

Medtronic
Engineering the extraordinary

MiniMed™ 780G System

Let's talk about Safe Meal Bolus

You may have noticed when you are using the SmartGuard™ feature with MiniMed™ 780G system that some meal bolus insulin suggestions are lower or higher than you were expecting. Here we are going to explain why this might be happening and what you can do if you feel this is affecting your glucose management.

What is Safe Meal Bolus?

Safe Meal Bolus is a safety feature that will reduce the amount of meal bolus insulin if the system predicts a hypoglycemia (hypo) would occur if the full bolus was given.

Safe Meal Bolus is important because you may have more insulin in your system before meals as a result of automatic (auto) correction boluses.

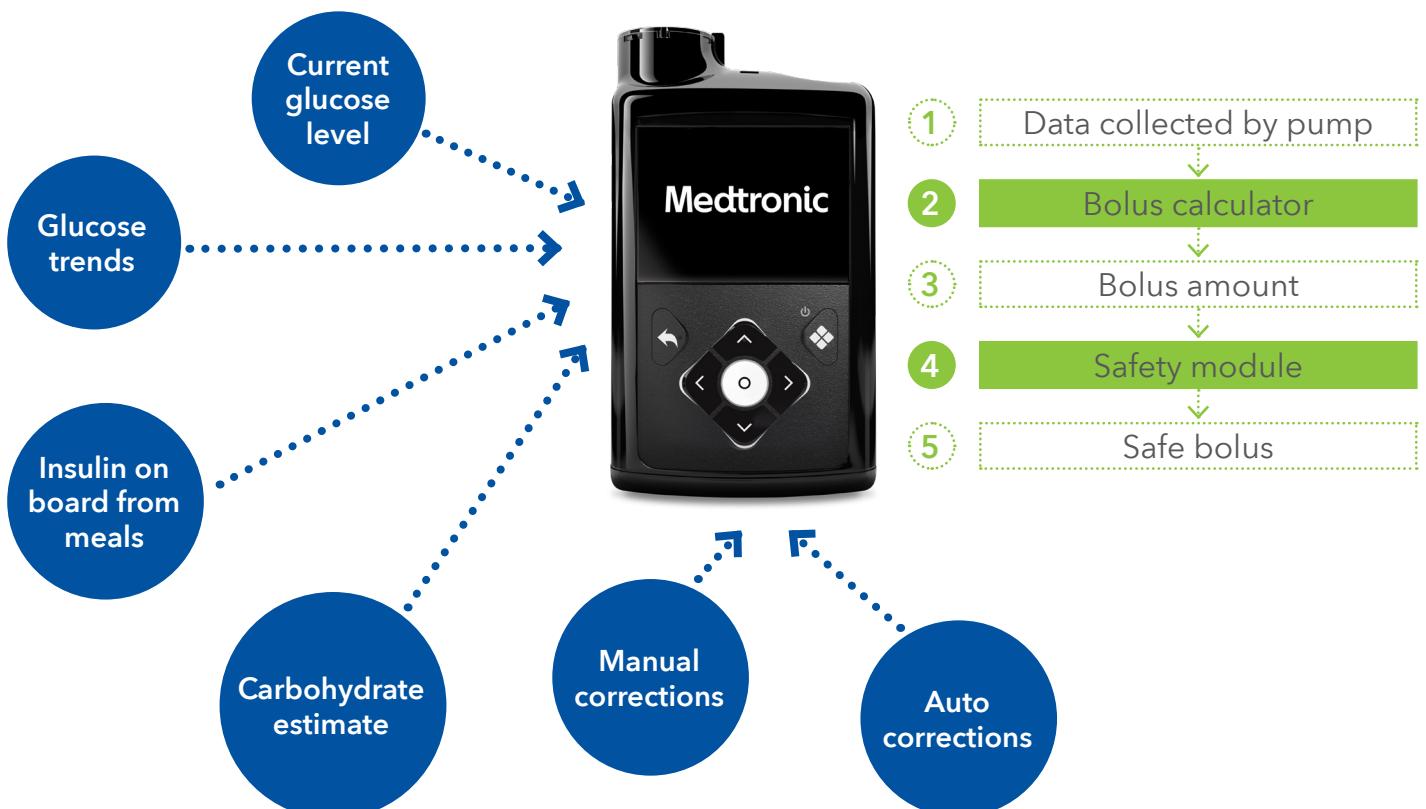
What does Safe Meal Bolus take into consideration?

