

Back to School Workshop

School Nurse Program



Annual Diabetes Back-to- Workshop

DisclosuresSchool

Purpose / Objectives:

- List elements of effective diabetes management in school.
- Discuss roles of student, parent or guardian and medical provider in diabetes management in school setting.
- Discuss new technologies available in managing diabetes.
- Identify access routes to resources including Children's Mercy Hospital Diabetes team.
- Evaluate effective nutrition management for students with diabetes.
- Identify stages of independence in diabetes care.
- Discuss accommodations available to students in the school setting.
- Discuss Suicide and Mental Health Needs in Students with Diabetes

Contact Hours: *No nursing contact hours are given for this presentation.*

Disclosure: *No conflicts of interest were identified by the planning committee, faculty, authors and reviewers for this program.*

Children's Mercy Kansas City is an approved provider of continuing nursing education by the Midwest Multistate Division, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.



What is Diabetes?

- Diabetes is an autoimmune disease in which the body does not produce or properly use insulin. This results in high blood glucose levels.
- Two Types
 - ✦ Type 1 Diabetes (T1DM) (insulin destruction)
 - ✦ Type 2 Diabetes (T2DM) (Insulin overproduction leading to insulin deficiency)

Type 1 Diabetes

- Auto-immune process
- Treatment:
 - Requires insulin
 - No sugary drinks; otherwise no diet restrictions; we do encourage healthy food choices and foods in moderation but not restricting carbs.
- Beta cells in the pancreas no longer produce insulin
- Honeymoon phase shortly after diagnosis with the introduction of insulin (the diabetic's own ability to produce insulin improves)
- There is nothing they did to cause this/ nothing that could have been done to prevent it.

Type 2 Diabetes

- Insulin resistant
- The body still produces insulin but does not work effectively
- Treatment:
 - Oral/IM medication (metformin, Victoza, Liraglutide, etc)
 - May or may not be on insulin depending on how well blood glucose is managed.
- Lifestyle modifications such as carb restriction and exercise are primary treatment modalities-weight loss highly encouraged.

Insulin

- Insulin is the "key" to unlocking the cell; allowing glucose to enter and be used as energy
- Without enough insulin, the glucose cannot enter the cells to be used for energy, resulting in hyperglycemia. If untreated can result in DKA
- Methods of getting insulin:
 - Insulin pen (MDI)
 - Syringe & vial
 - Insulin pump

Types of Insulin

- **Rapid acting (Mealtime)– Novolog, Humalog, Apidra, or Fiasp**
 - Onset of action is 15 minutes (Fiasp onset is within 5 minutes)
 - Peaks in 1-2 hours
 - Lasts 3-5 hours
 - Given for carbohydrate intake using insulin:carbohydrate ratio (ICR)
 - Used for hyperglycemia and ketone corrections
 - Used in insulin pumps for both basal and bolus

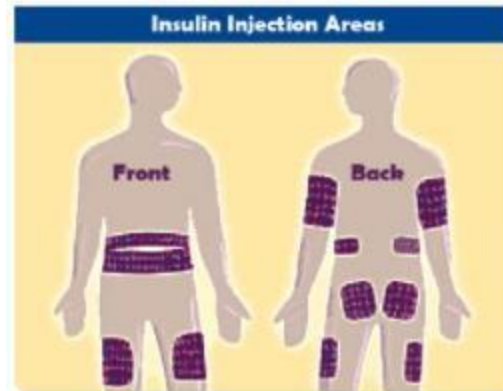
Types of Insulin

Long Acting – Lantus or Levemir or Tresiba or Basaglar

- Usually given once/day (Levemir given BID)
- Onset of action is 1-2 hours
- Does not have a peak ("background insulin")
- Lasts about 24 hours
- If missed, can result in hyperglycemia for the next 24 hours.
- Do not mix with other insulin; but can be given at the same time when bolusing for meal dose

Injection & Infusion Sites

- Use an area of the body with adequate subcutaneous tissue (fat) to assure proper absorption.
- ***Rotation of sites** is important in preventing lipohypertrophy/fatty scar tissue. If site is hard/lumpy it will not absorb insulin properly.
 - Back of arms
 - Sides of legs
 - Hips/buttocks
 - Flank area
 - Abdomen staying 1-2 inches away from navel.



Insulin Facts

- Opened Insulin does not need to be refrigerated
- Do not freeze or allow above 85 degrees
- Opened insulin should be discarded in 30 days
- Write the opened date on the vial/pen
- Unopened insulin is good in the refrigerator until the listed expiration date
- If traveling or if insulin will be out of room temperature environment for extended time, use insulated gel pack to keep insulin cool.
- Where you are comfortable, your insulin is comfortable.

Hypoglycemia

- Blood glucose values <70
- Can occur if too much insulin is given or if not enough food is eaten
- Can be a dangerous condition because glucose is the major energy/fuel source for the brain
- NEVER leave a child experiencing hypoglycemia alone; have student escorted to health room, or school nurse should go to student

Hypoglycemia- 15/15 Rule

- Give 8-15 grams of fast acting carbohydrate (without insulin). Wait 15 minutes, then recheck BG. If BG still under 70, repeat 15/15 rule
- If the child is refusing to eat, administer one packet of glucose gel or cake icing orally in cheek and rub in to absorb quickly.
- If the child is unconscious or having a seizure, turn child to the side to maintain an open airway and administer glucagon if ordered (Call 911/parents)
 - If Glucagon is given will need to be conservative with corrections doses for the next 24 hours.
- When in doubt; treat as a low BG; always have snacks available

Hypoglycemia snacks

- 8-15 grams of simple carbohydrates without giving insulin
 - 4 ounces of juice (sugary liquids work the quickest)
 - 15 skittles, 2 rolls of Smarties, 4 starburst
 - 4 glucose tablets
 - 4 ounces of regular soda
 - fruit snacks (1 packet Welch's is 16 carbs)
 - cake gel/honey packet
- May need a follow up snack if it will be >30 minutes until next meal.
 - 15 gram snack containing fat without giving insulin; such as crackers and cheese or peanut butter, chocolate milk, ice cream, yogurt, etc.

Types of Hypoglycemia

Mild:

- Shaky
- Weak
- Tired
- Hungry
- Irritable
- Unable to think clearly

Treatment:

8-15 grams of
fast acting
carbohydrate

Moderate:

- Pale
- Needing help treating low blood glucose
- Difficulty concentrating or following conversation
- Seems “distant” or confused
- Poor coordination (legs feel weak, difficulty walking)
- Slurred speech, difficulty cooperating

Treatment:

Glucose gel, cake gel

Severe:

- Seizure
- Become semiconscious or unconscious
- Have altered mental status

Treatment:

Glucagon, Call
911

Treating Severe Low Blood Glucose

****Administer only if seizing, unconscious, or if directed by endocrinologist****

Glucagon:

1. combine liquid from syringe into powder vial
2. Mix thoroughly
3. Draw Solution into Syringe
4. Administer into muscle (top of leg or buttocks)



Baqsimi:

1. Hold Device between fingers and thumb. do not push plunger yet.
2. Insert tip gently into one nostril until fingers touch the outside of the nose
3. Push Plunger firmly all the way in. Dose is complete when green line disappears



Gvoke:

- Administer into subcutaneous tissue



Hyperglycemia

- Blood glucose level >240mg/dl
- Check for ketones (blood or urine)
- Administer additional insulin as ordered –refer to school orders for dosing
- Make sure the child is well hydrated. Give sugar free fluid (water is preferred)
- Contact parents/legal guardians if **moderate or large** ketones are present
- If unable to reach parent/guardian call CMH diabetes team (get ROI from parents at the start of the school year or at diagnosis) 816-960-8803 and press urgent option.
- Recommended to have back up option of short acting insulin refrigerated for student in case of pump failure.

Treating Hyperglycemia

- Refer to the school orders to see if the student has an ISF (Correction factor) or if they are using a chart for corrections (such as newly diagnosed patients)
- If BG is > 240 check ketones.
- If ketones are negative, trace, or small give extra insulin before meals, by **adding correction dose (using ISF) to your meal dose**
- Make sure it has been ATLEAST 2 hours since your last insulin injection before giving a correction.
- If on insulin pump, enter BG (and carb count if they are going to eat) into pump and pump will calculate correction dose

Treating Hyperglycemia:

New diagnosed patient chart

- Blood glucose is over 200 and ketones are **negative, trace, or small**
- Give extra insulin before meals, by adding correction dose to your meal dose
- Make sure it has been ATLEAST 2 hours since your last insulin injection before giving a correction

Toddler Age

Blood sugar (mg/dL)	Insulin (units)
225-299	0.5
300-374	1
375-449	1.5
450+	2

School Age (5-10 years of age)

Blood sugar (mg/dL)	Insulin (units)
225-299	1
300-374	2
375-449	3
450 and above	4

Adolescents (11 and up)

Blood sugar (mg/dL)	Insulin (units)
200-249	1
249-299	2
300-349	3
350-399	4
400-449	5
450-499	6
500 and above	7

Moderate or Large Ketones at School

- Reasons for ketones:
 - Missed doses (not enough insulin, bad/failed pump site, missing long-acting insulin-(was this taken at home last night?)
 - Illness/going long periods without eating or not eating carbs- causing starvation ketones
- Additional rapid acting insulin is required; check school orders for ketone dose. (DO NOT USE REGULAR CORRECTION CHART: this is used only for negative/trace/small ketones)
- If student is eating, dose for carbs in addition to the moderate or large ketone dose.
- If student is on an insulin pump, **moderate or large ketone dose must be given as a SQ injection and pump site must be changed**

Moderate or large ketones: What to do

- Student needs 8 oz. of sugar free fluids every hour; water is best
- **Recheck BG and ketones every 2 hours** until ketones resolve.
- If Ketones are not improving or getting worse; call parents/may need to send home or parents may decide to take to ED.
- Students with moderate/large ketones should not participate in physical activity
- Student may remain at school with ketones unless he/she is vomiting or ill.
- If unable to reach parents and have ROI on file, call CMH Diabetes Team

*** School/work excuses: It is our policy that we only provide school excuse note if the clinic has been called on the day of the illness, or the patient has been seen in clinic. Typical reasons granted: Moderate or large ketones with vomiting.**

Insulin is required to get rid of ketones

- Small or Trace Ketones
 - Give correction using ISF or chart and push fluids
- Moderate Ketones
 - Give 10% of Total Daily Dose as an injection. Change the pump site and push fluids. Recheck ketones and BG in 2 hours.
- Large Ketones
 - Give 20% of Total Daily Dose as an injection. Change the pump site and push fluids. Recheck ketones and BG in 2 hours.

