

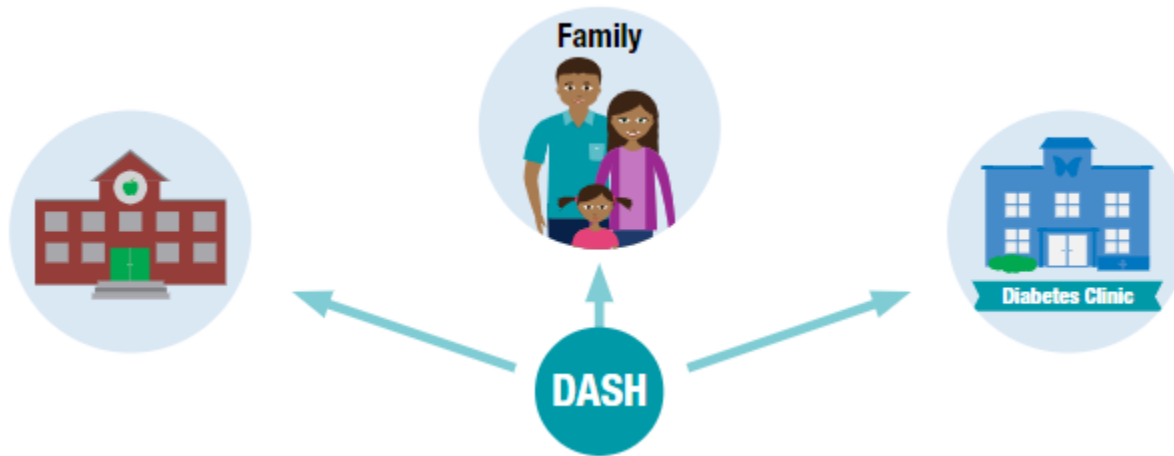
# Diabetes and School Health Program (DASH) Diabetes Updates



Becca Cline, RN, BSN  
Amy Moffett, MSN, RN, CPNP

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# What is DASH?



# DASH Program Structure

 **Care Connection  
Community Wellness**

**School Health**

**DASH**

 **NCH Endocrinology**

**Co-Medical Directors**

Dr. Kajal Gandhi & Dr. Aurelia Wood

**DASH Clinical Staff**

Becca Cline DNE, Amy Moffett APN, Katy Simms DNE

**DASH Pharmaceutical Staff**

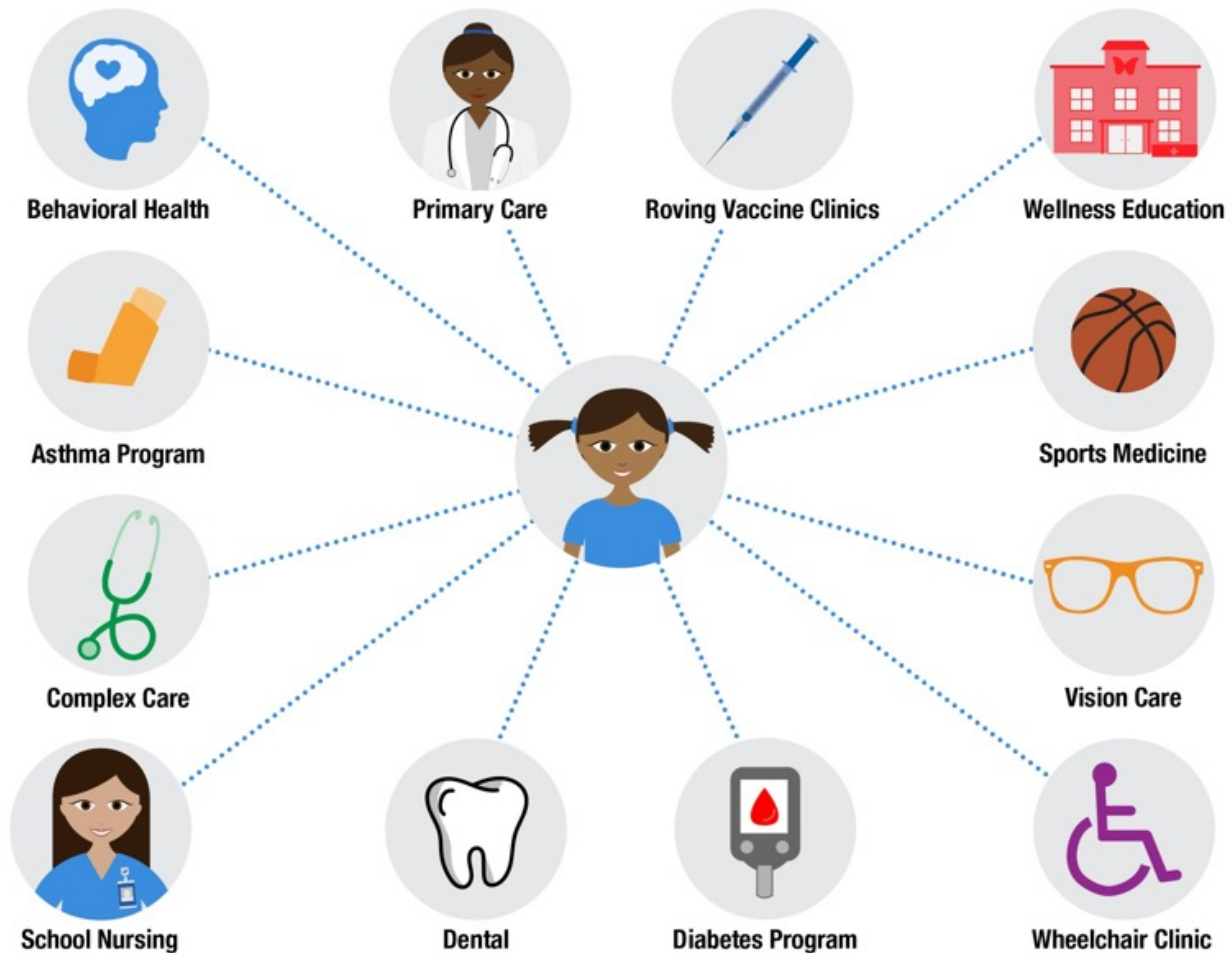
Adrean Jones, CPhT

**Administrative and Support Staff**

Priya Gandhi APN  
Matt Moore  
School Health Team



# Whole Child Model



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# Diabetes and School Health (DASH) Program

