

This **PANTHER Program®** tool for Libre CGM was created with the support of [danatech](#).

PANTHER^{TOOL}™ for

FreeStyle LIBRE

Continuous Glucose Monitor

INSTRUCTIONS FOR USE

- 1 Download CGM to LibreView.com. In the LibreView account, click on Glucose Reports
- 2 Click on Report Settings and select 2 week reports: a. AGP Report; b. Snapshot; c. Weekly Summary; d. Device Details. Set glucose ranges: Target Range: 70-180 mg/dL; Low Glucose: 70 mg/dL; and High Glucose: 180 mg/dL
- 3 Follow this worksheet for step-by-step guidance on clinical assessment, user education and insulin dose adjustments.



STEP 1 **BIG PICTURE** (PATTERNS)

→ STEP 2 **SMALL PICTURE** (REASONS)

→ STEP 3 **PLAN** (SOLUTIONS)

STEP 1 BIG PICTURE (PATTERNS)

Use AGP and Snapshot reports to assess CGM use, glycemic metrics, and identify glucose patterns.

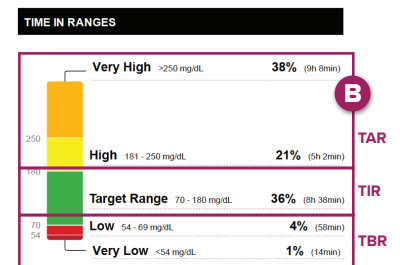
A Is the person using the CGM consistently?

% Time CGM Active:

If <90%, discuss why:

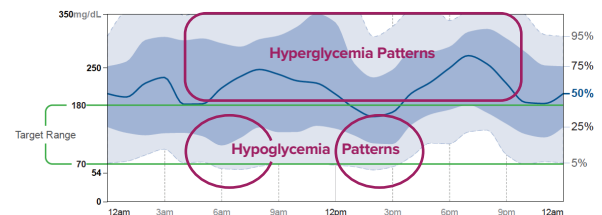
- Problems accessing supplies/sensors not lasting 14 days?
→ Contact Libre for replacement sensors
- [Skin problems or difficulty keeping sensor on?](#)
→ Rotate sensor insertion sites (arms, hips, buttocks, abdomen)
→ Use barrier products, tackifiers, overtapes and/or adhesive remover to protect skin

GLUCOSE STATISTICS AND TARGETS	
July 12, 2022 - July 25, 2022	14 Days
% Time CGM is Active	94%
<small>Ranges And Targets For Type 1 or Type 2 Diabetes</small>	
Glucose Ranges	Targets % of Readings (Time/Day)
Target Range 70-180 mg/dL	Greater than 70% (10h 48min)
Below 70 mg/dL	Less than 4% (58min)
Below 54 mg/dL	Less than 1% (14min)
Above 180 mg/dL	Less than 25% (9h)
Above 250 mg/dL	Less than 5% (1h 12min)
<small>Each 5% increase in time in range (70-180 mg/dL) is clinically beneficial.</small>	
Average Glucose	216 mg/dL
Glucose Management Indicator (GMI)	8.5%
Glucose Variability	45.5%
<small>Defined as percent coefficient of variation (%CV)</small>	



AMBULATORY GLUCOSE PROFILE (AGP) C

AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if occurring in a single day.



C What are their patterns of hyperglycemia and/or hypoglycemia?

Ambulatory Glucose Profile compiles all data from reporting period into one day; shows median glucose with the blue line, and variability around the median with the shaded ribbon and dotted lines. Wider ribbon = more glycemic variability.

Identify the overall patterns by primarily focusing on the blue shaded area.