****Total Daily Dose** = all insulin taken in 1 day (rapid acting + long acting)



CHECK YOUR KETONES IF:

Blood glucose (BG) is higher than 240, or If you have a fever, stomachache, vomiting or diarrhea, no matter what your blood glucose number is.

BG 70 – 130 Ketones: Negative, trace, or small amounts No action needed now. Drink sugar-free fluids. Monitor ketones and BG every 2 hours if you still feel sick.	BG higher than 130 Ketones: Negative, trace, or small amounts Give a correction dose if it has been more than 3 hours since last dose of fast-acting insulin. (This can be given via pump.) (BG-120)/Insulin sensitivity factor (ISF)	BG less than 240 Ketones: Moderate or large Follow 15/15 rule to get BG above 240. Once BG is higher than 240, recheck ketones. Go back to top of chart and follow directions. Drink sugar-free fluids.	BG higher than 240 Ketones: Moderate or large Give dose based on Total Daily Dose (TDD). See calculations in blue box below. Drink sugar-free fluids. **If on a pump, change pump site and inject insulin dose.
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Ketone Dosing ****Moderate or large ketone doses must be given via injection – not through insulin pump.****

Calculate Total Daily Dose:

Breakfast _____ units

Lunch _____ units

Dinner _____ units

Basal dose _____ units

Total _____ units

Moderate Ketones:

Give 10% of total daily dose: _____ units fast-acting insulin (Humalog, Novolog, lispro, aspart, other _____)

Large Ketones:

Give 20% of total daily dose: _____ units fast-acting insulin (Humalog, Novolog, lispro, aspart, other _____)

After Dosing:

- Start back at the top of this page.
- Recheck BG and ketones every 2 hours.
- Drink at least 8 ounces of water or sugar-free fluids per hour.

If ketones have not cleared after 4 hours, call the Diabetes Team.

If on a pump that communicates with your CGM, after you give an injection for ketones, follow the directions below based on your pump.

ilet: Menu → Settings → Therapy → CGM Target → Select "Higher"
Medtronic 670g: Pres middle button → Temp Target → Set target to 150 for 2 hours → Start

Medtronic 770g/780g: Press middle button → Scroll up to SmartGuard → Temp Target → Set duration to 2 hours and target to 150 → Start

Omnipod 5: Menu → Activity → Set duration to 2 hours → Done → Confirm → Start

Tandem Mobi: Actions → Slide toggle to start exercise
****REMEMBER TO TURN THIS OFF AFTER 2 HOURS****

Tandem tslim X2: Options → Activity → Exercise → Slide toggle over for "Set a timer" → Set duration for 2 hours → Start

Twist: Tap Workout Preset (Heart) on the tool bar → Select 2 hours

Diabetes Team

Monday–Friday, 8 a.m. to 4:30 p.m.

After hours, weekends and holidays

Call (816) 960-8803 (Option 2 "Diabetes" > Option 2 "Urgent")

Call (816) 234-3188

DISCLAIMER: The content contained herein is meant to promote the general understanding of ketone dosing and is for informational purposes only. Such information does not serve as a substitute for a health care professional's clinical training, experience, or judgment. Individuals and their families should not use such information as a substitute for professional medical, therapeutic, or health care advice and counseling. NO WARRANTY WHATSOEVER, WHETHER EXPRESS OR IMPLIED BY LAW, IS MADE WITH RESPECT TO THE CONTENT.

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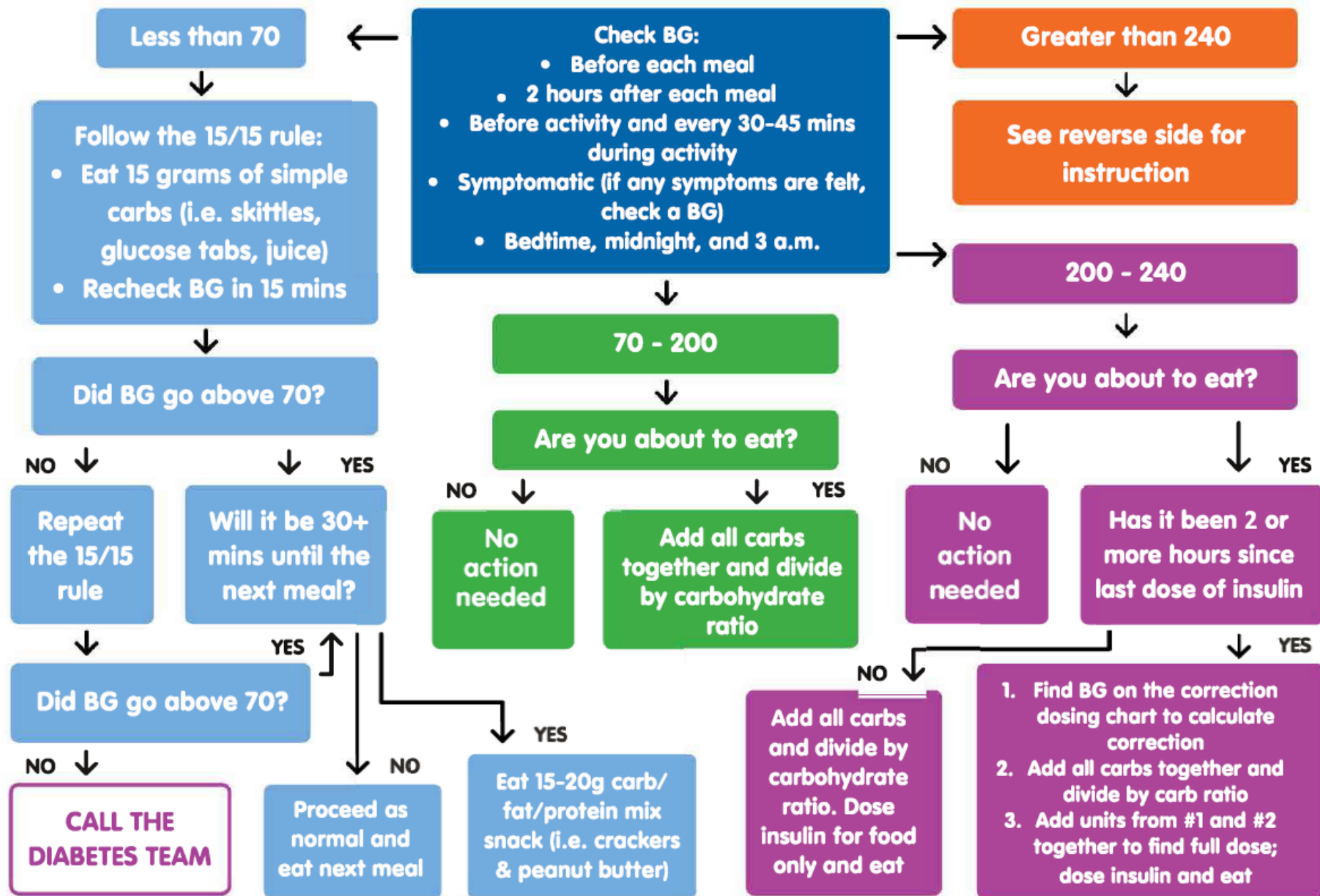
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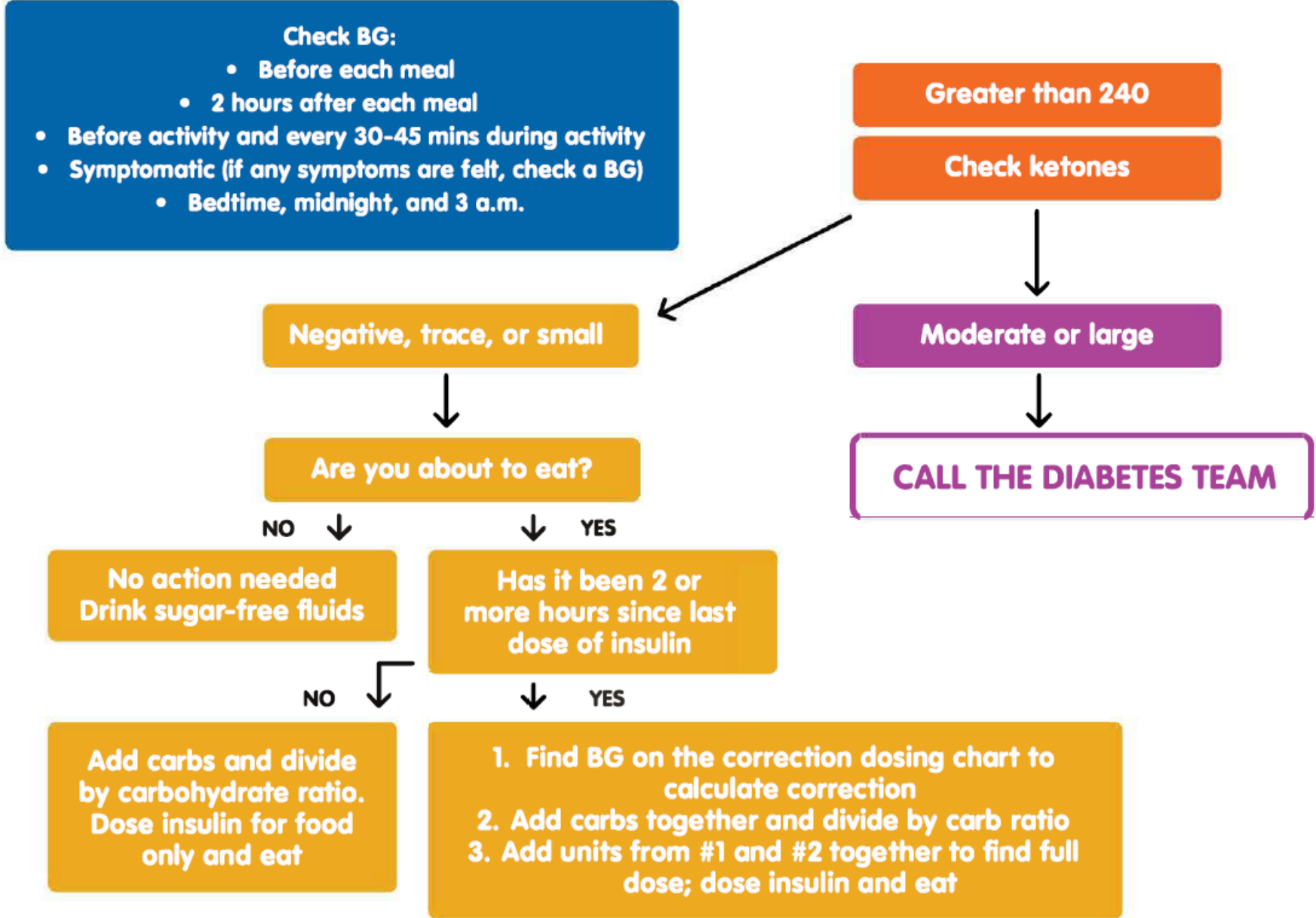
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**INSULIN
DOSE
CHART
QR CODE:**







