

Using IV Epinephrine Expertly

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Mastering Emergency Medicine

- Secure the ABCs
- Consider or give NGT
 - Five Causes
 - Five Steps
 - Five Reasons for almost everything

Five Causes of Dyspnea

- **Cardiac** (AMI, ACS, CHF, Cardiomyopathy)
- **Pulmonary** (Bronchospasm, PE, Pneumonia)
- **CNS** (Anxiety, Metabolic Acidosis)
- **Neuromuscular** (rib fractures, myasthenia, ALS)
- **Abnormal Blood**
 - Hypoxia
 - Hemoglobin (sickle cell, CO)
 - Profound Anemia (acute blood loss or chronic disease)

The Five Causes of Wheezing

- Reactive Airway Disease
- Congestive Heart Failure
- Pulmonary Embolus
- Pneumothorax
- Mass
 - *foreign body, tumor, infectious*

5 Therapies for Severe Asthma

O_2

Inhaled Beta Agonist

Inhaled Anticholinergic

Steroids

Magnesium

ED Therapy of Anaphylaxis

Epi

Benedryl

H-2 Blocker

Steroids

Volume

5 Therapies for Bradycardia and Heart Block

Atropine 0.5 mg

Atropine 1.0 mg

T Q Pacer

IV Epinephrine

TV Pacer

Therapies for Shock Therapy

- Volume

- Levophed

- Dopamine
- Vasopressin
- Epinephrine
- Phenylephrine
- Prayer

Epinephrine Anaphylaxis Dosing

0.3 cc 1mg in 1cc IM

*0.1cc/10kg in children (0.01cc/kg).
Up to 0.5 cc in giant people.*

Position paper

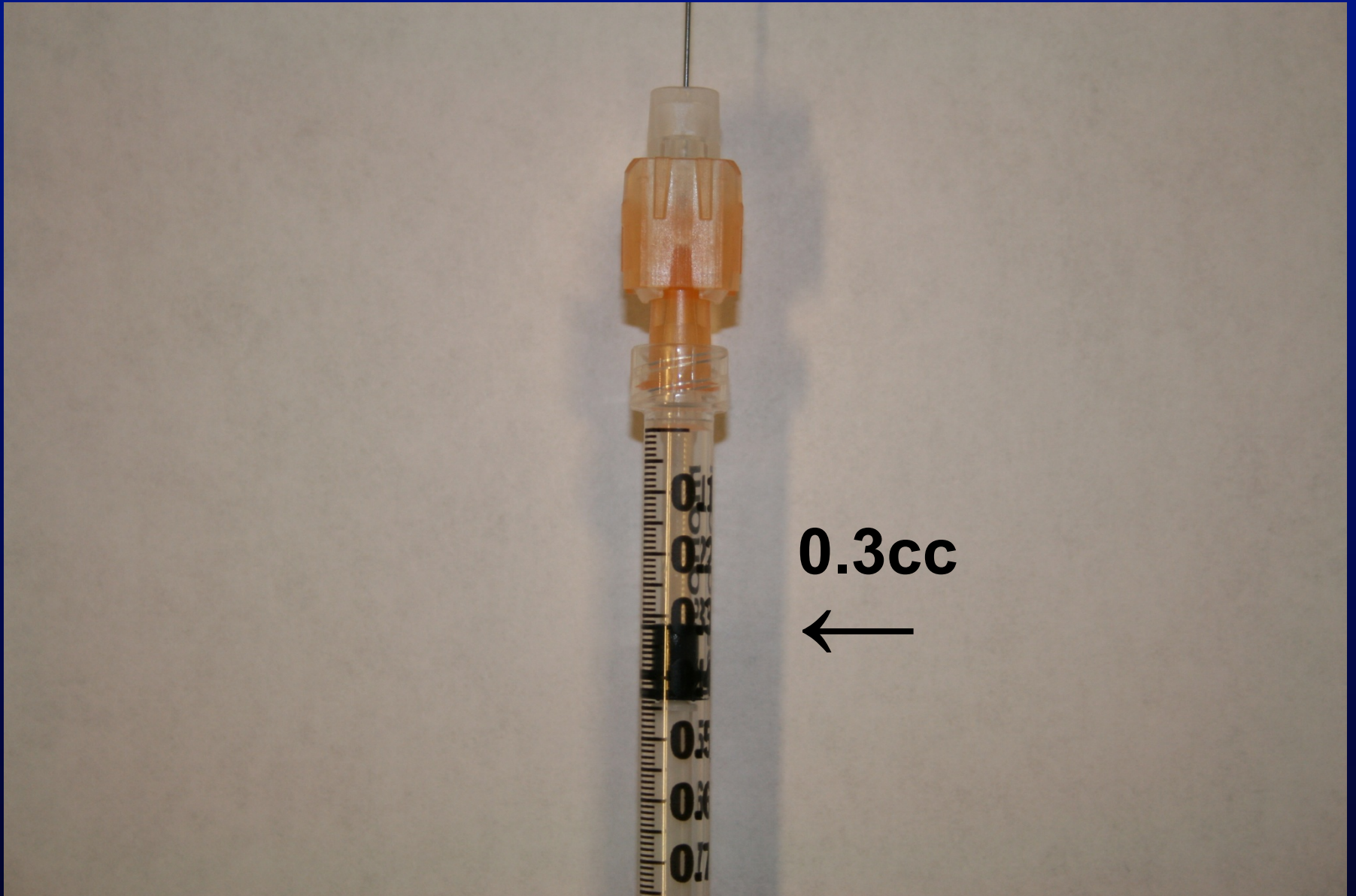
Epinephrine: the drug of choice for anaphylaxis. A statement of the World Allergy Organization