- **DASH is a community-based health equity initiative**

Aims: Decrease acute care utilization and promote optimal glycemic control in school-aged children who are vulnerable to complications of type 1 diabetes



## Increasing self-efficacy and independence in T1D care

Monthly and prn 1:1 in-person appointments at school with the DASH team



## Improving comfort, knowledge and consistency in T1D care at school

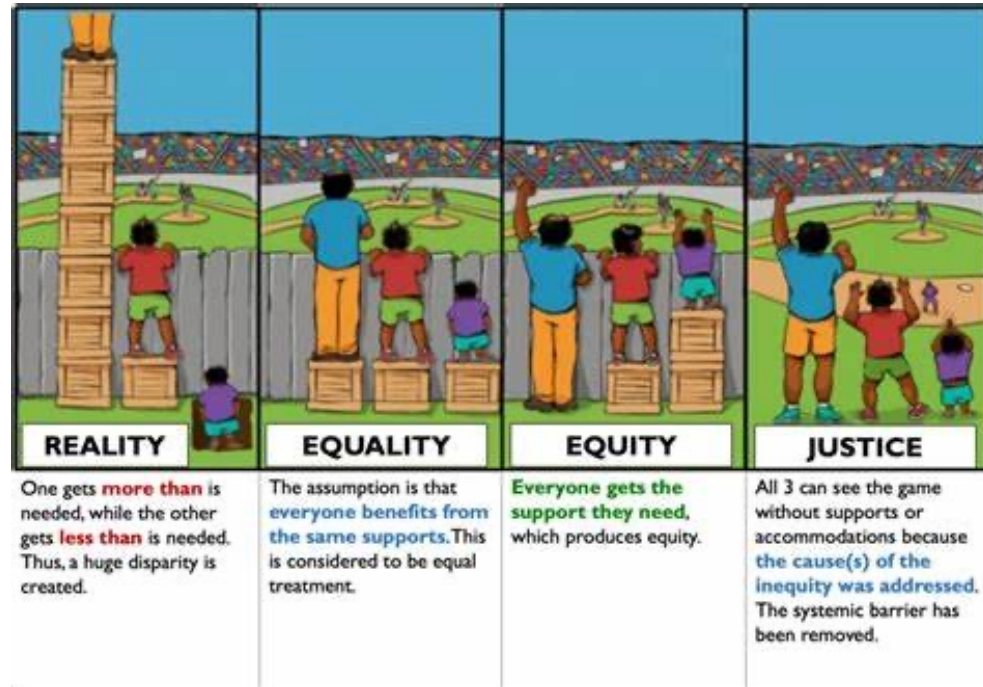
Direct education to school staff: formal group sessions, informal real-time assistance



## Facilitate communication between families, the medical team, school staff

Deliver Rx and supplies, regular contact with families, updates to diabetes provider; routine meetings with family, DASH staff and school staff

# Addressing Challenges & Barriers



Complex Patients Require Complex Solutions







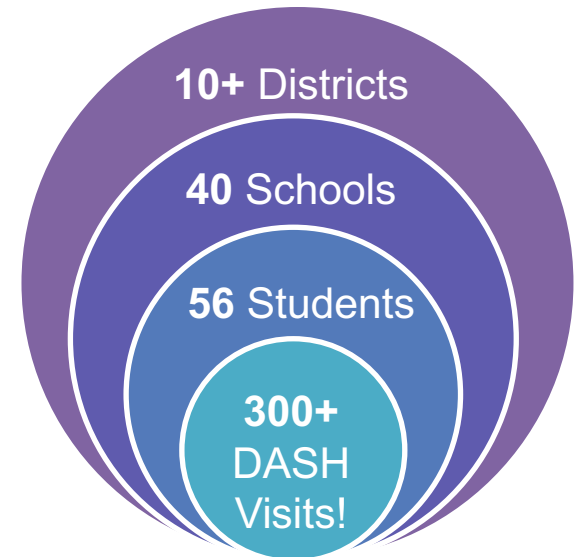
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# DASH Pilot Program: 2021 -2022

## Eligibility for Pilot: 2021 – 2022 Academic Year

- Receive T1D care at NCH
- Lives < 45 miles of main campus
- Diabetes Composite score < 10
- **50-75 students**

9 Month Data (6/2022)	
Total Students	56
Age Range	5-18
Ethnic minority	69%
Primary language other than English	16%
Gender Diverse	5%
Composite Score	9  <b>12</b>
Never used CGM	39%  <b>7%</b>
Have used CGM in the past	27%  <b>36%</b>
Regularly using CGM	15%  <b>57%</b>



<sup>1</sup>Novel risk assessment tool developed at NCH. Includes A1C, CGM use, appointment attendance, acute care use; LDL, BP, urine microalbumin, severe hypoglycemia, overt complications

<sup>2</sup>n = 2,0248 school aged children in the T1D Registry, 350 have composite score < 10

