MEDICATION SAFETY ALERT

(EMS PROTOCOLS FOR ADRENAL CRISIS)

Dear EMS Provider:

Adrenal crisis is a life-threatening condition caused by inadequate adrenocortical function leading to impaired physiological responses to stressors such as illness and injury. This deficit can lead to hypotension, hypoglycemia, shock, and death. Immediate intervention can be lifesaving. You may be encountering an adrenal crisis if: the patient takes hydrocortisone, prednisone, dexamethasone, or other glucocorticoids on a regular basis; and/or is having signs/symptoms including: nausea, vomiting, hypotension, and/or altered mental status. ***Patients may carry cards or instructions from their physician for management of adrenal crisis with injectable hydrocortisone; if not, follow dosing recommendations below and contact/inform medical control.***

The following recommended treatment reflects current consensus-based guidelines.[1]

- 2 mg/kg INJECTABLE **HYDROCORTISONE** (as sodium succinate or sodium phosphate) up to a maximum of 100 mg
- Can be given: IM/IV/IO/SC
- General rule: Err on the higher side of a dose range

For **suspected or confirmed adrenal crisis,** it is imperative to meet the following medication safety conditions:

- **FIRST-LINE MEDICATION**: HYDROCORTISONE
- **RIGHT TIMING**: STAT/IMMEDIATELY
- **RIGHT DOSE**: Weight-based dose and/or Age-based dose / Pediatric vs. Adult

Age-Based Dose Recommendations	**Weight-Based Dose Recommendations**
• <3 years = 25 mg • 3 to <10 years = 50 mg • 10 years and older = 100 mg	• Adult: 100 mg • Pediatric: 2 mg/kg* to a maximum of 100 mg *Round up to the nearest 10 mg, e.g., 22.5 kg = 50 mg HYDROCORTISONE Sample pediatric dosing calculations: • 10 kg (22 lb) = 20 mg • 30 kg (66 lb) = 60 mg • 50 kg (110 lb) and up = 100 mg

When possible, IV fluids (normal saline with dextrose) should be given: 20 mL/kg bolus (repeat up to 60 mL/kg).

Hydrocortisone is the steroid (glucocorticoid) of choice for adrenal crisis due to its rapid onset of action and its mineralocorticoid activity (needed for primary adrenal disease). Dexamethasone, along with adequate saline resuscitation, is an acceptable alternative (second-line) approach and can be used to prevent a delay in emergency therapy when injectable hydrocortisone is not immediately available. Note that dexamethasone, compared to hydrocortisone, has a delayed onset of action and lacks mineralocorticoid activity. Contact medical control if the patient is carrying alternate glucocorticoid medications.

We encourage EMS directors to make injectable hydrocortisone available on rigs and enable its administration by EMS personnel.[2] **Kindly review and revise protocols accordingly.**[3]

Thank you for your prompt consideration of this vital clinical alert.

Kindest regards,

CARES Foundation Medical and Scientific Advisory Board

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[1] https://nasemso.org/wp-content/uploads/National-Model-EMS-Clinical-Guidelines-2017-Version2.1-29June2018-1.pdf- (NASEMSO)
[2] https://hscssl.unm.edu/EM/PED/emsc/training/adrenal/adrenal.html (EMS Training Module)
[3] https://academic.oup.com/jcem/article/101/2/364/2810222 (Endocrine Society Guidelines)

The following organizations endorse this medication safety alert: