



*The Pre-Hospital Healthcare Team  
for  
Saginaw and Tuscola Counties*

**Office of the Medical Director**  
Noel Wagner, MD  
1000 Houghton Ave  
Saginaw, MI 48602  
(989) 583-7940  
Fax (989) 583-7941  
[www.SaginawValleyEMS.org](http://www.SaginawValleyEMS.org)

November 30, 2011

**MEMORANDUM #2011-12**

**FROM:** Office of the Medical Director  
Saginaw Valley Medical Control Authority (SVMCA)  
1000 Houghton Ave.  
Saginaw, MI 48602

**SUBJECT:** EMS MEDICATION SHORTAGES

Over the past couple of years, we've experienced periodic short-term shortages of certain medications that we utilize in EMS. Medications such as nitroglycerin drips, magnesium sulfate, calcium chloride, and epinephrine have been in short supply recently but thanks to our hospitals doing some creative supplanting of stock; the shortages have been invisible to the field personnel. However, some of the most recent shortages threaten to change the way we treat some patients.

Both **fantanyl** and **diazepam** have been in short supply over the last few months. Some predict that the shortages will continue through at least the first quarter of 2012. To address the diazepam shortage, we elected to halve the amount of diazepam in the boxes from 40mg to 20mg. This gave us some much needed backup supply of the medication to hold us through for a while. However, as of today, diazepam is still not available through the hospital's normal suppliers. As for fantanyl, the numbers are dwindling and we may at some point see boxes either with different sized vials or none at all.

As I stated earlier, our hospitals are doing the best they can to maintain the EMS boxes with all medications. Some hospitals have actually banned the use of fantanyl in-house in order to preserve the remaining supply for EMS. We appreciate the pharmacies efforts and we will keep everyone posted as much as possible. For now, there are a couple of things that may help with predicted shortages:

1. Consider morphine sulfate for intravenous pain management instead of fantanyl. Please remember that morphine is not approved for intranasal use though. Fantanyl remains the only analgesic approved intranasal.
2. Consider midazolam for seizure activity or sedation rather than diazepam.

The SVMCA has adopted a new protocol that allows for more flexibility during times of shortages. This protocol is a state-model emergency protocol that I am attaching to this memo for your reference. Essentially, it allows for ALS providers to elect using alternative medications that were not allowed pre-radio in the past.

In the meantime, please keep an eye on the amounts and concentrations of the medications in the boxes. They may change without much notice. Also, be sure to thank our hospitals, pharmacists, and technicians who are putting EMS ahead of themselves.

A handwritten signature in black ink, appearing to read 'Eric Snidersich'.

Eric Snidersich, BS EMT-P  
EMS Manager, SVMCA

Attachments: 5-33 Medication Shortage

**Michigan**  
General Procedures  
**Adult & Pediatric Emergency Protocol**  
Medication Shortage

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**Medication Shortage**

- Medical Control Authorities choosing to adopt this emergency protocol may do so by selecting this check box. Per Administrative Rule 325.22206 Rule 207 (5) an emergency protocol shall remain in effect for 60 days unless approved by the department.

**Purpose:** The purpose of this emergency protocol is to address the Benzodiazepine & Fentanyl shortages. This protocol authorizes the substitution of the Benzodiazepine & Fentanyl options previously selected by Medical Control Authority that are currently on file with the State of Michigan.

The Michigan Protocols for Adult & Pediatric Treatment call for the selection of one (1) Benzodiazepine medication. This protocol allows for selecting all options. The Adult & Pediatric Cardiac protocols allow for multiple selections, this protocol allows for an MCA to make further selections in the event the options selected are affected by the medication shortage. The Narcotic options in the state protocols also allow for multiple selections, this protocol allows for an MCA to make further selections in the event the options selected are affected by the medication shortage.

