

## **Planning for the Future: Medical Technology and Managing Diabetes at Summer Camps**

Over the past few years, diabetes technology has evolved at a rapid pace and the use of insulin pumps and continuous glucose monitoring systems has grown tremendously. Nearly 75 percent of campers were on an insulin pump at American Diabetes Association camps in 2017 and 2018, and that number continues to grow. Camps for children with diabetes are designed to foster independence and self-confidence, and have the child return home more capable of managing diabetes. Therefore, it is critical that **children manage diabetes at camp with the same tools and technology that they use at school and at home.**

Camp medical staff have had to evolve with the advances in technology with little direction. To stay ahead of the curve, the American Diabetes Association hosted conferences in December 2017 and October 2018 to examine and address this issue with the support of The Leona M. and Harry B. Helmsley Charitable Trust. At the 2017 conference, forty-one stakeholders, including leaders from the ADA's camp network, the Diabetes Education and Camping Association (DECA), industry representatives, ADA's Youth and Family Initiatives and Legal Advocacy staff, the Association's National Board of Directors, and The Helmsley Charitable Trust convened in Arlington, VA to plan for the future. The 2018 conference was similarly attended.

The goal was to share best practices and information to create a living document entitled, *Best Practices for the use of Diabetes Technology at Summer Camps*. The group purposely chose the term "living document" rather than "guideline" as technology is moving so quickly that this document will need to be updated as products change and become FDA approved. Each of the current insulin pumps and continuous glucose monitoring systems on the market are outlined below, reviewing basic facts and including common actions for a camp setting staffed with licensed medical professionals.

Do-It-Yourself (DIY) devices have become more common in the diabetes community and each device is unique. The use of DIY devices at a camp should be managed on a case-by-case basis with the camp medical director and American Diabetes Association staff, and in collaboration with each camper and family.

The information presented here is intended to guide the incorporation and use of medical technology at summer camps for children with diabetes. In some areas, recommendations are given specific to the diabetes camp experience, and may differ from how diabetes is managed in non-diabetes camp programs. In all camp programs, children with diabetes should have access to the modifications and accommodations needed to ensure their safe and full participation.

These resources are intended for non-commercial use at camp trainings and throughout the program. Requests for permission to reuse this content and any suggested updates should be sent to [campsupport@diabetes.org](mailto:campsupport@diabetes.org). Updated versions will be posted online at [diabetes.org/summercamp](https://diabetes.org/summercamp) when available.

*Best Practices for the use of Diabetes Technology at Summer Camps*

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*Best Practices for the use of Diabetes Technology at Summer Camps*

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## Scope, Practice & Management of Diabetes at Camp

The American Diabetes Association has recommended best-practice staffing ratios of clinicians, nurses, dietitians, and pharmacists to campers that all diabetes camp programs strive to meet. Over the last ten years, many programs have struggled to attract health professionals for a variety of reasons including clinical responsibilities, changes in institutional support, burnout and conflicting requests for their time and expertise.

Compounding this challenge, historically, many routine diabetes management tasks at camp were limited to licensed practitioners only. At the same time, the ADA works within schools and childcare programs to allow trained non-health care professionals to assist children with routine diabetes tasks, including administration of insulin via injection or pump, and the use of glucagon in an emergency. It is critical to ensure alignment with the recommendations at diabetes camps and the legal advocacy efforts for schools, daycare, other summer camp programs, and in recreational settings.

Consistent with best practice and state law, licensed professionals may delegate diabetes management tasks to trained camp support personnel. This is at the discretion of the licensed professional and requires specialized training and competency in the specific management task. Certain tasks, such as blood glucose monitoring, do not require delegation or designation by a camp medical provider but do require training and demonstrated competency.

### Common Actions

When questions arise concerning the scope of diabetes care tasks performed by camp staff, the ADA's recommendations and supporting guidance may be referenced to help establish a set of best practices consistent with guidance from key diabetes stakeholders. The following common actions may arise in the camp setting.

- **Insulin administration by camp staff:** Insulin may be administered by trained staff/volunteers using the child's prescribed insulin delivery method of syringe, pen, or insulin pump.
- **Insulin adjustments:** Insulin dosage should be administered based upon the child's camp medical form. **Temporary adjustments** to the child's insulin dose may only be made by a licensed or certified medical professional acting within their scope of practice and licensed in the state where the camp is delivered. All adjustments must be documented in the camper's medical record.
- **Insulin pump back-up planning at camp:** A back-up plan for insulin pump malfunctions should be included with the child's camp medical form or physician's orders.

- **Glucagon administration by camp staff:** Camp health care professionals and non-medical staff should be trained to recognize, treat, and respond to hypoglycemia including the administration of glucagon.
- **Blood glucose monitoring by camp staff:** Access to blood glucose monitoring by trained camp staff should be available at all times. It is recommended to monitor and quickly respond to blood glucose levels in accordance with each child's individualized plan.
- **Remote monitoring by camp staff/parents and/or caregivers:** Children using certain devices might have the capability to share data with camp staff, parents and/or caregivers remotely. Data sharing policies should be discussed and agreed upon by camp administration, camp medical staff and communicated to parents and caregivers prior to camp.

Additional information and sources of authority are available by clicking [here](#).

## Animas Insulin Pumps: Ping & Vibe

- ✓ The Ping pump does not have sensor data available. There is a glucose meter that will communicate with the pump and allow manual delivery of insulin. The pump can function without the communicating glucose meter
- ✓ The Vibe pump does have sensor data displayed on the screen which is informational only. The pump does not respond to the sensor data.
- ✓ Calibration of the sensor should be done when glucose levels are relatively stable, in the morning before breakfast, before dinner and before bedtime snack.
- ✓ Make sure the pump is not connected to the child/teen during any infusion set change.



