SOP – PEDIATRIC DIABETES PEDIATRIC WARD MANAGEMENT

This SOP applies to pediatric patients admitted to the ward with newly diagnosed type 1 diabetes.

Medical Management/Orders

- Use standardized Pediatric Diabetes Order Set in Essentris
- Admission labs: BMP and UA (if not done previously), hemoglobin A1c, TSH, thyroid antibody panel, celiac screen. Consider also the following antibody tests: islet-cell, IA-2, glutamate decarboxylase 65, and insulin
- Repeat BMP qAM if on IV fluids or until bicarb is >20. No need to continue to monitor UA for ketones unless otherwise recommended by peds endo.
- If IV fluids are needed, order non-dextrose containing (unless the patient is NPO) maintenance IV fluids. Usually IV fluids are recommended overnight for a patient with newly diagnosed diabetes to facilitate hydration.
- Regular Diet for age and counsel patient to avoid foods with high sugar concentration. Snacks with 15 gm CHO are allowed at 1400 and 2000 (as per order set) with carbohydrate coverage with insulin if needed. If the snack requires <1 unit of insulin coverage, then no insulin needs to be given.
- Finger-stick blood glucose qAC, before snacks, QHS, 0200, and prn
- Insulin
  - Total daily insulin dose (TDD) is generally 0.5-1 units/kg/day. Teenagers should start closer to 1 mg/kg/day, and younger children closer to 0.5 mg/kg/day. For children <5 years old, consult with peds endo regarding the dose.
  - Basal insulin: glargine (Lantus®) SQ at bedtime – starting dose is ⅓ of total daily dose
  - Bolus insulin with meals: aspart (NovoLOG®) based on carb ratio and correction factor
    - I:CHO determined using the “450 rule”: 450/TDD = gm of carb 1 unit will cover
    - Correction factor determined using the “1800 rule”: 1800/TDD = mg/dL glucose will drop with 1 unit of insulin
    - Use target of 150 when calculating the correction dose: (current blood glucose – 150)/correction factor
  - Give mealtime insulin 10 min before eating
- Hypoglycemia is defined as blood glucose <70 mg/dL
  - If hypoglycemia is suspected, obtain a STAT bedside glucose
  - If awake and alert, give 15 gm of fast-acting carbohydrate (e.g. 4 oz juice)
  - Re-check blood sugar in 15 min. Repeat if repeat BG is <70 mg/dL
  - If level of consciousness is diminished, give D10 5 ml/kg IV. Glucagon 1 mg IM may be given if there is no IV and IV access is not readily obtained.

Prescriptions for Diabetes Supplies

- These medications should be picked up for use during teaching sessions
There is an **order set in CHCS1 called ped dm supplies**. This complete set includes the Accu-check Avia Brand glucometer, Lantus insulin vials, and Novolog insulin FlexPens with the smallest needle size. Lantus vials are preferred initially so families learn how to draw up insulin with a syringe.

- **BLOOD GLUC METER (AVIVA)**—TEST DEVI ~USE TO CHECK BLOOD SUGAR AS DIRECTED #2 RF0 {needs 1 for school and 1 for home}
- **BLOOD GLUC CONT (ACCU AVIVA)**—TEST SOLN ~USE AS DIRECTED WITH GLUCOMETER FOR QUALITY CONTROL #2 RF3
- **BLOOD GLUC (AVIVA PLUS)**—TEST STRP ~USE AS DIRECTED TO CHECK BLOOD SUGAR #8 RF3
- **LANCETS (SOFTCLIX)**—MISC DEVI ~USE AS DIRECTED TO CHECK BLOOD SUGAR #2 RF3 {checks blood sugar 4-8x per day}
- **INSULIN GLARGINE**—SQ 100U/ML SOLN ~USE AS DIRECTED #3 RF3 #3
- **INSULIN ASPART**—SQ 100U/ML SYRN ~USE AS DIRECTED BASED ON CARB
- **GLUCAGON**—INJ 1MG KIT ~USE FOR EMERGENCY LOW BLOOD SUGAR #2 RF1 {needs 1 for school and 1 for home}
- **DIAG TEST/UR GLUC (CHEMSTRIP UGK)**—TEST ~USE AS DIRECTED TO CHECK URINE KETONES #2 RF3 {needs 1 for school and 1 for home}
- **SYRINGE/NDL (31G X 6MM)**—MISC 0.5ML DEVI ~USE AS DIRECTED FOR INSULIN INJECTION #1 RF3
- **NEEDLE, PEN (32G X 4MM)**—MISC DEVI ~USE AS DIRECTED FOR INSULIN INJECTION #3 RF3 {at least 3 injections per day}
- **ALCOHOL ISOPROPYL**—TOP 70% PADS ~USE TO PREP SKIN PRIOR TO INJECTIONS #4 RF3 {at least 4 injections per day}

The Precision Xtra glucometer is also on the formulary and has the advantage of testing blood ketones also (with separate strips) but has individually wrapped test strips. Children who are not potty trained, and other patients as recommended by peds endo, should be prescribed this glucometer so blood ketones can be measured.

