NHS
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Top tips for using the YPSO CamAPS FX

Information for patients, relatives and carers

Here are the top 10 tips on how to use the YPSO CamAPS FX system:

1. Weekly review of data

Each week consider reviewing the following:

- Time In Range (TIR)
- Overnight trends
- Post meal hyperglycaemia (high glucose >10mmol/L)
- Patterns of hyperglycaemia or hypoglycaemia (low glucose <4mmol/L)

2. Key settings to know

Make sure you know and regularly review these settings on the CamAPS FX:

- Insulin-to-carbohydrate ratio **(ICR)**
- Correction factor
- Weight & total daily insulin dose **(TDD)** use (Affects algorithm tuning)
- Target glucose

3. Before making changes

Before making changes, first consider:

- **Was insulin given 15-20 minutes before meals?** *If it wasn't, the insulin may not be effective at the same time as the food is digested.*
- **Was there recent exercise/activity?** *This increases your risk of hypoglycaemia (glucose levels below 4mmol/L).*
- **Has your child been unwell or more stressed/ worried?** *Illness may raise insulin requirements/needs.*
- **Are infusion and CGM sites functioning well and being changed regularly?** *We recommend every 2-3 days to ensure the insulin is still effective. If the CYP has any signs of lipohypertrophy (lumps), the insulin will not be as effective, so this will need to be avoided.*
- **Confirm that manual boluses are being entered as needed.** *CamAPS adjusts basal but relies on you to administer insulin for your CYP's meals.*

4. Spotting patterns

Look at patterns over 3-5 days, not individual readings. Trends you may notice:

- **High glucose level before meals** - may need ICR strengthening at previous meal if the basal hasn't been suspended. If it has been suspended, it may be that the ICR is too strong, so the basal insulin has been suspended to prevent the low and then caused a high glucose level afterwards. In this instance, you would weaken the ICR at the last meal.
- **Low glucose level after meal** - may need a weaker ICR at previous meal if no additional insulin has been administered. Additional insulin includes a basal increase or correction boluses of insulin. If this is the case prior to the low episode, then the ICR should be strengthened with previous meal. The
- **High glucose levels after a hypoglycemia episode** -this could be due to the basal suspending, or that you have overtreated. We would recommend reducing the treatment quantity.
- **Low glucose levels after a hypoglycaemia episode** – may need to increase treatment for hypoglycaemia episodes (low glucose levels below 4mmol/L). It would also be helpful to identify why this is happening. Too much insulin with previous meals? Or mismanagement of exercise.
- **High glucose levels after hyperglycaemia** - If a correction dose of insulin was administered, the correction factor will need to be strengthened.
- **Low glucose levels after hyperglycaemia**-If a correction dose of insulin was administered, the correction factor will need to be weakened, if it was not, it will be due to the pump's algorithm, and you will need to look at preventing the low glucose level by weakening the ICR with the last meal.
- **Frequently low glucose levels overnight** - consult with your diabetes team, as this is a concern and we would consider increasing the target glucose. Another possibility would be that the evening meal ICR requires weakening if the low glucose levels started within 4 hours of the evening meal insulin dose.
- **Frequently high glucose levels overnight** - consider decreasing the target glucose. Another possibility would be that the evening meal ICR requires strengthening if high glucose levels are present 4 hours of the evening meal.
- **Low glucose levels during or after exercise** - consider reducing insulin dose for the meal before or after the activity depending on when it occurs and ensure that 'ease off' is started 60-90 minutes before the start of the activity and for the duration. Exercise can also contribute to low nighttime glucose levels if they aren't managed appropriately during the day.
- **High glucose levels during or after exercise** – If insulin dose was reduced with the meal before or after the activity, it may have been too much. Consider whether 'ease off' mode was left on for too long. Exercise can cause high glucose levels, especially if the person is competing so it may be best to discuss this with the team.

5. How to adjust Insulin-to-carbohydrate ratios (ICR) & Correction factors

If the child or young person needs:

- An increase in insulin with a meal, the ICR would need strengthening
  e.g. Change from 1unit:10g to 1unit:9g
- A decrease in insulin with a meal, the ICR would need weakening
  e.g. Change from 1unit:10g to 1unit:11g

If the child or young person needs:

- An increase in insulin correction dose, as it is not currently bringing the glucose level back within target range, you will need to decrease the correction factor
  e.g. Change from 1unit:7mmol/L to 1unit:6.5mmol/L
- A decrease in insulin correction dose because it is causing a low glucose level afterwards, you will need to increase the correction factor.
  e.g. Change from 1unit:8mmol/L to 1unit 8.5mmol/L

Change settings gradually (by 5-10%) and assess effectiveness over several days before considering any further changes.

6. Announcing a hypo

When you treat a hypoglycaemia episode (glucose below 4mmol), it's important to announce the treatment in the Cam APS FX app. This tells the system that glucose is likely to rise soon, helping to avoid it from overreacting by increasing insulin too much. If you don't announce the treatment, Cam APS may mistakenly think glucose is rising unnecessarily and deliver additional insulin to manage this, which can lead to a rebound low. Announcing treatment helps the system respond more accurately and maintain better glucose control. If you are unsure of how to complete this task, please ask a member of the team.

7. Using boost mode

- Boost mode is an optional feature that can be set when glucose levels are elevated to increase insulin delivery by roughly 35%.
- It's designed for times when your glucose is unusually high, such as during illness and stress.
- Boost mode is not a replacement for manual corrections: In some cases, manual boluses will still be required alongside this, to correct the high glucose level.

8. Using ease off

- 'Ease-off' reduces the amount of insulin delivered by CamAPS FX to minimize the risk of low glucose levels.
- When 'Ease-off' is active, the algorithm increases the target glucose level. It uses more cautious settings, to recuse insulin delivery.
- It is suggested to start 'Ease-off' 60 to 90 minutes before the activity,
- It is advisable to continue 'Ease-off' during the exercise/activity period if the activity heightens the risk of low glucose levels

9. Sensor and connection issues

- CamAPS FX depends on accurate CGM data (usually Dexcom or Libre3). If CGM data is lost or readings seem inaccurate then the system may not adjust insulin properly.
- Troubleshoot and replace sensors as needed.
- Without reliable CGM input, Cam APS FX reverts to manual mode.

10. Review schedule

We recommend you review your data every 1-2 weeks ensuring you are obtaining the best results from using the YPSO. Please contact your keyworker once you have done so to discuss any changes you feel are required. Once we feel you can make changes independently, we will let you know.

Customer Care Teams

Ypso or CamAPS FX: **03448 567820**

Dexcom: **0800 031 5763**

Libre (Abbott): **0800 170 1177**

Table below showing what settings are relevant for specific pumps:

Pump	Basal	Insulin to carb ratio	ISF – correction factor	Active insulin time	Target glucose	Exercise mode / Activity mode	Panther tool / clinical resource
Ypso CamAPS	X	✓	X	X	✓	✓	CamAPS FX HCP training resources

References:

Royston et al. (2024) Safety of Options to “Boost” and “Ease-off” in the CamAPS FX Hybrid Closed-Loop System — Diabetes Technology & Therapeutics.

National Institute for Health and Care Excellence (NICE) TA943 on hybrid closed-loop systems for type 1 diabetes (cited in NHS policy)

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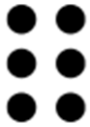
Large Print				
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