



## ***Division of Public Health Services***

*Office of the Assistant Director*

*Public Health Preparedness Services*

*Bureau of Emergency Medical Services and Trauma System*

150 N. 18<sup>th</sup> Avenue, Suite 540  
Phoenix, Arizona 85007  
(602) 364-3150 / 1-800-200-8523  
(602) 364-3568 FAX

DOUGLAS A. DUCEY, GOVERNOR  
CARA M. CHRIST, MD, DIRECTOR

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### **PROTOCOLS, MEDICATIONS & DEVICES (PMD)**

#### **STANDING COMMITTEE**

**Date:** March 17, 2016 - **Time:** 12:00 PM

**Location:** 150 N. 18<sup>th</sup> Ave., Conference Rooms 215 A&B

**Conference Call:** 1-877-820-7831 - **Code:** 450908#

**iLinc URL:** <https://azdhsems.ilinc.com/join/xcphsxt>

*You must register prior to the meeting to join the web conference session.*

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#### **AGENDA**

- I. Call to Order – Toni Gross, MD, Chair
- II. Roll Call – (13 Members, 7 required for quorum)
- III. Chairman’s Report – Toni Gross, MD
  - a. Attendance report (Attachment III.a.)
    - i. New member: Chester Key
    - ii. Awaiting member appointment for EMS Council
  - b. Update from January MDC meeting
  - c. Mechanism for creating agenda items
- IV. Bureau Report – Noreen Adlin
  - a. Rules update
  - b. Drug shortage
    - i. Epinephrine 1:10:000 shortage
    - ii. Drug Shortage Guidance Document (Attachment IV.b.ii.)
- V. Discussion and Action Items
  - a. Discuss, amend, approve, PMD minutes of November 19, 2015 (Attachment V.a.).
  - b. Discuss, amend, approve, Lidocaine for IO Pain Management Drug Profile (Attachment V.b.)
  - c. Discuss Tissue Plasminogen Activator for prehospital use – John Gallagher, MD
  - d. Discuss, amend, approve revising TTTGs – Toni Gross, MD
    - i. Adult & Pediatric Shock

*Persons with disabilities may request reasonable accommodations such as a sign language interpreter, by Angie McNamara, Program Project Specialist II, 602-364-3156; State TDD Number 1-800-367-8939; or Voice Relay Number 711. Request should be made as early as possible to allow time to arrange accommodations.*

*“Health and Wellness for all Arizonans”*

- ii. Adult & Pediatric Seizures
- iii. Post-Resuscitation of Circulation (ROSC) Care and Transport to Cardiac Receiving Center
- iv. Adult & Pediatric Difficulty Breathing – Bronchospasm
- e. Discuss and approve forming a workgroup to develop a protocol for EMS providers encountering a Living Will or other medical directive form – Terry Mullins
- f. Discuss and approve changing the minimum supplies of the following in Table 5.2:
  - i. Glucagon – Gail Bradley, MD
  - ii. Thiamine – Gail Bradley, MD
  - iii. Atropine – Gail Bradley, MD
  - iv. Epi Pens – Josh Gaither, MD

VI. Agenda Items for Next Meeting

- VII. Call to the Public: A public body may make an open call to the public during a public meeting, subject to reasonable time, place and manner restrictions, to allow individuals to address the public body on any issue within the jurisdiction of the public body. At the conclusion of an open call to the public, individual members of the public body may respond to criticism made by those who have addressed the public body, may ask staff to review a matter, or may ask that a matter be put on a future agenda. Members of the public body shall not discuss or take legal action on matters raised during an open call to the public unless the matters are properly noticed for discussion and legal action. A.R.S. § 38-431.01 (G).

Members of the public body may present a brief summary of current events. Members of the public body shall not propose, discuss, deliberate, or take legal action on matters raised during a summary of current events unless the matters are properly noticed for discussion and legal action.

VIII. Summary of Current Events

- a. Frontline on the Home front: Equipping First Responders to Assist Veterans in Crisis April 21, 2016 - Presented by the Arizona Coalition for Military Families – Desert Willow Conference Center
- b. 2016 EMS Odyssey – June 9 -10, 2016- Desert Willow Conference Center (pre-conference June 8, 2016, Two topic’s Human Trafficking and EMS Kiddie Kamp
- c. Trauma Conference International – July 14 – 15, 2016 – Hotel Coronado, Coronado, CA <http://traumacon.org/>
- d. 27<sup>th</sup> Annual Southwest Trauma Conference, Presented by the University of Arizona and Banner- University Medical Center August 4 – 5, 2016 – JW Marriott Starr Pass, Tucson

- IX. Next Meetings: July 21, 2016 @ 12:00 PM, Rooms 215A&B, 150 N. 18<sup>th</sup> Ave.  
November 17, 2016 @ 12:00 PM, Rooms 215A&B, 150 N. 18<sup>th</sup> Ave.

