

Aim: To improve the care of diabetic children and reduce hospital admission when possible.



1st lab draw

1 hr

2 hr

3-4 hr

HHS?

- Stop insulin
- Aggressive IVF
- Consult Endo

Osmolality

$$2 \times \text{Na} + \text{Glu} / 18 + \text{BUN} / 2.8$$

Step 1: Initiate ED DKA Order Set

- **Labs:** POCT VBG & CHEM8 (or BMP), Mg, CBC/diff, BHOB (or UA), A1C
- **IV access:** If initial pH ≤ 7.2 or **any** high risk criteria – **two** IVs
- **IVF & Rx:** NS over 1h (≤ 36 mo 10 mL/kg, > 36 mo 20 mL/kg); consider antiemetic
- **Disposition:** Place admit order or prepare for discharge

Insulin pump?

- No pump boluses
- Treat with IV or SubQ insulin
- **STOP** basal rate if treating with IV insulin
- **KEEP** basal rate if treating with SubQ insulin (if no pump failure)

LOW RISK

- pH > 7.2 or $\text{HCO}_3^- > 10$
- Known diabetic (not new onset)
- Reliable home care & parent comfort
- Insulin pump failure

MEDIUM RISK

- pH 7.1–7.2 or $\text{HCO}_3^- 6-10$
- Unreliable home care or parent discomfort
- New onset

HIGH RISK (any of the following)

- pH < 7.1 or $\text{HCO}_3^- \leq 5$
- Glu > 1000
- Age ≤ 36 mo
- BUN > 30
- GCS ≤ 13
- Osm > 330
- Abnormal neuro exam
- K < 3

Place order for fluids and insulin

- Labs: POCT glucose
- IVF: NS at maintenance
- Begin PO fluids (sugar free)
- Patients can take PO if low risk (no insulin drip), including those with new onset diabetes. Give SubQ insulin first using home carb correction, if known, or dosing above if not known. If the patient doesn't eat all carbs, substitute juice or other high carb liquid.

Glucose	Insulin (Humalog)
1h ≥ 300	0.1 U/kg SubQ
1h < 300	Home correction dose consider ED discharge

SubQ patient?

- Continue NS, **NOT** Bags 1 & 2
- Use Humalog pen, **NOT** home insulin

Insulin dwell time?

Not necessary
Consider for stable neonatal patients

Place order for IV fluids and insulin drip

- Labs: POCT glucose
- IVF: NS at 1.5 maintenance until bags 1 & 2 available
Continue NS if anuric (not bags 1 & 2)
Consider further boluses if hemodynamic instability
If treating with SubQ, continue NS (not Bags 1 & 2)

Glucose	IVF and rate
> 350	NS 20K-phos+20K-acetate at 1.5 maintenance
250–350	NS 20K-phos+20K-acetate at $\frac{3}{4}$ maintenance AND D10 NS 20K-phos+20K-acetate at $\frac{3}{4}$ maintenance
< 250	D10 NS 20K-phos+20K-acetate at 1.5 maintenance

Do not start maintenance fluids until after the initial NS bolus.

pH/ HCO_3^-	Age	Insulin dose and route
≤ 7.2 or ≤ 10	≤ 36 months	0.05 U/kg/h IV drip (Regular)
	> 36 months	0.1 U/kg/h IV drip (Regular)
> 7.2 and > 10	≤ 36 months	0.05 U/kg/h IV drip (Regular)
	> 36 months	0.1 U/kg SubQ (Humalog)

Pump patient?

- SubQ until ketones & glucose improving (home correction; see PowerPlan link)
- If negative ketones, OK to restart pump if not pump failure
- Change pump site & set at home

Discharge criteria

- Not new onset
 - Reliable home cares
 - Parent comfort
 - Tolerates PO
 - Stable or improved HCO_3^- on CHEM8
- Discuss home plan with Endo; review insulin, glucose/ketone plan with family; next day clinic or phone f/u

Continue rehydration

- Labs: POCT glucose (consider repeat CHEM8)
- IVF: Continue maintenance NS

Prepare for transfer of care

- Labs: POCT glucose before transfer to inpatient
- Dispo: High risk to ICU; medium risk to floor (Hosp.)

Prepare discharge

- Labs: POCT glucose (consider repeat CHEM8)
- Dispo: ED discharge vs. admit
(Consider admit for those with unreliable follow-up)

Disposition is based on need for an insulin drip

- STP ED patients, admit to:
 - STP PICU if on an insulin drip
 - MPLS floor if not on an insulin drip
- MPLS or outside ED patients, admit to:
 - MPLS PICU if on an insulin drip
 - MPLS floor if not on an insulin drip

Insulin therapy during EMS transport to be decided on a case-by-case basis

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