Reviewing blood glucose

- Review blood glucoses regularly (such as weekly)
- Look for patterns; is there a pattern after 3-5 days
 - what time of day is the pattern occurring?
 - Is it related to PE, recess, food choices, stress, anxiety, etc.?
 - Inform the parent and or CMH CDE if you are seeing patterns at school; may need insulin adjustments
- Do adjustments need to be made to the insulin regimen or to self-management behaviors; such as dosing before instead of after meal, does the student need supervision with injections, are they entering BG and carb counts into the pump correctly?

Insulin adjustments

- Generally make 1 adjustment at a time then wait 3-5 days to re-evaluate
- Start with reviewing the before breakfast BG/fasting
 - If morning BG is above or below target; changes are made to Lantus dose (if on MDI or to basal dose if on pump)
- Next compare the pre and post meal numbers to assess the ICR
 - If BG drops or rises more than 40mg/dl 2 hours after the meal from premeal BG, then ICR would need to be changed.
 - Higher ICR = less insulin given; lower ICR more insulin.
- Correction factor is adjusted when
 - multiple corrections are needed to bring BG into target (decrease ISF)
 - hypoglycemia occurs commonly after corrections (increase ISF)

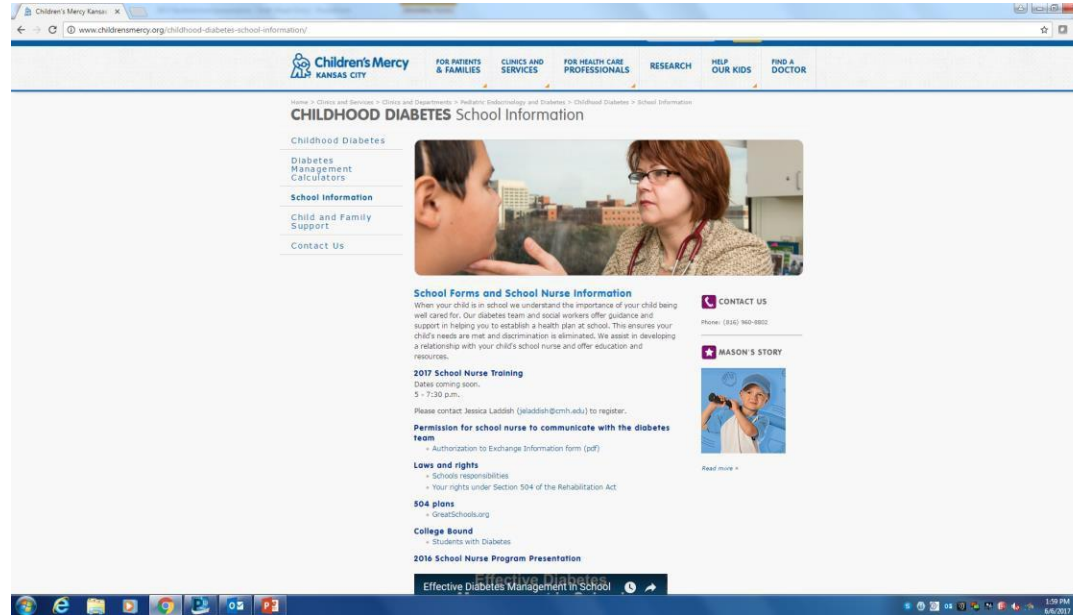
Goals of Diabetes Management

- Keep blood glucose in target range (70-130) 70% of the time
- Minimize fluctuation in blood glucose readings
- Hemoglobin A1C 7.0% or less
- Prevention of long-term complications
- Ensure optimal growth and development
- Maximize quality of life and independence
- Teach self-management of diabetes care. Parents are able to make insulin adjustments on their own.

School Orders

- Questions about school orders?
- They will include;
 - Type of therapy; injections or pump
 - ICR (insulin to carb ratio)
 - Type of insulin
 - ISF (correction factor and instructions on how to use)
 - Ketone management, including doses for moderate and large ketones
 - TDD (total daily dose)
 - Hyperglycemia and hypoglycemia treatment (action plan)
 - ROI on the last page; have parent/legal guardian sign and faxed back to CMH Diabetes Team

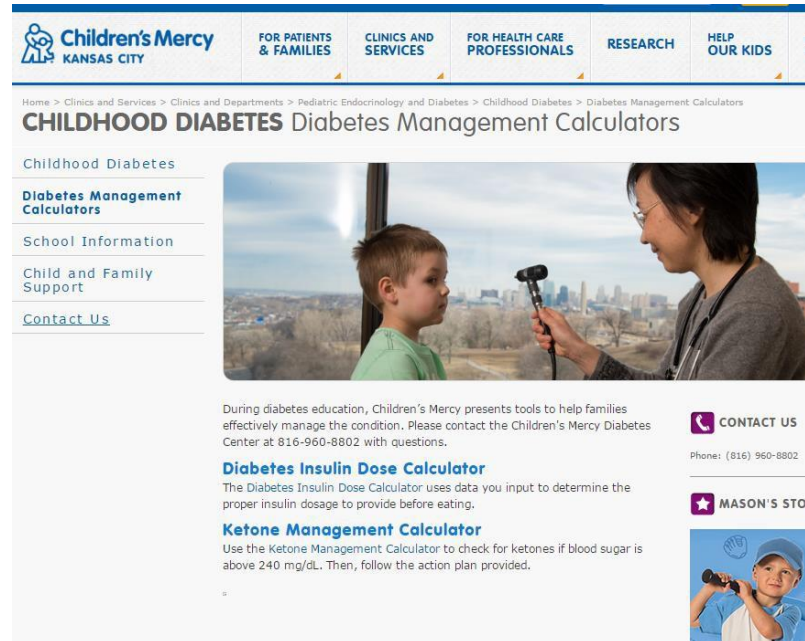
Access to diabetes team-CMH website



>Childrensmc.org-> search for endocrine/diabetes-
childhood diabetes center->school information-
>Effective diabetes management in schools

What's online?

- **Diabetes Team website:**
- Blood glucose monitoring instruction video
- Diabetes management calculators
 - Insulin Dose Calculator
 - Ketone Management Calculator
- School information
- Child and Family Support
- Contact Us



CMH Epic: MyChart patient portal

- For parents/caregivers: Go to childrensmercy.org/enroll to complete sign up form. Use parent's information, not your child if child is <age 18.
- You can request proxy access to your child's accounts
- Link multiple patient accounts
- See health records/lab results
- Message diabetes team and/or provider
- Manage appointments/view upcoming appointments
- Request prescription refills
- Parents can access school orders or we can fax/email directly to school nurse.
- Once enrolled, you can:
 - Download Children's Mercy app
 - Download the MyChart app
 - Visit childrensmercy.org/mychart and log in through your browser



DIABETES CARE AT A GLANCE

General guidelines

- Always open new insulin vials every 28-30 days.
 - Discard old insulin.
 - Never shake insulin vial.
 - Refrigerate all unopened insulin.
 - Avoid heat and freezing.
 - Bring all records and meter to clinic visits.
 - Arrive to appointments 1/2 hour early for labs.
 - For camp and sport physicals: Primary care physicians are responsible for completing these forms. Our office cannot complete these forms.
 - For Travel: Always have plenty of supplies available at all times.
 - Carry your glucose meter at all times.
 - Airline travel may require a letter from your doctor to carry supplies.
- *Allow office 2 weeks' notice for special letters.

