NICU Glucose Management

AKA The Insulin Protocol

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Background

- Insulin causes about 10-12 cases of hypoglycemia per year in the NICUs at Children's, system-wide
- While clinical outcomes data are limited with neonates, use of insulin is recommended to keep blood glucose (BG) < 200
- Significant practice variations exist with regard to the use of insulin for hyperglycemia of critical illness at Children's
- Use of a computerized, standard insulin titration protocol can reduce hypoglycemia associated with insulin use

What is it?

- The NICU Glucose Management PowerPlan, hereafter referred to as the "protocol", is being activated January 19th, and will run within Cerner.

- The Protocol will be ordered by providers in one of the following ways:
  - Preemptively for patients likely to need insulin
  - Based on glucose results and failure of other glucose management interventions

- The Protocol will trigger nursing alert messages based on the glucose values and insulin infusion rates that are documented in the EMR.

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Who will and will not be managed with this protocol?

- Will
  - Patients who require insulin for the treatment of hyperglycemia

- Will not
  - Patients who require insulin for the treatment of hyperkalemia
  - Patients with a known or suspected endocrine problem
  - Patients for which the provider deems the protocol is not appropriate

Nursing alert messages

- '***Alerts***' notify the nurse of
  - Infusion rate changes
  - Need to obtain glucose values
  - Need to notify care providers

- '***Alerts***' are triggered by documentation of the infant's glucose values.
  - *It is imperative that these values are documented in a timely manner!*
  - *These values will automatically populate the EMR when downloaded from the Point of Care Nova StatStrip Glucose meter-DO NOT manually enter your glucose level*
  - *Alerts are immediate after downloading*

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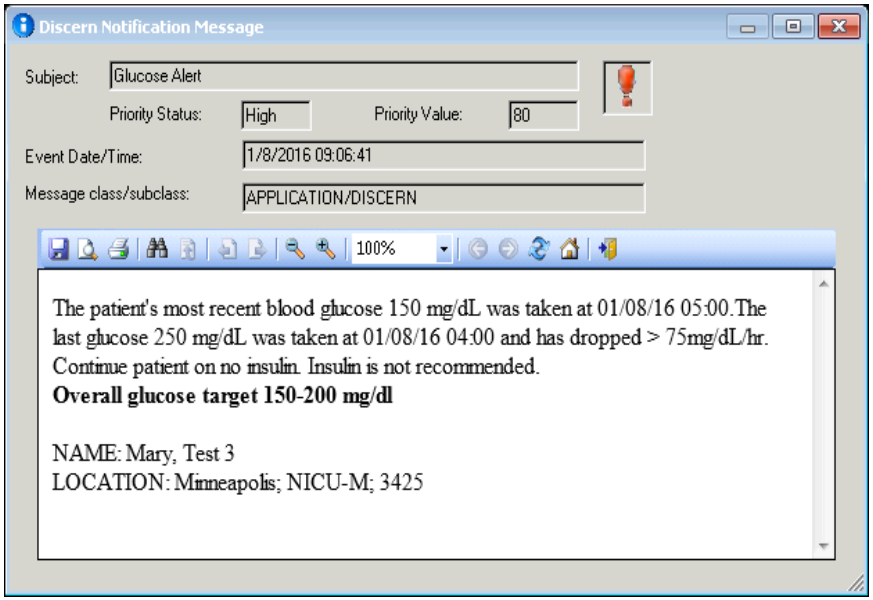
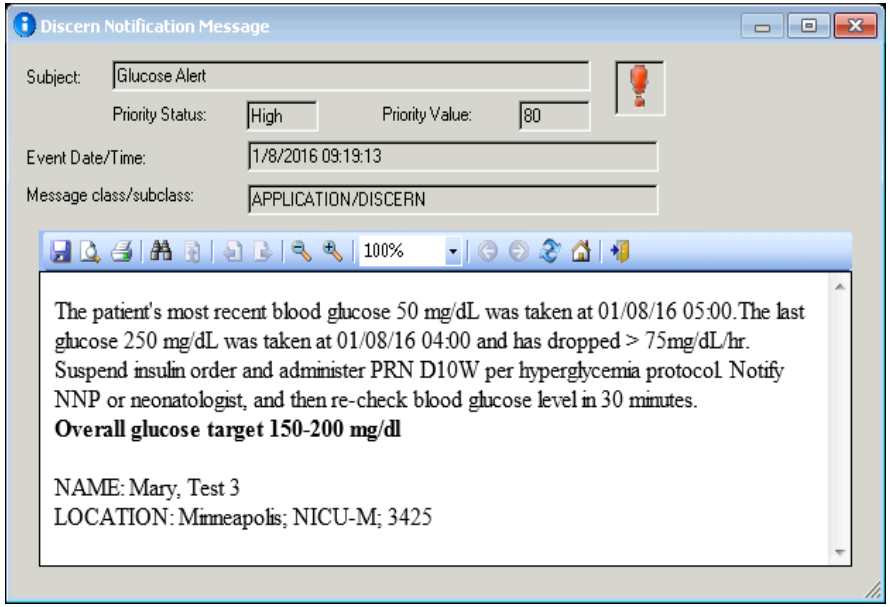
Examples of nursing alerts





