

University Hospital Clinical Practice Guideline
Diabetic Ketoacidosis (DKA) Guideline for Adult Patients

Definitions:

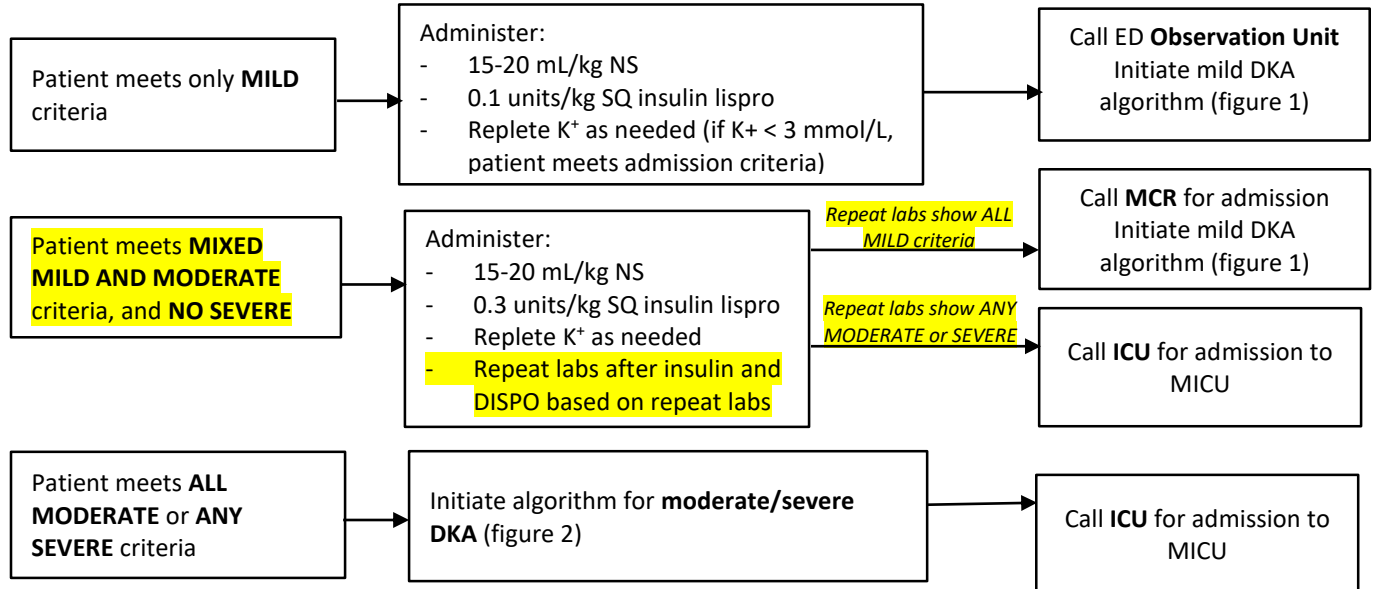
- DKA is a triad of hyperglycemia, ketonemia and anion gap metabolic acidosis
- DKA further defined as mild, moderate and severe based:
 - o Disposition Criteria defined by BG > 250 mg/dL **PLUS** pH and sodium bicarbonate
- Euglycemic DKA is a rare event that is sometimes associated with SGLT2 inhibitors. Management should be based on its severity and etiology

Criteria	Mild	Moderate	Severe
Blood Glucose	> 250 mg/dL	> 250 mg/dL	> 250 mg/dL
pH	7.25 – 7.3	7 – 7.24	< 7
Sodium bicarbonate (mEq/L)	15 – 18	10 – < 15	< 10
Ketones (urine, serum)	Positive	Positive	Positive
Anion gap (AG) [‡]	> 10	> 12	> 12
Effective serum osmolality [‡]	Variable	Variable	Variable
Mental status	Alert	Alert/drowsy	Stupor/coma

[‡]Effective serum osmolality= 2 [measure Na⁺ (mEq/L) + glucose (mg/dL)/18]
[‡]AG= (Na⁺)-[Cl⁻ + HCO₃⁻ (mEq/L)], **DO NOT** use corrected sodium in calculation

Disposition:

**Please note that the type of insulin that is administered (IV vs. SubQ) determines patient disposition. In patients with less severe forms of DKA, it is recommended to start subcutaneous insulin (similar efficacy as IV insulin)^{1,2,3,4} and repeat labs to determine need for insulin infusion and disposition*