For younger children requiring small doses of insulin, ½ unit increments can be dispensed using syringes with ½ unit markings or with the NovoPen Jr (1 unit minimum), a non-disposable insulin pen.

- To order the syringes with ½ unit markings: SYRINGE SYRN/NDL (31G X 5/16IN 0.5U)--MISC 0.3ML 100 SYRN/BOX
- To order the NovoPen Jr, order the pen itself (PEN DEVICE (NOVOPEN JUNIOR)--MISC DEVI) and the Novolog insulin cartridges (NOVOLOG INSULIN ASPART--SQ 100U/ML CART 3 ML/CART (15 ML))

**Consults**

- Notify as soon as possible of patient’s admission
  - Peds Endo
  - Nutrition
  - CDE
- Consider psychology consult for coping mechanisms
**Documentation**

- Use a diabetes management flowsheet to track blood sugars, carbohydrate intake, and insulin administration (standardized place to record this information in Essentris)

**Diabetes Education and Family Support**

- Diabetes Education to be provided by CDE, Nutrition, and Peds Endo, with assistance and reinforcement by ward nursing staff
- Write on board in patient’s room:
  - Insulin regimen (Lantus® dose, l:CHO, Correction factor, target)
  - Blood sugar target range on board in patient’s room and counsel that these targets (from the American Diabetes Association) are rarely achieved in the hospital given the new diagnosis and different conditions from home (less active, recovering from illness):
    - < 6 y/o: 100-200
    - 6-12 y/o: 90-180
    - 13-19 y/o: 90-150
- Peds Endo service will provide the “Pink Panther Book” and Calorie King book to families. The Bag of Hope from JDRF contains these items and will be provided by Peds Endo. Peds Endo needs the accompanying form returned.
- Diabetes Education Checklist should remain in the patient’s room and updated as teaching occurs
- Peds Endo will provide a hard-copy log for the family to record blood sugars, carbohydrates consumed, and insulin doses given, as they would at home
- Provide Family Support – Mary White, NP (cell 619-957-3801) or Maureen Petersen, MD (240-481-3701) will come to talk with the family. Obtain the family’s permission first (verbal consent is OK).

**Discharge planning**

- Discharge criteria include demonstration of the following:
  - Ability to check blood sugar
  - Basic carb counting skills
  - Able to correctly calculate mealtime insulin dosage based on carb count and blood sugar
  - Demonstrates correct insulin injection technique
  - Verbalizes understanding and treatment of hypoglycemia
- Written discharge instructions (standardized sheet) to include frequency of blood sugar checks, insulin dosage, follow-up plan, and Peds Endo contact information
- Daily contact with Peds Endo
- Follow-up with Peds Endo in 1-2 weeks (schedule appointment prior to discharge), then 1 month, then q3 months
- Follow-up in the next Diabetes multi-D clinic (1st Mon AM of the month)
ROLES AND RESPONSIBILITIES

Housestaff
- Complete H&P and admission orders
- Ensure Peds Endo and Nutrition are aware of the admission
- Confirm mealtime insulin dosing at each meal
- Write insulin dosages and target blood sugar range on board in patient’s room
- Remind parents to pick up diabetes supplies
- Facilitate family support

Peds Endo
- Provide/confirm initial insulin dosage
- Ensure CDE is aware of admission
- Provide family with JDRF Bag of Hope containing the Pink Panther Book and Calorie King
- Place outpatient prescriptions for diabetes supplies at pharmacy
- Ensure insulin dosages and blood sugar target range are written on board in patient’s room
- Ensure that the Diabetes Education Checklist is updated as teaching occurs
- Facilitate family support
- Determine if patient meets discharge criteria
- Provide written discharge instructions and follow-up plan

Nursing
- Use patient’s glucometer and lancet device to check blood sugar once they are set up
- Assist with carb counting as needed
- Calculate mealtime insulin dosing and confirm with housestaff
- Help teach patient and family to give insulin injection (may use their supplies)
- Assist the family who is learning with checking blood sugar, carb counting, calculating insulin dosage, drawing up the correct insulin dosage, and giving insulin.
- Help determine if patient meets discharge criteria

Nutrition
- Educate family on carb counting
- Education family on healthy diet for age
- Assist with carb counting
- Re-enforce the concepts of blood sugar goals, blood sugar monitoring, insulin-to-carb ratio, and treatment of hypoglycemia (rule of 15s)