Safe Meal Bolus considers many things in the bolus calculation before suggesting an insulin dose. These include:

- current blood glucose or sensor glucose
- current glucose trend
- insulin on board from recent meal insulin boluses
- manual corrections or auto correction boluses
- carbohydrates (carbs) entered into the bolus wizard
- estimated carbs remaining from previous meals

Safety module

Once it has this data, it runs it through a safety module to predict what the lowest glucose value could be four hours after a meal. If the glucose level in that 4-hour period is predicted to be low, the algorithm calculates the largest bolus amount that would be safe to give without going low.

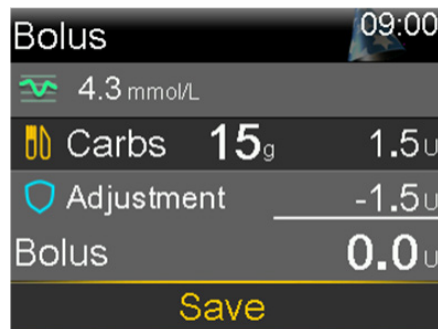


But sometimes it suggests zero, why is this?

You may find the bolus recommendations may be different than what you expected or even that a meal bolus can be reduced to zero. This is normal. This is the system's way of keeping you safe from hypos and your glucose in range.

What does it mean when it says 'Carbs Saved' even if a lower amount or zero insulin is given?

The Carbs Saved screen is to ensure you don't think there was a mistake with the bolus entry.

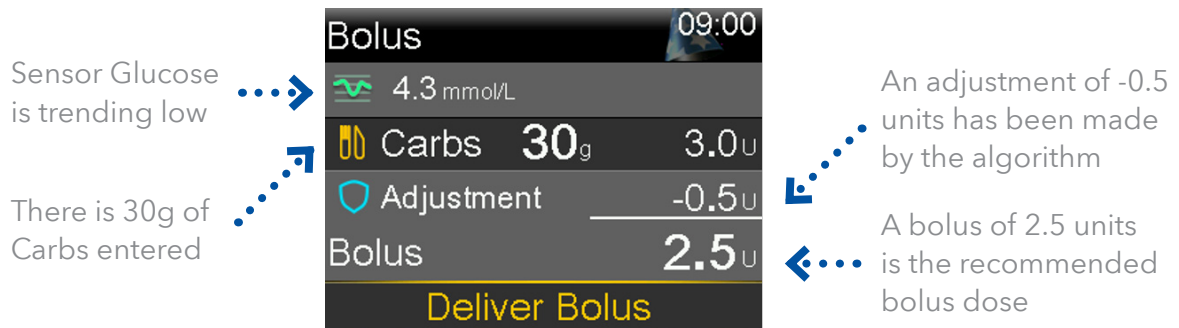


Bolus		09:00
	4.3 mmol/L	
	Carbs 15 _g	1.5 _U
	Adjustment	-1.5 _U
	Bolus	0.0 _U
Save		



15g carbs saved
✓
No bolus needed

The algorithm may then adjust the next bolus. An example could be as follows:



- The algorithm has recommended taking fewer units to cover those 30 grams of carbs because of the drop in glucose and the insulin on board.
- Now, let's suppose 15 minutes later, you want to eat another 30 grams of carbs. The system may still adjust the second bolus if it recognizes that a low glucose level could occur within the next 4 hours.

What can I do if the Safe Meal Bolus is resulting in high glucose levels after meals?

Firstly, go back to basics:

- Are your carbohydrate estimations fairly accurate? Although the MiniMed™ 780G system has auto corrections that can help if you underestimate your carbs, the closer you are to the real value the better your glucose management could be.
- Are you remembering to bolus at least 10-20 minutes before meals^{1,2}? Bolusing just before or after meals will frequently result in the high post-meal glucose levels.
- Work with your healthcare team to ensure your carb ratio is appropriate for you at this time.

Then, try to identify:

- Which mealtime(s) seems to be affected the most?
- Are there specific foods or meals that cause the greatest impact on post meal glucose levels?

Once the items above have been looked at, you could consider:

- Being 'generous' with your carb estimation and adding 20-30% of extra carbs. For example, my meal is 60g of carbs but I am going to increase this by 20% and enter 72g into the meal bolus wizard before eating.



This should only be tried once you have worked with your healthcare team to optimise your carb ratios and have discussed this as a safe option for you.

1. Slattery, D. et al. Optimal prandial timing of bolus insulin in diabetes management: a review. Diabet Med. 2018 35(3): 306-316.

2. Introduction to insulin pump therapy handbook. Edinburgh Centre for Endocrinology and Diabetes <http://www.edinburghdiabetes.com/paeds-hb>. Accessed April 2022.

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