OCTOBER, 2023

Diabetes Management in the School and Daycare Setting

The Diabetes Medical Management Plan (Provider Orders)

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Affiliated with
Department of Pediatrics
SCHOOL OF MEDICINE
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

Disclosure

Tammy Swigert, RN, CDCES discloses the following:

Certified pump trainer for Omnipod (Insulet) and Tandem. She will not be discussing or prompting specific pumps.

No other conflicts to disclose.

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Learning Objectives:

Following this presentation, you should be able to:

- Discuss elements of the Diabetes Medical management Plan
- Calculate an insulin dose based on the DMMP (provider orders)
- Explain how the Individualized Health Plan (IHP) should be used in the school setting

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Diabetes Medical Management Plan (DMMP)

- Also know as "Diabetes Healthcare Provider Orders"
- Obtained/updated at least annually (near start of each school year) and as needed
- For ongoing changes to the insulin dosing changes, now DMMP needed if the dose change is more than 3 units different
- Barbara Davis Center medication forms/DMMPs are approved (additional school/district specific medication forms NOT necessary) unless specific other information needed for patient
- Provider may individualize the DMMP per the child's individual needs, (may vary from the Standards)

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Elements of the DMMP

Diabetes Medical Management Plan
Health Care Provider Order for Student with Diabetes on Insulin Injections

Student: Anakin Skywalker **DOB:** 1/01/2014

Monitor Blood Glucose: as mutually agreed upon by school nurse and parent, before meals, as needed for signs/symptoms of low/high blood glucose, and if he does not feel well

Target Blood Glucose Ranges: < 6 yrs, 70-150 mg/dL; 6-17 yrs, 70-130 mg/dL; ≥ 18 yrs, 70-130 mg/dL

Notification to Parents: Low < 70 mg/dl; High > 300 mg/dl

Continuous Glucose Monitoring Device: If the student has a Dexcom G6 or Freestyle Libre, it may be used for dosing and treatment. See Collaborative Guidelines for Dexcom Non-Adjunctive Dosing in the School Setting.

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Elements of the DMMP, cont'd.

Hypoglycemia: Use Standards of Care for Diabetes Management in the School Setting – Colorado.

For severe symptoms of hypoglycemia, administer one of the following and then call 911:

Glucagon:
- < 12 years old 0.5 mg (0.5 mL) IM
- >/= 12 years old 1 mg (1 mL) IM

Gvoke premixed glucagon:
- < 12 years old 0.5 mg (0.1 mL) subcutaneously
- >/= 12 years old 1 mg (0.2 mL) subcutaneously

BAQSIMI spray 1 device (3 mg) in one nostril, same dose for all ages

Hyperglycemia: Use Standards of Care for Diabetes Management in the School Setting – Colorado.

Ketone Testing: Use Standards of Care for Diabetes Management in the School Setting – Colorado.

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Hypoglycemia Treatment per Standards of Care - 2023

- Treat then notify
- Less carbs for younger students
- Mild and moderate treatment the same
- Snack may o not be neede

Scenario	Action
Student reports feeling "low" and/or symptoms are noted by staff or CGM is alarming.	• Check blood glucose (BG) with glucometer or use CGM (if non-adjunctive). If <80, check fingerstick. If CGM reads "LO" then check fingerstick • If no meter/sensor is available assume BG is low and treat per symptoms
Mild Symptoms with or without BG below target range or Meter reads "LO": Symptoms may include but are not limited to: Dizziness, irritability, moodiness, anxiety, hunger, shakiness, sweating (usually cold sweat), rapid heart beat	• If <5 y.o. treat with ~5-7g fast-acting carbohydrates* • If >5 y.o. treat with ~10-15g fast-acting carbohydrate* • *Do not give insulin for carbs given to treat hypoglycemia* • Recheck BG in 10-15 min (15-20min for CGM). Once glucose level is above 70mg/dl, and child is asymptomatic, child can return to class • If still below *Target Range*, repeat steps until within target range • Once in *Target Range*, consult IHP regarding follow-up snack instructions per parent
	above
	evere s" below
	tructions,
seizures, unable or unwilling to eat or drink or take glucose gel	○ Trained personnel should be available for administration of glucagon • Contact/Notify parent

