Top Ten Tips for Treating Hyperglycemia in the SICU

1. Treat persistent hyperglycemia ($\geq 180$ mg/dL) with insulin. Target BG: 140-180 mg/dL, lower (120 mg/dL) in selected patients if feasible without hypoglycemia

2. Use an intravenous (IV) insulin infusion in critically-ill patients. The current UCH protocols are well known to the nursing staff and should be followed.
   - **Epic: Order Sets** ->*Adult IV Insulin Infusion*

3. Patients with no insulin production (Type 1 diabetes or total pancreatectomy) will go into diabetic ketoacidosis (DKA) if there is no insulin “on board”
   - They *always* need to be on some type of insulin – IV and/or long-acting (Lantus/Glargine).
   - The first dose of long-acting insulin (Lantus/Glargine) should be given 2 hours before IV insulin is stopped.

Enteral Nutrition/Tube Feeding (TF)

4. Avoid using full-dose Lantus monotherapy – because it has a long duration of action, it causes hypoglycemia when TF is interrupted for any reason, and is difficult to dose adjust

5. The safest treatment is 70/30 insulin dosed every 8 hours (TID) with continuous TF, or at the start of cyclic tube feeding (may add a dose at the mid-point).
   - Check POC BG Q4 hr and correct with rapid-acting insulin (Lispro/Humalog scale) as needed to achieve glucose targets.
   - **Epic: Order Sets** ->Glucose Management Team Orders for Subcutaneous Insulin for Patient Receiving Continuous TF or PN – TID dosing for 70/30 insulin, with correction Lispro q4 hr OR
   - **Epic: Order Sets** ->UCH Subcut Insulin: Continuous TF or TPN with 70/30 & Lispro – BID dosing for 70/30 insulin, with correction Lispro scale q6 hr

6. Start a D10 IV infusion at the same IV rate as the TF if the TF is stopped in patients with insulin on board
   - This is built in to all the order sets as a PRN order – ask the nurses to administer this as soon as tube feeding has been stopped. Continue it for as long as the action of the insulin dose is expected to last (4 hours for Lispro, 12 hours for NPH or 70/30, 24 hours for Lantus)

Parental Nutrition

7. Avoid using full-dose Lantus monotherapy for same reason as #4

8. The preferred and safest way of administering insulin is in the TPN bag because when the TPN stops, patients stop getting insulin.
   - If *known diabetes*, call Nutrition and start with 1 unit of insulin for 10-20 g Dextrose in the bag.
   - If stress hyperglycemia *without known diabetes*, start with 1 unit of insulin for 20-30 g Dextrose in the bag.
   - Use the correction Lispro scale every 4 or 6 hours as needed.

9. If unable to add insulin to TPN, start insulin therapy per TF tips above.

Steroids:

10. Give NPH insulin *at the same time* as the steroid dose in patients with diabetes or stress hyperglycemia. This is *in addition* to any other insulin the patient is receiving, and depends on factors such as sensitivity to insulin, previous NPH doses, dose of steroids, etc.
   - For a prednisone-equivalent dose of 20-60 mg in a patient “naïve” to NPH with previous steroids: 5-10 Units if insulin-sensitive OR 10-20 Units if insulin resistant

For all patients, look at the blood glucoses (BG) daily and decide if the insulin orders need to be changed. *The Glucose Management Team is available for urgent questions 24/7 and sees consults during the day, 7 days/wk - Check AMION for the call schedule.*