Improving Anaphylaxis Treatment in Emergency Medical Services

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Emergency Medical Services & King County Medic One

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Today’s Presenters

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Emergency Medical Services (EMS)

- Levels of service
  - Basic Life Support
    - Emergency Medical Responder (EMR)
    - Emergency Medical Technician (EMT)
  - Advanced Life Support
    - Advanced EMT
    - Paramedic
Emergency Medical Services

- Delivery
  - Fire Department – city, county
    - Mostly career
    - Some volunteer
  - Ambulance – private, hospital, 3rd service
    - Mostly career
    - Some volunteer
Who can administer Epinephrine?

- Paramedics – all
  - Scope of practice

- EMT’s – some
  - State law
  - County Medical Program Director
  - Typically EMT or AEMT
Why DON’T they carry epi?

- Lack of training
- Cost of training
- Cost of auto-injectors
- Legal concerns for the administration of the drug
Public Expectations and Current Law
Researchers reviewed original source statutory and regulatory documents regarding state EMS policy, scope of practice and protocols.

Additional research included telephone and email correspondence with state and local EMS officials.

30 counties were randomly selected and restricted by population density and location.
Setting Expectations

FOOD ALLERGY & ANAPHYLAXIS EMERGENCY CARE PLAN

Name: ____________________________ D.O.B.: _____________

Allergy to: ______________________________________________

Weight: _____________ lbs. Asthma: [ ] Yes (higher risk for a severe reaction) [ ] No

NOTE: Do not depend on antihistamines or inhaler (bronchodilators) to treat a severe reaction. USE EPINEPHRINE.

Extremely reactive to the following foods: ___________________________

therefore:

[ ] If checked, give epinephrine immediately for ANY symptoms if the allergen was likely eaten.

[ ] If checked, give epinephrine immediately if the allergen was definitely eaten, even if no symptoms are noted.

FOR ANY OF THE FOLLOWING:

SEVERE SYMPTOMS

- LUNG: Short of breath, wheezing, repeated cough
- HEART: Palpitations, faint, weak pulse, dizziness
- THROAT: Tightness, trouble breathing, swelling
- MOUTH: Numbness of the tongue and/or lips
- SKIN: Hives over body, widespread redness
- GUT: Vomiting, severe diarrhea

One or a combination of symptoms from different body areas.

1. INJECT EPINEPHRINE IMMEDIATELY.
2. Call 911, tell them the child is having anaphylaxis and they need epinephrine when they arrive.
   • Consider giving additional medications following epinephrine:
     - Antihistamine
     - Inhaler (bronchodilator) if wheezing
   • Lay the person flat, raise legs and keep warm. If breathing is difficult or they are vomiting, let them sit up or lie on their side.
   • If symptoms do not improve, or symptoms return, more doses of epinephrine can be given about 5 minutes or more after the last dose.
   • Alert emergency contacts.
   • Transport them to ER even if symptoms resolve. Person should remain in ER for at least 4 hours because symptoms may return.

MILD SYMPTOMS

- NOSE: Itchy, runny nose, sneezing
- MOUTH: Itchy mouth
- SKIN: Hives, mild rash
- GUT: Mild nausea, discomfort

FOR MILD SYMPTOMS FROM MORE THAN ONE SYSTEM AREA, GIVE EPINEPHRINE.

FOR MILD SYMPTOMS FROM A SINGLE SYSTEM AREA, FOLLOW THE DIRECTIONS BELOW:

1. Antihistamines may be given, if ordered by a healthcare provider.
2. Stay with the person; alert emergency contacts.
3. Watch closely for changes. If symptoms worsen, give epinephrine.

MEDICATIONS/DOSES

- Epinephrine Brand __________________________
- Epinephrine Dose: 0.15 mg IM I 0.1 mg I
- APPROVING DOCTOR/PHYSICIAN SIGNATURE: __________________________
- APPROVING DOCTOR/PHYSICIAN DOSE: __________________________
- Other (e.g., inhaler/bronchodilator if wheezing): __________________________

GUARDIAN/AUTHORIZATION SIGNATURE: __________________________

DATE: __________________________

PHYSICIAN/AUTHORIZATION SIGNATURE: __________________________

DATE: __________________________

FORM PROVIDED COURTESY OF FOOD ALLERGY RESEARCH & EDUCATION FARE (WWW.FOODALLERGY.ORG) 5/2014
Based on the collected data each state was categorized based on the following criteria:

