DKA Insulin Infusion Protocol

Give initial insulin bolus IV Push ONE TIME per Table 1:

- **Insulin should **NOT** be initiated if serum potassium is less than 3.5 mEq/L**

TABLE 1. INSULIN BOLUS (0.15 units/kg) **Round to nearest WHOLE number**			
Weight (kg)	**Insulin bolus (units) IV Push ONE TIME**	**Weight (kg)**	**Insulin bolus (units) IV Push ONE TIME**
40-43	6	97-103	15
44-49	7	104-109	16
50-56	8	110-116	17
57-63	9	117-123	18
64-69	10	124-129	19
70-76	11	130-137	20
77-83	12	138-143	21
84-90	13	144-149	22
91-96	14	Greater than or equal to 150	23

Initiate Insulin Infusion at 0.1 units/kg/hr **and once blood glucose is <250 continue infusion at 0.05 units/kg/hr *to* keep blood glucose between 120-250 mg/dL.** (100 units Insulin Regular in 100 ml Normal Saline = 1 unit/mL)

- Blood Glucose draws must be obtained from a consistent site DO NOT draw from line with dextrose or TPN infusing.

Adjusting the Insulin Infusion Rate

Evaluate blood glucose and insulin infusion rate each hour.

Blood glucose should be decreased by approximately 50-100 mg/dL per hour. If blood glucose decreases by more than 150 mg/dL per hour, decrease rate of change of insulin infusion by 50% and notify provider.

Begin subcutaneous insulin 2 hours before stopping insulin drip. ** Do NOT abruptly stop insulin drip. Failure to overlap therapies may result in recurrence of DKA.**

RN to document each insulin infusion rate change

Nurse MUST accompany patient to any diagnostic tests outside of the ICU while on insulin infusion

Converting Insulin Infusion to Scheduled Subcutaneous (subcut) Insulin

1. A physician's order is necessary to convert the insulin infusion to scheduled subcutaneous long-acting insulin.

2. **Note: Patients <u>without</u> a history of insulin-requiring diabetes who are receiving less than 2 units/hour of IV insulin may <u>not</u> require transition to scheduled subcutaneous insulin.** For these patients, consider starting "low dose" sliding scale insulin regular (SSI-regular).

3. Conversion Recommendations:

   a. Determine the Total Daily Insulin (TDI) requirement (units/day)
   i. Determine the average hourly rate over the last 8 hours in units/hr and multiply by 24 hours

   b. Basal Insulin: Long-acting insulin (e.g. insulin detemir) Dose (*If long-acting insulin dose is greater than 60 units, the dose should be split in half and given twice daily)*
   i. Administer 50% of TDI requirement as long-acting insulin subcutaneously every 24 hours
   ii. Discontinue insulin infusion 2 hours after administration of first long-acting insulin dose
   iii. Physician to reassess long-acting insulin dose every 24 hours

   c. Prandial Insulin: Short or Rapid-acting Insulin Dose
   i. Administer the other 50% of the TDI requirement as rapid-acting insulin (e.g. insulin aspart) subcutaneously in 3 divided doses with meals ii. If patient is on enteral nutrition, divide into 4 doses of short-acting insulin (e.g. **insulin regular)** and give every 6 hours. If enteral feeds are stopped abruptly, start an IV infusion containing 10% Dextrose (D10W), at the same rate as the feedings and **HOLD** scheduled short-acting insulin.
   iii. If patient is NPO or not eating, then HOLD schedule short/rapid acting insulin.

   Note: Short/rapid acting insulin can be adjusted to allow for changes in diet/steroids/etc. It may be adjusted or held based upon patient conditions.

   (***Example**: 2 units/hr average for last 8 hours x 24 hr = 48 units/day. Give long-acting insulin 24 units* subcutaneously *every 24 hours and rapid-acting insulin 8 units* subcutaneously *TID with meals).*

   d. FSBG monitoring
   i. If patient is eating: Begin FSBG with meals and at bedtime and at 0300
      1. Cover with UMC standard Sliding Scale Insulin Aspart **in addition** to scheduled insulin aspart with meals ii. If patient is NPO:

   Begin FSBG every 3 hours
      1. Cover with UMC standard Sliding Scale Insulin

   e. Order correction insulin (SSI) which is given regardless of nutrition status to cover hyperglycemia
   i. Low Dose Scale: recommended for patients on less than 40 units of scheduled insulin/day
   ii. Moderate Dose Scale: recommended for patients on 40 - 100 units of scheduled insulin/day

iii. High Dose Scale: recommended for patients on greater than 100 units of scheduled insulin/day

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