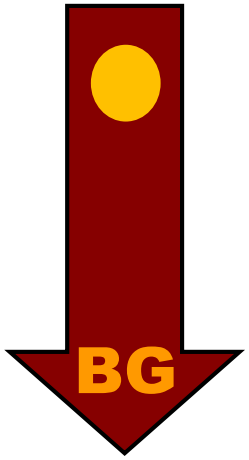
These chronic complications may occur over time, especially if blood sugar levels are not controlled.

Type 1 Diabetes is Managed, But it Does Not Go Away.

GOAL:

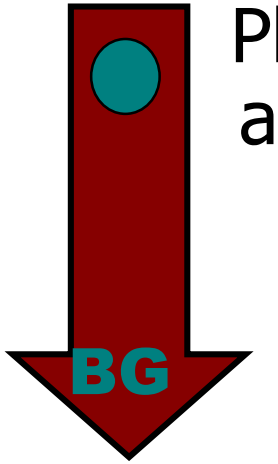
Maintain target blood glucose

Diabetes Management Constant Juggling - 24/7



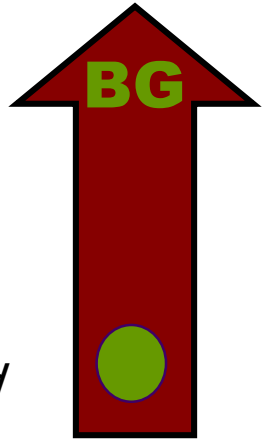
Insulin/
medication

with:



Physical
activity

and



Food
intake

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

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*

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HYPOGLYCEMIA

HYPOglycemia = LOW Glucose (sugar)

- *sudden, must be treated immediately with food*
- *not always preventable*
- *may progress to unconsciousness if not treated*
- *can result in brain damage or death*

HYPERglycemia = HIGH Glucose (sugar)

- *gradual, can be treated with insulin, extra fluids, extra bathroom breaks*
- *May cause nausea, vomiting, increased thirst*
- *can result in long-term complications over time*

Causes of Hypoglycemia (low blood sugar):

- Administering too much insulin
- Skipping or delaying meals/snacks
- Exercising longer or harder than planned
- More likely to occur before lunch, at end of school day or during/after PE
- Combination of the above factors

Never leave a student alone or send them away when experiencing hypoglycemia. Treat on the spot.

Hypoglycemia: Possible Signs & Symptoms

Mild Symptoms

- Hunger
- Shakiness
- Weakness
- Paleness
- Blurry vision
- Increase heart rate or palpitations
- Sleepiness
- Changed behavior
- Sweating
- Anxiety
- Dilated pupils

Moderate to Severe Symptoms

- Yawning
- Irritability/frustration
- Extreme tiredness/fatigue
- Inability to swallow
- Sudden crying
- Confusion
- Restlessness
- Dazed appearance
- Unconsciousness/coma
- Seizures

Symptoms of mild hypoglycemia:

- Sudden change in behavior (lethargic, confused, uncoordinated, irritable, nervous)
- Sudden change in appearance (shaky, sweaty, pale or sleepy)
- Complaints of headache or weakness

Response:

1. Give the student a quick-acting sugar equivalent to 15 grams of carbohydrate:
   - Examples: 4 oz. of juice, ½ a can of regular soda, or 3-4 glucose tablets
   - Ask parents to provide you with what works best for their child
2. Check blood glucose (BG) level 10 to 15 minutes later
3. Repeat treatment if BG is below student's target range

Quick Acting Glucose for Mild/Moderate Hypoglycemia

Treatment for Lows: 15 g Carbohydrate

- 4 oz. fruit juice
- 15 g. glucose tablets (3-4 tablets)
- 1 tube of glucose gel
- 4-6 small hard candies
- 1-2 tablespoons of honey
- 6 oz. regular (not diet) soda (about half a can)
- 3 tsp. table sugar
- One-half tube of cake mate

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Symptoms of severe hypoglycemia:

- Inability to swallow
- Seizure or convulsion
- Unconsciousness

This is the most immediate danger with diabetes.