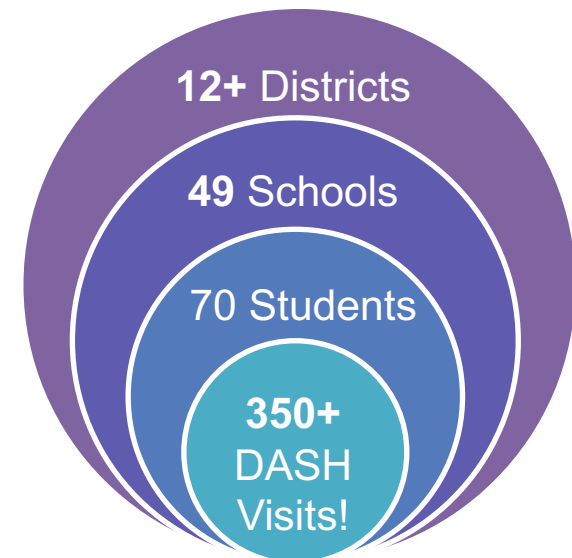


# DASH 2022-2023 Updates

## Eligibility for 2022-2023 Academic Year

- Receive T1D care at NCH
- Lives < 45 miles of main campus
- Diabetes Composite score < 12
- **75-85 students**

Current Data (1/2023)	
Total Students	<b>74</b>
Age Range	6-18
Ethnic Minority	63%
Primary Language other than English	14%
Gender Diverse	4%
Composite Score	<b>12</b>
Never used CGM in the past	4%
Have used CGM in the past	24%
Regularly using CGM	<b>72%</b>



<sup>1</sup>Novel risk assessment tool developed at NCH. Includes A1C, CGM use, appointment attendance, acute care use; LDL, BP, urine microalbumin, severe hypoglycemia, overt complications

<sup>2</sup>n = 2,0248 school aged children in the T1D Registry, 350 have composite score < 10



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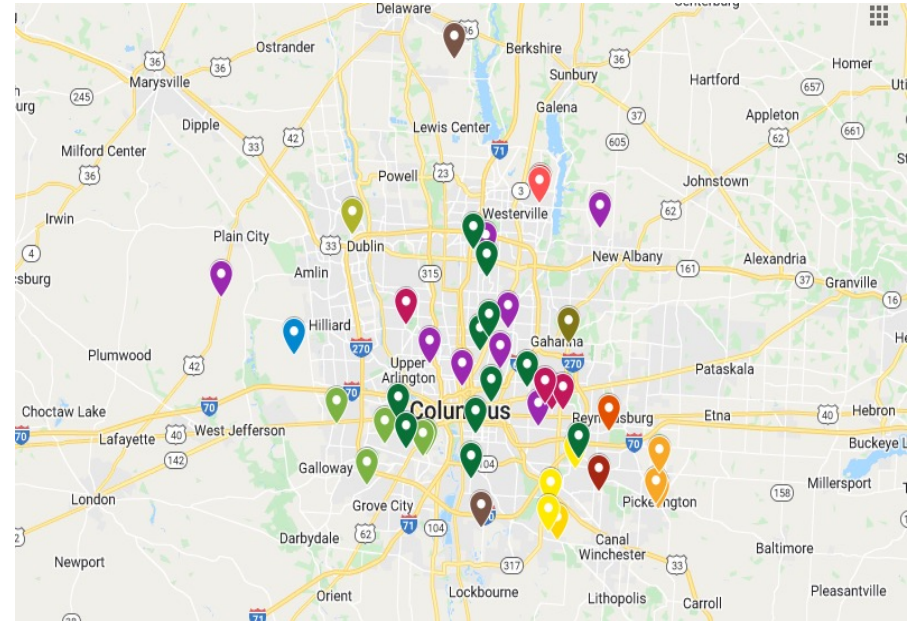
# Eligibility for DASH

Receives T1DM  
Care at NCH

Lives <45 miles  
from NCH main  
campus

Diabetes  
Composite Score  
<13

Identifiable issues  
with diabetes  
management or  
prescriptions



If you have a patient to refer, please  
email: [DASH@nationwidechildrens.org](mailto:DASH@nationwidechildrens.org)



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# Patient Point of View: Personal Barriers and Obstacles to Diabetes Care



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# Patients Personal Barriers to T1D Care