Anaphylaxis is an acute and potentially lethal multi-system allergic reaction. Most consensus guidelines for the past 30 years have held that epinephrine is the drug of choice and the first drug that should be administered in acute anaphy-

**S. F. Kemp¹, R. F. Lockey²,
F. E. R. Simons³, on behalf of the
World Allergy Organization ad hoc**

- **Epinephrine is the Drug of Choice**
- Use it earlier, not later
- Know the dose
- Say “1 mg in 1 ml” (vs. 1:1000)
- Used in less than 50% of cases





10 mL NDC 0409-4921-34
EPINEPHRINE
Injection, USP
1:10,000
0.1 mg/mL

LOT 51-435-DK
EXP. 10EC2008

◀ PRESS AND PULL TO OPEN

Intravenous Epinephrine in Life-Threatening Asthma

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See related article, p. 712.

Study objective: Intravenous epinephrine is a potentially vital therapy for patients with life-threatening asthma but is often avoided because of concerns about its safety. We evaluated the safety of intravenous epinephrine in a series of adults with life-threatening asthma.

Methods: We performed an explicit retrospective chart review on a case series of 27 emergency department patients aged 19 to 58 years (mean 25 years) who were treated with intravenous epinephrine for a life-threatening exacerbation of asthma between 1989 and 1997. Explicit criteria for adverse effects, including cardiac arrhythmia or ischemia, hypotension or hypertension, neurologic injury, and death, were defined before chart review.

- 27 Patients, ages 19-58
- No arrhythmias except sinus tachycardia
- No Ischemia, no Seizures

PATIENT SAFETY/CONCEPTS

Confusion About Epinephrine Dosing Leading to Iatrogenic Overdose: A Life-Threatening Problem With a Potential Solution

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Epinephrine is indicated for various medical emergencies, including cardiac arrest and anaphylaxis, but the dose

Physicians and paramedics make dosing mistakes in using IM and IV epinephrine, especially when dealing with severe anaphylaxis and asthma.

The starting dose epinephrine
by IV infusion is
1-2 micrograms/minute.

The “1” Rule for IV Epi:

- 1 mg

in

- 1 liter

at

- 1 cc/min

IV Epinephrine at 1 mcg/min

- **1 mg of Epinephrine in 1000 cc**
 - 1 cc of 1:1,000
 - or*
 - 10 cc of 1:10,000
- Start at **1 cc/min.**
- Piggy back into high flow IV
- Titrate to Effect **Q 1 minute**
- Follow HR and monitor



The diagram illustrates two types of drip irrigation systems. On the left, a blue shield-shaped emitter labeled 'NSS' is connected to a vertical pipe labeled 'Fast Drip'. On the right, a red shield-shaped emitter labeled 'Epi' is connected to a vertical pipe labeled 'Slow Drip'. The background is dark blue with a lighter blue horizontal band at the top and bottom.