Note: In all cases, notify parents after student has been treated per DMMP/IHP.
*Fast-acting carbohydrates may include but are not limited to: juice, glucose tablets, Skittles, honey, regular soda, etc.
**Complex Carb Snack can include crackers and cheese, meat and crackers, apple and cheese, etc.
***_Snack/Meal Protocol:_ **Do not give insulin (do not enter in pump) for carbohydrates given to treat low blood glucose. Refer to IHP for insulin dosing for follow-up snacks.**

Note: At mealtime, after blood glucose is within target range, send the student to lunch and give insulin after eating (If on a Hybrid Closed Loop System the meal bolus may need to be given before meal –see DMMP), based on the grams of carbs only unless otherwise indicated on orders/DMMP. **For Pumps: Immediately after eating** enter grams of carbs eaten into pump and use the pump calculator to determine amount of insulin to be given unless otherwise indicated on orders/DMMP, The BG should not be entered into the pump when determining insulin dose after a low event.

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Hyperglycemia, Symptoms, Ketones …

Table 4: Exercise and School Attendance (for children on insulin injections and/or pump):

"Definition of *Symptomatic* as used below: Flu-like symptoms, nausea and/or vomiting, abdominal pain, severe drowsiness, rapid, shallow or deep breathing, confusion.

IF Child's Symptoms & BG level are…	and Ketone Level is … then	Exercise	Stay in School
≥300mg/dl first time, no symptoms	Not required *unless on pump*	Yes	Yes
≥300mg/dl - 2 consecutive times (for 2 hours or more in duration), no symptoms	Negative to small	Yes	Yes
≥300mg/dl *with symptoms**	Negative or any ketones	No	No
≥300mg/dl, with or without symptoms and *urine ketones are moderate-large or blood ketones ≥1.0*	Urine: Moderate-Large or Blood ketones ≥1.0	No	No
≥300, 2 consecutive times (for 2 hours or more in duration), *no symptoms*	*Unable to check ketones*	No	Yes
≥300, with symptoms*	*Unable to check ketones*	No	No

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"Definition of *Symptomatic* as used below: Flu-like symptoms, nausea and/or vomiting, abdominal pain, severe drowsiness, rapid, shallow or deep breathing, confusion.

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≥300mg/dl *with symptoms**	Negative or any ketones	No	No
≥300mg/dl, with or without symptoms and *urine ketones are moderate-large or blood ketones ≥1.0*	Urine: Moderate-Large or Blood ketones ≥1.0	No	No
≥300, 2 consecutive times (for 2 hours or more in duration), *no symptoms*	*Unable to check ketones*	No	Yes
≥300, with symptoms*	*Unable to check ketones*	No	No

- See tables 3 & 4 in Standards for more details on hyperglycemia
- Notice KETONES is KEY for many actions.
- Why no exercise if BG ≥ 300 X 2?

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From *Standards of Care for Diabetes Management in the School Setting – Colorado, 2023*

DMMP: Insulin Dosing (pens or syringes)

BDC INSULIN INJECTION DOSING:

Long Acting Insulin	AM	Lunch	PM	Dinner	Bedtime	Other
Lantus	16	--	--	--	--	
Meal Insulin/Carb Ratio	AM	Lunch	PM	Dinner	Bedtime	Other
Use ½ Units for each	10	12	12	10	12	g of carbs
High BG Correction Ins	AM	Lunch	PM	Dinner	Bedtime	Other
Use ½ Units for each	75	75	--	75	75	mg/dl
For BG starting at	150	150	--	150	150	mg/dl

*Insulin dose is always in units. Half unit dosing may be used if student has insulin pen with half unit dosing. *Humalog, Novolog, Apidra*, and *Fiasp* are rapid acting insulins and may be interchanged. Corrections are generally done at mealtime and should not occur more than every 3 hours unless otherwise indicated.

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Insulin Dosing: Let's Try it!

Meal Insulin/Carb Ratio	AM	Lunch	PM	Din
Use ½ Units for each	10	12	12	1
High BG Correction Ins	AM	Lunch	PM	Din
Use ½ Units for each	75	75	--	
For BG starting at	150	150	--	

1. How many total carbs? **~ 52 grams**
2. How much insulin for those carbs? **2 units**
3. How much for glucose correction? **0.5 unit**
4. What is the total insulin dose? **2.5 units**

SCENARIO:

- 2nd grade student on MDI. Brings her own lunch (with carb counts):

  Turkey sandwich: 30 grams
  Apple: 15 grams
  Teddy Grahams: 21 grams
  TOTAL: 66 grams