Other Medical Concerns

# Patients Personal Barriers to T1D Care

Unstable Living Arrangements

# What do you want to know more about?



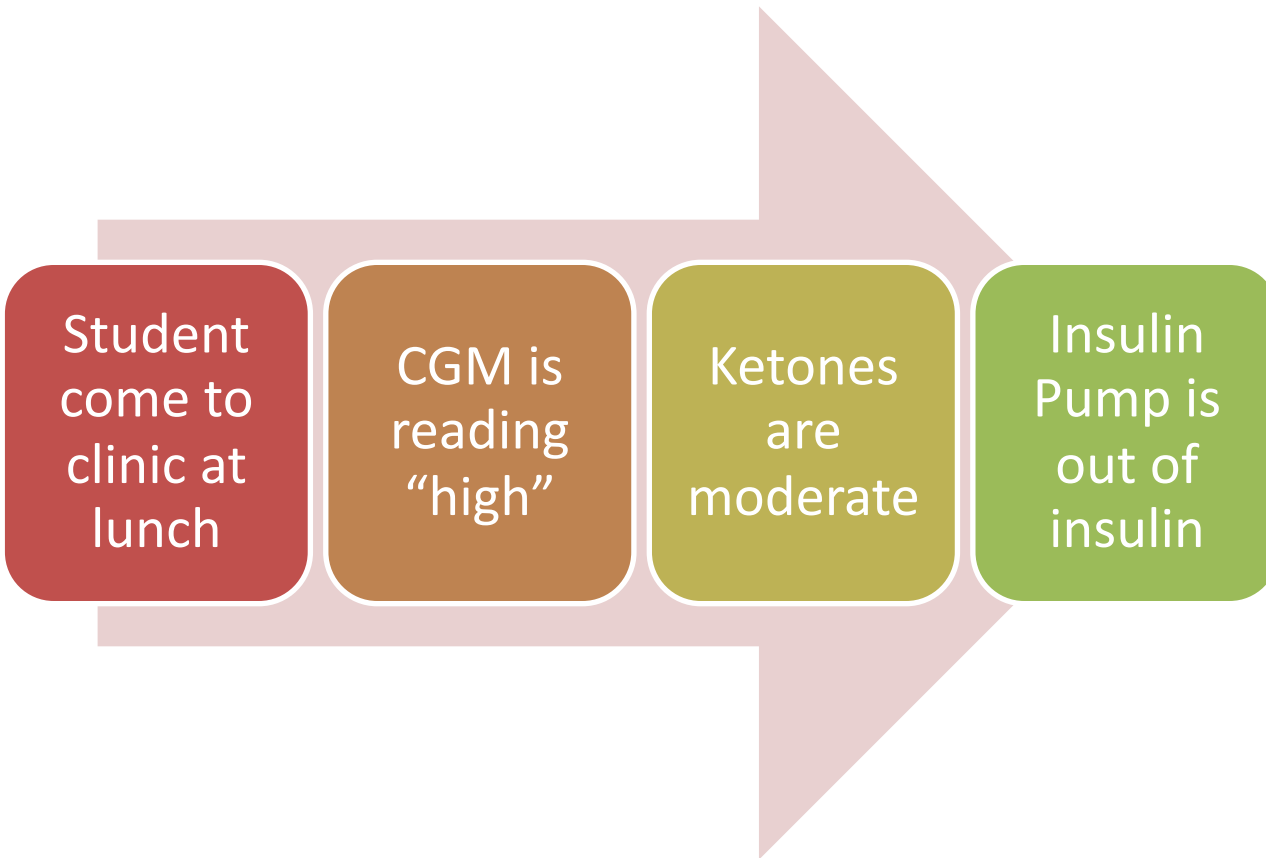
## Diabetes Jeopardy

High and Low Blood Glucose Scenarios	Insulin Pumps	Continuous Glucose Monitors (CGM's)	Matching	Miscellaneous
<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>
<u>\$400</u>	<u>\$400</u>	<u>\$400</u>	<u>\$400</u>	<u>\$400</u>
<u>\$600</u>	<u>\$600</u>	<u>\$600</u>	<u>\$600</u>	<u>\$600</u>



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**ANSWER**

**Student comes to clinic at lunch**

- Give carb coverage via insulin injection

**CGM reading "High"**

- Check blood glucose with blood glucose meter
- Give high blood glucose correction via insulin injection

**Ketones are moderate**

- Give ketone correction via insulin injection
- Have student check ketones in three hours

**Insulin pump is out of insulin**

- Give basal insulin dose if no extra pump supplies at school and if it is available
- Notify parent/guardian





# There's an App for that?

ANSWER





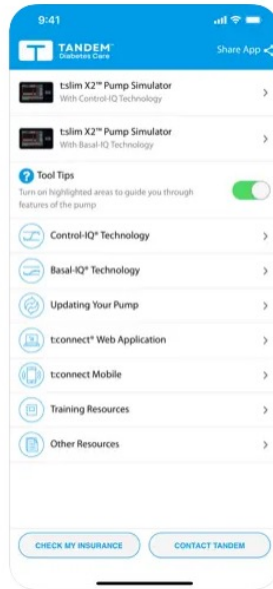
t:simulator™ App 12+

Tandem Diabetes Care Inc.

★★★★★ 3.5 • 95 Ratings

Free

Screenshots [iPhone](#) [iPad](#)



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# Newest Continuous Glucose Monitors



**ANSWER**

## Dexcom G7

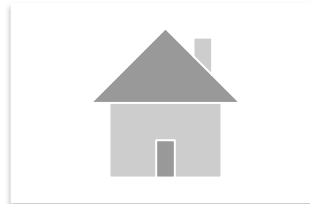


- 30 minute warm up
- Fully disposable, no separate transmitter
- 10 day wear
- Thinnest sensor (60% smaller than G6)
- 12 hour grace period to replace sensors – seamless transition
- FDA approved for wear on the arm

## FreeStyle Libre 3



- 60 minute warm up
- 14 day wear
- World's smallest and thinnest sensor
- FDA approved for 4 years and up
- 60 minute warm up period
- No separate receiver
- Must have compatible phone app



**Name the 3 types of Glucagon**

**ANSWER**



**1 Pull red**

Hold Device

cap off



**2 Push yellow**

complete

end down on skin and hold 5 seconds.  
Window will turn red.

Administer into upper arm, stomach,  
or thigh.



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**Term used to describe a condition  
where a person diagnosed with  
diabetes restricts their insulin dose  
to control their weight**

**ANSWER**

Table 2. Signs and symptoms of dialbulimia (NEDA, 2018)

Emotional and behavioural	Physical
<ul style="list-style-type: none"> <li>• Increasing neglect of diabetes management</li> <li>• Secrecy about diabetes management</li> <li>• Avoiding diabetes-related appointments</li> <li>• Fear of low blood sugars</li> <li>• Fear that 'insulin makes me fat'</li> <li>• Extreme increase or decrease in diet</li> <li>• Extreme anxiety about body image</li> <li>• Restricting certain foods or food groups to lower insulin dosages</li> <li>• Avoids eating with family or in public</li> <li>• Discomfort testing/injecting in front of others</li> <li>• Overly-strict food rules</li> <li>• Preoccupation with food, weight and/or calories</li> <li>• Excessive and/or rigid exercise</li> <li>• Increase in sleep pattern</li> <li>• Withdrawal from friends and/or family activities</li> <li>• Depression and/or anxiety</li> <li>• Infrequently filled prescriptions</li> </ul>	<ul style="list-style-type: none"> <li>• HbA<sub>1c</sub> ≥9.0% on a continuous basis</li> <li>• HbA<sub>1c</sub> inconsistent with meter readings</li> <li>• Unexplained weight loss</li> <li>• Constant bouts of nausea and/or vomiting</li> <li>• Persistent thirst and frequent urination</li> <li>• Multiple diabetic ketoacidosis or near diabetic ketoacidosis episodes</li> <li>• Low sodium and/or potassium</li> <li>• Frequent bladder and/or yeast infections</li> <li>• Irregular or lack of menstruation</li> <li>• Deteriorating or blurry vision</li> <li>• Fatigue or lethargy</li> <li>• Dry hair and skin</li> </ul>