### Common Actions

- To **wake up the pump**, press the OK button
- To **set a temporary basal rate**, scroll down to “basal” and when it is highlighted, press ok. Discuss this with your medical care team before initiating.
- To **check the pump history**, on the home screen, scroll to “history,” a press “bolus.” Records are in days so change the number in the right top corner to see the most recent data. You can review the bolus and blood glucose history to check on accuracy of the dosing if in question (or as a double check).
- To **change a reservoir**, press the OK button and go to the home screen. Go to “prime rewind” and follow the directions on the screen.
- To **deliver a bolus**, the bolus button is where the BG and carbohydrates are entered. Go to the home screen then select “bolus,” go to “EZ carb.” Use the up/down buttons to enter the number of carbs. Press OK. Then go to “add BG.” Use the up/down arrows to put in the blood glucose. Go to “show results.” Reenter the recommended total units in the middle of the screen next to the U (for units). You can give insulin for the carbohydrates, the BG or both. Scroll to “go” at the bottom of the screen and press OK. This will deliver the bolus. A bolus can be delivered for BG, carbs, or both.
- To **deliver a manual bolus**, if directed by your medical team, in either the Ping or Vibe – go to bolus, use “normal” and enter the amount to be given. Make sure to complete all steps on the screen to deliver the bolus.
- When using the **Animas Vibe**:
  - Go through the same process as noted above.
  - The Vibe has the sensor data on the screen, but the pump does not deliver insulin based on sensor data.
  - The Vibe will ask you if you want to calibrate the sensor. If BG has been stable over the last 20 minutes, you can choose to calibrate.

### More Information

Ping click [here](#)

Vibe click [here](#)

## Insulet Omnipod Insulin Pump

- ✓ This is a tubeless pump.
- ✓ The insulin is put into the Pod and delivery is directed on the personal diabetes manager (PDM).
- ✓ The PDM does not have to be with the individual for basal delivery but must be available for bolus delivery.
- ✓ The PDM does not receive sensor data.

### Common Actions

- To **turn on the PDM screen**, press the “home” icon, the bottom left button on the PDM.
- To **set a temporary basal rate**, on the home screen use the up/down controller buttons and choose “temp basal” and press “select.” Discuss this with your medical care team before initiating.
- To **check the pump history**, on the home screen use the up/down controller buttons and choose “my records” and press “select.” Choose “all history” and press “select.” The day will be displayed in the top right corner. Use the up/down arrow buttons to change day. You can review the bolus and blood glucose history to check on accuracy of the dosing if in question (or as a double-check).
- The POD must be changed every 3 days. To **change a POD**, deactivate the current POD. On the home screen, choose “more actions” and “change POD” then press “select.” Press “confirm.” Remove the POD. Follow directions on the screen to fill the next POD with insulin and activate.
- To **deliver a bolus**, go to the home screen and press the up arrow and highlight “bolus” on the top of the screen and press “select.” Use the up/down arrow buttons to enter the current BG values. You will then be asked if you want to enter carbohydrates. You can give a bolus for BG or carbohydrates or both. A suggested bolus will be on the screen. Press “enter” to accept.
- To **deliver a manual bolus (without the bolus calculator)** if directed by your medical team, go to the home screen and select “bolus.” Enter the amount to be given. If directed by your medical team, to deliver a manual bolus (without the bolus calculator), make sure to complete all steps on the screen to deliver the bolus.



*NOTE: Silencing the alarm – Tap a button on the alarm screen. If the alarm continues or you are discarding the POD > Remove the POD, Peel back the adhesive pad from the bottom of the POD at the square end. The alarm shut off port is to the right of the gold circle. Firmly press a paper clip or similar item straight down into the alarm shut off port. You will need to apply enough pressure to break a thin layer of plastic.*

### More Information

Insulet Omnipod click [here](#)







## Insulet Omnipod DASH™

- ✓ This is a tubeless pump.
- ✓ The insulin is put into the POD and delivery is directed on the personal diabetes manager (PDM).
- ✓ The POD must be changed every 3 days.
- ✓ The PDM does not have to be with the individual for basal delivery but must be available for bolus delivery.
- ✓ PDM must be charged on a regular basis.
- ✓ This pump does not receive sensor data.



### Common Actions

- To **turn on the PDM** – press the power button on the right side of the device (2<sup>nd</sup> one down). The customized screen will appear to identify the individual's PDM.
- The **PDM** is a touch screen – you communicate with it by tapping or swiping your finger on the screen. Swipe the screen to unlock the PDM. Enter the 4-digit PIN and tap the checkmark to unlock the PDM (*note: if the 4-digit pin is forgotten, you can use the last 4 digits of the SN on the back of the PDM to unlock the PDM*).
- To **access the Menu of PDM functions** tap the menu button  in the upper left corner of the screen.
- To **set a temporary basal rate** tap the setting icon  > basal and temp basal; Tap the percent to modify the active basal program (confirm the ↑ for increase or ↓ for decrease) and the time. If you are unable to set a temporary basal rate, make sure temp basal is enabled in settings. You can also activate the activity mode which automatically changes the target to 150 mg/dl and reduces the correctional and carbohydrate doses when giving a bolus.
- To **check the insulin and BG history** tap the menu button  > history: Insulin & BG History.
- To **deliver a bolus** – Tap bolus button  on the home screen. Tap enter Carbs. You can enter BG manually by tapping “Enter BG”. To deliver the bolus, review and tap confirm and START.
- To **deliver a manual bolus**, if directed by your medical team – from the home screen go to bolus and enter the amount to be given. Make sure to complete all steps on the screen to deliver the bolus.