Check for ketones when blood glucose is over 240

- Contact your diabetes team if you do not know what to do, as ketones indicate a serious health condition.
- DRINK LOTS OF WATER or sugar-free fluids.
 - 6-8 ounces/hour
- Continue to check blood glucose and ketones until ketones are cleared.
- For small ketones drink a lot of sugar-free fluids.
 - 6-8 ounces/hour
- For moderate to large ketones start drinking water and use ketone correction directions in your manual.
- No exercise if mod-large ketones present!
- Dip strip into urine.
- Read results in 15 seconds.
- Record results.

Low blood glucose symptoms and treatment

Mild symptoms: Grouchy Dizziness Shaky Fast heart rate Pale skin Sweaty	Moderate symptoms: Confusion Poor coordination Inability to cooperate Slurred speech
Treatment: • Test blood glucose. • If blood glucose is less than 70, give 15 grams of fast-acting glucose. • If the child is under 5 years, give less than 15 grams of fast glucose. • If the child is over 5 years, give 15 grams of fast glucose. • Re-check BG in 15 minutes.	Treatment: • 1/2 tube cake decorating gel between the cheek and gums. • If next meal is more than 30 minutes away, give extra carbohydrate and protein.

Severe low blood glucose

Severe symptoms: Unconsciousness Convulsions	• Administer glucagon as directed (see below) • Call 911 • Call diabetes doctor on call at (816) 234-3000
Treatment: • Inject the liquid of the syringe into the vial. • Tilt vial back and forth to mix or roll between palms to mix. DO NOT SHAKE. • Withdraw all of the liquid from the vial. • Give glucagon in either the thigh or buttocks. • Stick the needle in all the way. *For children under 5 years old give 1/2 of the liquid. *For children over 5 years old give all of the liquid. • Turn the child on their side to prevent choking. NEVER GIVE FOOD TO AN UNCONSCIOUS PERSON.	

Children's Mercy Diabetes Center: (816) 960-8803

Numbers to remember

Mom: _____

Dad: _____

Diabetes office:

(816) 960-8803

Monday-Friday 8 a.m. - 4 p.m.

Diabetes doctor after hours:

(816) 234-3000.

(After 4:30 p.m. weekdays, on weekends and holidays.)

Ask for the endocrinologist and a doctor on call will call you back.

CALL FOR HELP-911

CALL FOR HELP

- When your child is unconscious or having a seizure.
- If there is a change in mental status.
- Anytime glucagon is given.



After-hours calls to the doctor

Do call if:

- Ketones are moderate to large and you do not know what to do.
- Your child is sick, unable to eat, drink or is vomiting.

*Check for ketones and have records available before calling doctor.

Do not call for:

- Routine blood glucose results
- Prescriptions
- Lab results
- Forms

Sick-day food suggestions

Do not stop insulin on your own!

15 grams of carbohydrate replacement suggestions:

- Clear broth has no carbs
- 1/2 of a twin popsicle
- 1/2 cup of regular soda or 1/2 cup of juice
- 1/2 cup cooked cereal or 1/2 cup of regular Jell-O
- 1 cup cream soup or noodle soup
- Offer at least an ounce (2 tablespoons) of fluid every 20-30 minutes
- Use sugar-free if blood glucose is greater than 150 mg
- No need to eat fat or meat at meal

Where to find more information

www.diabetes.org

www.childrenwithdiabetes.com

www.jdrf.org



CMH CDE's: phone: 816-960-8803/ fax:816-302-9906

- Option 2: non urgent
- Option 3: urgent (student is vomiting/has moderate or large ketones, or has low blood glucose not responding to treatment.

Resources

- Children's Diabetes Center

<http://www.childrensmercy.org/> Search Diabetes>Endocrinology and Diabetes>Clinical Services>Diabetes Team

- American Diabetes Association Safe at School Campaign

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

- National Diabetes Education Program

<http://ndep.nih.gov/publications/PublicationDetail.aspx?PubId=97#main>

<https://www.breakthrough1d.org/>



PONDERING PUMPS & SENSORS

CHILDRENS MERCY DIABETES TEAM

DISCLOSURES

01 **Dexcom**

02 FreeStyle *Libre* 

03 **Medtronic**

04 

05  **TANDEM**
Diabetes Care

06 **Beta Bionics**

TYPES OF DIABETES TECHNOLOGY

Continuous Glucose Monitor (CGM) This is a wearable device that reads your glucose levels in the interstitial fluid (under your skin) every 5 minutes.

- Shows arrows that predicts if your glucose is trending up, down or going steady
- Can be used when giving multiple daily injections or with an insulin pump

Insulin Pump

This is a small portable device that delivers insulin continuously under your skin (subcutaneously).

Medtronic Inpen

This is a reusable "smart" insulin pen that connects to a smartphone app via Bluetooth.

- Automatically logs insulin doses, helps calculate insulin doses, connects to a CGM and give reminders for doses

Let's review each one in detail!

CONTINUOUS GLUCOSE MONITOR (CGM)

These monitors are attached to your body and give you glucose readings



HOW DOES A CGM WORK?

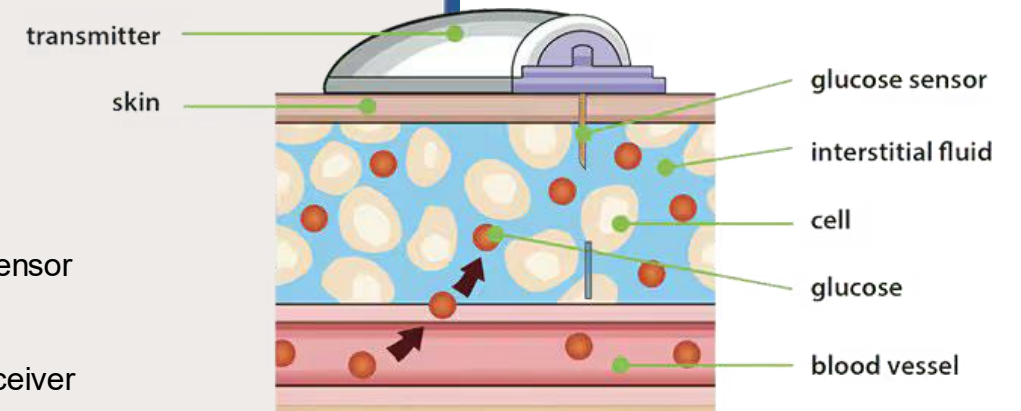
CMG's contains 3 parts:

- **Sensor** - thin filament under the skin
- **Transmitter** - battery device that sends glucose data via Bluetooth
- **Receiver** - device that shows your glucose data

During the application process, a small sensor is inserted under your skin. The sensor reads the glucose level in the interstitial fluid (fluid under your skin).

The sensor is connected to a transmitter that sends the glucose readings to a receiver (like a smartphone, insulin pump or another device).

The receiver shows your glucose numbers continuously. The receiver also shows arrows, which can tell you where your glucose is heading soon. Alerts are given for high and low glucose readings.

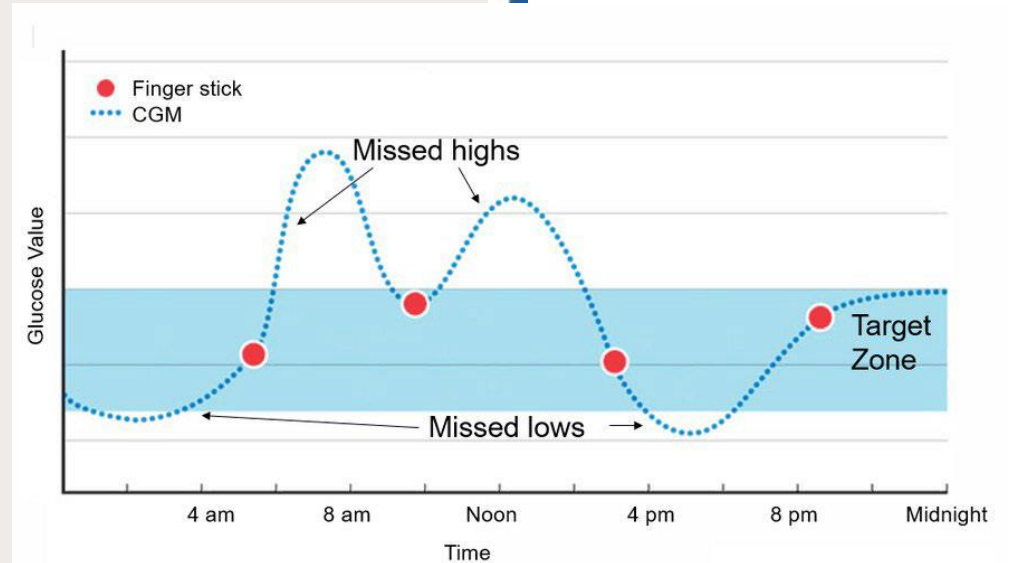


CGM VS. FINGERSTICKS

CGMs provide continuous data that helps people with diabetes understand their glucose trends, patterns, and how different factors (like food, exercise, and stress) affect their blood sugar levels. When you do a finger stick, you can only see blood sugars at one point in time.