Re

Wh



(Coleman et al 2020)  
 (Corbett 2020)  
 (Chelvanayagam et al 2018)



Student comes to clinic at lunch

You calculate 6 units for lunch carbohydrates and high blood glucose

Student then tells you they administered 9 units in the bathroom

**ANSWER**



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## Future Considerations

- Confirm dose on insulin pen/pump prior to injection
- Supervise injection in the clinic



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# Feature that you can use on the insulin pump for recess or sports

**Okay okay.. So...  
If my blood sugar is high..  
and I eat 60 carbs..  
And I'm going to go for a run..  
And I feel a cold coming on..**



**How much  
insulin  
do I take  
right now?**

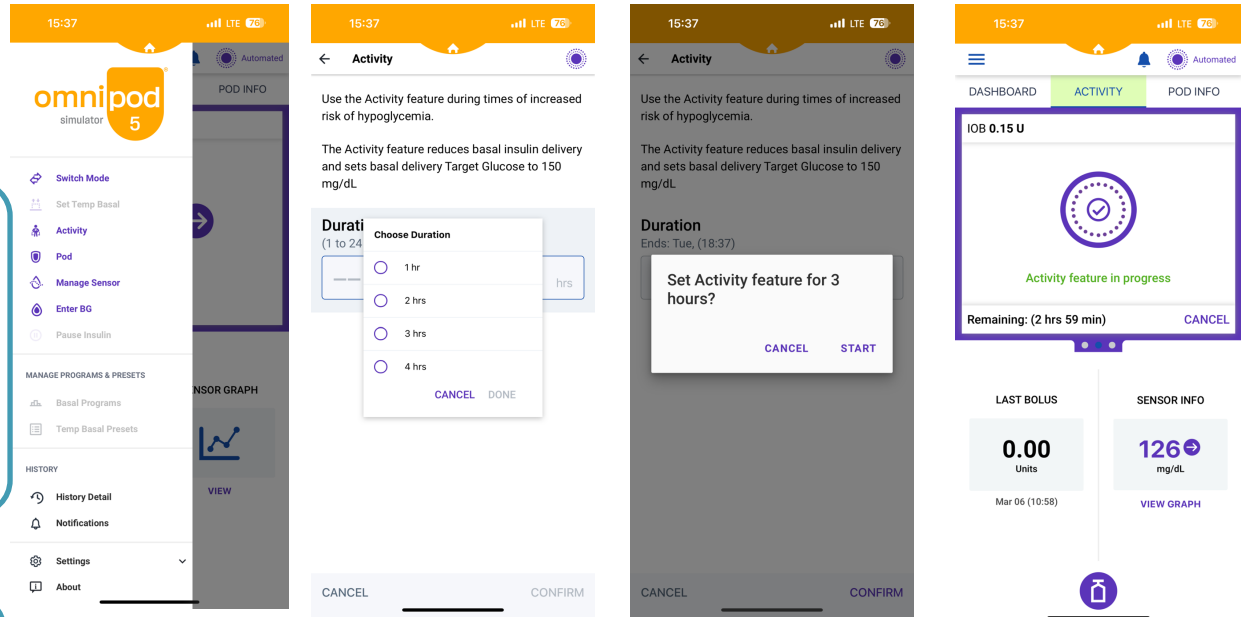
**ANSWER**

# Omnipod 5

- Activity Mode

# Tandem t:slim X2

- Exercise Mode



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“CGM reading 30 points off”

“CGM is asking for calibration”

“CGM is still reading low after treating blood glucose 30 minutes ago”

“What number do I trust?”

**ANSWER**

88

91



table below:

middle column.

for a G6 reading that's a close match.

for a G6 reading that's a close match.

that if your meter value is 100 mg/dL, your G6 reading is a close

G6	Meter Value	G6	G6	Meter Value	G6	G6	Meter Value	G6
-	m						L	+
low								348
low								360
40								372
50								384
64								396
72								high
80								high
88								high
96	120	144	200	250	300			
104	130	156	208	260	310			
112	140	168	216	270	320			
120	150	180	224	280	330			
128	160	192						

CAFE

PHARMACY

116

160

PHARMACY

129

93



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## What Pump Am I?

- Tubeless
- Hybrid Closed Loop Technology
- Works with Dexcom G6
- Activity Mode
- Holds up to 200 units



## What Pump Am I?

- Tubing
- Hybrid Closed Loop Technology
- Works with Dexcom G6
- Exercise Mode
- Sleep Mode
- Holds up to 300 units



## What Pump Am I?

- Tubing
- Hybrid Closed Loop Technology
- Works with Guardian Sensor
- Holds up to 300 units

**ANSWER**



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Omnipod 5



Tandem t:slim X2



Medtronic 770G/780G





# Scenario

High School student has been checking blood glucose independently and doing own calculations at lunch

You review logs and notice blood glucose numbers are consistently in the 100-120 range

You look through meter and the history shows only 5 readings for the past month, all above 300

The insulin doses that are recorded are all “10 units”

**ANSWER**

# Resolution

Discuss a plan to give the student enough time to complete diabetes management tasks before lunch

Have student show you their continuous glucose monitor reading on device or blood glucose meter

Ask student to show you how they complete their insulin dose calculations

Complete calculations together or have student show you their math prior to insulin dose being administered



Patient presents with the following:

