

# CRYSTALLOID: LACTATED RINGERS

<b>DRUG CLASSIFICATION</b>	Sterile / Nonpyrogenic Isotonic Crystalloid Solution Parenteral Alkalinizing Agent
<b>MECHANISM OF ACTION</b>	Contributes to globally expanding intravascular volume, increasing preload and thus, improving overall perfusion. As an alkalinizing agent, it induces metabolic alkalinizing action of lactate, promoting formation of bicarbonate in the bloodstream which, ultimately provides bioenergetic fuel necessary for metabolism performance. Capable of inducing diuresis depending upon clinical condition.
<b>CLINICAL INDICATIONS</b>	Standard / Preferred Method of Intravascular Volume Replenishment for Sepsis and Critical Burn Victims May be considered as a method of pre-catheterization hydration for STEMI patients
<b>STANDARD CONTRAINDICATIONS</b>	Hypersensitivity to Lactated Ringers Solution, Sodium Lactate, or Other Relative Components Suspected Prevalence of Acute Pulmonary Edema Suspected Prevalence of Acute Cerebral Edema or Elevated ICP Concomitant Administration of Ceftriaxone to Neonates (28 or less days of age)
<b>POTENTIAL ADVERSE EFFECTS</b>	Angioedema / Urticaria / Extravasation Injury / Electrolyte-Level Disruption / Dysrhythmias / Hypervolemia / Peripheral Edema / Pulmonary Edema / Dyspnea
<b>GENERAL RISKS &amp; PRECAUTION</b>	<b>1)</b> Use with caution for patients with severe heart disease due to high risk for fluid and solute overload. <b>2)</b> Use with caution in the presence of Type II Diabetes due to lactate being a substrate for gluconeogenesis. <b>3)</b> Use with extreme caution in cases of severe hepatic insufficiency due to risk of impairing lactate metabolism. <b>4)</b> Use with extreme caution for patients with hyperkalemia or similar types predisposing conditions. <b>5)</b> Lactated Ringers preferred over Normal Saline. Use if available, if not change over once available.
<b>PROTOCOL INDEX</b>	Suspected Sepsis (UP 15) Chest Pain: Cardiac and STEMI (AC-4) Thermal Burn (TB-9)

## MEDICATION ADMINISTRATION

### ADULT

### PEDIATRIC

**Suspected Sepsis (Sepsis Screen Positive)**

500 mL [IV/IO] Bolus; Repeat as needed.  
Titrate SPB  $\geq$  90 mmHg; MAP  $>$  65 mmHg.  
(Maximum 2 L)

**Thermal Burn Victim with TBSA Estimated  $<$  20%**

0.25 mL / kg x (TBSA%) / hour [IV/IO]

**Thermal Burn Victim with TBSA Estimated  $\geq$  20%**

500 mL / hour [IV/IO]

**Acute MI / STEMI Pre-Catheterization Hydration**

250 – 500 mL [IV/IO] Bolus

**Suspected Sepsis (Sepsis Screen Positive)**

20 mL / kg [IV/IO] Bolus; Repeat as needed.  
Titrate age appropriate SBP  $\geq$  70 + 2 x Age.  
(Maximum 60 mL / kg)

**Thermal Burn Victim with TBSA Estimated  $<$  20%**

0.25 mL / kg x (TBSA%) / hour [IV/IO]

**Thermal Burn Victim with TBSA Estimated  $\geq$  20%**

125 mL / hour [IV/IO] *if age  $\leq$  5 years old*  
250 mL / hour [IV/IO] *if age 6 to 14 years old*  
500 mL / hour [IV/IO] *if age  $\geq$  15 years old*