It is important to remember that short-acting insulin continues to work in the body for 3 hours.

- If glucose appears high 20 minutes after you have dosed for food does not mean you need to give more insulin.
- Wait to see how your blood sugar looks after 3-hours.



CGM VS. FINGERSTICKS

Remember...

A CGM measures glucose in the interstitial fluid. A finger stick measures glucose from capillary blood. It is expected that these numbers may be as much as 30-40 points off when comparing the numbers. Always check a finger stick if you think your CMG reading is not accurate.

The CGM may read LOW when the blood sugar is not actually low if

- you are dehydrated (less interstitial fluid)
- If the sensor is being compressed (sleeping or sitting on the sensor).

While technology is a wonderful and helpful tool, it can fail. It is your responsibility to remember to check blood sugars with a glucometer if your CGM stops working. Always keep your test strips and glucometer around for back up testing!

DEXCOM G7

10 day or 15 day wear (18+)

Two-part system:

1. sensor/transmitter
2. Receiver, Mobile app or pump



Features:

- 30- minute warm-up period
- No finger sticks required*
- Updates data every 5minutes
- Alarms for lows or highs
- Use a receiver or compatible phone to see blood sugar.
- *If using a mobile app*, data can share with followers such as parents, school nurses, etc

FDA approved for 2 years and older

Compatible pumps:

- iLet
- Tandem Tslim x2
- Tandem Mobi
- Omnipod 5



DEXCOM REPS:

Shelley

Mobile: 816-507-0927

Email: shelley.otto@dexcom.com

Mindy

Mobile: 816-668-0698

Email: mindy.pugliese@dexcom.com

Website for more information:



FREESTYLE LIBRE 2 PLUS

Two-part system:

- Sensor-transmitter
- Reader/Mobile app or Pump

Features:

- 1 hour warm - up period
- Size of a quarter
- No finger sticks required
- Has alarms for highs and lows
- 15-day wear
- Use a reader, compatible phone or insulin pump to see blood sugar.
- FDA approved for 2 years of age and older

Compatible pumps:

- Omnipod 5
- Tandem T slim x2



FREESYLE LIBRE 3 PLUS

Two-part system:

- sensor-transmitter
- Mobile app or Pump

Features:

- 1 hour warm-up period
- Size of a penny
- No scanning required, updates glucose every minute
- No finger sticks required*
- Has alarms for highs and lows
- 14-day wear
- If using a mobile app, data may be shared with up to 20 followers such as parents, school nurse, etc.
- FDA approved for 4 years of age and older

Compatible pumps

- Tandem Tslim X2
- iLet
- Twiist



MEDTRONIC GUARDIAN 4

3-part system:

- sensor
- transmitter
- Receiver or pump

Features:

- 2-hour warm-up period
- Fingertick calibrations required every 12 hours
- Has alarms for highs and lows
- 7-day wear
- Data may be shared with up to 5 followers such as parents, school nurses, etc.
- FDA approved for 7+ years of age and older

Compatible Pump

- Medtronic MiniMed 780G

[Video Tutorial](#)



MEDTRONIC INSTINCT

2-part system:

- Sensor/transmitter
- Pump

Features:

- 1-hour warm-up period
- No calibrations required
- Has alarms for highs and lows
- 15-day wear
- Data may be shared with up to 20 followers such as parents, school nurses, etc.
- FDA approved for 7+ years of age and older

Compatible Pump

- Medtronic MiniMed 780G



MEDTRONIC INPEN

If you are interested in the pump technology but you are not interested in wearing a pump

- The Inpen allows you to continue giving shots but with many of the advancements of a pump.

This reusable pen is connected to an app on your smart phone which includes:

- Bolus calculator
- Half-unit dosing
- Dose reminders
- Carb counting support
- Digital logbook



You will switch out the insulin cartridge to fill the pen

It is reusable for 1 year

[Website for more information](#)

INSULIN PUMPS



INSULIN PUMP BASICS

Insulin pumps are an alternative to multiple daily injections.

The insulin pump is filled with short-acting insulin and will provide a continuous infusion of insulin 24 hours a day.

- This means you will **no longer be administering your basal insulin.**

You must remain attached to the insulin pump at all times. Even when sleeping.

Possible exceptions:

- Taking a shower or bath
- Swimming
- Sports

Pump sites can be placed anywhere you would give an insulin injection. You still need to rotate these sites as you would injections

INSULIN PUMP BASICS

An Insulin pump works by providing insulin in two ways. Just like the 2 different insulin injections:

- Basal
 - Small amount of insulin every hour. This will replace your long- acting insulin injection.
- Bolus
 - When you enter the number of carbs into your pump, it will calculate exactly how much insulin to give for your food as well as for corrections when needed.
 - Will calculate precise doses of insulin needed by entering blood sugar and/or grams of carbohydrates.
 - Insulin delivery without fear of insulin stacking.
 - Accurate dosages delivered without extra injections.

You still need to input the carbs and tell it to give corrections.

- The closed-loop system pump allows the system to increase and decrease background insulin as needed.
- **You cannot set it and forget it.**

INSULIN PUMP & DKA

Technology is a wonderful tool, but it can fail us. It is very important that you understand what steps to take if this happens.

- If insulin delivery stops, high blood sugars can develop very quickly. This can be caused by:
 - tubing kinks
 - battery failure (forgetting to charge the pump)
 - empty reservoir (run out of insulin)
 - bad pump sites
- It is important to check ketones as soon as you notice a high blood sugar (above 240).
 - If moderate or large ketones exist:
 - You must give a correction via insulin pen and change your pump site.
 - If negative, trace or small ketones exist:
 - You may give a correction through the pump.
- If the pump cannot be replaced within 1- 2 hours:
 - you need to give an injection of their long- acting (or basal) insulin.

Insulin Pump Brands

Just like CGM's, you have many choices when it comes to insulin pumps. The following information will review pumps, their **features and their algorithms**.

It is important to review all the elements of a pump. Do not choose a pump by the way it looks.

MO Healthnet will only replace tubed pumps every 5 years.
Will not approve an Omnipod if a tubed pump has been purchased in the last 2 years.



TANDEM TSLIM X2

Touch screen pump able to be controlled from the pump or from compatible mobile app.

Compatible CGM's:

- Dexcom G7 10 day wear or 15 day wear
- Libre 3+
- Minimum fill: 110 units and holds up to 300 units.
- Minimum total daily dose: 5 units
- Not waterproof
- Must be charged via USB

Algorithm: **Control IQ+**

- Automated system will communicate with the CGM to adjust every 5 minutes
- Pump will give auto bolus doses when blood sugar is above target range.
- Pump will adjust basal rates automatically based on CGM data.
- Pump can be placed in "sleep mode" which will prevent corrections while sleeping and only adjust basal rates.
- Pump can be placed in "exercise mode." This will prevent corrections and increase target to prevent hypoglycemia

FDA approved for 2 years and older
Source: Tandemdiabetes.com



TANDEM MOBI

Full control of pump via iPhone and compatible Android phones

Device does not have to have data-just Bluetooth capabilities.

Compatible CGMS:

- Dexcom G7 10 day & 15 day wear
- Minimum fill: 30 units and holds up to 200 units.
- Watertight: 8 ft up to 2 hours
- "Find My Pump" feature available.
- Minimum total daily dose: 5 units

FDA approved for 2 years and older
Source: Tandemdiabetes.com

Algorithm: **Control IQ+**

- Automated system will communicate with the CGM to adjust every 5 minutes
- Can give auto bolus doses when blood sugar is above target range.
- Adjust basal rates automatically based on CGM data.
- Pump can be placed in "sleep mode" to prevent corrections while sleeping and only adjust basal rates.
- Pump can be placed in "exercise mode." This will prevent corrections and increase target to prevent hypoglycemia.
- DME or pharmacy benefit



OMNIPOD 5

Pods are controlled by either the provided PDM controller or a mobile app (compatibility varies between Android vs iPhone). Must be within 5 feet of app or PDM to change settings or bolus insulin

Compatible CGM's:

- Dexcom G7 10 day or 15 day
- Libre 2+ or Libre 3+

Pods are:

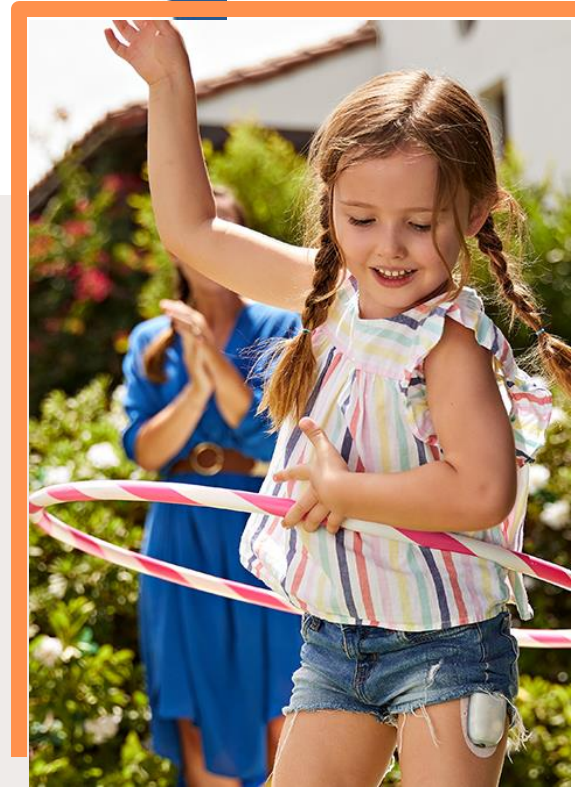
- Waterproof
- Disposable and thrown away after each use- every 2-3 days.
- PDM is not waterproof and must be charged by plugging into USB plug
- Minimum fill: 85 units' Maximum fill: 200 units
- Minimum total daily dose: 5 units