- She eats all of her lunch except for the apple (ate one bite, threw the rest away)
- Glucose before the meal: **169 mg/dL**

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DMMP: Insulin Dosing (pumps)

Insulin Pump:

BDC INSULIN PUMP:
Pump Type: Tandem Control IQ
Type of Insulin: Novolog
Active Insulin Curve: 4

1 Start Time	Units per Hour
00	0.35
06	0.40
11	0.425
16	0.425
20	0.60
Total	: 10.325

2 Start Time Units per Hour

3 Start Time Units per Hour

Carbohydrate Bolus Time	Ratio
00	14
06	14
11	14
16	12
20	14

Correction Bolus Time	Sensitivity
00	70
06	55
11	55
16	55
20	60

Targets Time	Targets
00	120
06	120
11	120
16	120
20	120

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DMMP: Insulin Dosing (if pump malfunctions)

Pump Malfunctions: If the pump is malfunctioning, disconnect it and notify the parent/guardian. If the bolus calculator is still operational, calculate insulin dose by using the pump bolus calculator, then give insulin dose via injection, rounding to the nearest unit or half unit. If calculator is not operational, calculate and give insulin according this child's doses provided here, using this calculation:

$$\frac{\text{Current BG} - 150}{\text{correction factor}} + \frac{\text{G of carbohydrate}}{\text{carbohydrate ratio}} = \text{units of insulin}$$

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Insulin Dosing with pump malfunction: Let's try it!

$$\frac{\text{Current BG} - 150}{\text{correction factor}} + \frac{\text{G of carbohydrate}}{\text{carbohydrate ratio}} = \text{units of insulin}$$

Insulin Pump:

BDC INSULIN PUMP:
Pump Type: Tandem Control IQ
Type of Insulin: Novolog
Active Insulin Curve: 4

1 Start Time	Units per Hour
00	0.35
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20	0.60
Total	: 10.325

2 Start Time Units per Hour

3 Start Time Units per Hour

Carbohydrate Bolus Time	Ratio
00	14
06	14
11	14
16	12
20	14

Correction Bolus Time	Sensitivity
00	70
06	55
11	55
16	55
20	60

Targets Time	Targets
00	120
06	120
11	120
16	120
20	120

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Scenario:

- 11:20 AM: Pump not working: states "Error- call technical support" on the screen".
- Bolus calculator is not available on pump. Can't see CGM reading
- BG is 259 mg/dL
- Just ate school lunch (60 G CHO)

Next steps?

What information do we need?

- 259 – 150 = 109
- 109 / 55 = 1.98 (~2 units)
- 60 / 14 = 4.29 (~4 units)
- 2 units + 4 units = 6 units

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DMMP: Parents/Students/Other Settings

Parent Authorization: The parent/guardian is authorized to increase or decrease insulin to carb ratio by +/- 5 grams of carbohydrates per unit of insulin **without new written orders.** For children on sliding scale insulin dosing, the parent/guardian is authorized to increase/decrease sliding scale within +/- 3 units of insulin **without new written orders.**

Student's Self Care: Ability level to be determined by school nurse and parent.

Notes: These orders cover all diabetes care throughout the school day, on field trips, and overnight trips. Additional school or district specific medication forms are unnecessary unless they contain additional information not specified here for this student's diabetes care.

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SIGNATURES: My signature below provides authorization for the above written orders and exchange of health information to assist the school nurse in developing an Individualized Health Plan. I understand that all procedures will be implemented in accordance with state laws and regulations and may be performed by unlicensed designated school personnel under the training and supervision provided by the school nurse. This order is for a maximum of one year.

Physician: *Emily Wardell*

Emily Rest Wardell, FNP-BC Date: 9/22/2022

Children's Diabetes Center phone: 719-305-9915
Children's Diabetes Center phone (after 5pm, weekends, holidays): 719-305-9511

Parent:_____Date:_____

School Nurse:_____Date:_____

See the State Guidelines *Standards of Care for Diabetes Management in the School Setting - Colorado* on www.Coloradokidswithdiabetes.org
Form #201 Barbara Davis Center for Diabetes August 2020

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Individualized Health Plan (IHP)

In order for them to be successful in school, a comprehensive health plan must be collaboratively developed by families, student, school personnel, and licensed health care providers.

The individualized health plan (IHP) addresses medical orders and provisions appropriate to each student's needs during the school day and for other school-related activities.

