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Ypso CamAPS in Pregnancy

CamAPS FX is an automated insulin delivery (AID) system approved by Health Canada for use in pregnancy. The following guidelines may be updated as we gain experience with YpsoPump in DIP clinics in Calgary.
Reservoir capacity = 160 units

Preconception

- Ensure that body weight and TDD are reviewed and updated.
- Ensure that 'Min BG for Calculation' is set low enough that the system doesn't block meal boluses. Consider **Min BG for Calculation = 2.8 mmol/L**.
- Set **personal glucose target =** 6.0 mmol/L (if excessive hypoglycemia, increase to 6.5 or 7.0 or higher)
- Sharing Glooko data is extremely helpful in supporting patient care. Invite patient to set up a Glooko account at https://ca.glooko.com and share data with the clinic. The ProConnect Code for Calgary clinics is richmonddiagnostic

First trimester

- Ensure that 'Min BG for Calculation' is set low enough that the system doesn't block meal boluses. Consider **Min BG for Calculation = 2.8 mmol/L**.
- **Update body weight** every 4 weeks.
- Update basal and bolus settings to reflect what's being delivered in automation.
- Individualize **personal glucose target.** Initial setting = **6.0 mmol/L**. If hypoglycemia is a problem make the target higher all day or at the times of day where there is recurrent hypoglycemia. consider glucose targets **as high as 7.5 mmol/L**.
- **Carb Ratio**: 400/weekly average TDD
- **Pre-bolus** 10 to 15 minutes throughout pregnancy
- Confirm **Glooko account** was set up at https://ca.glooko.com [Patients may choose to share their cloud data by authorizing access to the clinic. ProConnect Code is richmonddiagnostic]
- Set Glooko reporting targets to reflect pregnancy-specific targets (3.5 to 7.8 mmol/L). Next to the patient name, click "Profile" and re-set reporting target range (near the bottom of the page).

Second trimester

- Weekly titration from 16 weeks, as insulin resistance increases.
- **Lower personal glucose target** as safely tolerated. Consider: **After 16 weeks gestation**: 5.0 mmol/L during the day, if tolerated. **After 20 weeks gestation** lower overnight target to 4.5 mmol/L if tolerated.
- **Update body weight** every 4 weeks.
- **Carb Ratio**: 400/weekly average TDD
- **Pre-bolus** 10 to 15 minutes throughout pregnancy.
- **Adjust basal and bolus settings every 4 weeks** to reflect what is being delivered in automation.
- **Update weight every 4 weeks.**
- **Boost** mode may be used more liberally during pregnancy to pro-actively manage high glucose levels. **From 20 weeks gestation**, recommend setting boost for 2 to 4 hours after large meals. **If boost is used regularly to manage post meal glucose**, strengthen the Carb Ratio**.**

Third trimester

- Continue with **lower personal glucose target** as safely tolerated. Consider 5.0 mmol/L during the day and 4.5 mmol/L overnight. It's OK to have several different personal glucose targets at multiple times throughout the day to prevent hypoglycemia. A strong ICR followed by higher personal glucose target about 1-2 hours after the typical meal timing is one technique used to allow a strong ICR and to limit postprandial glucose excursions without hypoglycemia 2 to 4 hours after the meal bolus.
- **Pre-bolus** 10 to 15 minutes throughout pregnancy.
- **Adjust basal and bolus settings every 4 weeks** to reflect what is being delivered in automation.
- **Update weight every 4 weeks.**
- **Boost mode may be used more liberally** during pregnancy to pro-actively manage high glucose levels. **From 20 weeks gestation**, consider setting boost for 2 to 4 hours after large meals. **If boost is used regularly to manage post meal glucose**, strengthen the Carb Ratio**.**

- Confirm delivery plan. **MD: Enter orders** in CC.
- **Enter post partum profile** (**Pattern B**) and provide counselling.
    - **Post partum settings**:
        - **Personal glucose target** = 6.0 mmol/L **or higher**
        - **Carb Ratio** (consider):
            - Non-breastfeeding: 12
            - Breastfeeeding: 15
        - **Do not bolus for first postpartum meal.**
        - Use **Ease off** as required.

During Delivery

- Check sensor accuracy with POCT if diathermy is used.
- **Switch to postpartum profile (Pattern B)** at the start of pushing for vaginal delivery, or just prior to (within 1 h) caesarean sections (or immediately postpartum, if the previous options were not feasible). Leave pump in Automode.
- **Increase personal glucose target** to 5.5 to 6.0 mmol/L
- **Use Ease Off liberally**, as needed.

Post Partum

- **Ensure that Pattern B is activated.** Post partum settings:
    - **Personal glucose target** = 6.0 mmol/L or higher
    - **Carb Ratio:**
        - Non-breastfeeding: 12
        - Breastfeeeding: 15
- **Pre-bolus** 10 to 15 minutes
- Update **body weight**.
- **If experiencing hypoglycemia**, use Ease Off mode and raise personal glucose target. Consider weakening Carb Ratio.
- Update Glooko reporting targets to non-pregnant targets (3.9 to 10.0 mmol/L). [Log in to Glooko https://ca.my.glooko.com ; search for and open the patient. On the Summary page go to Profile > Data settings > Target BG Ranges.]

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2. Lee TTM, Collett C, Man MS, Hammond M, Shepstone L, Hartnell S, Gurnell E, Byrne C, Scott EM, Lindsay RS, Morris D, Brackenridge A, Dover AR, Reynolds RM, Hunt KF, McCance DR, Barnard-Kelly K, Rankin D, Lawton J, Bocchino LE, Sibayan J, Kollman C, Wilinska ME, Hovorka R, Murphy HR; AiDAPT Collaborative Group. AiDAPT:Automated Insulin Delivery in Women with Pregnancy Complicated by Type 1 Diabetes, N Engl J Med Oct, 2023;389:1566-1578 DOI: 10.1056/NEJMoa2303911
3. Benhalima, K, et al. Application of continuous glucose monitoring and automated insulin delivery technologies for pregnant women with type 1, type 2, or gestational diabetes: an international consensus statement. Lancet Diabetes Endocrinol, 2026; 14(2):157-177.