NSS

Fast Drip

Epi

Slow Drip

Dead or Dying \longrightarrow IV Epi

IV Epi \longrightarrow Dead or Dying

The number one cause of death in anaphylaxis is the failure of patients, family, EMS, RN or MD to give epinephrine in a timely fashion.

Safely Giving IV Epinephrine

The “1” Rule for IV Epi:

- 1 mg

in

- 1 liter

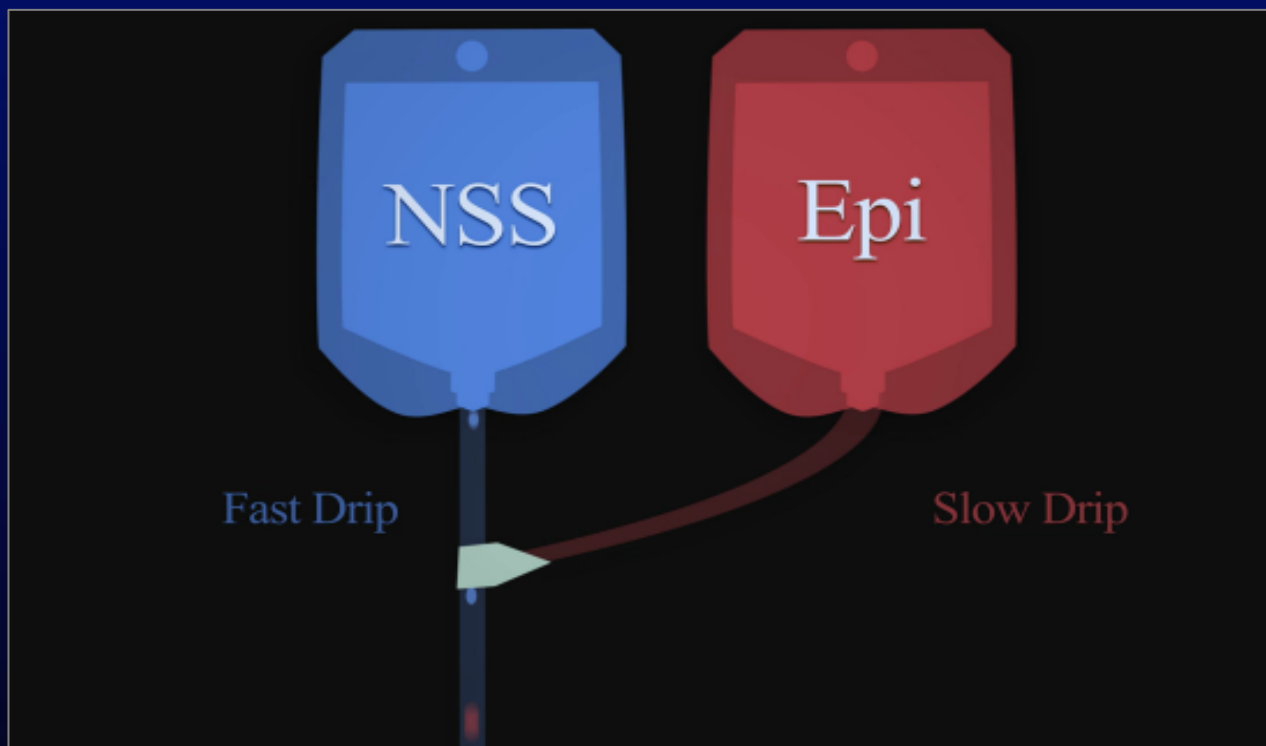
at

- 1 cc/min

IV Epinephrine at 1 mcg/min

- **1 mg of Epinephrine in 1000 cc**
 - 1 cc of 1:1,000
 - or*
 - 10 cc of 1:10,000
- Start at **1 cc/min.**
- Piggy back into high flow IV
- Titrate to Effect **Q 1 minute**
- Follow HR and monitor

- Inject 1mg Epi into 1000 cc
- Run IV at 1 cc/min.
 - piggy back into high flow IV
- Titrate to Effect
 - Adjust rate as needed



The “1” Rule for IV Epi:

- 1 mg

in

- 1 liter

at

- 1 cc/min