FDA approved for 2 years of age and older

Source: omnipod.com

Algorithm – **Smart Adjust**:

- Increases, decreases, or pauses basal delivery every 5 minutes based on glucose values
- Will **not** give auto bolus for high blood sugar
- Learning algorithm adjusts with every pod change, updates based on glucose patterns
- Can set "activity mode" to raise glucose target
- Pharmacy benefit



BETA BIONICS ILET

Controlled with touch screen or mobile app

Compatible CGM:

- Dexcom G7, 10 or 15 day wear
- Libre 3+

If no CGM data for 72 hours, then the pump will stop working and the patient is required to go back to MDI

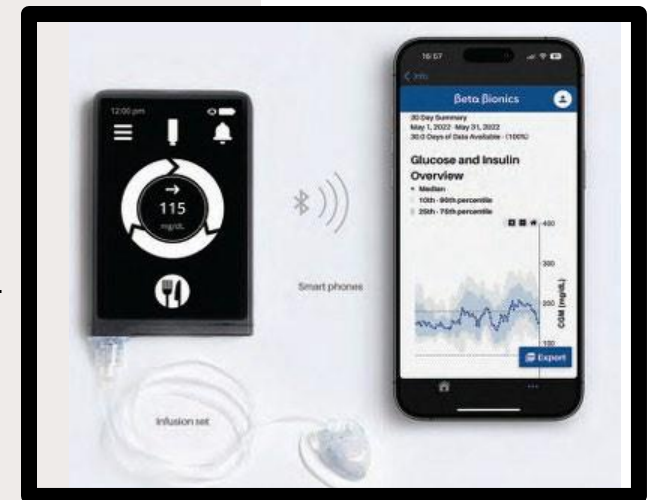
Minimum fill: 180 units and holds up to 180 units.

Water resistant to 12 feet up to 30 minutes at a time.

Has an app that allows up to 10 followers to see pump data.

Algorithm:

- No carb counting
- No corrections
- DME benefit
- The algorithm takes the information from your CGM to continuously make all insulin adjustments.
 - Only setting that can be adjusted is target blood sugar (110 to 130).
- Only user responsibility is to "announce" meal doses as:
 - Less than normal
 - more than normal



FDA approved for 6 years and older
Source: Betabionics.com

SEQUEL TWIIST

Controlled with mobile app and Apple smart watch

Compatible CGM:

- Libre 3+

Holds up to 300 units.

- Not waterproof
- Uses rechargeable batteries

Algorithm- Tidepool Loop

- Adjustable target range from 87mg/dL to 180mg/dL
- Has sound wave technology that detects insulin blockages
- Allows retroactive carb entries
- Activity mode
- No automatic correction boluses
- Has a follow up, but no alerts at this time
- Not covered by medicaid at this time
- Pharmacy benefit



FDA approved for 6 years and older

Source: [twiist.com](https://www.twiist.com)

METRONIC MINIMED 780G

Pairs with Guardian 4 CGM
and the Abbott Instinct CGM

Minimum: 8 units of insulin per day

Sharing: uploads to Carelink Cloud
every night

Alerts can be sent to up to 5 people

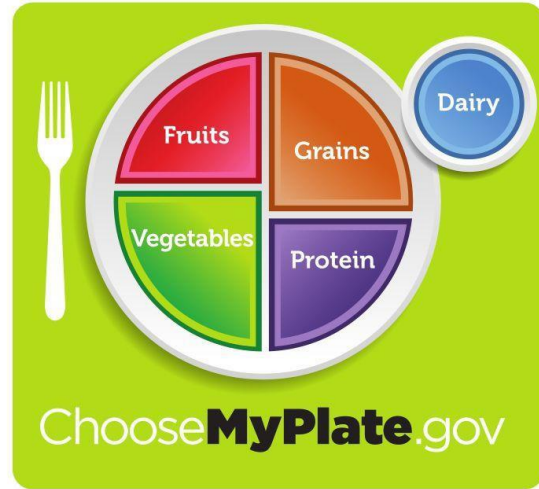
Features:

- Finger stick required to start.
- SmartGuard: No additional finger sticks needed.
- Meal detection technology with automatic adjustments
- Correction every 5 minutes
 - Uses stronger corrections while blood glucose is rising
- Extended infusion set can be worn up to 7 days.



FDA approved for 7 years of age and older

Nutrition Management



Carbohydrate counting

- Must count grams to determine insulin dose
- Ratio = amount of carbs per unit of insulin
 - ie. 1:15 – 1 unit rapid acting insulin for every 15 grams
- Insulin needs to be given BEFORE eating
- Accuracy is IMPORTANT

What Foods Contain Carbohydrate?

High in carbohydrate

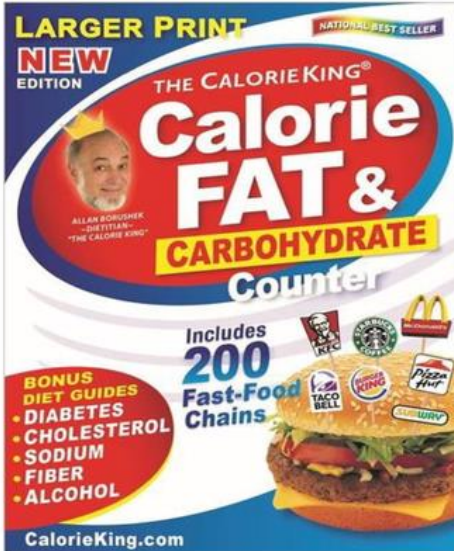
- Breads, Cereals, Grains, Starchy Veggies, Beans
- Fruit, juices
- Milk/Yogurt
- Sweets

Low in carbohydrate

- Non-starchy vegetables
- Meat/Proteins
- Fats
- Free Foods

Count all carbohydrates, even if it is just a few grams!

Where Can I Find Carbohydrate Information?



- School District website
- Food Service Director
- Food Labels
- 'Calorie King' book
- Websites
- Phone applications

School Lunch

• Chicken nuggets(4)	10gm
• Honey mustard(1)	7gm
• Potato smiles (4)	16gm
• Steamed broccoli	2gm
• Fresh baby carrots	6gm
• Pears	20gm
• Chocolate milk	<u>26gm</u>
TOTAL	87 grams

Calculating Insulin Dose

- 1) Student decides what they will eat/ won't eat
- 2) Use resource to count carbohydrates
- 3) Use ratio to calculate dose (or enter carbs into pump)
 - If 1:15, $87/15 = 5.8$ units
 - If ratio is 1:12, $87/12 = 7.25$ units
- 4) If on MDI round to nearest whole unit (ie 6 and 7)

Scenario 1

- Johnny was given 4 units short acting insulin for a 60-gram meal but reports to you that he didn't eat his potatoes. His pre-lunch BG was 102.

What should be done???

What is the best answer?

- 1) Give him apple juice immediately
- 2) Offer him a carton of milk or slice of bread
- 3) Check his BG immediately
- 4) Nothing

Physical activity

- Effects on BG varies
- Increased intensity ie. soccer usually will decrease BG
- Increased adrenaline may increase BG
- Some may experience delayed hypoglycemia (even as much as 12-24 hours after activity)
- Children with PE/recess before lunch are at greater risk for hypoglycemia

Rule of Thumb

- AVOID physical activity with moderate or large ketones
- May need carbs without insulin for every 30 minutes of vigorous activity
- Check BG before and after activity to determine strategy for glucose control

Scenario 2

Sara is frequently coming to nurse's office
after PE class with BG less than 70

What should you do?

What is the best answer?

- 1) Snack before PE
- 2) Change previous meal ratio
- 3) If on pump - Change basal rate, use temporary basal, or disconnect pump
- 4) All of the above

Recommendations

- First treat the low
 - 15 grams fast acting carb and re-check BG in 15 minutes
- Notify parents that this is a pattern

What are strategies to prevent these lows?

Snack before PE

Temporary basal rate

Change meal ratios

Disconnect pump

Frequently Asked Questions

- How many carbohydrates should my kids have per day?
 - Minimum of 130gm/day, but the number can vary
 - Instead of a number, we encourage healthy eating
- Is it possible to consume too few carbohydrates?
 - Yes. Carbohydrates are needed to fuel your brain and are important for growth.
- Should we be restricting carbohydrates to control high blood glucose?
 - Never withhold a meal or snack because glucose is high
 - Dose for the carbohydrates in the meal/snack + add a correction dose of insulin for the high blood glucose

Carbohydrate Daily Amounts

- Is there a minimum required?