*NOTE: Silencing the alarm – Tap a button on the alarm screen. If the alarm continues or you are discarding the POD > Remove the POD, Peel back the adhesive pad from the bottom of the POD at the square end. The alarm shut off port is to the right of the gold circle. Firmly press a paper clip or similar item straight down into the alarm shut off port. You will need to apply enough pressure to break a thin layer of plastic.*

### More Information

Insulet Omnipod DASH click [here](#)

American Diabetes Association Info Sheet 3.2020





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## Insulet Omnipod 5™

- ✓ This is a tubeless pump.
- ✓ The insulin is put into the POD and delivery is directed on the personal diabetes manager (PDM) or android cell phone.
- ✓ The POD must be changed every 3 days.
- ✓ The PDM/phone does not have to be with the individual for basal delivery but must be available for bolus delivery.
- ✓ PDM/phone must be charged on a regular basis.
- ✓ When the Dexcom G6 is functional, the pump responds to the glucose trending data.
- ✓ Every 5 minutes a mini bolus is automatically given based on the 60 minute glucose trending data.
- ✓ Carbohydrates must still be entered ~~put~~ in whenever consumed (EXCEPT low treatments other than low treatments which may require ~~d~~ less carbohydrates than when not on the hybrid system).
- ✓ This pump does receive ~~s~~ sensor data.

### Common Actions

- To **turn on the PDM** – press the power button on the right side of the device (2<sup>nd</sup> one down). The customized screen will appear to identify the individual's PDM or use the **android phone** with OP5 app.
- For both the PDM and Phone app you communicate with it by tapping or swiping your finger on the screen. Swipe the screen to unlock. Enter the 4-digit PIN on the PDM or phone app and tap the checkmark to unlock the (*note: if the 4-digit pin is forgotten on the PDM, you can use the last 4 digits of the SN on the back of the PDM to unlock the PDM*). Follow instruction on the **PHONE** app to connect to the POD.
- To **access the Menu of PDM/PHONE functions** tap the menu button  in the upper left corner of the screen.
- To **set a temporary basal rate, the pump must be in manual mode. You can see the temp on at the top of the screen.** Tap the setting icon  > basal and temp basal; Tap the percent to modify the active basal program (confirm the ↑ for increase or ↓ for decrease) and the time. If you are unable to set a temporary basal rate, make sure temp basal is enabled in settings.
- To **check the insulin and BG history** tap the menu button  > history: Insulin & BG History.
- To **deliver a bolus** – Tap bolus button  on the home screen. Tap enter Carbs or enter BG manually by tapping “Enter BG”. To deliver the bolus, review and tap confirm and START. Dexcom sensor must be functional to utilize the hybrid closed loop system.
- To **deliver a manual bolus**, if directed by your medical team – from the home screen go to bolus and enter the amount to be given. Make sure to complete all steps on the screen to deliver the bolus.



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### *Best Practices for the use of Diabetes Technology at Summer Camps*

*NOTE: Silencing the alarm – Tap a button on the alarm screen. If the alarm continues or you are discarding the POD > Remove the POD, Peel back the adhesive pad from the bottom of the POD at the square end. The alarm shut off port is to the right of the gold circle. Firmly press a paper clip or similar item straight down into the alarm shut off port. You will need to apply enough pressure to break a thin layer of plastic.*

### **More Information**

Insulet Omnipod OP5 click [here](#)

[https://www.omnipod.com/sites/default/files/Omnipod-5\\_User-guide.pdf](https://www.omnipod.com/sites/default/files/Omnipod-5_User-guide.pdf)

## Medtronic Insulin Pumps: 630G, 670G, 770G

### Medtronic 670G and 770 G (can automatically adjust basal rates based on continuous glucose monitoring)

- ✓ The pump can be used in auto mode or manual mode.
- ✓ When the pump is in auto mode, the blue shield is on the screen.
- ✓ When the pump is in manual mode, the blue shield will not be displayed.
- ✓ The recommendation/goal is to return to or stay in auto mode as the pump is then adjusting the basal rate based on the sensor data.
- ✓ If the pump goes from auto mode to manual mode with no plan to resume auto mode, the response to low or falling glucose options must be re-enabled. Press center button>choose options>smart guard>low options and enable suspend before low and alert on low.
- ✓ Sensor calibration should be done prior to each meal and at bedtime.
- ✓ The sensor should be calibrated using a stable blood glucose between 40 and 400 mg/dL.
- ✓ Make sure the pump is not connected to the child/teen during any infusion set change.
- ✓ When in auto mode, the pump will calculate a correction if needed. The correction can be accepted or denied, but cannot be adjusted.



### Common Actions

- To **wake up the pump**, push the center select button, then hit the corresponding arrow that is highlighted on pump screen
- When the pump is in auto mode you cannot set a temporary basal rate – instead **set a temporary target**. Wake the pump up, press the center select button to go to main menu, and select “temporary target” (which is always set to 150 mg/dl). Select the time for the duration of the temporary target (up to 12 hours) as directed by your medical staff.
- If the pump is NOT in auto-mode a temporary basal rate can be set. Discuss this with your medical team before initiating.
- To **check the bolus history**, wake the pump up, press the center select button to access the main menu. Scroll down to “options” and press the center select button. Scroll down to “history” and press the center select button. Select “daily history” and scroll to the day(s) you want to review.
- To **change an infusion set**, wake the pump up, press the center select button to open the main menu, and select “options.” Select “reservoir and tubing”, then select “new reservoir” and follow the instructions on the screen. **MAKE SURE THE PUMP, RESERVOIR, AND TUBING ARE NOT CONNECTED TO THE CHILD/TEEN DURING ANY INFUSION SET CHANGE.**
- To **give a bolus**, wake the pump up, press the center select button to access the main menu, and select “bolus.” Select “BG” and enter the current BG. Press the center select button. Select “carbs” and enter the amount of carbohydrates to be eaten and press the center select button. Select “next” and “deliver the bolus.” When in auto mode the correction will be decided on by the pump and cannot be changed. A bolus can be delivered for BG, carbs, or both.

