Comer Emergency Department (ED) Clinical Guidelines:
Insulin Pumps

General Considerations:
- Any child with diabetes mellitus (DM) in ED requires a call to Pediatric Endocrine (PEND) physician on-call (pg 9296), if the problem is diabetes related, otherwise always check urine ketones and call PEND if positive after obtaining BMP and pH.
- If blood glucoses are high +/- ketones \(\rightarrow\) assume pump is not delivering insulin
- If blood glucoses are normal and not in ED for DM related issues would make note of pump settings and have patient run automatic function check
- Insulin pumps deliver a pre-programmed basal rate that is approximately 50% of total daily dose (TDD) of insulin as well as bolus insulin for meals (based upon carbohydrate to be ingested) and hyperglycemia correction (based upon predetermined sensitivity) manually and controlled by the individual wearing the pump, and equivalent to approximately 50% of TDD.
- All pumps should have a 24/7 support telephone line (usually located on the back of the pump), through which, the patient can reach support for questions concerning technical problems that arise regarding use of their pump.

1). No DKA but with other acute illness
- Trace-small ketones
- pH 7.3-7.4
- Test pump and if delivery of insulin is adequate leave it on but change site (NOT all supplies for changing pump site are readily available in the ED)
- Use SQ or IV insulin to clear ketones or use pump sensitivity setting q 2hr until clear in blood after discussion with PEND on call..
- Check urine ketones q void; call PEND if positive

2). Mild-moderate DKA
- Moderate to large ketones
- pH 7.26-7.3
- Use SQ or IV insulin to clear ketones
- Call PEND for insulin recommendations
- Change site and check pump function using autocheck
- Continue with exogenous insulin until clear, checking blood glucose and ketones q 2 hrs
- If not clearing ketones, admit for IV insulin and IV fluid management to PICU or floor depending upon need for IV insulin (see DKA clinical guidelines)
- Replace fluid deficit with NS via bolus then remainder of calculated deficit plus maintenance fluids, using DKA clinical guidelines

3). Severe DKA
- pH <7.25
- Remove pump and follow DKA clinical guidelines and Peds ER DKA order set