Response:

- Position student on side
- Contact school nurse or trained diabetes staff
- Administer prescribed glucagon
- Call 911
- Call student's parents

GLUCAGON IS A HORMONE THAT RAISES BLOOD GLUCOSE LEVELS.

It is only administered when hypoglycemic symptoms are SEVERE.
Glucagon may cause nausea or vomiting, but...

GLUCAGON IS A LIFE-SAVING TREATMENT THAT CANNOT HARM A STUDENT!

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HYPERGLYCEMIA

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

Severe Symptoms

- Labored breathing
- Confusion
- Profound weakness
- Unconscious

Moderate Symptoms

- Dry mouth
- Vomiting
- Stomach cramps
- Nausea

Mild Symptoms

- Lack of concentration
- Thirst
- Frequent urination
- Flushing of skin
- Sweet, fruity breath
- Blurred vision
- Weight loss
- Increased hunger
- Stomach pains
- Fatigue/sleepiness

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

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BLOOD GLUCOSE MONITORING

Checking Blood Sugar with a Glucose Meter

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

When to Check?

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

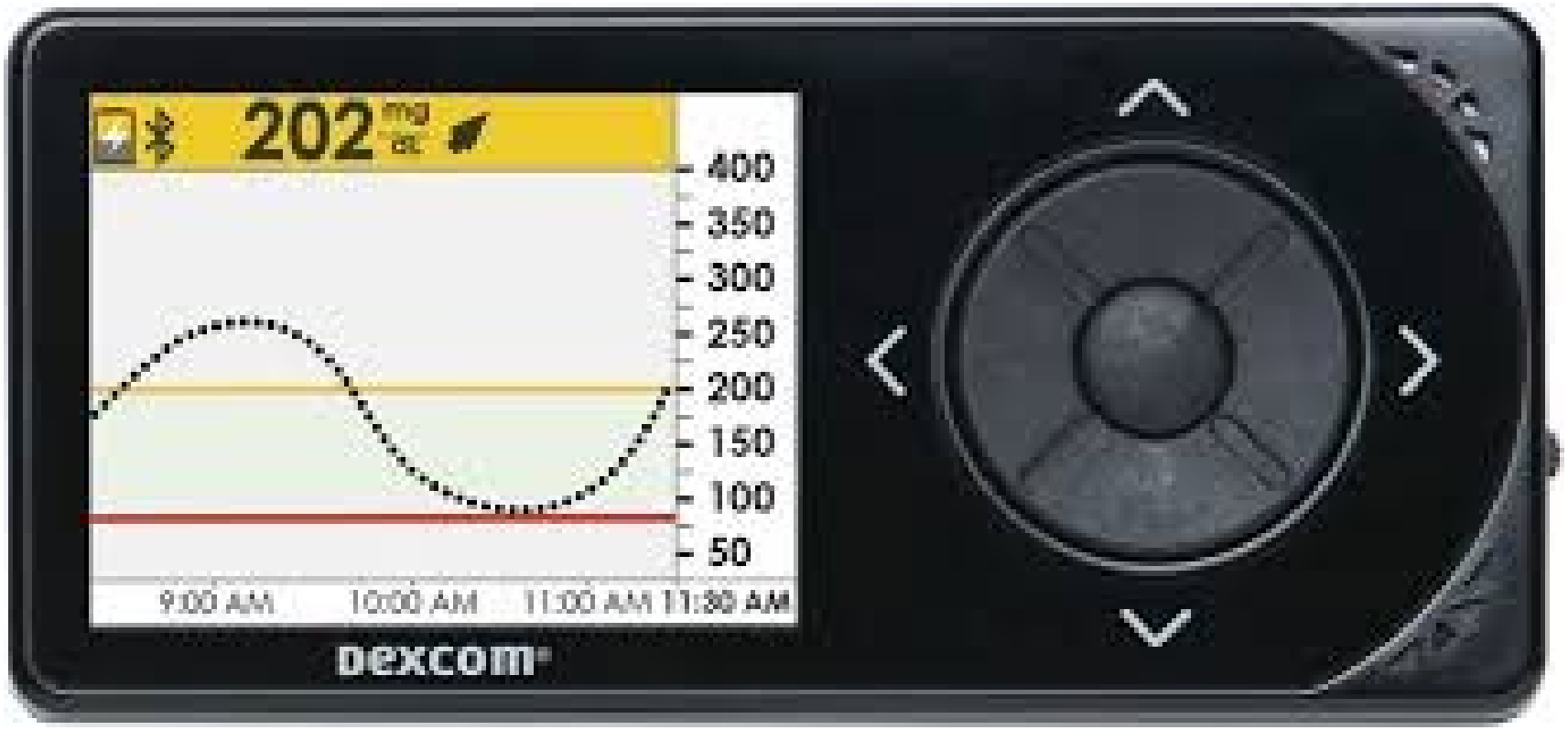
Also

- Hypoglycemia or hyperglycemia symptoms
- Change in diabetes management
- Periods of stress or illness
- Prior to academic tests

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 small 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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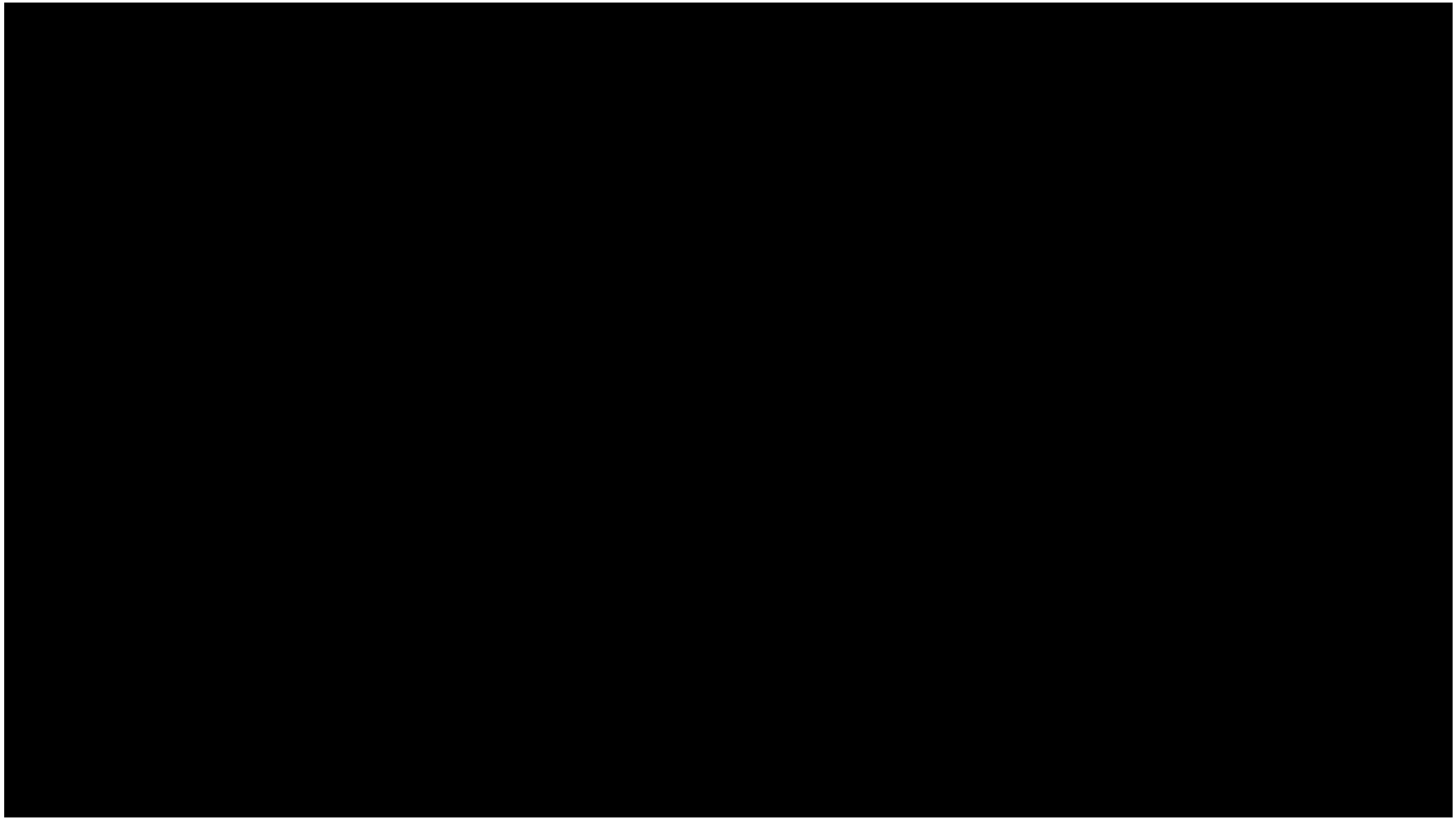