The biggest change from the 670 G to the 770 G is the ability to communicate to a cell phone. This information can also be shared with parents/caregivers. Cell phone camp policies should be followed.

### More Information

Medtronic 670G click [here](#)

Medtronic 770 G [https://www.medtronicdiabetes.com/sites/default/files/library/download-library/user-guides/MiniMed\\_770G\\_System\\_User\\_Guide.pdf](https://www.medtronicdiabetes.com/sites/default/files/library/download-library/user-guides/MiniMed_770G_System_User_Guide.pdf)

## Medtronic 630G

- ✓ This pump does not automatically adjust insulin based on sensor data.
- ✓ For the suspend options to be activated, the individual must also be wearing a Medtronic guardian sensor
- ✓ The pump will automatically suspend if BG drops below a set limit and resumes when the glucose rises or in two hours if not addressed.
- ✓ Calibration of the sensor should be done prior to each meal and at bedtime.
- ✓ The sensor should be calibrated using a stable blood glucose between 40 and 400 mg/dL.
- ✓ Make sure the pump is not connected to the child/teen during any infusion set change.



## Common Actions

- To **wake up the pump**, push the center select button, then hit the corresponding arrow that is highlighted on pump screen
- Select the small square icon on the right of the pump face to open the menu.
- To **change the basal**, select “basal” on home screen, then select “temp basal.” Press the up arrow button until the desired duration is displayed. Select “100%” and enter desired percentage of basal rate. Press “begin.” The percentage and duration should be changed under the direction of your medical team before initiating.
- To **check the bolus history**, wake up the pump, press the menu button, select “utilities” and select “history” and then “daily history.”
- To **change an infusion set**, wake the pump up, press the main menu button, select “utilities” and then select “reservoir and tubing” and follow the instructions on the screen. **MAKE SURE THE PUMP IS NOT CONNECTED TO THE CHILD/TEEN DURING ANY INFUSION SET CHANGE.**
- To **give a bolus**, wake the pump up, select “bolus” and then “bolus wizard.” Select “BG” and enter the current blood glucose and press the center select button. Select “carbs” and put in the grams of carbs to be eaten. Highlight “next” and press the center select button. Select “deliver bolus.” A bolus can be delivered for BG, carbs, or both.
- To **deliver a manual bolus** if directed by your medical team – select “bolus” and “manual bolus.” Enter the amount to be given and make sure to complete all steps on the screen to deliver the bolus.

## More Information

Medtronic 630G click [here](#)



## Tandem Insulin Pump (without Basal-IQ™)

- ✓ This pump does not alter insulin delivery based on sensor data – it is informational only.
- ✓ Sensor data can be used to manually dose insulin when the sensor is correctly calibrated.
- ✓ Calibration of the sensor should be done when glucose levels are relatively stable for example, in the morning before breakfast, prior to dinner and at bedtime prior to snack.
- ✓ The sensor will be more accurate if the previous 20 minutes of blood glucose values (as noted on the sensor) are stable prior to calibration.
- ✓ Make sure the pump is not connected to the child/teen during any infusion set change.
- ✓ The infusion sets are called “T-lock.”
- ✓ Make sure the reservoir and the infusion set are both either T-lock or not T-lock because you cannot mix them.
- ✓ Pump needs to be charged on a regular basis.



### Common Actions

- To **wake up the pump**, push the button on the very top of the pump and then to unlock the pump, touch “1” then “2” then “3.”
- To **set a temporary basal rate**, go to “options” and on the fourth line down, tap “temp rate” on the right; then tap the % and enter desired amount, tap duration and enter desired amount. Set this function as directed by your camp medical team.
- To **check the pump history**, scroll to “options” then use the down arrow on the right of the screen to go to the fifth line down. You can review the bolus and blood glucose history to check on accuracy of the dosing if in question (or as a double check).
- To **change an infusion set** – Go to options and Load – third line down. **MAKE SURE THE PUMP IS NOT CONNECTED TO THE CHILD/TEEN DURING ANY INFUSION SET CHANGE.**
- To **deliver a bolus**, the bolus button on the screen is where the BG and carbohydrates are entered. This pump does not have an integrated blood glucose monitor, so BG must be entered manually. If you are giving a bolus, you can enter a BG or carbohydrates or both. Confirm the units to be given, and select “yes,” and tap “deliver.”
- If directed by your medical team to **deliver a manual bolus**, go to bolus screen and enter then number of units by touching to top middle of the screen (units) and put in the desired units to be given. Make sure to complete all steps on the screen to deliver the manual bolus.

### More Information

Pumps shipped after 4/2015 click [here](#)

Pumps shipped before 4/2015 click [here](#)

T slim X2 with sensor click [here](#)

T slim X2 without sensor click [here](#)

Tandem T-Flex (larger capacity pump) click [here](#)



## Tandem Basal-IQ™

The Tandem Basal-IQ™ is a predictive low glucose suspend (PLGS) technology. It is approved for children as young as 6 years of age. The Tandem X2 insulin pump when connected to the Dexcom G6® predicts what BG will be in 30 minutes and suspends to prevent hypoglycemia (less than 80 mg/dl or an absolute glucose of <70 mg/dl) and automatically resumes delivery once glucose levels begin to rise. The sensor is FDA approved for 10 days wear and no calibrations of the sensor are required (no finger sticks).

**IMPORTANT NOTES:** 1) Insulin for carbohydrates and corrections must be entered into the insulin pump and acted on for delivery. 2) Pump needs to be charged on a regular basis.