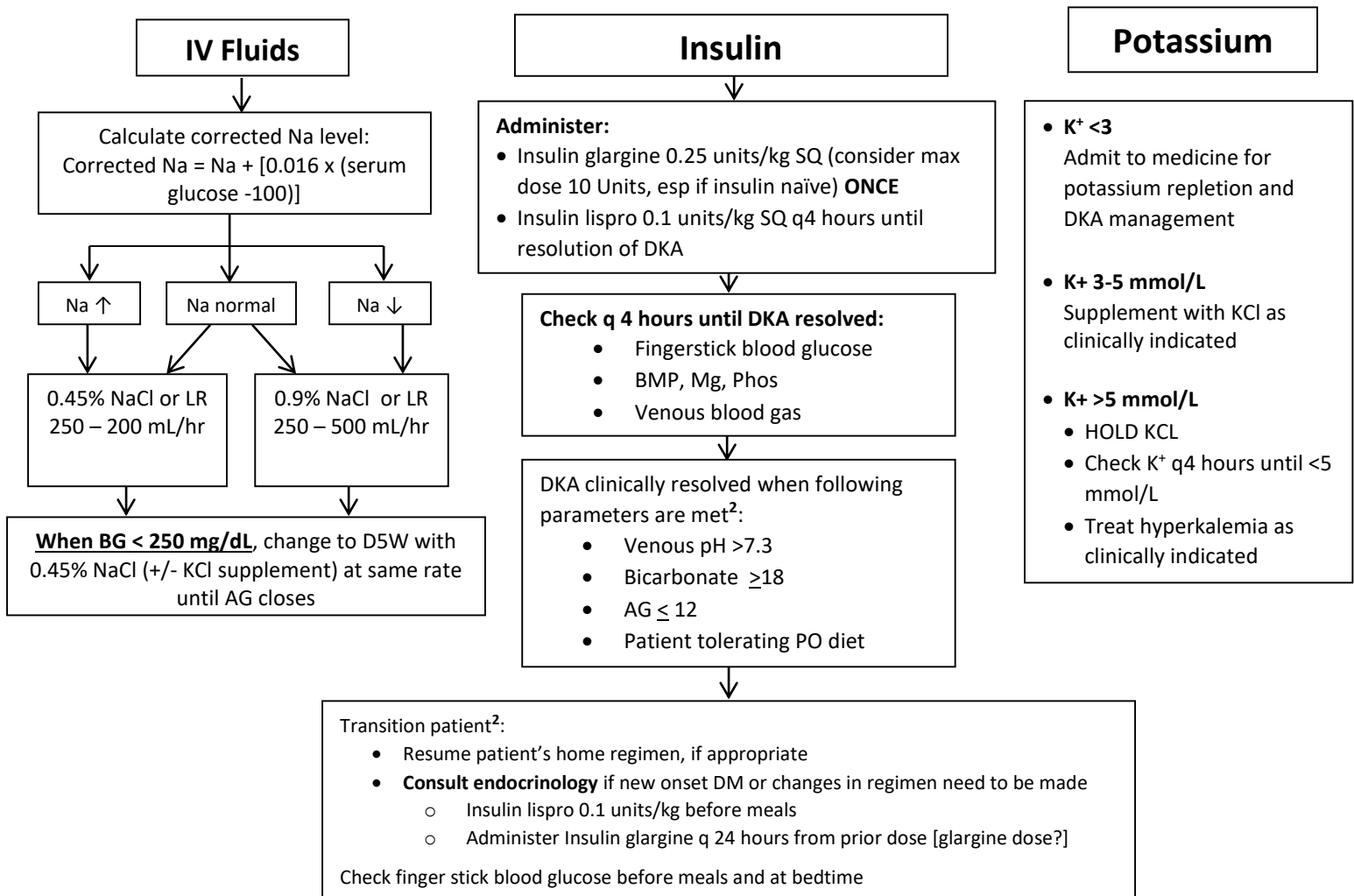
Labs and vitals:

- Obtain baseline metabolic panel (BMP), phosphorus, magnesium, acetone, anion gap, venous blood gas, complete blood count with differential, HbA1c, troponin
- If warranted, the following should also be obtained: urinalysis, ECG, chest x-ray, pregnancy test
- Consider blood, urine and sputum cultures if infection suspected
- Obtain vital signs Q4 hours, Q1 hour in MICU/ED
- Obtain endocrine consult for new onset diabetes once patient stabilized

Guidelines are intended to be flexible. They serve as reference points or recommendations, not rigid criteria. Guidelines should be followed in most cases, but there is an understanding that, depending on the patient, setting, circumstances or factors, guidelines can and should be tailored to fit individual needs.