X. Adjournment

*Persons with disabilities may request reasonable accommodations such as a sign language interpreter, by Angie McNamara, Program Project Specialist II, 602-364-3156; State TDD Number 1-800-367-8939; or Voice Relay Number 711. Request should be made as early as possible to allow time to arrange accommodations.*

*“Health and Wellness for all Arizonans”*

# Committee Attendance Report

## Protocols, Medications & Devices Committee

## Protocols, Medications & Devices Committee

	Present	Tele	Absent
Franco Castro-Marin STAB Liaison			
11/19/2015	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gail Bradley AEMS Representative			
3/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/17/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/16/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Garth Gemar AEMS Representative			
3/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/17/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/20/2014	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/16/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heather Miller WACEMS Representative			
7/16/2015	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jason Johnson NAEMS Representative			
3/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/17/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/16/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Josh Gaither SAEMS Representative			
3/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/17/2014	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/16/2015	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Neil Gago SAEMS Representative			
11/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/16/2015	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11/19/2015	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Peter Rhee Trauma Surgeon			
11/19/2015	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Robert Jarvis AEMS Representative			
3/20/2014	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7/17/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/20/2014	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/16/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/19/2015	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Present	Tele	Absent
Terence Mason Vice Chair/AEMS Representative			
3/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/17/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/16/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Toni Gross Chair/MDC Liaison			
3/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/17/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/20/2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7/16/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11/19/2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



*Office of the Director*

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DOUGLAS A. DUCEY, GOVERNOR  
CARA M. CHRIST, MD, DIRECTOR

June 9, 2015

EMS Agencies and EMS Medical Directors,

The Bureau of EMS and Trauma System (Bureau) is keenly aware of the major impact that increasingly common drug and I.V. solutions shortages are having on EMS operations. We appreciate the efforts that many of you are making to identify methods to maximize patient safety and quality of care. We also thank you for continuing to apply due diligence in attempting to comply with the regulations governing the ALS Drug Box contents and par levels.

However, the Bureau acknowledges that there may be times when, for reasons beyond the control of the EMS agencies, hospitals, and medical directors, the shortages lead to an inability to obtain appropriate supplies of all required medications and solutions. In such cases, when all appropriate attempts to rectify the shortage have been made, we recognize that Fire Departments, EMS agencies, and Ambulance Services still have a duty to respond to requests for emergency medical care. In such cases, the need to respond may be the highest priority even when shortage-induced deficits have left the agency without a complete complement of all potentially-needed medications. In such cases, emergency response should continue while all appropriate measures are taken to resolve the medication shortages as quickly as possible.

This letter is in response to the constellation of shortage events present on or around the date of this communication and has a term of effect that ends on June 30, 2016. If necessary, a similar communication may be distributed at a later date. Also, in response to these shortages, the Bureau published **GD-104-PHS-EMS: Drug Shortages**<sup>1</sup> which provides regulated entities with a methodology for notifying the Bureau when they are unable to obtain the required agents, including I.V. solutions.

Again, we are grateful for your diligent commitment to quality of care, patient safety, and regulatory compliance and hope, with you, that the disruptions of medication availability will soon be resolved by the various manufacturers and regulatory agencies involved. The Bureau of EMS and Trauma System will continue to monitor this situation closely and adapt to the real world situations as they evolve to assure the highest level of patient care in Arizona.

Sincerely, .

A handwritten signature in black ink that reads "Terry Mullins".

Terry Mullins  
Bureau Chief  
Bureau of EMS & Trauma System

A handwritten signature in black ink that reads "Bentley J. Bobrow M.D.". The signature is written in a cursive style.

Bentley Bobrow, M.D.  
Medical Director  
Bureau of EMS & Trauma System

TM/BB:am

## GD-104-PHS-EMS: Drug Shortages

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### STATE OF ARIZONA • EMERGENCY MEDICAL SERVICES AND TRAUMA SYSTEM Drug Shortages

#### Background

In the past few years, emergency medical services (EMS) providers have periodically been unable to comply with minimum supply requirements for certain drugs due to national or regional shortages of these agents. The intent of this guidance document is to inform EMS providers how the Bureau of Emergency Medical Services and Trauma System (Bureau) will accommodate an EMS provider who, despite efforts to locate and obtain a required agent, formulation, concentration, or delivery vehicle, is unable to meet the minimum supply requirements.