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Keys to accurate nursing alerts

- Alerts rely on the *last documented* value for blood glucose and insulin infusion rates.

- Infusion rate must be documented as zero (0) when the infusion is suspended or discontinued or the alerts will fire with unreliable information.

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Keys to accurate documentation

- Rate changes may be documented in either the MAR or iAware **EXCEPT** when you stop or suspend the infusion. Then a rate of zero (0) **must be** documented in the MAR

- All rate changes **require an independent double check and dual signature**, in the EMR **at the time of the rate change**.

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Keys to insulin tubing changes

- Insulin tubing is to be changed every **96 hours** (this is new practice!).
  - Insulin binds to the IV tubing over approximately 6 hours and therefore the tubing should not be changed more often or the dose may vary.

- Insulin bags/syringes will continue to be changed every 24 hours
  - Document a new bag/syringe with “begin bag” in your MAR

- Reference the IV Cap and Tubing Changes with Continuous Hang Time Grid on the Nurse Web
  - http://khan.childrensmn.org/Web/CPDP/TablesGrids/187632.pdf

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FAQs

- Where in the EMR will my alert fire?
  - Alerts will fire on whatever screen you are on.

- How fast will the glucose download happen?
  - Very quickly once placed back into the dock, and the alert is immediate once downloaded.

- How frequently do I check glucoses?
  - Q1 hour while on insulin. Perhaps more or less frequently based on the last charted glucose value and the insulin infusion rate. Frequencies are built into the algorithm and will fire with your alerts.

FAQs

- What happens when Cerner is down?
  - Print a copy of the algorithm from the Clinical References
    - StarNet > References > Clinical > Guides > Glucose Management Grid
  - Your alerts will not fire
  - You will chart on paper
  - Each glucose will need to be reported to the provider who will order the appropriate action based on the algorithm
  - After the downtime you will need to go into Cerner and record all of your rate changes
  - Glucose results will be automatically entered by the system after the downtime is over

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FAQs

- What if I forget to document an insulin rate change and my alert is not accurate?
  1. DO NOT ACT on inaccurate alert
  2. Document rate change in the EMR, with independent double check and dual signature, at the time the change occurred
  3. Check another glucose immediately
  4. Act on the new alert

How do I…?

- Remove the alert from my screen?
  - Minimize the window. You will not be able to close the window.

- Order a glucose using a conditional order?
  - Orders screen > Add > POCT glucose
  - Enter the ordering physician
  - Select “Conditional” as the order communication type

- Suspend my insulin infusion?
  - Right click on insulin order in the “Orders” screen
  - Select “suspend” as the action
  - Enter the ordering physician
  - Select “Conditional” as the order type

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What do I if…?

- My patient is receiving insulin and not on the protocol?
  - Provider will order insulin drip
    - May provide titration orders to maintain a target glucose level
    - May choose to be notified Q1 hour with each glucose result and order insulin infusion changes accordingly
  - Check glucose Q1 hour while on insulin drip (this is standard per CHC Policy #349.00 Insulin Management *unless otherwise ordered by the provider*)
  - When insulin is suspended or discontinued you will need to obtain a provider order for glucose checks (this is NOT covered in CHC Policy #349.00)

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Questions? Please contact Laurie Love, APRN, CNP, CPS, Jennifer Rivera, APRN, CNS or your Clinical Educator

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