Hyperglycemia patterns: (eg: high glycemia at bedtime)

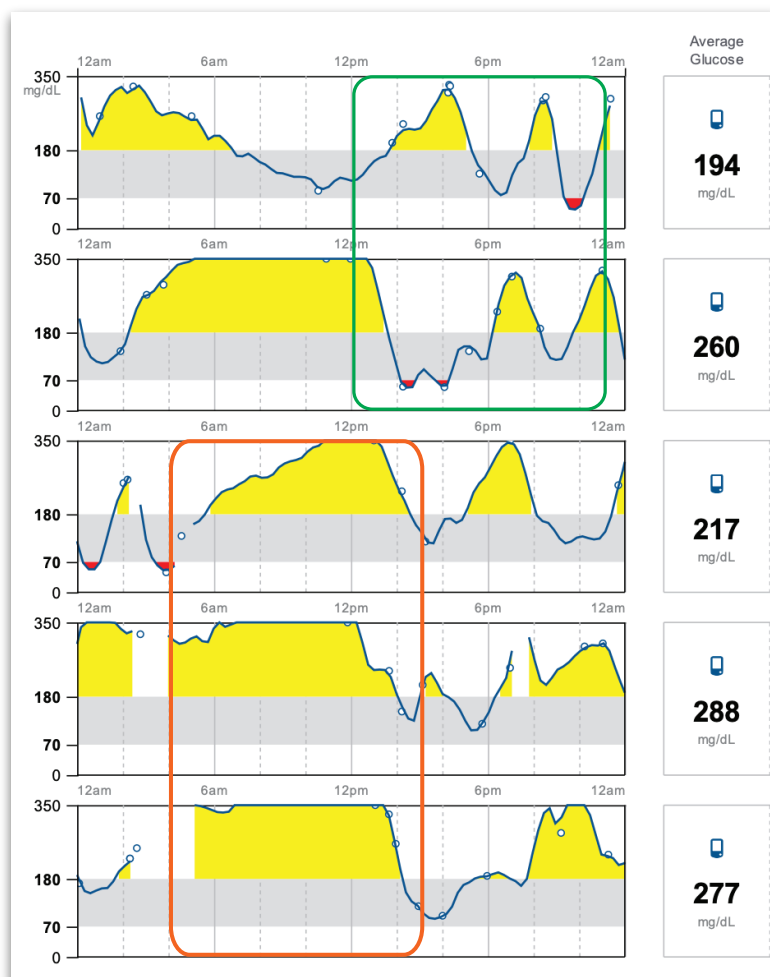
Hypoglycemia patterns:

PANTHERPOINTERS™ FOR CLINICIANS

- 1 The goal of this therapy review is to increase Time in Range (70-180 mg/dL) while minimizing Time Below Range (<70 mg/dL)
- 2 Is the Time Below Range **more** than 4%?
If **YES**, focus on fixing patterns of **hypoglycemia**
If **NO**, focus on fixing patterns of **hyperglycemia**

STEP 2 SMALL PICTURE (REASONS)

Use the **Weekly Summary** and discussion with the user to identify causes of the glycemic patterns identified in STEP 1 (hypoglycemia and/or hyperglycemia).



EXAMPLE:
Low glucose levels
often follow high
glucose levels

EXAMPLE:
High glucose levels
in the morning

Identify the predominant 1-2 causes of the hypo- or hyperglycemia pattern.






Is the **hypoglycemia** pattern occurring:

- ☐ Fasting / Overnight?
- ☐ Around mealtime?
(1-3 hours after a meal or snack)
- ☐ Where low glucose levels follow
high glucose levels?
- ☐ Around or after exercise?

Is the **hyperglycemia** pattern occurring:

- ☐ Fasting / Overnight?
- ☐ Around mealtime?
(1-3 hours after a meal or snack)
- ☐ Where high glucose levels follow
low glucose levels?
- ☐ After a correction bolus was given?
(2-3 hours after correction insulin and
glucose remains high)