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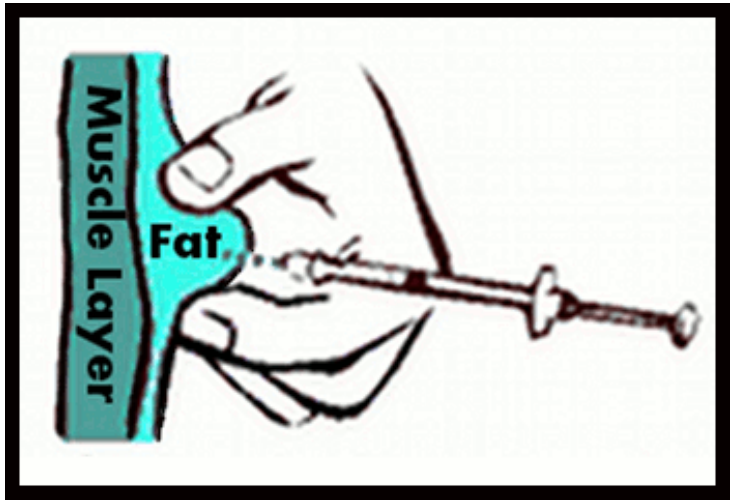
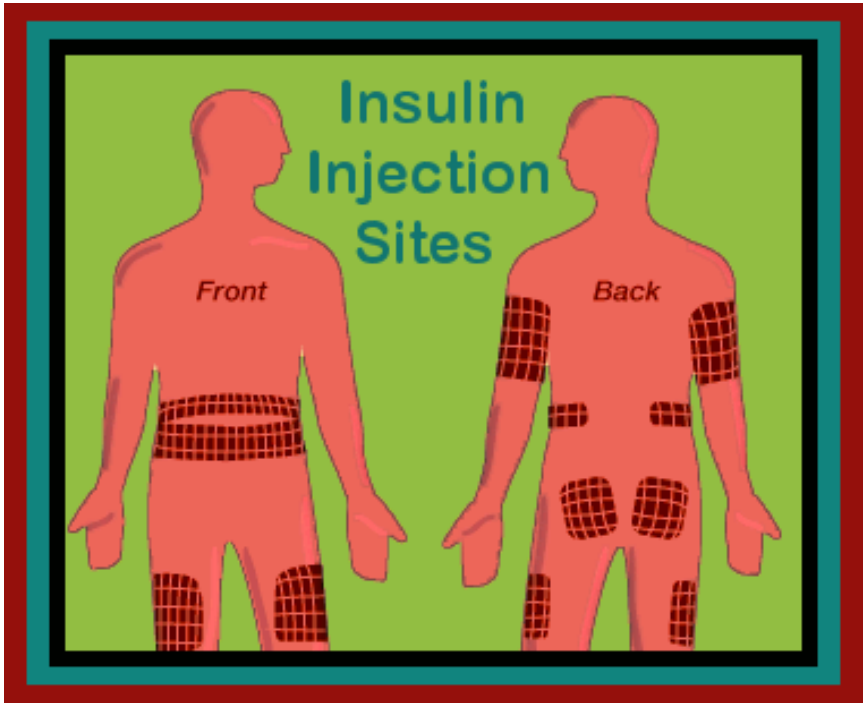
INSULIN BY SYRINGE AND VIAL or PEN