- Epinephrine required on all EMS vehicles.
- No restrictions on personnel to administer epinephrine.
- Epinephrine allowed on EMS vehicles but not required.
- Local medical director can choose to allow EMT-Bs to use rig epinephrine.
- Epinephrine allowed on EMS vehicles but not required.
- EMT only allowed to assist patient with prescribed EAI.
- Lack of clarity on existing law or
- EMT unable to administer epinephrine in any form.
Top Line Findings

States by color category

- 34% No restrictions
- 42% Few restrictions
- 16% More restrictions
- 8% Law unclear or very restrictive
Rig Provision

- States which mandate EAI on rigs
- States leave rig provision of EAI to local control
- States have no official equipment list
- States have equipment/medication lists but do not address epinephrine
Scope of Practice

- **States allow EMTs to use rig EAI**
- **States allow EMTs to assist a patient with their own EAI**
- **States leave EMT use of EAI to local control**
- **States do not allow EMTs to use EAI**
- **States do not clearly define scope of practice in law**
EMS Patient Experiences
Survey Overview

August 2014
More than 2,850 responses
- Received answers from 45 states
- Earliest episode was 1990 but most occurred in last five years
Symptoms that Prompted 911 Calls

What were the symptoms that prompted the 911 call? (Check all that apply.)

- Hives/redness of skin
- Wheezing/difficulty breathing
- Swelling of the face or throat
- Vomiting/diarrhea/gastrointestinal pain
- Low blood pressure/lightheadedness
- Loss of consciousness
- No symptoms, but suspected ingestion of allergenic food or exposure to other allergens
- No symptoms but known ingestion of allergenic food or exposure to other allergens
Communication with EMS

When 911 was called, did the caller inform the dispatcher that the patient was (likely) experiencing an allergic reaction?
EMS Findings

- Had patient received epinephrine prior to 911 being called? Yes 57.7% No 47%
- Had patient received epinephrine prior to 911 arrival? Yes 59.6% No 39.2%
- Vehicle that arrived? BLS 21.9%, ALS 10%, Both 12.7%; Don’t recall 55%
- How long did it take ambulance to arrive? Under 8 minutes 66.8%
- Did EMS give epinephrine? Yes 13.6% No 81.4%
- Source of epinephrine? BLS used stock 78% of time. ALS used stock 87% of time.
Reasons that EMS Did Not Administer Epinephrine

Why did EMS personnel not administer epinephrine?

- Not available on the vehicle: 1.9%
- Personnel not authorized to use it: 7.8%
- Patient does not need it: 36.4%
- Patient refused it: 26.2%
- No reason given: 54.5%

- Yes, a single dose or auto-injector
- Yes, multiple doses or auto-injectors
- No
Patients transported to ED 82.6% of the time
  • For patients who had been given epi by EMS personnel, patient was transferred to ER 95.4% of the time.
  • For those who had not been given epi by EMS personnel, patient was transferred 80.8% of the time

Reluctance to do so 8.6% of the time (from EMS personnel)
  • For patients who had received epi from EMS, personnel reluctant to bring patient to ED 2.6% of the time.
  • For patients who had not received epi from EMS personnel, EMS personnel were reluctant to bring patient to ED 10.2% of the time.
Comments about EMS Care

- “They called for a private ambulance, saying that it wasn’t life-threatening so they didn’t need to take the patient” - Akron, OH
- “They told us (incorrectly) that if he hadn't gone into anaphylactic shock already, he wasn't going to, and we could drive him ourselves” – San Francisco, CA
- “EMTs suspected this episode was acid reflux, allergy not suspected nor diagnosed until months later” - Kenmore, NY
- “They asked me, the parent, if she had an EpiPen. I said no, because the doctor hadn't recommended we get one. So they seemed to think she didn't need it” – Gilbert, AZ
Comments about EMS Care

- “Poorly trained emergency personnel did not recognize seriousness of reaction. Patient subsequently received 3 more doses of epinephrine and was admitted to Intensive Care Unit of hospital” – Summit, NJ
- “Said I wasn't having allergic reaction. Said I was just having a panic attack. Left me wheezing, vomiting, dizzy, foot swollen halfway to my knee. Didn't help me at all” - San Diego, CA (insect sting)
- “They said it was not needed since there were no breathing issues - this was concerning! EMTs were not trained properly to identify anaphylaxis if it was not a respiratory issue” – Wilmington, DE
Comments about EMS Care