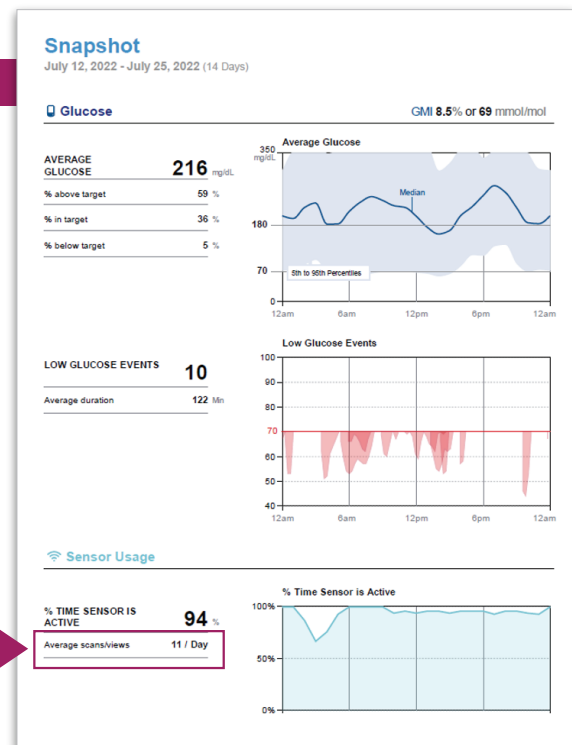
ADJUST insulin doses and EDUCATE

Hypoglycemia		Hyperglycemia
SOLUTION	PATTERN	SOLUTION
Decrease basal insulin dose by 10-20%	Fasting / Overnight 	Increase basal insulin dose by 10-20%
Assess carb counting accuracy, bolus timing, and meal composition. Weaken I:C Ratios by 10-20% (e.g. if 1:10, change to 1:12)	Around mealtime (1-3 hours after a meal/snack) 	Assess if meal bolus was missed. If yes, educate to give all meal boluses prior to eating. Assess carb counting accuracy, bolus timing, and meal composition. Strengthen I:C Ratios by 10-20% (e.g. from 1:10 to 1:8)
If hypos 2-3 hours after correction insulin is given: Reduce correction dose/weaken correction factor by 10-20% (e.g. if correction factor is 1:50, change to 1:60)	Where low glucose follows high glucose  Where high glucose follows low glucose 	Ask how user is treating low glucose and educate: <ul style="list-style-type: none"> • Treat with 10-15g if on injections / manual pump therapy; treat with 5-10g if using Automated Insulin Delivery (AID)
Discuss current exercise strategies, educate on: <ul style="list-style-type: none"> • Small snacks as needed before and during exercise with no insulin if on injections or manual pump • Use temp basal feature on a manual pump OR exercise features on AID pump to reduce basal insulin delivery 1-2 hours before, during and/or after exercise • Reduce meal time insulin dose if meal is within 2 hours of exercise start 	Around or after exercise 	
	After correction insulin was given (2-3 hours after correction insulin given)	Increase high glucose correction dose/strengthen correction factor (e.g. if correction factor is 1:50, change to 1:40)

ASSESS scan frequency (if applicable):

Review Snapshot report for number of scans/day

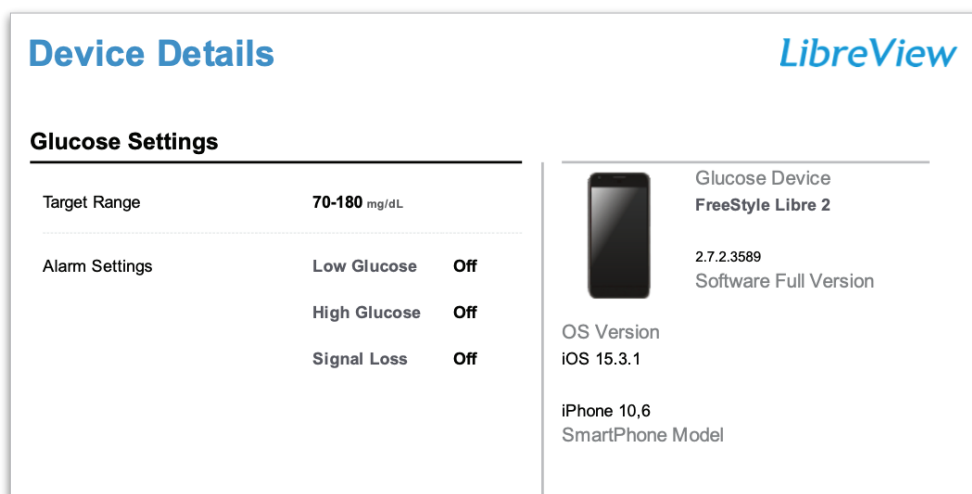
- Educate to scan sensor at least 4 times per day, before meals and as needed for symptoms of high or low glucose levels
- Educate to use the pre-meal glucose value for insulin dosing before meals