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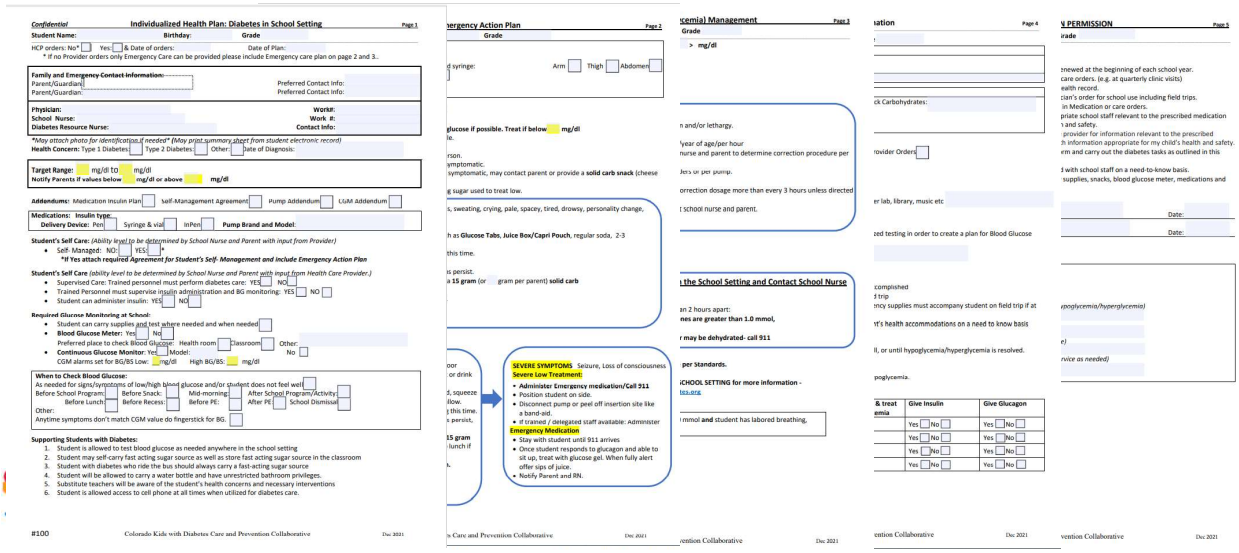
Individualized Health Plan (IHP)

2021-100-IHP-Diabetes-121021.pdf (coloradokidswithdiabetes.org)



Confidential — Individualized Health Plan: Diabetes in School Setting — Page 1

Student Name: Birthday: Grade

HCP orders: No* Yes & Date of orders: Date of Plan:

* If no Provider orders only Emergency Care can be provided please include Emergency care plan on page 2 and 3..

Family and Emergency Contact information:

Parent/Guardian: Preferred Contact Info:

Parent/Guardian: Preferred Contact Info:

Physician: Work#:

School Nurse: Work #:

Diabetes Resource Nurse: Contact Info:

May attach photo for identification if needed (May print summary sheet from student electronic record)

Health Concern: Type 1 Diabetes Type 2 Diabetes Other Date of Diagnosis:

Target Range: mg/dl to mg/dl

Notify Parents if values below mg/dl or above mg/dl

Addendums: Medication Insulin Plan Self-Management Agreement Pump Addendum LGM Addendum

Medications: Insulin type:

Delivery Device: Pen Syringe & vial InPen Pump Brand and Model:

Student's Self Care: (Ability level to be determined by School Nurse and Parent with input from Provider)

- Self-Managed: NO YES
- *If Yes attach required Agreement for Student's Self- Management and include Emergency Action Plan

Student's Self Care (ability level to be determined by School Nurse and Parent with input from Health Care Provider.)

- Supervised Care: Trained personnel must perform diabetes care: YES NO
- Trained Personnel must supervise insulin administration and BG monitoring: YES NO
- Student can administer insulin: YES NO

Required Glucose Monitoring at School:

- Student can carry supplies and test where needed and when needed
- Blood Glucose Meter: Yes No
  Preferred place to check Blood Glucose: Health room Classroom Other:
- Continuous Glucose Monitor: Yes Model: No
  CGM alarms set for BG/BS Low: mg/dl High BG/BS: mg/dl

When to Check Blood Glucose:

As needed for signs/symptoms of low/high blood glucose and/or student does not feel well

Before School Program: Before Snack: Mid-morning: After School Program/Activity:

Before Lunch: Before Recess: Before PE: After PE: School Dismissal

Other:

Anytime symptoms don't match CGM value do fingerstick for BG.