Large Ketones

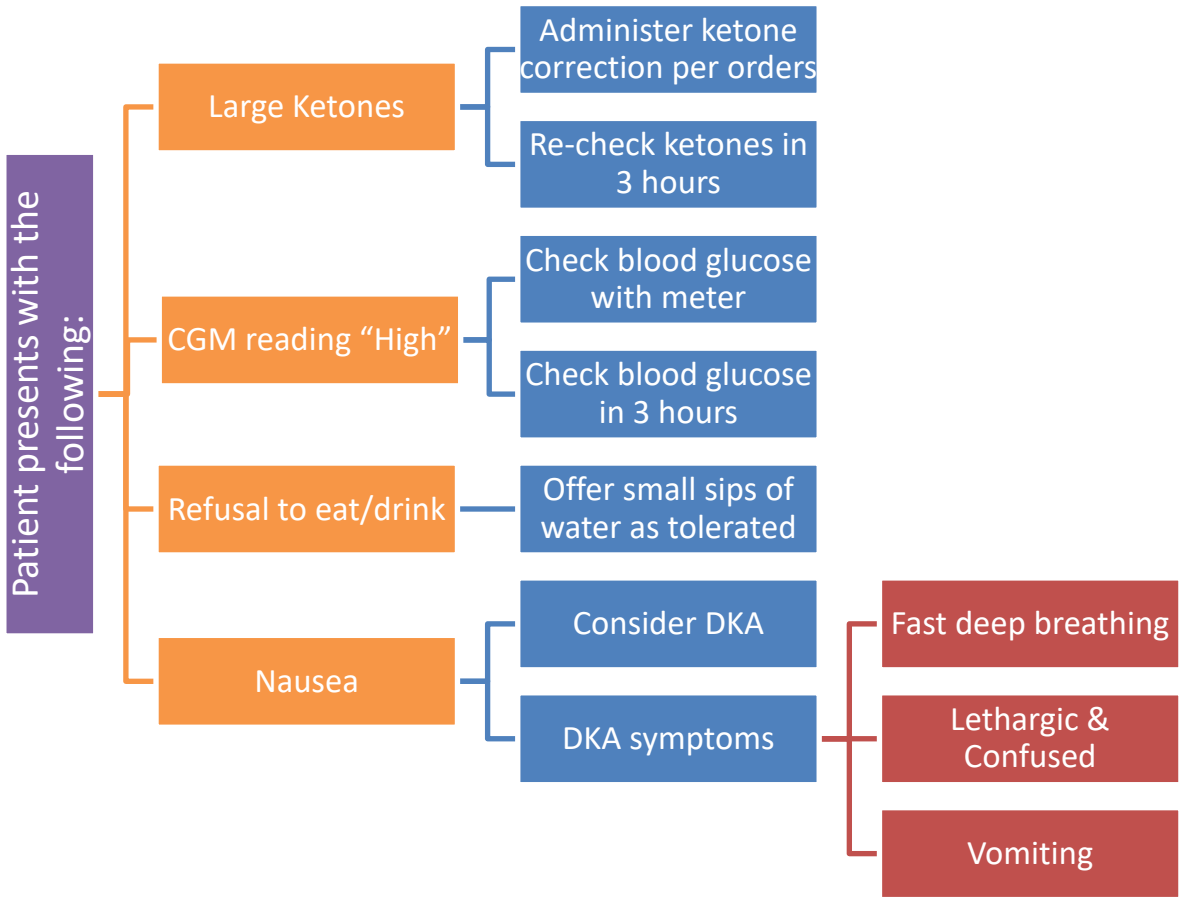
Nausea

Refusal to eat/drink

CGM reading "High"