**OPTIMIZE CGM Alerts**

Personalize CGM alert settings with user to be **useful** and **actionable**.

To reduce alert burden:

- Turn OFF all predictive glucose alerts and rise/fall rate alerts.
- Consider turning OFF all alarms except for the low threshold alarm and set at the glucose level requiring low treatment.
- If hyperglycemia threshold alarm is ON, set to an extreme high (e.g., 250-300 mg/dL) to reduce frequency.



CGM alerts should result in action from the user most of the time (e.g. low glucose treatment, or high glucose correction). If the user is getting alerts but there is no action to take, change the alert setting and develop an action plan for how to respond to the alerts.

Great job using **FreeStyle Libre!**

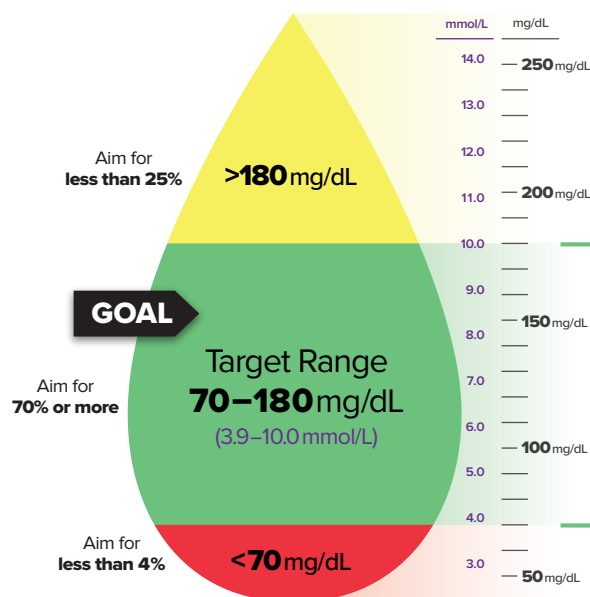
Using a Continuous Glucose Monitor (CGM) can help you achieve your diabetes goals.

The American Diabetes Association suggests aiming for **70%** of your glucose levels to be between **70-180 mg/dL** (3.9–10.0 mmol/L), called **Time in Range** or **TIR**. If you are not currently able to reach 70% TIR, don't be discouraged! Start from where you are and set smaller goals to increase your TIR. Any increase in your TIR is beneficial to your lifelong health!



REMEMBER...

Don't over-analyze each individual glucose value you receive from the Libre CGM. Instead, **focus on the glucose trends**. If you notice a similar pattern of highs or lows happening each day, talk to your doctor or educator about how to help.



TIPS for Libre CGM

- **Rotate where you place your sensor** to keep your skin healthy. If you have problems with skin rashes or difficulty keeping your sensor on, check out our skin solutions: PANTHERprogram.org/skin-solutions
- **High glucose levels >300 mg/dL for 1-2 hours?** Check ketones first! If ketones are elevated (>0.6 on a blood meter OR mod/large on a urine stick), give correction insulin from a syringe or pen (not through a pump) and contact your doctor or educator for help.
- **Give your insulin dose before eating**, ideally 10-15 minutes before all meals and snacks.
- **Are you getting too many alerts?** Sometimes less is more! Personalize your alerts so you only get alerts that are useful to you and require a response most of the time (e.g., low treatment, high glucose correction).