130 grams per day at least

½ of calorie needs

Needs vary: age, growth spurts, activity level, puberty

- Carbs should NOT be restricted, but do encourage healthy eating

Healthy Eating

- Eat a variety of foods
- Eat healthy sources of carbohydrates
 - Whole grains
 - Fruits and vegetables
- Eat a **RAINBOW** of **fruits** and **vegetables** each day!
 - Each color contains different nutrients
 - Choose whole fruit instead of juice
- Drink water more often
- Eat a healthy breakfast every day

Psychosocial Needs at School

Diabetes Social Workers

Mark Churchill (College Blvd Location)

Lara Simon (Broadway Location)



Stages of Independence

- Elementary
- Middle School
- High School



Elementary (6-12 years)

Developing Skills (athletic, artistic, social)

Self esteem begins relating to peer group

Diabetes Management

Priorities

- Making diabetes routine flexible for school/peer activities
- Child begins learning long- and short-term benefits of good diabetes control

Family issues with type 1 diabetes management

- Parent to maintain involvement with diabetes cares, while allowing for self-care skill building
- Continue to educate school and other caregivers
- Normalize child's feelings



Diabetes Responsibility in Elementary School

- Annual meeting with school RN and family to establish plan of care
- Utilize school nurse for all diabetes care
- Most capable of testing blood sugars independently
- Some can draw and administer shots or deliver insulin via a pump
- Start to recognize and treat hypoglycemia
- Most can make own food choices and some can count carbohydrates
- Adult may need to remind child to go to nurses' office at lunch or other meal/snack times

Middle School (12-15 years)

Managing body changes and self identity

Diabetes Management Priorities

- Managing increased insulin needs due to puberty
- Diabetes management/blood sugar control becomes more difficult
- Weight and body image concerns

Family issues with type 1 diabetes management

- Renegotiating parents and teen roles
- Learning coping skills
- Preventing diabetes related family conflict
- Monitoring for signs of eating disorders, depression and risky behaviors



Diabetes Responsibility in Middle School

- Annual meeting with school RN and family to establish plan of care
- Recommend that student checks in with school nurse prior to lunch or as needed
- Most capable of doing injections/blood sugar checks
- Most capable of carb counting (some may still need assistance)
- Consider allowing child to check blood sugar in classroom to minimize missed class time

High School

Establishing sense of identity

Diabetes Management Priorities

- Begin discussing transition issues
- Integrating diabetes into new lifestyle



Family issues in type 1 diabetes management

- Support transition into independence
- Learning skills to self-manage
- Preventing diabetes related family conflict
- Monitoring for signs of depression, eating disorders and risky behaviors

Diabetes Responsibility in High School

- Annual meeting with school RN and family to establish plan of care
- Some teens may still need RN oversight to ensure adherence
- Teen does all/most care in classroom
- Trust is essential! Trust is earned!

Special Education Accommodations at School



Goals for School Diabetes Care

- Identify students with a disability and provide a medically safe environment for them
- Provide students with diabetes the same access to educational opportunities and school-related activities as their peers
- Work with parent/caregiver and student to support transition to independence
- School should provide an adult who is available to recognize signs and symptoms of low blood glucose and other diabetes emergencies at all school sponsored groups
- Availability of at least 2-3 trained personnel and/or a school nurse
- Access to immediate routine and emergency treatment
- Self-management and self-possession anywhere, anytime for mature and capable students
- Full participation in all school-sponsored activities
- To keep students with diabetes in sufficient control to enable to them to learn, play and participate in classes and extracurricular activities

Qualifications for a 504 Plan

- All public school and private schools (including religious school) that receive federal financial assistance
- Students qualify due to a potential deficit in learning during episodes of hypoglycemia or hyperglycemia
 - Diabetes can potentially limit one or more major life activity: caring for oneself, walking, seeing, hearing, learning or working

Missouri State Laws

- Allows trained volunteers to provide diabetes care including blood glucose monitoring and insulin and glucagon administration
- Permits students to self-manage in the school setting and to carry needed diabetes supplies and equipment

Kansas State Laws

- Department of Health Guidelines state that students are allowed to self-manage their diabetes
- Department of Health Guidelines state that insulin may be delegated as long as the delegatee is not calculating dosage (calculating carbs to determine insulin dose is NOT considered dose calculation).
- Nurse Practice Act permits trained non-medical personnel to provide emergency care as long as it is documented in the student's nursing care plan.

Navigating the 504 Process

- School or parent/guardian may initiate
- CMH Diabetes School orders state we strongly recommend a 504 plan for students with diabetes. A letter of referral is not needed due to this statement
- An evaluation for eligibility under 504 should be conducted by school staff knowledgeable about the child
- Sample 504 Plans specific to diabetes care available here:
 - [Children With Diabetes](#)
 - [American Diabetes Association](#)



CMH Recommended Accommodations

- **Students may require phone access throughout the day to manage pumps and/or sensors.**
- Snacks are parents/caregivers' responsibility to provide
- Patients can participate in physical activity and sports BUT there must be a diabetes-trained personnel present at all times!
- Eating should be allowed whenever and wherever necessary, including in the classroom, eating lunch with peers, and allotting adequate time to finish eating
- Allowing for extra trips to the bathroom or water fountain when needed
- Absences should be counted as “excused” for medical appointments and sick days when necessary
 - We do provide letters to verify if requested by a parent/guardian
- Alternative time for exams if student is experiencing low/high BG's
 - Recommend using the Stop Clock Testing method
 - Exams should not be taken if blood sugar is above 240mg/dl (with moderate to large ketones) or below 70mg/dl

Additional Considerations

- Students should not have any penalties if time is needed for diabetes management.
- The student should be allowed to ride bus with diabetes supplies, administer insulin or check blood sugar on the bus, and eat a snack if needed
- Students with Continuous Glucose Monitors (CGMs) may require access to a personal cell phone or school WIFI to monitor blood glucose levels
- Please allow adequate time for
 - Make up work/tests
 - To check blood sugars and give insulin
 - To finish lunch
 - To participate in physical education based on blood sugar
 - A buddy to accompany student to nurse during hypoglycemia episodes



Implementing Mental Health Screens at CMH

Challenges Faced

- Identifying more patients with diabetes who need mental health assistance
- Limited number of mental health providers who are familiar with diabetes care at CMH and in the community
- More mental health problems = more problems with diabetes care



Mental Health in Students with Type 1 Diabetes

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&

Gail Robertson, PhD, ABPP, Licensed Psychologist
Associate Professor of Pediatrics, UMKC-SOM

July 2025



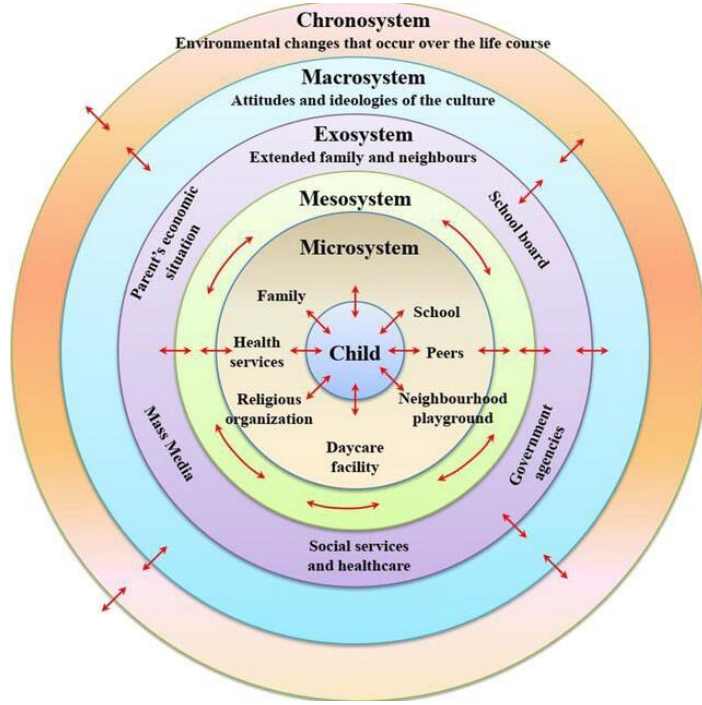
Conflict of Interest

We have no actual or potential conflict of interest in relation to this program/presentation.

Goals & Objectives

- Identify mental health symptoms that youth with diabetes may experience (e.g., irritability, sadness, worry, distraction)
- Detect unhealthy coping behaviors in children with diabetes
- Recognize options for intervening at school
- Describe resources available to children and families

Bronfenbrenner's Ecological System's Model



- Bronfenbrenner's theory demonstrates the interrelated influences on child development.
- Awareness of the systems that children live in can help us understand the differences in the way children may act in different settings.
- Bronfenbrenner proposed that many of these interactions are bi-directional: how children react to people in their microsystem will also affect how these people treat the children in return.