### Common Actions

- To **turn on the pump** – push the button on the very top of the pump; then touch 1-2-3 on the screen
- To **set a temporary basal rate** – Go to options and the fourth line down is temporary basal; press and set as directed by your camp medical team
- To **check the pump history** – Go to options then use the down arrow on the right of the screen to go to the 5<sup>th</sup> line down. You can review the bolus and blood glucose history to check on accuracy of the dosing if in question (or as a double check!)
- To **change an infusion set** – Go to options and Load – 3<sup>rd</sup> line down. **MAKE SURE THE PUMP IS NOT CONNECTED TO THE CHILD/TEEN DURING ANY INFUSION SET CHANGE.**
- Make sure the reservoir and the infusion set are both either T-lock or not T-lock because you cannot mix them.
- Make sure to remove any air bubbles in the reservoir prior to attaching the tubing.  
<https://www.youtube.com/watch?v=1B9knJKpksQ> for further information.

*NOTE: the **BOLUS** button is where the BG and carbohydrates are entered. This pump does not have an integrated blood glucose monitor, so BG must be entered manually. If you are giving a bolus – you can enter a BG and correct, carbohydrates only OR both at the same time. Confirm the units to be given “YES” and tap “DELIVER.”*

The Tandem pump X2 **with** and **without** the Dexcom G5 sensor data on the screen

### Common Actions

- To **turn on the pump** – Push the button on the very top of the pump; then touch 1-2-3 on the screen
- To **set a temporary basal rate** – Go to options and the fourth line down is temporary basal; press and set as directed by your camp medical team
- To **check the pump history** – Go to options then use the down arrow on the right of the screen to go to the 5<sup>th</sup> line down. You can review the bolus and blood glucose history to check on accuracy of the dosing if in question (or as a double check!)
- To **change an infusion set** – Go to options and Load – 3<sup>rd</sup> line down. **MAKE SURE THE PUMP IS NOT CONNECTED TO THE CHILD/TEEN DURING ANY INFUSION SET CHANGE.**

## Tandem Control-IQ™

The Tandem Control-IQ™ technology is an advanced hybrid- closed loop system. When the tandem t:slim X2 insulin pump is connected to the Dexcom G6 continuous glucose monitor it will adjust basal rate or correctional insulin when glucose is predicted to be out of treatment range within 30 minutes.

There are three potential modes for insulin delivery decision making by the system that can be preset or set on demand by the user. Standard, Sleep and Exercise. Insulin adjustments are automated based on the predictive glucose in **30 minutes**.

	<b>Bolus correction every hour if glucose is greater than _____</b>	<b>Increased basal rate if glucose is greater than _____</b>	<b>Maintains current settings if glucose is between _____</b>	<b>Decreases basal delivery if glucose is predicted to be below _____</b>	<b>STOPS delivery if predicted to be below _____ within 30 minutes</b>
Standard	180 mg/dL	160 mg/dL	112.5-160 mg/dL	112.5 mg/dL	70 mg/dL
During Sleep	X	120 mg/dL	112.5-120 mg/dL	112.5 mg/dL	70 mg/dL
During exercise	180 mg/dL	160 mg/dL	140-160 mg/dL	140 mg/dL	80 mg/dL

### Common Actions

- The carbohydrate setting must be TURNED ON and ACTED ON for delivery of mealtime insulin.
- To **turn on the pump** – push the button on the very top of the pump; then touch 1-2-3 on the screen
- To **check the pump history** – go to options then use the down arrow on the right of the screen to go to the 5<sup>th</sup> line down. You can review the bolus and glucose history to check on accuracy of the dosing if it is in question
- To **change an infusion set** – go to options and Load – 3<sup>rd</sup> line down. AS WITH ALL PUMPS, MAKE SURE THE PUMP IS NOT CONNECTED TO THE CHILD/TEEN DURING ANY INFUSION SET CHANGE.
- Make sure the reservoir and the infusion set are both either T-lock or non-T-lock as they cannot be mixed
- Make sure to remove any air bubbles in the reservoir prior to attaching the tubing.  
<https://www.youtube.com/watch?v=1B9knJKpksQ> for further information.
- When exercise option is on – sleep option is automatically turned off

## **Tandem Control-IQ™ (continued)**

*Note: the **BOLUS** button is where the glucose and carbohydrates are entered. If the Dexcom G6 is being used and the hybrid system is on, the last glucose reading will be entered and only the carbohydrates need to be added. Confirm “YES” and “DELIVER.”*

*For campers that are not active at home, consider adding a new basal program or setting the exercise mode for the duration of camp.*

*FOR HYPOGLYCEMIA TREATMENT: use 7 grams of carbohydrate every 20 minutes (not 15:15). This is because the pump is already suspending insulin.*

### **More Information**

Control IQ Technology click [here](#)

## Dana RS Pump

- ✓ This pump system is **NOT FDA approved**.
- ✓ It can be used in manual mode.
- ✓ iPhone or Android Bluetooth connection can be used in closed loop utilizing DIY algorithm.



### Common Actions

- To **turn on the pump** – press the OK button
- To **set a temporary basal rate** – in the main menu press > until temporary basal icon is highlighted. Then press OK. Use > to toggle between the rate and hours and press OK.
- To **check the pump history** – go to the main menu and press > until the review item is highlighted. Then press OK. Use + and – to review history (which includes date and time of last bolus, as well as, other history functions within the pump (blood glucose, CHO, refill history, daily totals).
- To **change a reservoir**, there are 3 options. Please see pages 21 and 22 at this link: [http://www.sooil.com/bbs/board.php?bo\\_table=dana\\_eng&wr\\_id=8](http://www.sooil.com/bbs/board.php?bo_table=dana_eng&wr_id=8) for complete instructions.
- **BOLUS** is found by pressing the > on the main menu until the bolus icon is highlighted. Then press OK. Press OK to the bolus calculator. Use > to highlight to STEP BOLUS and press OK. Confirm the amount to be delivered in the bottom right corner and press OK. Make sure to press the SELECT key to start the bolus.
- The remote can be used to dose insulin. The screen is the same as the pump screen for ease of use.