The following Michigan protocols are affected by the **Benzodiazepine** medication shortage:

**ADULT PROTOCOLS:**

Obstetrical Emergencies  
Seizures  
Bradycardia  
Tachycardia  
Narrow Complex Tachycardia  
Wide Complex Tachycardia

**PEDIATRIC PROTOCOLS:**

Seizures  
Bradycardia  
Narrow Complex Tachycardia  
Wide Complex Tachycardia

**PROCEDURES:**

Patient Sedation

**ADULT TREATMENT**

**Benzodiazepine:**  
**(Select Options)**

- Diazepam 2 - 10 mg (0.1 mg/kg) IV/IO or 2 - 10 mg (0.5 mg/kg) rectally
- Midazolam 2 - 5 mg (0.05 mg/kg) IV/IO/IM
- Lorazepam 1 - 4 mg (0.1 mg/kg) IV/IO

**ADULT CARDIAC**

**Sedation: (Select Options)**  
**(Titrate to minimum amount necessary)**

- Midazolam 1-5 mg (0.05 mg/kg) IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- Diazepam 5-10 mg (0.1 mg/kg) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- Lorazepam 1-2 mg (0.1 mg/kg, max 4 mg/dose) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- Fentanyl 50-100 mcg (1 mcg/kg) IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

MCA Name  
MCA Board Approval Date  
MDCH Approval Date  
MCA Implementation Date

**Section 5-33**

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**PEDIATRIC TREATMENT**

**Medication:**  
**(Select Options)**

- Diazepam - 0.1 mg/kg IV/IO or 0.5 mg/kg rectally (maximum individual dose 10 mg)
- Midazolam - 0.05 mg/kg IV/IO, 0.1 mg/kg IM (maximum individual dose 5 mg)
- Lorazepam - 0.1 mg/kg, max single dose 4 mg, may repeat in 5 minutes if seizure activity continues; not to exceed 0.2mg/kg total (maximum of 8mg)

**PEDIATRIC CARDIAC**

**Sedation :**  
**(Select Options)**

**(Titrate to minimum amount necessary)**

- Midazolam - 0.05 mg/kg IV/IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- Diazepam - 0.1 mg/kg IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- Lorazepam - 0.1 mg/kg, max single dose 4 mg IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- Fentanyl - 1 mcg/kg IV/IO titrated slowly, may repeat once in 5 minutes to a maximum of 2 mcg/kg.

**PROCEDURES**

**Adult Sedation: (Select Options)**  
**(Titrate to minimum amount necessary)**

- Midazolam - 1-5 mg (0.05 mg/kg) IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- Diazepam - 5-10 mg (0.1 mg/kg) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- Lorazepam - 1-2 mg (0.1 mg/kg, max 4 mg/dose) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- Fentanyl - 50-100 mcg (1 mcg/kg) IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

**Pediatric Sedation: (Select Options)**  
**(Titrate to minimum amount necessary)**

- Midazolam - 0.05 mg/kg IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- Diazepam - 0.1 mg/kg IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- Lorazepam - 0.1 mg/kg, max 4 mg/dose IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- Fentanyl - 1 mcg/kg IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

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The following Michigan protocols are affected by the **Fentanyl** medication shortage:

**ADULT:**

Abdominal Pain (Non-traumatic)  
Burns  
Hypothermia/Frostbite  
Soft Tissue and Orthopedic Injuries  
Chest Pain/ACS

**PEDIATRIC:**

Burns

**PROCEDURES:**

Pain Management  
Pain Management Supplement

**ADULT**

**NARCOTIC ANALGESIC OPTIONS**

(Select Options)

- Fentanyl - 50 – 100 mcg (1 mcg/kg) IV, may repeat every 5 minutes until maximum of 3 mcg/kg.
- Morphine Sulfate - 2 – 5 mg (0.05 mg/kg) IV, may repeat dose every 5 minutes until maximum of 20 mg.

**PEDIATRIC**

**NARCOTIC ANALGESIC OPTIONS**

(Select Options)

- Fentanyl - 1 mcg/kg IV/IO, may repeat every 5 minutes until maximum of 2 mcg/kg
- Morphine Sulfate - 0.05 mg/kg IV, may repeat dose every 5 minutes until maximum of 20 mg.

**PROCEDURES**

**NARCOTIC ANALGESIC OPTIONS**

(Select Options)

- Fentanyl - 1 mcg/kg IV/IO may repeat every 5 minutes until maximum of 3 mcg/kg, pediatric maximum of 2 mcg/kg
- Morphine Sulfate - 0.05 mg/kg IV may repeat dose every 5 minutes until maximum of 20 mg. For pediatric patients administer Morphine Sulfate 0.05 mg/kg IV.