Sodium bicarbonate injection (Adults) Update June 2017

**What?** IV sodium bicarbonate is on critical national shortage and supplies are critically low. Due to the critical nature of the shortage, use is being restricted to patients in the Emergency Department, ICU, and surgery. The current CPOE soft stop alert will be changed to a hard stop alert, which provides alternative options for oral therapy. If an alternative cannot be used, the alert will prompt the prescriber to contact the pharmacist. The pharmacist will need to discuss alternative options with the prescriber (see below). If an alternative cannot be used, and supply is available to dispense a sodium bicarbonate infusion, the order may not exceed 2 bags. The prescriber would need to reevaluate the patient after the 2 bags are complete.

Additional actions being taken are centralization of stock per the P&T approved action plan. In addition, the pharmacy is pursuing ordering Australian (Phebra’s) sodium bicarbonate injection, which the FDA is allowing importation of during the critical national shortage. It is important to note that Phebra’s sodium bicarbonate injection is the same concentration, 8.4% (1 mEQ/mL) as the U.S. product but it is provided in 10 mL single use vials. Also, Phebra’s formulation contains disodium edetate and sodium hydroxide (for pH adjustment).

**Alternative options per P&T plan:**
- **Oral replacement:**
  - Bicitra (citric acid-sodium citrate) solution 30 mL q8h [1 mL of solution = 1 mEq of bicarbonate]
  - Sodium bicarbonate 650mg tabs q6h [1 tab = 7.7 mEq of sodium bicarbonate]
- **IV infusion replacement:**
  - Na Acetate infusion 176 mEq in 912 mL sterile water for injection
  - Note: Na acetate injection is on national shortage and supplies are limited. Na Acetate is not an appropriate alternative in patients with liver failure.

**Pharmacists will contact prescribers to discuss alternatives based upon the following guidance.**
- **IV sodium bicarbonate is reasonable for the following indications:**
  - Management of overdose of certain drugs, including tricyclic antidepressants and aspirin
  - Urine alkalization with high-dose methotrexate therapy
  - IV push for acidosis secondary to prolonged cardiac arrest
  - IV push for hyperkalemia refractory to other therapies or resulting in cardiac arrest
  - IV push for metabolic acidosis with pH < 7.2 or requiring vasopressor support (pH < 6.9 for metabolic acidosis secondary to DKA)
- **Sodium acetate may be used as an alternative to sodium bicarbonate infusions (not IV push) where there is a metabolic acidosis with serum bicarb <20. Select the “Sodium Acetate Infusion” set (176 mEq in 912 mL) in Med Manager.**
- 1 mEq of acetate is equivalent to 1 mEq of bicarbonate
- Na Acetate is not an appropriate alternative in patients with liver failure
  - Sodium bicarbonate is not recommended for the prevention of contrast-induced nephropathy due to lack of benefit compared with sodium chloride.
  - Clinical evidence is lacking and sodium bicarbonate is generally not recommended for the prevention of acute kidney injury secondary to rhabdomyolysis unless severe.
  - Sodium bicarbonate 4% inhalation solution may be used for respiratory therapy as supply allows.

Centralization of stock per P&T plan:
- Sodium bicarbonate syringes will be removed from Emery House carts and centralized in pharmacy as required by shortage.
- Sodium bicarbonate syringes will remain in the yellow bags delivered to Emery House calls by pharmacy.
- Sodium bicarbonate syringes will remain in the ICU and Emergency Department Omnicells and OR procedural trays/boxes for use during emergency situations as shortage allows.

When? Effective Friday June 23, 2017

Why? The above plan is being implemented due to severe national shortage. In addition, a recent recall of the U.S. sodium bicarbonate vials has led to the Methodist system stock to become critically low. The above action plan for restrictions and alternatives was approved by P&T and MEC in April of 2017.