On Target!





- Common sites: abdomen, thigh buttocks, upper arms

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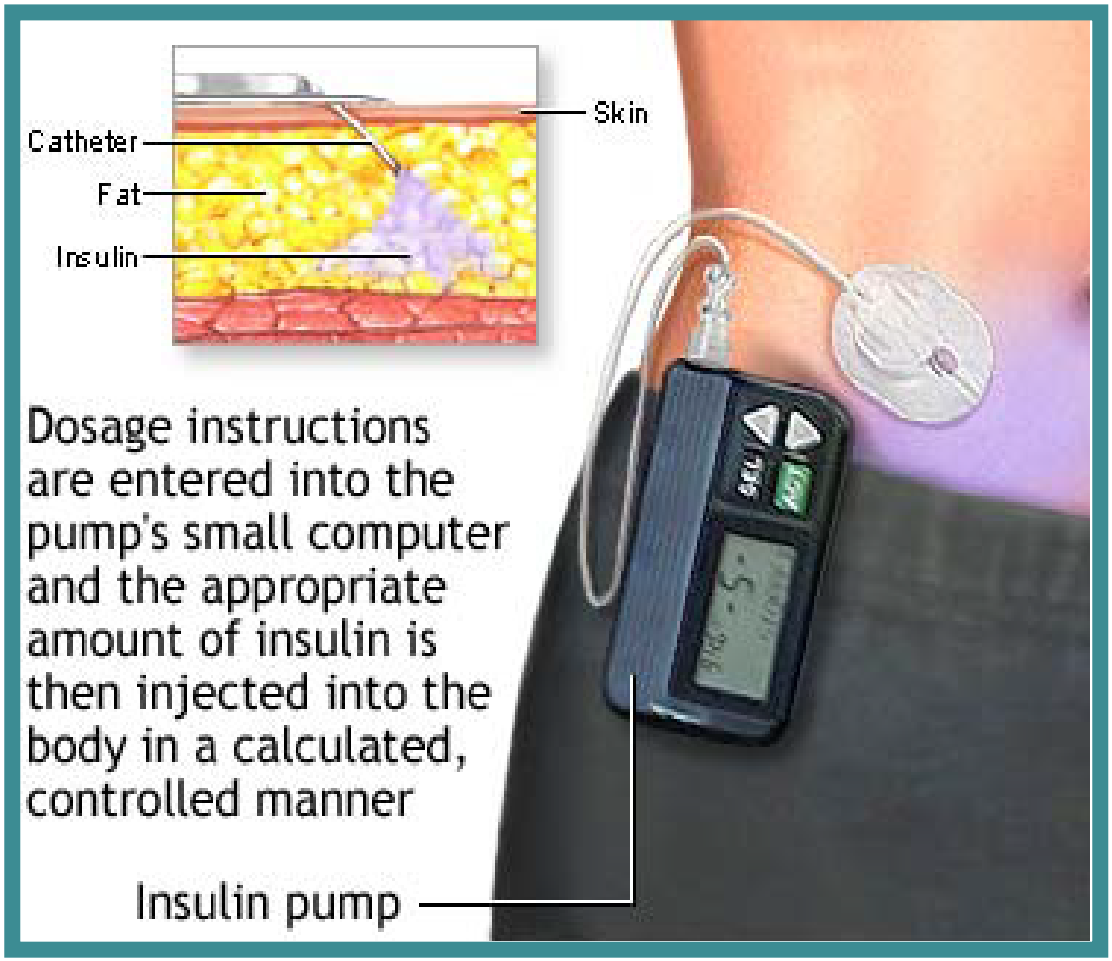
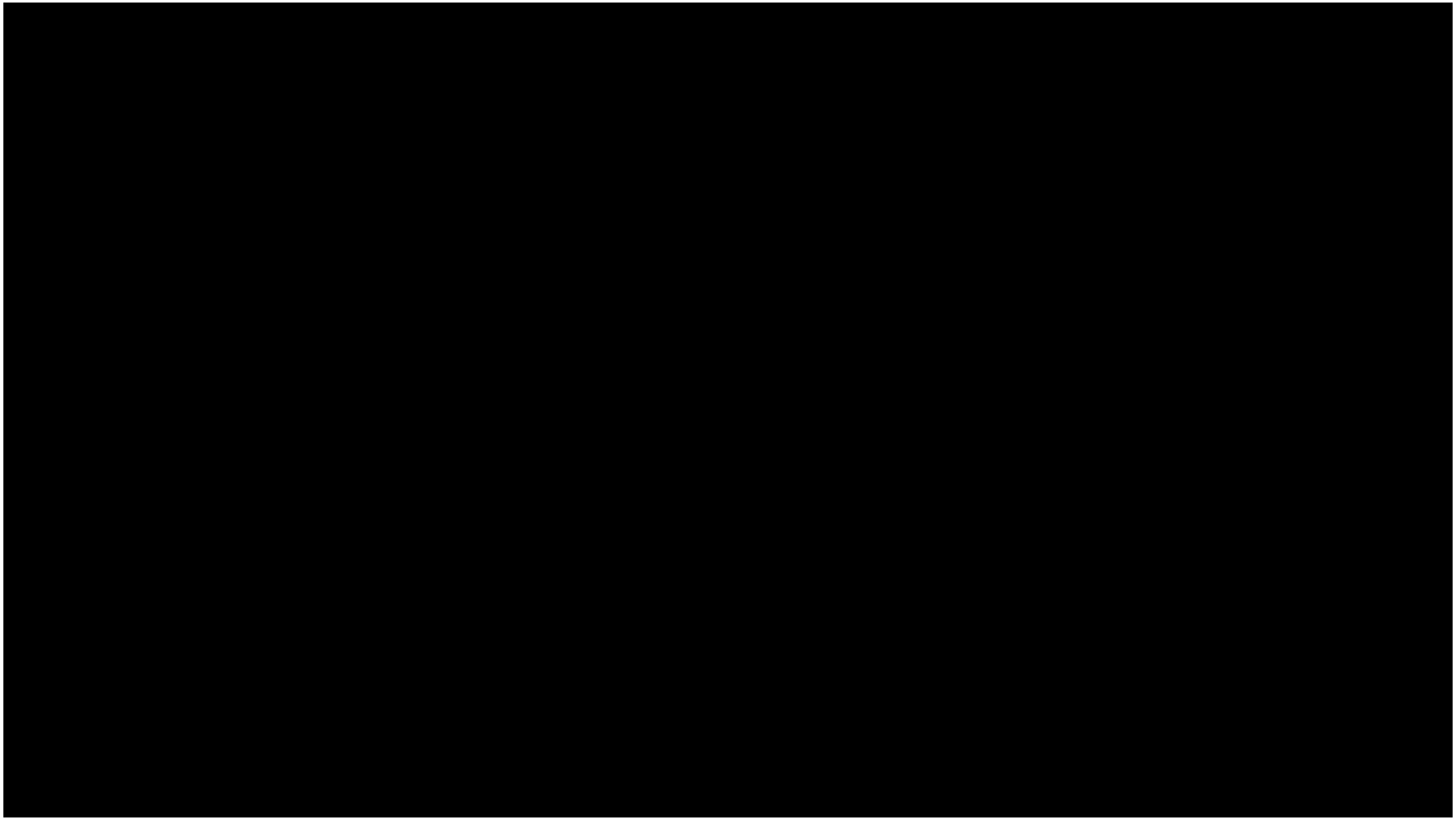
INSULIN BY PUMP

What Is an Insulin Pump?