#### Process

Arizona Administrative Code (A.A.C.) Title 9, Chapter 25, Article 5, Table 1 establishes the agents and minimum supplies that an EMS provider or base hospital must furnish for use by an emergency medical technician (EMT). The Bureau is aware that some of the agents required in Table 1 may periodically be unavailable for purchase due to a national or regional shortage.

When an EMS provider or base hospital does not have, and is unable to obtain, the minimum supply of an agent, the EMS provider or base hospital must submit to the Bureau the documentation specified below. The Bureau will review the method proposed by the EMS provider to address the shortage to ensure that the health and safety of the public is protected. If the request meets those standards, the Bureau will not cite the deficiency for 90 days after the Bureau receives the documentation. If, after 90 days, the EMS provider remains unable to obtain the minimum supply of the agent, the EMS provider must submit to the Bureau the documentation specified below, reflecting new efforts to obtain the agent.

During an inspection, an EMS provider must provide the inspector with a copy of the Bureau's response to the submitted documentation specified below if the EMS provider or base hospital does not meet the minimum supply requirements of any agent in Table 1. The documentation specified below will not be accepted retroactively after a citation, but the EMS provider may submit it to the Bureau to prevent further citations if the EMS provider cannot obtain the required minimum supply of the agent.

#### Documentation of good-faith effort to obtain a required agent:

The documentation must contain the following:

1. Contact information, including date of contact, for three sources through which the EMS provider or base hospital attempted to obtain the agent. The sources can be distributors, other health care providers, or any other reseller that could reasonably be expected to be able to sell agents to the EMS provider or base hospital.
2. Instructions issued to EMTs indicating an alternative agent, formulation, concentration, or delivery vehicle to be used in place of the agent.
3. Description of training provided to EMTs about administering the alternative agent, formulation, concentration, or delivery vehicle to avoid medication errors.
4. **Attestation statement:** "I attest that I have made a good-faith effort to obtain [name of agent] from the sources described herein for use by [EMS provider], but was unable to obtain the minimum supply required in rule. I issued the instructions and training described herein to EMTs on alternative administration methods during the shortage.
5. Printed and dated name and signature of the administrative medical director.

Submit the documentation to Deputy Bureau Chief Ithan Yanovsky. The signature may be electronic. Documentation also may be received by facsimile.

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**PROTOCOLS, MEDICATIONS & DEVICES (PMD) STANDING COMMITTEE**

**Date:** November 19, 2015 - **Time:** 12:00 PM

**Location:** 150 N. 18<sup>th</sup> Ave., Conference Room 540 A

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**Meeting Minutes - DRAFT**

- I. Call to Order – Toni Gross, MD, Chair. Meeting was called to order at 12:04 pm
- II. Roll Call – Toni Gross, MD, (13 Members, 7 required for quorum). A quorum was present.
- |                               |                              |
|-------------------------------|------------------------------|
| <b><u>Members Present</u></b> | <b><u>Members Absent</u></b> |
| Gail Bradley, MD              | Franco Castro-Marin, MD      |
| Garth Gemar, MD               | Neil Gago                    |
| Heather Miller                | Peter Rhee, MD               |
| Jason Johnson, MD             |                              |
| Josh Gaither, MD              |                              |
| Robert Jarvis*                |                              |
| Terence Mason                 |                              |
| Toni Gross, MD                |                              |
- III. Chairman’s Report – Toni Gross, MD
- Attendance report
  - 2016 Meeting schedule
  - Welcome new members: Peter Rhee, MD, Franco Castro-Marin, MD, Heather Miller
  - Vacancies: EMS Council Liaison & AEMS Representative
  - 2015 AHA Guidelines Update for CPR and ECC available: *Circulation* Nov. 3, 2015, Volume 132, Issue 18, suppl 2. [http://circ.ahajournals.org/content/132/18\\_suppl\\_2.toc](http://circ.ahajournals.org/content/132/18_suppl_2.toc)
- IV. Bureau Report – Noreen Adlin
- Rules update
- V. Discussion and Action Items
- Discuss, amend, approve, PMD minutes of July 16, 2015. Terry Mason made the motion to approve the minutes, seconded by Jason Johnson. **Motion carries.**
  - Discuss and approve the addition of Hydroxyethyl Starch with Lactated Ringers as an Optional Agent for Paramedics only to the Drug Box, Table 5.2 – Garth Gemar, MD and Kari Jerge, MD. Garth Gemar, MD made the motion to approve the addition, seconded by Terry Mason. **The motion does not pass.**
  - Discuss, amend, approve the Hydroxyethyl Starch with Lactated Ringers Drug Profile – Garth Gemar, MD and Kari Jerge, MD. **No motion was brought forth.** This item was not discussed.
  - Discuss and approve adding TXA to Table 5.2 (Drug Box) as an Optional Agent – Garth Gemar, MD and Kari Jerge, MD. Garth Gemar, MD made the motion to add TXA, seconded by Robert Jarvis. **Motion carries.**
  - Discuss, amend, approve the TXA Drug Profile – Garth Gemar, MD and Kari Jerge, MD. Garth Gemar, MD made the motion to approve the drug profile, seconded by Terry Mason. **Motion carries** with friendly amendments.
  - Discuss, amend, approve, adding Lidocaine for IO Pain Management as an optional agent to Table 5.2 – Tracy Meiner. Jason Johnson, MD made the motion to approve the addition, seconded by Gail Bradley, MD. **Motion carries.**
  - Discuss, amend, approve revising TTTGs – Toni Gross, MD

- i. Adult & Pediatric Shock. A discussion ensued however **no motion was made.**
- ii. Adult & Pediatric Seizures. **No discussion.**
- iii. Post-Resuscitation of Circulation (ROSC) Care and Transport to Cardiac Receiving Center. **No discussion.**
- iv. Adult & Pediatric Difficulty Breathing – Bronchospasm. **No discussion.**

VI. Agenda Items for Next Meeting

- a. TB tests added to paramedic scope of practice
- b. Adding IO starts to EMT scope of practice
- c. Change the minimum supplies of the following in Table 5.2: Glucagon, Naloxone, Thiamine, Atropine

VII. Call to the Public – None presented

VIII. Summary of Current Events

- h. AFDA – Laughlin, Nevada – January 12- 14, 2016 -  
<http://www.azfiredistricts.org/conferences/>
- i. Arizona Trauma Association Presents: Game Day Sunday, - February 7, 2016  
<http://www.aztracc.org/tackletrauma5k/>
- j. Trauma Conference International – July 14 – 15, 2016 – Hotel Coronado, Coronado, CA  
<http://traumacon.org/>

- IX. Next Meetings: March 17, 2016 @ 12:00 PM in Rooms 215A&B, 150 N. 18<sup>th</sup> Ave.  
July 21, 2016 @ 12:00 PM in Rooms 215 A&B, 150 N. 18<sup>th</sup> Ave.  
November 17, 2016 @ 12:00 PM in Rooms 215A&B, 150 N. 18<sup>th</sup> Ave.

X. Adjournment

Approved by PMD

Date:

# VISITORS PLEASE SIGN IN

Protocols, Medications, and Devices (PMD) Committee - November 19, 2015 @ 12:00 Noon

Name (PLEASE PRINT)		Organization & Position
1	Rebecca Haro	NCFMA
2	CHRIS Thompson	YRMC
3	Mary McDaniel	TFD
4	RONALD MARTINEZ	EMC
5	Heather Miller	KRMC - Pre-Hospital STPM
6	DAVID HARDED	ADMS/BENJTI
7	BRIAN SMITH	FMC
8	Joseph Gustin	PcH
9	Nicholas Kroll	BUMC
10	Wade Funkhouser	BENJTI
11	Kim BOEHM	BENJTI
12	David WILK	BENJTI
13	Laura Weiss	Banner
14	Jill McAdoo	AMR
15	BRIAN BOWLING	APP EMAC
16	JOHN CALLOHER	PHX FIRE
17	Paul Jabrowski MD	Banner

# VISITORS PLEASE SIGN IN

Protocols, Medications, and Devices (PMD) Committee - November 19, 2015 @ 12:00 Noon

	Name (PLEASE PRINT)	Organization & Position
18	RYAN AGRON	MSSA FIES
19		Burner
20		
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34		

**GENERIC NAME: LIDOCAINE HCL**

**CLASS: Antiarrhythmic, local anesthetic**

Mechanism of Action:

Decreases automaticity by slowing the rate of spontaneous phase 4 depolarization.  
Terminates re-entry by decreasing conduction in re-entrant pathways (by slowing conduction in ischemic tissue, equalizes conduction speed among fibers).  
Increases ventricular fibrillation threshold.

Indications and Field Use:

- Suppression of ventricular arrhythmias (ventricular tachycardia, ventricular fibrillation, PVC's).
- Prophylaxis against recurrence after conversion from ventricular tachycardia or ventricular fibrillation.
- Pain management after IO insertion in conscious patients.

Contraindications:

- Known hypersensitivity/allergy.
- Use extreme caution in patients with conduction disturbance (second or third degree block).
- Do not treat ectopic beats if heart rate is < 60. They are probably compensating for the bradycardia; instead, treat the bradycardia.

Adverse Reactions:

**CV:** May also cause SA nodal depression or conduction problems and hypotension in large doses, or if given too rapidly. Excessive doses in pediatric patient may produce myocardial and circulatory depression.

**CNS:** In large doses drowsiness, disorientation, paresthesias, decreased hearing acuity, muscle twitching, agitation, focal or generalized seizures.

NOTES ON ADMINISTRATION

Incompatibilities/Drug Interactions:

None known

Adult Dosage:

**Pulseless VF/VT:** Initial bolus of 1.0-1.5 mg/kg IV PUSH every 3-5 minutes to a total of 3 mg/kg. An initial bolus of 1.5 mg/kg should be given for cardiac arrest situations. Following the return of a spontaneous rhythm, initiate a drip at 2-4 mg/min. See: Maintenance Infusion below.

**Antidysrhythmic or rhythms with a pulse:** Initial boluses can be given as 0.5-0.75 mg/kg, up to 1.0-1.5 mg/kg, IV PUSH and additional boluses can be given as 0.5-0.75 mg/kg every 5-10 minutes to a total dose of 3 mg/kg. Following the return of a spontaneous rhythm, initiate a drip at 2-4 mg/min; see below.

**Maintenance Infusion:** Started after return of spontaneous rhythm for either indication above. Add 1 gm - 2 gms to a 250 ml NS or 5 % dextrose solution or use premixed solution (2 gm in 500 ml) and initiate a drip at 2-4 mg/min according to concentration. Patients > 70 years or with hepatic, renal disease or poor perfusion state, reduce maintenance infusion by half.

IO pain management 20-40 mg, very slow IO push.

#### Pediatric Dosage:

**Initial Bolus doses:** 1 mg/kg, may repeat 1 time in 3-5 minutes for VF/Pulseless VT or in 15 minutes if used for refractory dysrhythmias with a pulse (VT with pulse, significant ventricular ectopy).

**Infusion with return of spontaneous rhythm, optional:** 20-50 mcg/kg/min; prepared by adding 120 mg (3mL) of 1 Gm/25 ml (40 mg/ml) solution to 97 ml of NS, yielding 1200 mcg/ml.

1 ml/kg/hr delivers 20 mcg/kg/min. 2.5 ml/kg/hr delivers 50 mcg/kg/min. Reduce to  $\leq 20$  mcg/kg/min for children with low cardiac output, severe CHF or compromised hepatic blood flow. Infusion should be avoided unless infusion pump available.

IO pain management, 0.1 mg/kg, not to exceed adult dosage.

#### Routes of Administration:

IV bolus, followed by IV infusion. May be given ET if IV access is delayed  
IO

#### Onset of Action:

1-5 minutes

#### Peak Effects:

5-10 minutes

#### Duration of Action:

Bolus only - 20 minutes

Arizona Drug Box Minimum Supply:

3 pre-filled syringes, total 300 mg

1 g vial or premixed infusion, total 2 g

Special Notes:

- Decrease maintenance infusion by 50% in cases of congestive heart failure, shock, liver disease.
- Cross-allergenicity between local anesthetic "caine" drugs is controversial.
- Consider increased dose for ET administration.
- Infusions: Infusion pump is required for interfacility transports. A minimum of microdrip tubing is required for field use. Lidocaine drip rates established in field should be monitored carefully.

**Table 5.2. Eligibility for Authorization to Administer, Monitor, and Assist in Patient Self-administration of Agents by EMCT Classification; Administration Requirements; and Minimum Supply Requirements for Agents**

**KEY:**

A = Authorized to administer the agent

SVN = Agent shall be administered by small volume nebulizer

MDI = Agent shall be administered by metered dose inhaler

\* = Authorized to assist in patient self-administration

[ ] = Minimum supply required if an EMS provider chooses to make the optional agent available for EMCT administration

AGENT	MINIMUM SUPPLY	EMT	AEMT	EMT-I (99)	Paramedic
Adenosine	18 mg	-	-	A	A
Albuterol Sulfate SVN or MDI (sulfite free)	10 mg	A	A	A	A
Amiodarone or Lidocaine	300 mg or 3 prefilled syringes, total of 300 mg and 1 g vials or premixed infusion, total of 2 g	- -	- -	- A	A A
Aspirin	324 mg	A	A	A	A
Atropine Sulfate	3 prefilled syringes, total of 3 mg	-	-	A	A
Atropine Sulfate	Optional [8 mg multidose vial (1)]	-	-	A	A
Atropine Sulfate Auto-Injector	None	A	A	A	A
Atropine Sulfate and Pralidoxime Chloride (Combined) Auto-Injector	None	A	A	A	A
Calcium Chloride	1 g	-	-	-	A
Calcium Gluconate, 2.5% topical gel	Optional [50 g]	A	A	A	A
Charcoal, Activated (without sorbitol)	Optional [50 g]	A	A	A	A
Cyanokit	Optional [5 g]	-	-	-	A
Dexamethasone	Optional [8 mg]	-	-	A	A
Dextrose	50 g	-	A	A	A
Dextrose, 5% in H <sub>2</sub> O	Optional [250 mL bag (1)]	A	A	A	A
Diazepam or Lorazepam or Midazolam	20 mg 8 mg 10 mg	- - -	- - -	A A A	A A A
Diazepam Rectal Delivery Gel	Optional [20 mg]	-	-	A	A
Diltiazem or Verapamil HCl	25 mg 10 mg	- -	- -	- -	A A
Diphenhydramine HCl	50 mg	-	-	A	A
Dopamine HCl	400 mg	-	-	-	A
Epinephrine Auto-Injector	Optional [2 adult auto-injectors 2 pediatric auto-injectors]	A	A	A	A
Epinephrine HCl, 1:1,000	2 mg	-	A	A	A

Epinephrine HCl, 1:1,000	Optional [30 mg multidose vial (1)]	-	A	A	A
Epinephrine HCl, 1:10,000	5 mg	-	-	A	A
Etomidate	Optional [40 mg]	-	-	-	A
Furosemide or Bumetanide	Optional [100 mg] Optional [4 mg]	-	-	A	A
Glucagon	2 mg	-	A	A	A
Glucose, oral	Optional [30 gm]	A	A	A	A
Hemostatic Agents	Optional	A	A	A	A
Hydrocortisone Sodium Succinate	Optional	-	*	*	*
Immunizing Agent	Optional	-	-	A	A
Ipratropium Bromide 0.02% SVN or MDI	5 mL	-	-	A	A
Ketamine	Optional [200 mg]	=	=	=	A
Lactated Ringers	1 L bag (2)	A	A	A	A
Lidocaine 2% preservative-free (10 insertion)	Optional [100 mg]	-	A	A	A
Magnesium Sulfate	5 g	-	-	-	A
Methylprednisolone Sodium Succinate	Optional [250 mg]	-	-	A	A
Morphine Sulfate or Fentanyl	20 mg 200 mcg	-	A	A	A
Nalmefene HCl	Optional [4 mg]	-	A	A	A
Naloxone HCl	10 mg	-	A	A	A
Naloxone HCl	Optional [prefilled atomizers or auto-injectors ] 2 doses	A	A	A	A
Nitroglycerin Sublingual Spray or Nitroglycerin Tablets	1 bottle 1 bottle	* *	A A	A A	A A
Normal Saline	1 L bag (2) Optional [250 mL bag (1)] Optional [50 mL bag (2)]	A	A	A	A
Ondansetron HCl	Optional [4 mg]	-	-	A	A
Oxygen	13 cubic feet	A	A	A	A
Oxytocin	Optional [10 units]	-	-	A	A
Phenylephrine Nasal Spray 0.5%	Optional [1 bottle]	-	-	A	A
Pralidoxime Chloride Auto-Injector	None	A	A	A	A
Proparacaine Ophthalmic	Optional [1 bottle]	-	-	A	A
Rocuronium	Optional [100 mg]	-	-	-	A
Sodium Bicarbonate 8.4%	Optional [100 mEq]	-	-	A	A
Succinylcholine	Optional [400 mg]	-	-	-	A
Thiamine HCl	100 mg	-	-	A	A
Tuberculin PPD	Optional [5 mL]	-	-	A	A
Vasopressin	Optional [40 units]	-	-	-	A