### IMPORTANT NOTES:

- When campers are using this system, it is important to have a medical person on the team familiar with this pump or ready to contact with parents for any trouble shooting that may need to occur during camp.
- As with any insulin pump, if the sensor is not working properly the pump can run in manual mode.
- As with any system at camp, if the system is not working properly and problem solving is not readily available, the camper will be changed to multiple daily injections.
- This is NOT an endorsement by ADA, but a realization that children should be able to wear the devices at camp that they wear at home.

### More Information

Dana RS and other Dana products click [here](#)

## DIY Loop System

- ✓ This is a do-it-yourself (DIY) system and is **NOT FDA approved**
- ✓ It is estimated that 1000-1500 individuals are using this system worldwide
- ✓ This is a CLOSED loop system
- ✓ It brings together the insulin pump, continuous glucose monitor (CGM), and insulin dosing algorithm to create a continuous insulin basal dosing “Loop”.
- ✓ The Loop predicts future glucose based on basal-rate schedules, carbohydrate intake, insulin on board, and current CGM readings.
- ✓ The system can either operate as an “open loop” by making recommendations to the user for their approval before enacting or as a “closed loop” by automatically setting the recommended temporary basal rate.



### Common Actions

- The Loop system generally works very well and will require minimal team input.
- **Target:** A higher target rate during camp can be set. On Loop, setting of temp targets must be started and stopped by the Loop app on the iPhone itself and On OpenAPS, setting temp targets is done remotely through Nightscout
- **Carbohydrates:** Carbohydrates must be entered manually via the Loop app on the phone. Click on the green plate icon in the bottom far left corner of the Loop app.

### IMPORTANT NOTES:

- When campers are using this system, it is important to have a medical person on the team familiar with Loop or ready contact with parents for any trouble shooting that may need to occur during camp.
- As with any insulin pump, if the sensor is not working properly the pump can run in manual mode.
- As with any system at camp, if the system is not working properly and problem solving is not readily available, the camper will be changed to multiple daily injections.
- At this time, loop can utilize the Omnipod 400 PODs or the Medtronic 508 with either the Dexcom or Medtronic sensors.
- This is NOT an endorsement by ADA, but a realization that children should be able to wear the devices at camp that they wear at home.

### More Information

DIY Loop System click [here](#)

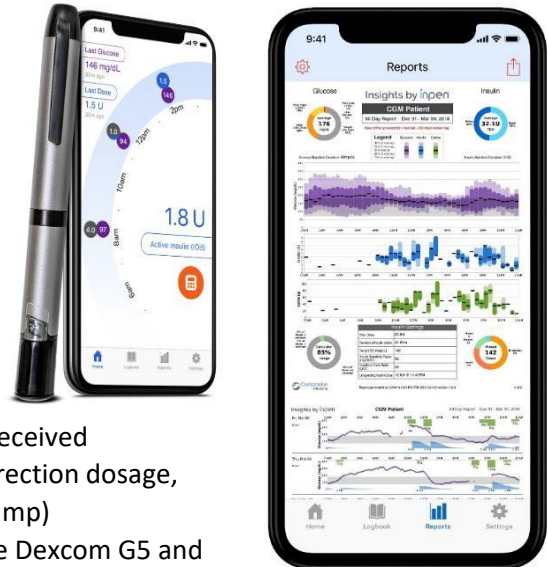
Open APS click [here](#)

Nightscout click [here](#)

## InPen™ Smart Insulin Delivery System

InPen™ is an insulin delivery pen which can provide dosing suggestions based on preprogrammed settings and has a memory to be able to review past dosing.

- ✓ The smart pen is Bluetooth-enabled and connects to a smart phone app
- ✓ The cartridge is pre-filled and can give insulin in 0.5-unit increments
- ✓ It records the last bolus given and the time it was received
- ✓ The device is set up with insulin-to-carb ratios, correction dosage, insulin on board and target (similar to an insulin pump)
- ✓ It connects to a variety of glucose monitors and the Dexcom G5 and G6 sensors <https://www.companionmedical.com/wp-content/uploads/CGM-Brochure-2019-Revision.pdf>
- ✓ As with all insulin pen delivery devices, the pen needle should be discarded in a sharps container after every use and a new needle attached with the next dose
- ✓ The pen will then be “primed” with 2 units or more until a drop of insulin is seen at the tip prior to administering the insulin dose. This priming dose is recorded separately in the bolus history.
- ✓ The pen uses a pre-filled cartridge of rapid acting insulin (Novolog, Humalog or Fiasp)
- ✓ It can deliver up to 30 units per bolus and holds 300 units



### More Information

InPen™ click [here](#)

Welcome to Camp –Bigfoot Unity Insulin Pens

Insulin pen caps that can give *information* similar to pumps. They are blue tooth enabled and connect to a smart phone app with both long acting and rapid acting insulin caps.