Overview

- Management of and adjustment to diabetes is impacted by the child, their experiences, and their environment.
- To have well-controlled diabetes, one must have:
 - Continuous monitoring (bg, carb ingestion, exercise)
 - Math skills (carb counting, dosing, correction)
 - Problem solving skills (responding to variations in bg)
 - Flexibility (stopping plans and addressing bg or symptoms)
 - Support (from parents, school personnel, friends, medical)
- Problems in these areas or other stressors can impact functioning in multiple domains for kids



Common Psychosocial Issues

- Developmental Grief and Adjustment
- Diabetes Distress or Burnout
- Low Socioeconomic Status
- Food insecurity
- Lack of access to T1D supplies
- Systemic barriers to health care
- Poor Family Communication
 - Parent/Child Conflict
 - Parent/Parent Conflict
 - Divorce or Separation
 - Inequitable division of T1D management responsibilities.
- Substance use or abuse in child or parent
- Cognitive dysfunction in child or parent

Common Mental Health Issues impacting T1D

- Depression & Suicidal Ideation
- Anxiety, including Generalized Anxiety Disorders, Needle Phobia, Obsessive Compulsive Disorder, etc.
- Neurocognitive Functioning and Attention Deficit Hyperactivity Disorder (ADHD)
- Eating Disorders: Anorexia, Bulimia, Diabulimia

Depression and Suicidal Ideation

- Youth with T1D have higher rates of depression than the general population
- Adolescents with T1D experience higher rates of suicidal ideation and suicide attempts than those without T1D

Depression & T1D Management

- Youth with T1D & depressive symptoms have:
 - Less frequent self-monitoring of blood glucose (SMBG)
 - Impaired glycemic control
 - More frequent hospitalizations for acute T1D complications (e.g., severe hypoglycemia, diabetic ketoacidosis)

Depression & T1D Management

- Depression in adolescents with T1D is associated with:
 - Poor long-term outcomes (both medically and in mental health)
 - Increased risk for long-term complications
 - Repeat T1D-related hospitalizations
- Elevated depressive symptoms are related to lower quality of life and increased suicidal ideation in youth with T1D

Suicide Risk (in T1D)

- Research shows current risk of suicidal ideation to be between 8-13% for last 3-12 months and 26% for lifetime.
- Unique concern for T1D—insulin is needed to survive, but it means easy access for lethal intentional overdosing.



Suicide Risk: Screening

Columbia Suicide Severity Rating Scale (CSSRS or Columbia) - 3 questions

- **Have you wished you weren't alive anymore?**
 - Assessing thoughts?
- **Have you had thoughts about killing yourself?**
 - Assessing plans?
- **Have you ever done anything to try to kill yourself?**
 - Assessing Actions?



ASQ Screener

ASQ will provide you with more information about:

- **Passive suicidal ideation** (wishing to be dead/feels as though they are better off dead)
- **Active suicidal ideation** (thoughts of killing oneself)
- **Suicide attempt history** (including method use and time frame of attempt)

NIMH TOOLKIT

asQ Suicide Risk Screening Tool

Ask Suicide-Screening Questions

Ask the patient:

1. In the past few weeks, have you wished you were dead? ☐ Yes ☐ No
2. In the past few weeks, have you felt that you or your family would be better off if you were dead? ☐ Yes ☐ No
3. In the past week, have you been having thoughts about killing yourself? ☐ Yes ☐ No
4. Have you ever tried to kill yourself? ☐ Yes ☐ No
If yes, how? _____
When? _____

If the patient answers **Yes** to any of the above, ask the following acuity question:

5. Are you having thoughts of killing yourself right now? ☐ Yes ☐ No
If yes, please describe: _____

Next steps:

- If patient answers "No" to all questions 1 through 4, screening is complete (not necessary to ask question #5). No intervention is necessary (*Note: Clinical judgment can always override a negative screen).
- If patient answers "Yes" to any of questions 1 through 4, or refuses to answer, they are considered a **positive screen**. Ask question #5 to assess acuity:
 - ☐ "Yes" to question #5 = **acute positive screen** (imminent risk identified)
 - Patient requires a STAT safety/full mental health evaluation.
 - Patient cannot leave until evaluated for safety.
 - Keep patient in sight. Remove all dangerous objects from room. Alert physician or clinician responsible for patient's care.
 - ☐ "No" to question #5 = **non-acute positive screen** (potential risk identified)
 - Patient requires a brief suicide safety assessment to determine if a full mental health evaluation is needed. Patient cannot leave until evaluated for safety.
 - Alert physician or clinician responsible for patient's care.

Provide resources to all patients

- 24/7 National Suicide Prevention Lifeline 1-800-273-TALK (8255) En Español: 1-888-628-9454
- 24/7 Crisis Text Line: Text "HOME" to 741-741

asQ Suicide Risk Screening Toolkit NATIONAL INSTITUTE OF MENTAL HEALTH (NIMH) 1/12/2008

Critical Information for Screening

- Prior to screening:

- Have a plan for what to do based on the results
- Have clinical cut-offs for positive screens accessible to healthcare providers
- Have a Screener Action Plan developed based on each score, including:
 - When and how to continue to monitor mood/behavior at school
 - Who to contact about results (parent/caregiver, counselor, etc.)
 - When to seek emergency treatment

Anxiety in T1D

- Children and adolescents with T1D have a 26-32% lifetime prevalence of anxiety disorders
- 13.4% of youth with Type 1 Diabetes reported anxiety regarding their hemoglobin A1c and 17% reported anxiety with blood glucose monitoring.

Neurocognitive Functioning

- Having T1DM is associated with poorer performance in the following areas:
 - visual-spatial ability, memory, IQ (full scale, performance, & verbal)
 - motor speed
 - writing & reading
 - sustained attention
- Factors associated with increase difficulty:
 - Length of time since diagnosis
 - Diagnosis before age 5
 - Metabolic control
 - Co-morbid psychological diagnoses
 - Number of hypoglycemic episodes

Executive Functioning

- Two domains of executive functioning:
 - Behavioral Regulation—the ability to inhibit, shift, and sustain emotional control
 - Metacognition—the abilities to initiate, plan, organize, & monitor, and working memory
- These skills are necessary for:
 - insulin management
 - bg monitoring
 - monitoring of dietary intake
 - adjustment of activity level

ADHD & Executive Functioning

- Parent report of problems with child executive functioning is associated with elevated HbA1c
- Problems with child executive functioning is associated with poor T1D management
- Better child executive functioning is associated with better adherence and management

Disordered Eating Behavior

Up to 38% of youth with T1D experience disordered eating behaviors

Disordered eating behaviors in youth with T1D are associated with:

- Higher BMI and insulin resistance
- More symptoms of depression
- More episodes of DKA
- Poorer quality of life

20% of youth with T1D are estimated to have used insulin manipulation for weight loss (diabulimia)

- Rates are approximately 2 times higher in females than males
- Can be easily missed by parents and diabetes providers
- Excessive focus on weight can increase likelihood

Identifying Problems

- Possible reasons for problems at school:
 - Difficulty adjusting to diabetes diagnosis (even if diagnosed for years)
 - Lack of understanding about diabetes management
 - Real/perceived
 - interference with peer/social functioning
 - lack of support from school personnel
 - interference with school functioning
 - Pre-existing or recently developed concerns with behavior, fear/anxiety, mood difficulties
 - Issues child brings from home/community that is not known to the school

Common Presentations

- Aggressive: Physically or verbally lashing out when asked to perform a diabetes task
- Argumentative: “I don’t need to go to your office, I can check my BG in the bathroom”
- Avoidance:
 - Of the nurse or diabetes management: “I forgot to check my BG before lunch”
 - Of class: always in the nurse’s office; “I’m not feeling well again, I need to check my BG”
- Dismissive: “I don’t care what my BG is”
- Lying: “My BG is 128”, but a review of the meter shows it is 428
- Refusing: “You can’t make me check”
- Upset/Frustrated: “I hate diabetes”
- Parent involvement (over or under involvement): Parent needs to be notified of every thing or a parent can’t be reached for anything)



Healthy Adjustment

- Low incidence of dramatic/extreme changes in mood or behavior
- Use of coping strategies (writing, reading, talking, exercise, etc.)
- Open communication (acknowledges frustrations, sadness, and/or worries)
- Seeking support and/or asking for help

Coping

- Coping strategies are methods (thoughts or actions) a person uses to deal with stressful situations and reduce overall distress.
- All people use coping strategies; some strategies are just more “helpful” than others
- When does coping become unhealthy or unhelpful
 - It is interfering with functioning in a prominent area
 - It is causing distress
 - It can be contributing to immediate or long-term health concerns

Treatment/Intervention

- What can you do to help?
 - Match expectations to the individual child's abilities (expectations may be lower than same age peers or younger peers)
 - Identify problems early, for both internal and external reasons
 - Set reasonable goals and build upon them once children are successful
 - Develop a collaborative relationship--If something isn't working, ask for input from the child (or parents)
- If you see concerns, talk to someone about it: the child, parent, or teacher/counselor



Treatment/Intervention

- Other Interventions:

- Incorporate psychological diagnoses or behavior plan into 504 plan (have accommodations prepared)
- Psycho-educational assessment or formal IEP may be needed, particularly when educational goals are impacted or comorbidities present
- Therapy (Individual/Family) and/or Medication
- Hospitalization

Managing Behaviors

- Set reasonable goals and build upon them once children are successful
 - Make goals specific, measurable, achievable, results-focused, and time- bound (SMART)
 - Example, if the goal was initially: “Check your bg at school” change it to: “Check your bg in the nurse’s office at school, every day, 20 minutes before lunch”
 - Put the goal in writing, monitor it with a chart, acknowledge small progress and have rewards for making progress that hold value to the child/teen
- Develop a collaborative relationship--If something isn’t working, ask for input from the child (or others)
 - Most kids will tell you what they need
 - The argumentative kids will tell you all the reasons the things you suggest won’t work, but often (not always) are more cooperative when they are asked to help problem solve or when a discrepancy in their behavior is noted

Managing Behaviors

- What is generally NOT helpful:
 - lecturing (they won't listen, it damages the working relationship, parents and/or doctors may have already tried that approach unsuccessfully)
 - Pointing out long-term consequences of behavior (children/adolescents think in the here and now; neither fear nor shame change longterm behavior for most people)
 - Ignoring it (the problem often won't go away and often will worsen)

Resources

- Support groups (JDRF)
- Websites (ADA, Children with Diabetes)
- Therapy options (parent can contact insurance; local community health agency)
- Suicide prevention numbers (988; Trevor Project: 866-488-7386)

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