Supporting Students with Diabetes:

1. Student is allowed to test blood glucose as needed anywhere in the school setting
2. Student may self-carry fast acting sugar source as well as store fast acting sugar source in the classroom
3. Student with diabetes who ride the bus should always carry a fast-acting sugar source
4. Student will be allowed to carry a water bottle and have unrestricted bathroom privileges.
5. Substitute teachers will be aware of the student's health concerns and necessary interventions
6. Student is allowed access to cell phone at all times when utilized for diabetes care.

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ergency Action Plan — Page 2

Grade

d syringe: Arm Thigh Abdomen

glucose if possible. Treat if below mg/dl

le.

rson.

ymptomatic.

symptomatic, may contact parent or provide a **solid carb snack** (cheese

g sugar used to treat low.

s, sweating, crying, pale, spacey, tired, drowsy, personality change,

h as **Glucose Tabs, Juice Box/Capri Pouch**, regular soda, 2-3

this time.

is persist.

a **15 gram** (or gram per parent) **solid carb**

or

or drink

, squeeze

low.

this time.

s persist,

15 gram

lunch if

SEVERE SYMPTOMS Seizure, Loss of consciousness

Severe Low Treatment

- **Administer Emergency medication/Call 911**
- Position student on side.
- Disconnect pump or peel off insertion site like a band-aid.
- If trained / delegated staff available: Administer

Emergency Medication

- Stay with student until 911 arrives
- Once student responds to glucagon and able to sit up, treat with glucose gel. When fully alert offer sips of juice.
- Notify Parent and RN.

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cemia) Management — Page 3

Grade

> mg/dl

n and/or lethargy.

year of age/per hour

nurse and parent to determine correction procedure per

ers or per pump.

orrection dosage more than every 3 hours unless directed

school nurse and parent.

the School Setting and Contact School Nurse

an 2 hours apart:

nes are greater than 1.0 mmol,

r may be dehydrated- call 911

per Standards.

CHOOL SETTING for more information -

tes.org

mmol **and** student has labored breathing,

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ation — Page 4

ck Carbohydrates:

rovider Orders

er lab, library, music etc

ed testing in order to create a plan for Blood Glucose

comprised

f trip

ncy supplies must accompany student on field trip if at

nt's health accommodations on a need to know basis

ll, or until hypoglycemia/hyperglycemia is resolved.

poglycemia.

& treat emia	Give Insulin	Give Glucagon
	Yes No	Yes No
	Yes No	Yes No
	Yes No	Yes No
	Yes No	Yes No

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V PERMISSION — Page 5

rade

newed at the beginning of each school year.

care orders. (e.g. at quarterly clinic visits)

ealth record.

cian's order for school use including field trips.

in Medication or care orders.

priate school staff relevant to the prescribed medication

n and safety.

provider for information relevant to the prescribed

h information appropriate for my child's health and safety.

rm and carry out the diabetes tasks as outlined in this

l with school staff on a need-to-know basis.

supplies, snacks, blood glucose meter, medications and

Date:

Date:

ypoglycemia/hyperglycemia)

e)

rvice as needed)

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Individualized Health Plan (IHP)

Should contain the following components:

- Times/locations for glucose monitoring
- Treatment for high/low glucose
- List of trained personnel
- Routine and emergency medications (and delivery methods)
- Nutritional needs/carbohydrate count
- Supplies and equipment (and location of these)
- Also …

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Individualized Health Plan (IHP)

Should contain the following components, cont'd:

- Full participation in all school activities
- Accommodations for classroom and school related activities
- Ability-appropriate self-care, including student agreement.
- Educational accommodations
- Disaster planning (recommended)
- Transportation needs
- Methods of communication between school and family

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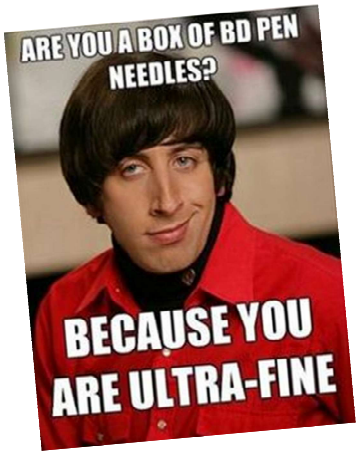

Questions?

Thank you!

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