- Battery operated device
- 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





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GLUCAGON ADMINISTRATION

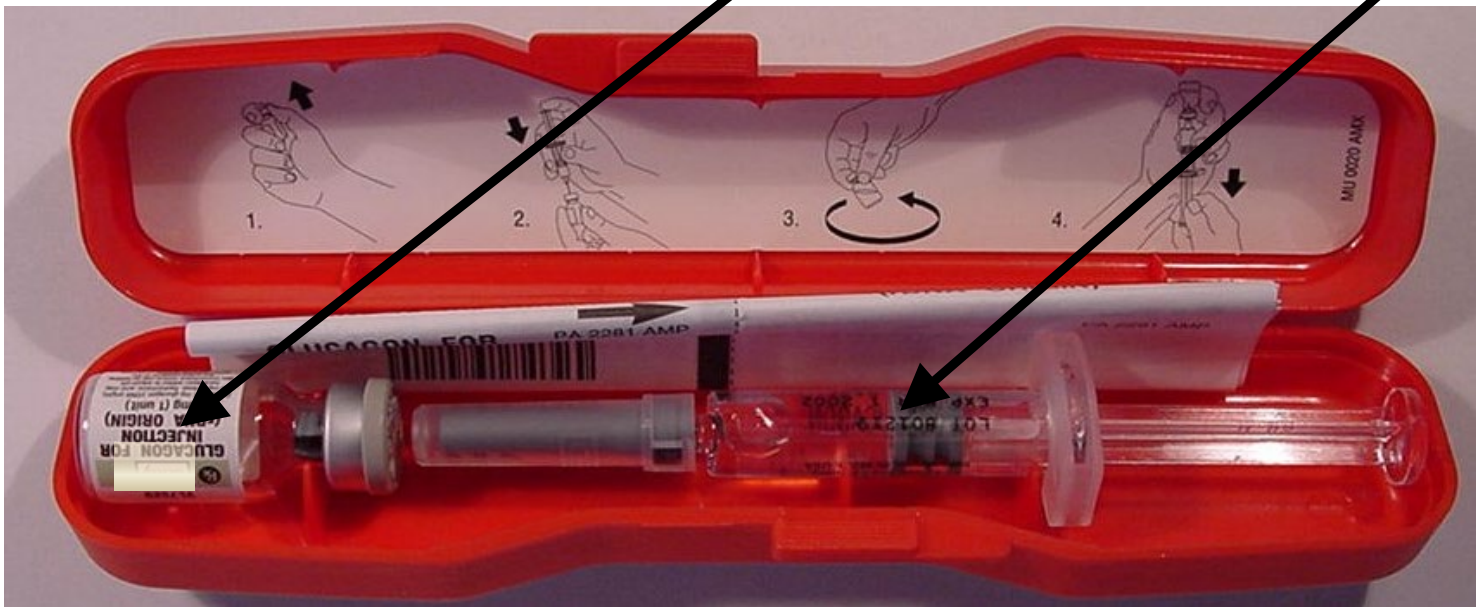
What Is Glucagon?