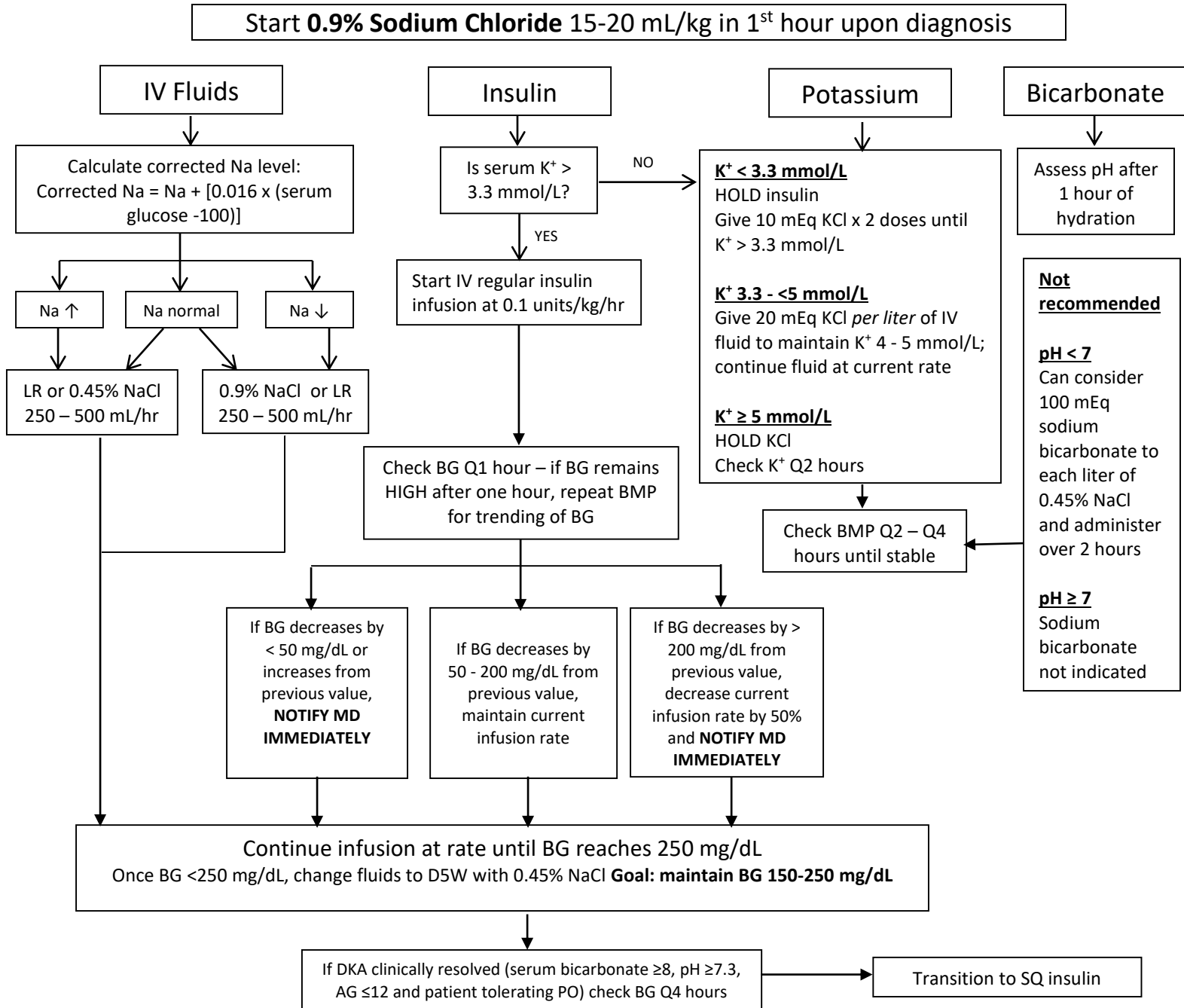
Figure 1. Mild DKA Treatment Algorithm

- Consider moderate/severe treatment algorithm for: ESRD, hypotension after initial IVF, myocardial infarction, potassium ≤ 3 mmol/L, pregnancy
- Initial evaluation should include:
 - Labs: basic metabolic panel, phosphorus, magnesium, venous blood gas, complete blood count, hemoglobin A1c [not emergent], urinalysis, pregnancy test (if appropriate), cultures if infection suspected
 - EKG and Chest X-ray
- Consult: Admitting team to consult **endocrinology** on patients admitted for mild DKA, especially new diabetics or when changes need to be made in home insulin regimen



1. Use caution in patients with congestive heart failure, chronic kidney disease, chronic liver impairment, and/or in the setting of fluid overload
2. If DKA is not clinically resolved by 8-12 hours of following this treatment algorithm, consider that patient may require an insulin infusion or may have an underlying untreated infection, myocardial infarction, or starvation ketosis.

Figure 2. Moderate/Severe DKA Treatment Algorithm



¹Use caution in patients with congestive heart failure, chronic kidney disease, chronic liver impairment, and/or in the setting of fluid overload

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