- "EMS personnel stated our 3 yr. old son was fine b/c he had vomited and that was the body's way of dealing with the allergen" - Frederick, MD
- "Was told needed ‘doctor's permission’ to give the second dose" – Kent, OH
- "Recommended Benadryl and then left before symptoms worsened" - Seattle, WA
- "Gave IV Benadryl as ‘first line of treatment’" - Sarasota, FL
- "EMT told me next time to just Epi her myself and transport to ER myself, that it would be quicker and free them for ‘other emergencies’"
Efforts to Improve Emergency Care of Anaphylaxis
FARE Summit on the Emergency Treatment of Anaphylaxis

- American College of Asthma, Allergy and Immunology
- American College of Emergency Physicians
- American Society of Health-System Pharmacists
- Anaphylaxis & Food Allergy Association of Minnesota
- Children’s National Health System (DC)
- Cook County Department of Homeland Security and Emergency Management (IL)
- Emergency Nurses Association
- Food Allergy Support and Education Group (NY)
- Johns Hopkins University School of Medicine (Baltimore)
- King County Public Health Emergency Medical Services (WA)
- Mayo Clinic
- Medical University of South Carolina
- Mothers of Children Having Allergies (IL)
- National Association of Emergency Medical Technicians
- National Association of EMS Educators
- National Association of EMS Physicians
- National Association of State EMS Officials
- National EMS Information System/ University of Utah School of Medicine
- National EMS Management Association
- National Registry of Emergency Medical Technicians
- Northwestern University Feinberg School of Medicine/Lurie Children’s Hospital
- Office of the Medical Director, Medical Control Board, EMS System for Metropolitan Oklahoma City and Tulsa
- Seattle Children’s Hospital, University of Washington
- Washington FEAST
- Weill Cornell Medical College (NY)
Summit Recommendations

- Creating a common description of anaphylaxis that may be used by healthcare professionals and patients for prompt and accurate diagnosis and treatment of anaphylaxis (including atypical presentations and biphasic reactions),
- Facilitating partnerships with organizations representing the continuum of emergency care in order to improve recognition, treatment and long-term management of anaphylaxis,
- Increasing usage of epinephrine, improving awareness of its first-line use in the management of anaphylaxis, and dispelling fears about contraindications and side effects,
- Working with policymakers at every level to allow all EMTs to carry and administer stock epinephrine and
- Improving emergency department discharge protocols so that patients, particularly those with first-time reactions, are better informed about how to manage the ongoing risk of severe allergic reactions and anaphylaxis.
Emergency Services

- Goal: For every vehicle that responds to a 911 call to be stocked with epinephrine and have at least one staff member who knows how to use them
- Regulated by states, counties, municipalities, private entities
- Clear definition of anaphylaxis. Universal protocols.
- Define for the community and public that there are different levels of providers.
- National training standards.
- NHTSA EMS Scope of Practice
Additional follow up activities

- Release of ACEP/FARE Discharge Toolkit ([www.allergicreactiontoolkit.com](http://www.allergicreactiontoolkit.com))
- EMS industry education podcasts and education materials
- Presentations at state and national EMS conferences
- *Addressing Barriers to Emergency Anaphylaxis Care: From Emergency Medical Service to Emergency Department to Outpatient Follow-Up* to be published in *Annals of Allergy*
- National EMS Advisory Council to NHTSA
- Modifications to EMS protocols in Tulsa & Oklahoma City
Getting it Right in King County, WA
King County EMS

- **Check & Inject Program**
  - History in King County and Seattle
    - Before 2013
      - ~ 30 epinephrine auto injectors/year
      - Seattle/King County approached by WAFEAST – Kelly Morgan
    - Jan. 2013
      - King Co. changed guidelines
      - ~ 40 epinephrine auto injectors uses
      - **Auto injectors too costly!**
    - Dec. 2013
      - Training on Check & Inject
  - April 2014
    - Launched Check & Inject Program
    - ~ 127 patients treated with Epinephrine
    - >98% met criteria
  - April 27, 2015
    - Seattle Fire Department
Inside

Check and Inject Paper

Syringes

Epinephrine Vial

Alcohol Wipes

Bandages

www.foodallergy.org
How can you help EMS

- Call 911
- Understand levels of your EMS system
- Stay calm
- Provide information
- Use auto injector when indicated
- Have prescription ready
Questions?
Our Next Webinar

CDC’s Toolkit for Managing Food Allergies in Schools

Robin Wallin, DNP
Wednesday, August 12
1:00 – 2:00 PM ET

Member registration opens
Friday, July 17

General registration opens
Monday, July 27

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