- Naturally occurring hormone made in the pancreas
- A life-saving, injectable hormone, Glucagon/GlucaGen that raises blood glucose level by stimulating the liver to release stored glucose
- Treatment for severe hypoglycemia
- Life-saving, cannot harm a student – cannot overdose

Emergency Kit Contents:

1 mg of freeze-dried glucagon (Vial)

1 ml of water for reconstitution (Syringe)



Combine immediately before use

When to Give Glucagon/Glucagen

If authorized by the student's DMMP and if student exhibits:

- *Unconsciousness, unresponsiveness*
- *Convulsions (seizures)*
- *Inability to safely eat or drink*

Keep tube sealed until ready to use.

https://www.baqsimi.com/how-to-use-baqsimi

Procedure: Act Immediately

- If possible check blood glucose, don't delay
- If in doubt, always treat
- Position student safely on side for comfort and protection from injury
- School nurse or trained personnel notified to give glucagon in accordance with DMMP or emergency care plan
- Call 911, parent/guardian, school nurse as per DMMP or emergency care plan

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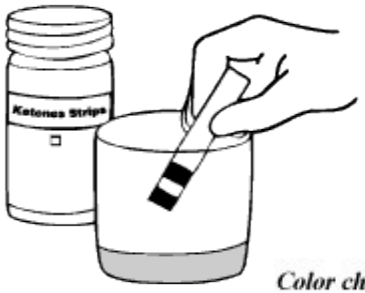
KETONES

What Are Ketones?

- Acids that result when the body does not have enough insulin and uses fats for energy
- May occur when insulin is not given, during illness or extreme bodily stress, or with dehydration
- Can cause abdominal pain, nausea, and vomiting
- Without sufficient insulin ketones continue to build up in the blood and result in diabetic ketoacidosis (DKA)

How to Test Urine Ketones

1. Gather supplies
2. Student urinates in clean cup
3. Put on gloves, if performed by someone other than student
4. Dip the ketone test strip in the cup containing urine. Shake off excess urine
5. Wait 15 - 60 seconds
6. Read results at designated time
7. Record results, take action per DMMP



Treatment of Ketones

DMMP specifies treatment for ketones for the individual student.

Generally:

- free use of bathroom
- sugar-free liquids
- insulin as per DMMP
- limit physical activity
- if vomiting or lethargic, call parent/guardian

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NUTRITION

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*

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

Final considerations……..

Trained Staff can help by:

- Supporting self-care by capable students
- Learn signs and responses to low blood sugar levels
- Allow blood glucose monitoring and free access to bathrooms/water/nurse office at any time
- Knowing where snacks are stored and can be accessed quickly for a particular student

Classroom Tips for teachers:

- Keep contact numbers and names of trained diabetes staff at your desk for emergencies
- Create a diabetes info sheet for substitute teachers
- Teach your class about diabetes
- Let parents know, in advance, changes to the class schedule (field trips, special events, etc.)

Questions?

You will now begin Part 2 of your training,
Hands-on Practice

Session wrap up and final questions!

- American Diabetes Association
  http://www.diabetes.org/
- Juvenile Diabetes Research Foundation
  http://www.jdrf.org/
- "*Helping the Student with Diabetes Succeed: A Guide for School Personnel*" ,National Diabetes Education Program (NDEP)
- *"Legal Issues in School Health Services"* (Schwab & Gelfman)
- *School Nursing: A Comprehensive Text* (Selekman)
- Eagle Book series, Centers for Disease Control and Prevention--CDC http://wwwn.cdc.gov/pubs/diabetes.aspx
- NDEP--National Diabetes Education Program http://ndep.nih.gov/hcp-businesses-and-schools/Schools.aspx

- American Association of Diabetes Educators (AADE) http://www.aadenet.org/
- Missouri Dept. of Health & Senior Services http://health.mo.gov/warehouse/e-literature.html
- Local chapter of American Diabetes Association or Juvenile Diabetes Foundation
- Lily Pharmaceuticals- free glucagon or Baqsimi trainer

  1-800-545-5979
- Diabetes camps
- County health departments
- Diabetes educators from local health agencies
- Diabetes support groups
- Diabetes/ endocrinology departments of research-based local hospitals