**The cap for long acting insulin (black) records the dose and the rapid acting cap (white) provides dosing suggestions based on preprogrammed settings and has a memory to review the timing of the last dose. The caps can fit almost all insulin pens.**

- ✓ The pen caps are blue tooth enabled and connect to a smart phone app
- ✓ Each cap has a rechargeable battery that lasts approximately 2 weeks
- ✓ The white cap (rapid acting insulin) can scan the Abbott Libre 2 continuous glucose monitor
- ✓ Rather than carb counting alone, announcements of small, medium and large meals can be announced
- ✓ The device is set up with insulin to carb ratios, correction dosage, and target (similar to an insulin pump) and is used for dosing decisions
- ✓ There is also an option to set small, medium and large meals or breakfast, lunch and dinner instead of exact carbohydrate counting
- ✓ The active insulin time is automatically set for 3 hours and it will not recommend correction doses within 3 hours of the last dose
- ✓ As with all insulin pen delivery devices, the pen needle should be discarded in a sharps container after every use and a new needle attached with the next dose
- ✓ The phone app can be used for dosing recommendations, but recommendations are also on the pen cap eliminating the need to carry the phone. The glucose and trend arrow is also on the cap when scanned.
- ✓ Very low glucose alert is set for <56 mg/dl with an option to set on for <70 mg/dl. The alert goes directly to the phone app and recommends a scan or finger stick to verify.

**More Information:**

**<https://fccid.io/2AVAYUR001/User-Manual/User-Manual-5059203.pdf>**



## Dexcom Continuous Glucose Monitoring Systems

Use of Continuous Glucose Monitoring systems (CGMs) has increased tremendously the past few years. ADA Camps encourage the use of sensors while at camp and have developed the following considerations for safe use while at camp. All decisions are at the discretion of the medical director and as per the expertise of the licensed medical staff on-site.

In order to consider dosing off of the G5 sensor, calibration is required every 12 hours; calibration is not required with Dexcom G6.

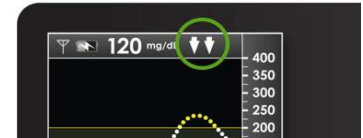
If the CGM reading is <80 or >300 mg/dl or if there is any question regarding accuracy, a finger stick BG check should be done immediately and used for treatment decision.

### Trend Arrows

Trend Arrows show the direction and speed of glucose change. Catch highs and lows before they happen.

→	↗	↑	↑↑	↘	↓	↓↓
Constant	Slowly Rising	Rising	Rapidly Rising	Slowly Falling	Falling	Rapidly Falling
0-30 mg/dL up or down in 1/2 hour	30-60 mg/dL up in 1/2 hour	60-90 mg/dL up in 1/2 hour	90 or more mg/dL up in 1/2 hour	30-60 mg/dL down in 1/2 hour	60-90 mg/dL down in 1/2 hour	90 or more mg/dL down in 1/2 hour

LBL012730 Rev 01



### Dexcom G6 Sensor Considerations while at Summer Camp

- Change site every 10 days
- 2-hour sensor warm-up period
- No calibration is required
- FDA approved to dose insulin
- Data viewable on the receiver, cell phone, Tandem X2 or Apple Watch
- Acetaminophen **DOES NOT** interfere with glucose readings

### Dexcom G5 Sensor Considerations while at Summer Camp

- Change site every 7 days
- 2-hour sensor warm-up period
- Calibrations are required every 12 hours
- FDA approved to dose insulin
- Data viewable on receiver, cell phone, Tandem X2 or Apple Watch
- Acetaminophen **DOES** interfere with glucose readings, if taken in the past 8 hours.



### Dexcom G4 Sensor Considerations while at Summer Camp

- Dexcom G4 Sensor is integrated with Animas Vibe and Tandem pump (not the X2) to allow display of the glucoses only.
- Change site every 7 days
- 2-hour sensor warm-up period
- Calibrations are required every 12 hours
- **NOT FDA approved to dose insulin**
- Data viewable on receiver or insulin pump
- Acetaminophen **DOES** interfere with glucose readings, if taken in the past 8 hours.
- Newer model of the Dexcom G4 does have Share capability

**NEVER throw away the gray transmitter if it falls off at camp!**

### More Information

Dexcom CGMs click [here](#)



## Eversense Continuous Glucose Monitoring System

Use of Continuous Glucose Monitoring systems (CGMs) has increased tremendously the past few years. ADA Camps encourage the use of sensors while at camp and have developed the following considerations for safe use while at camp. All decisions are at the discretion of the medical director and as per the expertise of the licensed medical staff on-site.

In order to consider dosing off of the Eversense CGM, calibration is required every 10-14 hours. BG must be between 40-400 mg/dl and glucose should be stable for calibration. If calibration is NOT completed within 24 hours, the wearer will have to reinitiate the sensor and will require 4 finger stick BG readings within 36 hours.

If CGM reading is <80 or >300 mg/dl or if there is any question regarding accuracy, a finger stick BG should be done.



Finger stick is required prior to any treatment decisions. Alternate site testing should not be used.

### Sensor Considerations while at Summer Camp

- This is an implantable sensor (professionally placed) with a removable and rechargeable smart transmitter and is professionally implanted – so will not be changed at camp
- Data viewable on an iPhone® with audio alerts
- Vibration alerts wearer to low BG or impending low depending on settings via transmitter
- Sensor does have remote monitoring capabilities
- Antibiotics of the tetracycline class may falsely lower sensor glucose readings
- Infusion set or injection must be 4 inches or more from the sensor site
- This product is **NOT FDA approved for use of persons under the age of 18**

### IMPORTANT NOTES:

- The transmitter should be charged daily. Use only the power cord supplied with the transmitter for charging. Charge for 15 minutes before disconnecting from the power supply.
- Replace the adhesive patch on the transmitter daily – which is placed under the transmitter.
- To **turn the smart transmitter ON**,
  - Press and hold the power button for about five seconds.
  - The smart transmitter will vibrate once.
  - Release the power button and the LED will blink once indicating the power is ON.
  - At any time, you can press the power button once to see if the smart transmitter is ON. If the LED appears, the smart transmitter is ON.

### More Information

Eversense click [here](#)

## FreeStyle Libre Continuous Glucose Monitoring System

Use of Continuous Glucose Monitoring systems (CGMs) has increased tremendously the past few years. ADA Camps encourage the use of sensors while at camp and have developed the following considerations for safe use while at camp. All decisions are at the discretion of the medical director and as per the expertise of the licensed medical staff on-site.

No finger stick BG calibration is required for the FreeStyle Libre.

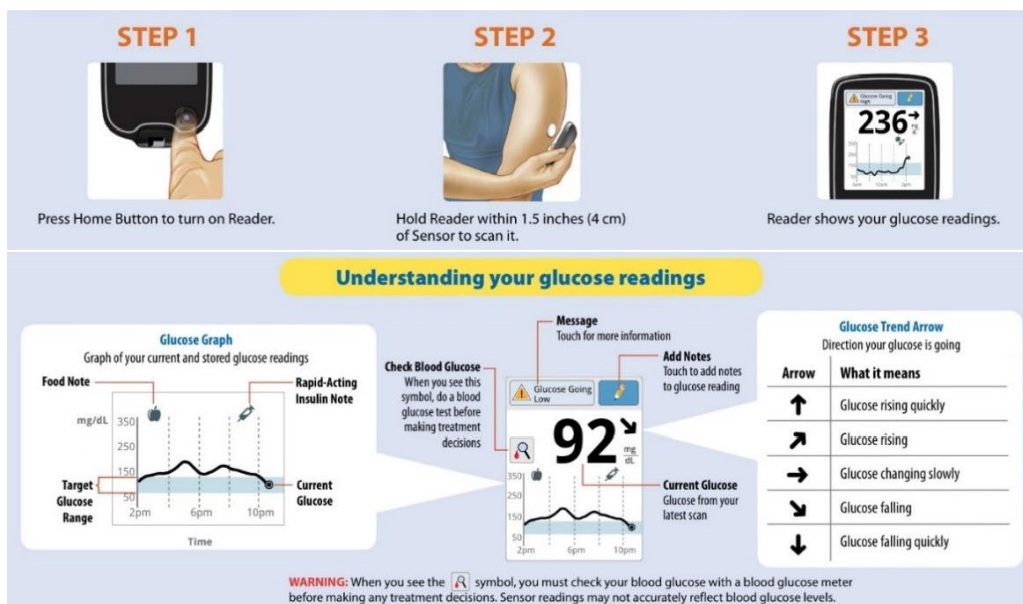
If CGM reading is <80 or >300 mg/dl or if there is any question regarding accuracy, a finger stick BG should be done immediately.



### Sensor Considerations while at Summer Camp

- Real time – data is viewable after “waving” the receiver or iPhone® over the sensor
- Change site every 10 days
- 12-hour sensor warm-up period
- No calibrations are required
- Checks glucose every 1 minute
- FDA approved to dose insulin
- This product is **NOT FDA approved for use of persons under the age of 18**
- FreeStyle LibreLink app via iPhone® - allows sharing
- Acetaminophen **DOES NOT** interfere with glucose readings

*NOTE: there are NO ALARMS AVAILABLE ON THIS SYSTEM FOR HIGH OR LOW GLUCOSE READINGS*



### More Information

FreeStyle Libre click [here](#)

## **FreeStyle Libre Continuous Glucose Monitoring System – 14 day wear**

Use of Continuous Glucose Monitoring systems (CGMs) has increased tremendously the past few years. ADA Camps encourage the use of sensors while at camp and have developed the following considerations for safe use while at camp. All decisions are at the discretion of the medical director and as per the expertise of the licensed medical staff on-site.

No finger stick BG calibration is required for the FreeStyle Libre 14 day wear

If CGM reading is <80 or >300 mg/dl or if there is any question regarding accuracy, a finger stick BG should be done immediately.

### **Sensor Considerations while at Summer Camp**

- Real time – data is viewable after “waving” the receiver/phone over the sensor
- Change site every 14 days
- 1-hour sensor warm-up period
- No calibrations are required
- Checks glucose every 1 minute
- FDA approved to dose insulin
- This product is **NOT FDA approved for use of persons under the age of 18**
- FreeStyle *LibreLink* app via iPhone® allows sharing
- Acetaminophen **DOES NOT** interfere with glucose readings

*NOTE: there are NO ALARMS AVAILABLE ON THIS SYSTEM FOR HIGH OR LOW GLUCOSE READINGS*

### **More Information**

FreeStyle Libre (14 days wear) click [here](#)

## Medtronic Guardian™ Connect system

Use of Continuous Glucose Monitoring (CGM) has increased tremendously the last few years. ADA camps developed the following considerations for safe use while at camp. All decisions are at the discretion of the medical director and as per the expertise of the licensed medical staff on-site.

The **Guardian™ Connect system** measures glucose levels continuously and sends the information to a cell phone approximately every 5 minutes via Bluetooth technology

Alerts for low and high glucose can be programmed by the user. An optional alert will sound when the sensor predicts glucose will reach a high or low threshold within 10-60 minutes, depending on what is programmed by the user. The urgent low glucose alert is set to 55 mg/dl which will be received regardless of other settings.



### Sensor Considerations while at Summer Camp

- A cell phone is required to view the data and hear the alarms, there is no other receiver for this product. If the phone is set to “do not disturb”, for example during meetings, school, summer camps, the individual will continue to receive alerts and alarms.
- Bluetooth on the phone must be turned on
- Site change every 7 days
- 2-hour sensor warm up
- Calibrations required every 12 hours
- This product is **NOT FDA approved to dose insulin**; confirm glucose readings with a finger stick BG prior to dosing insulin
- Acetaminophen **DOES** interfere with glucose readings, if taken in the past 8 hours
- When cleaning the transmitter always use the green tester when not connected to a sensor
- This CGM system is completely independent from all Medtronic pumps. It is not interchangeable with the Medtronic 530/630 or 670G transmitter.

### More Information

Medtronic Guardian™ Connect click [here](#)