



February 12, 2014

Medication shortage is not new to the practice of emergency medicine and pre-hospital medicine. It affects all levels of clinical care and calls for a malleable approach to protocol generation and interpretation. As highlighted in a recent announcement by the DMEMSMD (March 14, 2012) medication shortages and life threatening conditions do not always follow the same timeline and seemingly arbitrary schedules for expiration may require extension. Under the umbrella of safety and the patient's best interests, short-term shortages in supply have demanded short-term adjustments in protocol.

Along this line, we have seen a recent decrease in supply and access to 0.9% Normal Saline (NS) for EMS agencies to stock for pre-hospital care. It goes without saying that fluid resuscitation is an integral part of pre-hospital medicine and therefore alternative avenues for intravascular volume support are needed in the shadow of this scarcity.

Recent evidence focusing on appropriate resuscitation fluid and delivery rate for shock has yielded a mixed picture as to what is "best". Seemingly, crystalloid fluid in the early phase of therapy carries the most benefit until definitive diagnostic and interventional therapy can be tailored. That said undifferentiated shock warrants fluid challenge with crystalloid.

In the setting of NS short supply we reach to the next best and most suitable crystalloid available, lactated Ringer's solution (LR). As an isotonic solution, LR affords the same, and at times arguably improved intravascular volume support, ionic supplementation and, acid buffering capability to the shocked patient. Effective immediately we authorize the substitution of LR for NS in all indications until this shortage can be mitigated.

Accordingly, EMS agencies forced to substitute will be instructed on appropriate communication with providers at the time of patient hand-off. Likewise, receiving facilities will also be made aware of the substitution to take into account implications on patient serum testing upon arrival.

The Denver Metro EMS Medical Directors and our partners have been faced with similar supply and demand circumstances in the past and ongoing. Every effort to maximize patient care remains the focus and beyond name, we see little difference or downside to the stated substitution. A planned protocol revision will reflect this statement at the next planned revision.

Thank you for your attention to this matter.

Signed,

*The physician members of the Denver Metro EMS Medical Directors Group.*