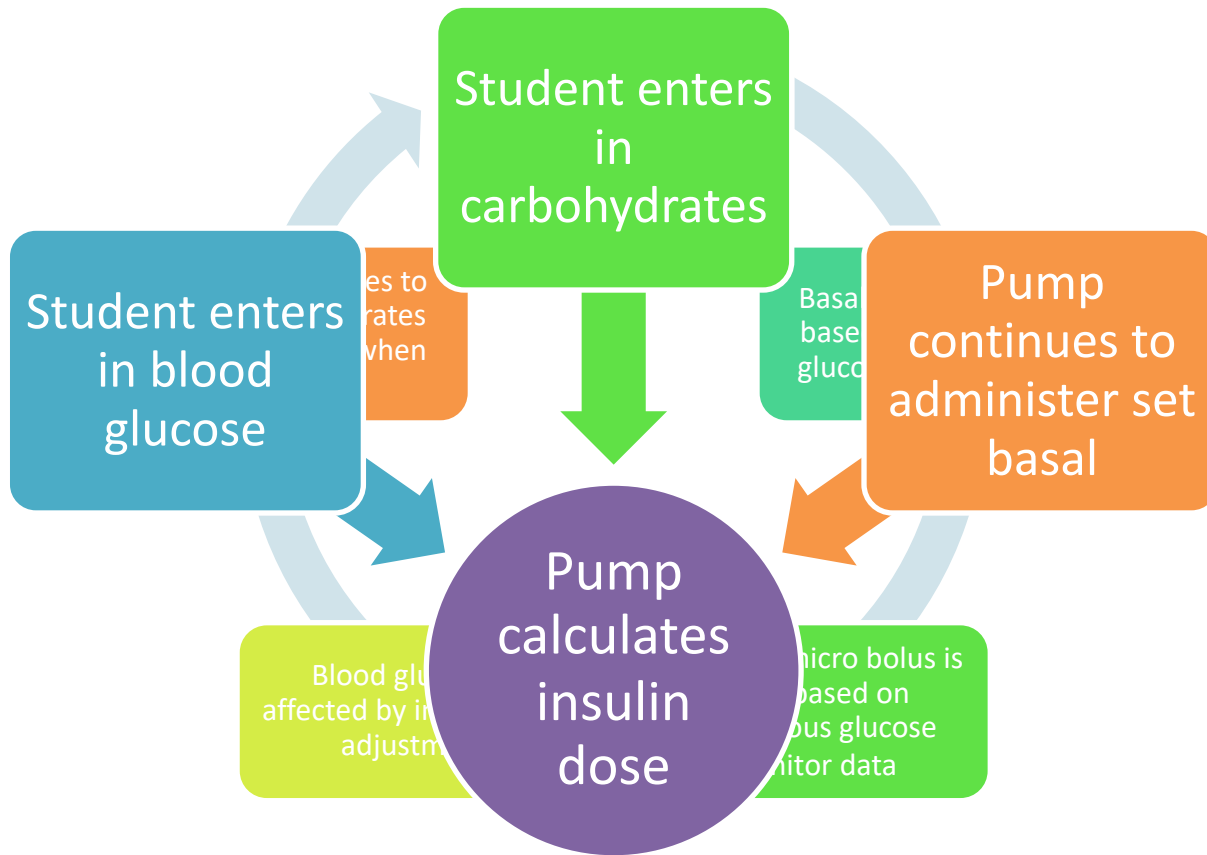
**ANSWER**





# Closed Loop Vs. Open Loop Insulin Pumps

**ANSWER**



# Hybrid Closed Loop Insulin Pump



# Share & Follow Continuous Glucose Monitor Apps



**ANSWER**

The student will need your:

Name

Email

You can receive:

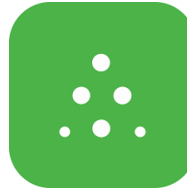
Alerts & Notifications

Trend Graph



## FreeStyle Libre

- Libre LinkUp



## Dexcom

- Dexcom Follow



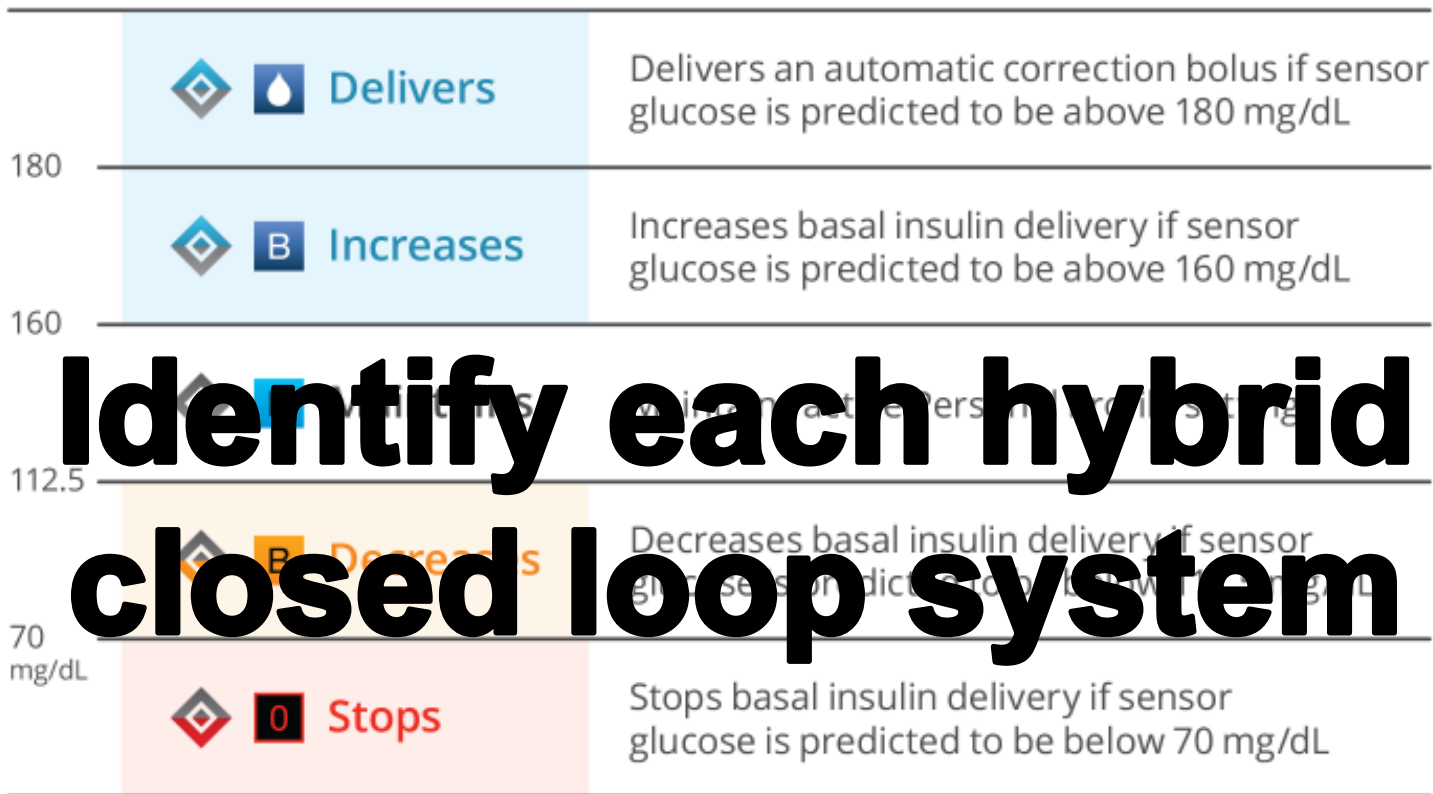
Medtronic

## Medtronic Guardian

- Guardian Connect







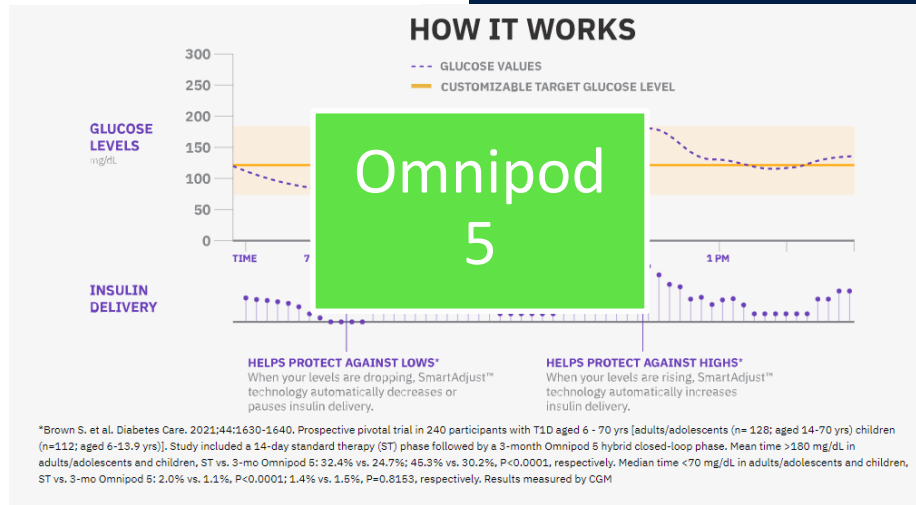
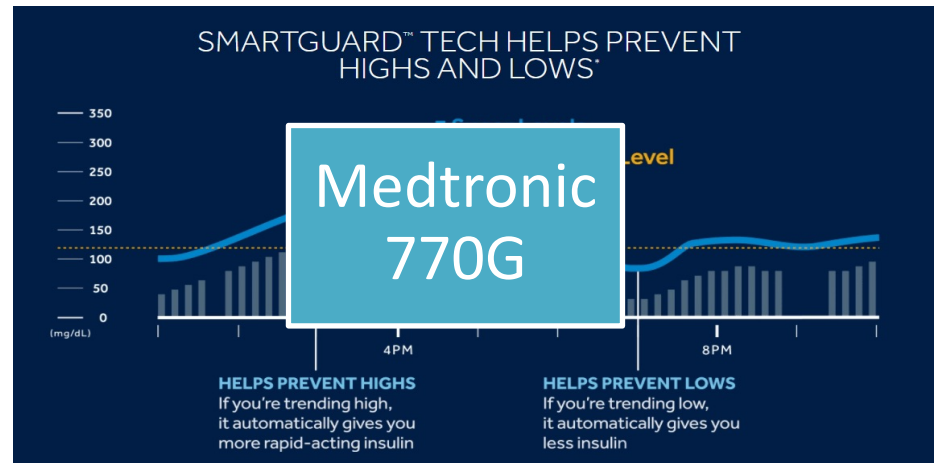
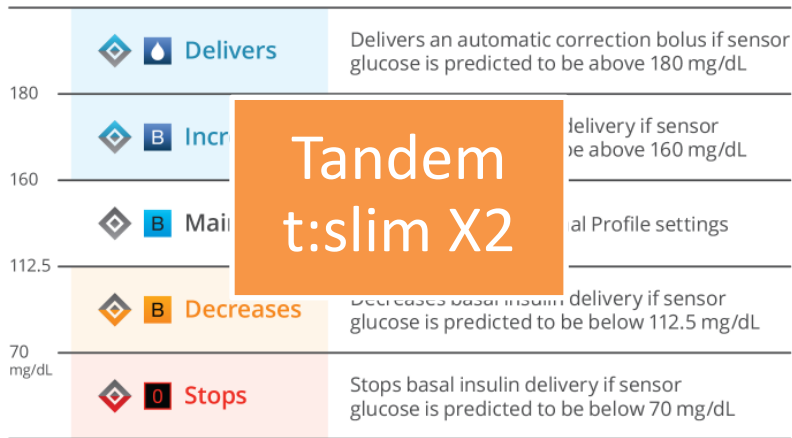
# Identify each hybrid closed loop system

Medtronic  
770G

Omnipod  
5

Tandem  
t:slim X2

**ANSWER**



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<p><b>Low Glucose Alarm</b></p> <p>Dismiss Alarm &amp; Check Glucose</p>	<p><b>High Glucose Alarm</b></p> <p>Dismiss Alarm &amp; Check Glucose</p>	<p><b>Signal Loss Alarm</b></p> <p>Scan Sensor now?</p> <p>No Yes</p>
--	---	---

**Urgent Low Glucose Alarm**



OK

M

ceful



55 mg/dL within 20 minutes

**Urgent Low Soon**  
Act now to prevent low.

OK



**ANSWER**



Diabetes technology users who experience frequent alarms often become overwhelmed and fatigued with the constant notifications

A student who is exposed to constant alarms may start to ignore the alarms

They may stop utilizing the diabetes technology completely



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- Shivers JP, Mackowiak L, Anhalt H, Zisser H. "Turn it off!": diabetes device alarm fatigue considerations for the present and the future. *J Diabetes Sci Technol*. 2013 May 1;7(3):789-94. doi: 10.1177/193229681300700324. PMID: 23759412; PMCID: PMC3869147.

Illustrations and Device Data Obtained from the Following Online Sources:

- [www.tandemdiabetes.com](http://www.tandemdiabetes.com)
- [www.omnipod.com](http://www.omnipod.com)
- [www.medtronic.com](http://www.medtronic.com)
- [www.dexcom.com](http://www.dexcom.com)
- [www.freestyle.abbott](http://www.freestyle.abbott)

# Thank you for your time and attention!

Questions & Feedback  
Welcome!



## THANK YOU!

**Mary Kay Irwin:** Director, School Health

**Becca Cline, Amy Moffett, Katy Simms:** DASH Medical Team

**Kajal Gandhi and Aurelia Wood:** Co-Medical Directors

**Matt Moore, Priya Gandhi, Natasha Geno:** Community Wellness

**Elvia Suli:** Intern, Planning & Business Development

**Alex Swick and Adrean Jones:** Pharmacy

**Marketing, Design, Legal, Risk Management**

**Alyssa Kramer & Cody Caudill:** Decision Support Senior Analyst



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