SODIUM BICARBONATE

DRUG CLASSIFICATION	Systemic Alkalinizing **/** Antacid Agent Hydrogen Ion (H^+) Electrolyte Supplement
MECHANISM OF ACTION	Sodium bicarbonate is a systemic alkalizer, which increases plasma bicarbonate, buffers excess hydrogen ion concentration, and raises blood pH, thereby reversing the clinical manifestations of acidosis. As a urinary alkalizer, it increases the excretion of free bicarbonate ions in the urine, thus effectively raising the urinary pH. Sodium bicarbonate acts as an antacid and reacts chemically to neutralize or buffer existing quantities of stomach acid but has no direct effect on its output. This action results in increased pH value of stomach contents, thus providing relief of hyperacidity symptoms.
CLINICAL INDICATIONS	Symptomatic Hyperkalemia or Cardiac Arrest with Underlying History of Dialysis / Renal Failure Crush Syndrome Trauma Entrapped > 2 Hours with Evidence of Symptomatic Hyperkalemia, Hemodynamic Instability, or Cardiac Arrest Tricyclic Antidepressant Overdose with Evidence of Hyperkalemia (QRS ≥ 0.12 seconds)
STANDARD CONTRAINDICATIONS	Hypersensitivity to Synthetic Sodium Bicarbonate Solution or Relative Components Known or Suspected Chloride Loss (i.e., by Vomiting or Continuous GI Suctioning) Concomitant Use with Diuretics that Produce Hypochloremic Alkalosis
POTENTIAL ADVERSE EFFECTS	Metabolic Alkalosis **/** Cellulitis **/** Injection Site Extravasation **/** Skin Ulcer **/** Tissue Necrosis
GENERAL RISKS & PRECAUTION	**1)** Use caution in patients with renal impairment due to increased risk for sodium retention. **2)** Use caution in presence of anuria or oliguria due to increased risk for excessive sodium retention. **3)** Use caution in children < 2 years old; rapid injection of hypertonic solutions may result in decreased CSF pressure or intracranial bleeding. **4)** Edematous conditions with sodium retention (e.g., CHF, severe renal insufficiency) have an increased risk for worsening sodium retention. **5)** Avoid extravasation of IV hypertonic solutions due to risk of chemical cellulitis, tissue necrosis, ulceration, or sloughing at infiltration site. **6)** Avoid risk of fluid and/or solute overloading resulting in electrolyte dilution, overhydration, congested states, and pulmonary edema. **7)** Consider hyperkalemia with wide complex, bizarre appearance of QRS complex, and bradycardia. Give Calcium Chloride or Gluconate in addition to Sodium Bicarbonate if hyperkalemia suspected. **8)** If patient suspected of Excited Delirium Syndrome suffers cardiac arrest, consider a fluid bolus and sodium bicarbonate early. **9)** Sodium Bicarbonate and Calcium Chloride / Gluconate should not be mixed. Ideally give in separate lines.
PROTOCOL INDEX	Dialysis / Renal Failure (AM-3) Crush Syndrome Trauma (TB-3) Overdose / Toxic Ingestion (TE-7)

MEDICATION ADMINISTRATION

ADULT

Systemic Signs of Crush Syndrome with Prolonged Entrapment > 2 Hours
50 mEq [IV/IO]

Tricyclic Antidepressant Overdose with QRS ≥ 0.12 seconds:
50 mEq [IV/IO]
Repeat in 10 minutes as needed.

Renal Crisis in the Presence of Cardiac Arrest
50 mEq [IV/IO]

Renal Crisis with SBP ≥ 90 mmHg and ECG Evidence of Hyperkalemia
50 mEq [IV/IO]

PEDIATRIC

Systemic Signs of Crush Syndrome with Prolonged Entrapment > 2 Hours
1.0 mEq / kg [IV/IO]

Tricyclic Antidepressant Overdose with QRS ≥ 0.09 seconds:
1.0 mEq / kg [IV/IO]
Repeat in 10 minutes as needed.