

POSITION PAPER

NATIONAL ASSOCIATION OF EMS PHYSICIANS

SUBCUTANEOUS EPINEPHRINE FOR OUT-OF-HOSPITAL TREATMENT OF ANAPHYLAXIS

David C. Cone, MD, for the National Association of EMS
Physicians Standards and Clinical Practice Committee

1. **The use of subcutaneous epinephrine (SCE) by advanced life support (ALS) personnel for the treatment of anaphylaxis in the out-of-hospital setting has generally been shown to be safe and effective. The potential for harm following administration of SCE is extremely small but not nonexistent, and primarily involves the inappropriate administration to patients who are not actually experiencing anaphylaxis. There are several case reports of adverse effects following field use of SCE, but no formal studies document any systematic hazards from SCE, and concerns regarding cardiac effects in the elderly appear to be unfounded.**
2. **No organized studies document the safety, efficacy, or effectiveness of SCE administered by basic life support** (BLS) personnel using epinephrine auto-injectors (EAI) in the field. Despite this lack of evidence, and in a climate of increased political activity surrounding this issue,^{1,2} many emergency medical services (EMS) systems already have or are planning to adopt EAI use by basic emergency medical technicians (EMT-Bs). In addition, a number of states have enacted legislation or regulation requiring that BLS ambulances carry EAIs, that BLS personnel at certain levels of training be trained and authorized to use EAIs, or both.
3. **A certain amount of education regarding the identification of anaphylaxis, the selection of those patients who actually require SCE, and the safe and proper administration of the EAI is needed before providers are authorized to utilize SCE in the field. In particular, issues of safety and biohazards presented by the use of needles are generally new to BLS personnel, and significant training is needed in this area.**
- 3a. **The U.S. Department of Transportation (DOT) National Standard Curriculum for EMT-Bs includes a two-hour module covering allergy and anaphylaxis, including assisting a patient in the use of his or her prescribed EAI with direct** medical oversight. There are no data to suggest whether this amount of education is adequate, or whether the concepts can be extrapolated, without additional training, to the administration of SCE using EAIs carried by EMS units.
- 3b. **The U.S. DOT National Standard Curriculum for First Responders does not include any information regarding allergy, anaphylaxis, or epinephrine. At the present time, there are no studies or data to suggest that first responders can or should use the EAI.**
4. **At the present time, there are no data to support or refute a requirement for direct medical oversight prior to the administration of SCE via EAI by EMT-Bs.**
5. **Strict indirect medical oversight by EMS physicians is strongly encouraged for systems implementing the use of SCE via EAI by all out-of-hospital providers. This should include oversight of the development of treatment protocols; the development and administration of a training and education program, including final evaluation and authorization to administer SCE; and a continuous quality improvement program to monitor the use of EAIs in the field.**

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6. Additional research is needed regarding the use of SCE in the field, at both the ALS and BLS levels. As research data become available, an evidence-based assessment should guide the development and implementation of training and education programs, the refinement of treatment protocols, and the methods by which EMS systems implement the

use of SCE by providers at various levels.

7. At the present time, NAEMSP does not support mandated implementation of SCE by BLS providers through state legislation or regulation.
8. There is currently no evidence demonstrating the effectiveness of EAs used by lay

responders on patients for whom they were not prescribed.

References

1. Goldhaber SZ. Administration of epinephrine by emergency medical technicians [letter]. *N Engl J Med.* 2000;342:822.
2. Food Allergy Network. Emergency medical services epinephrine policies: a state-by-state review. Fairfax, VA: Food Allergy Network, 1999.