

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

MEDICATIONS (ADULT & PEDS unless indicated)

GENERIC-SORTED	Preg	TRADE	Pg
Adenosine	C	Adenocard	3
Albuterol	C	Proventil, Ventolin	4
Amiodarone	D	Cordarone	5
Aspirin	D	Aspirin	6
Atropine	C	Atropine	7
Atrovent	C	Ipratropium	8
Calcium	C	Calcium	10
Dextrose	C	D50	11
Diazepam	D	Valium	31
Diltiazem	C	Cardizem	13
Diphenhydramine	B	Benadryl	9
Dopamine	C	Dopamine	14
Epinephrine	C	Epinephrine	15
Glucagon	B	GlucaGen	17
Glucose	C	Glucose	18
Hydromorphone	C	Dilaudid	12
Lidocaine	B	Lidocaine	19
Magnesium	A	Magnesium	20
MARK 1 Kit	C	MARK 1 Kit	21
Metoclopramide	B	Reglan	29
Metoprolol	C	Lopressor	23
Midazolam	D	Versed	33
Morphine	C	Morphine	24
Naloxone	B	Narcan	25
Nitroglycerin	C	Nitroglycerin	26
Pralidoxime	C	2-PAM	2
Sodium bicarbonate	C	Bicarbonate	30
Vasopressin	C	Vasopressin	32

GENERIC	TRADE-SORTED	Pg
Pralidoxime	2-PAM	2
Adenosine	Adenocard	3
Aspirin	Aspirin	6
Atropine	Atropine	7
Diphenhydramine	Benadryl	9
Sodium bicarbonate	Bicarbonate	30
Calcium	Calcium	10
Diltiazem	Cardizem	13
Amiodarone	Cordarone	5
Dextrose	D50	11
Hydromorphone	Dilaudid	12
Ipratropium	Atrovent	8
Dopamine	Dopamine	14
Epinephrine	Epinephrine	15
Glucagon	GlucaGen	17
Glucose	Glucose	18
Lidocaine	Lidocaine	19
Metoprolol	Lopressor	23
Magnesium	Magnesium	20
MARK 1 Kit	MARK 1 Kit	21
Morphine	Morphine	24
Naloxone	Narcan	25
Nitroglycerin	Nitroglycerin	26
Albuterol	Proventil, Ventolin	4
Metoclopramide	Reglan	29
Diazepam	Valium	31
Vasopressin	Vasopressin	32
Midazolam	Versed	33

Preg = Pregnancy Category

A: Safety established in humans

B: Safety based on animal studies

C: Uncertain safety, no adverse effects known (most medications)

D: Unsafe, risk of condition may outweigh risk of medication

For these protocols, emergent medications are indicated

X: Highly unsafe

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

2-PAM

Component of the MARK 1 Kit. Prevents organophosphates and most nerve agents from binding permanently.

1. INDICATIONS **[EMT-B through P]**
 - A. Organophosphate or nerve agent poisoning for self and partner treatment only
2. CONTRAINDICATIONS
 - A. None for known exposure
3. ADULT DOSAGE
 - 1) 600mg pralidoxime chloride in 2ml per autoinjector

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

ADENOSINE

Slows AV nodal conduction. Very brief plasma half-life of approximately 10 seconds.

1. INDICATIONS
 - A. SVT [**EMT-I & P**]
2. CONSIDERATIONS
 - A. Requires free-flowing IV. Very short half-life, given rapid IV push with flush; however, has been proven effective via IO route.
 - B. Requires cardiac monitoring
 - C. May be diagnostic for underlying rhythm during pause. Be observant.
 - D. Warn patient of side-effects: feelings of lightheadedness, chest pressure, flushing
 - E. Expect to require higher dose if taking Theophylline (asthma)
 - F. Use with caution, may have a prolonged pause, if taking Dipyridamole/Persantine (cardiac) or Tegretol/Carbamazepine (seizure)
3. CONTRAINDICATIONS
 - A. Ineffective for A-fib/flutter or ventricular dysrhythmias
 - B. Drug-induced tachycardias
 - C. Medication allergy/sensitivity
4. ADULT DOSAGE
 - A. 6 mg rapid IV push with 10-20 ml flush and raise arm. For small adults less than 100 lbs, consider pediatric dosing.
 - B. Consider 3 mg if already on Dipyridamole/Persantine, Carbamazepine/Tegretol, transplanted heart or accessing central line.
 - C. Second dose double, up to 12 mg rapid IV push with flush and raise arm.
 - D. May repeat 12 mg rapid IV push with flush and raise arm.
5. PEDIATRIC OR SMALL ADULT DOSAGE
 - 1) 0.1 mg/kg rapid IV push with 5-10ml flush. Max 6 mg.
 - 2) If refractory, 0.2 mg/kg rapid IV push with 5-10 ml flush. Max 12 mg.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

ALBUTEROL

Sympathomimetic bronchodilator commonly used in asthma and emphysema/COPD

1. INDICATIONS [EMT-B through P]
 - A. Respiratory distress with wheezing
 - B. Respiratory distress with history of asthma/COPD and decreased breath sounds
2. There are no true contraindications
3. CONSIDERATIONS
 - A. Hold for tachycardia greater than 150 in patients with heart disease
4. Administer Albuterol via nebulizer
 - A. Place ampule of pre-mixed solution (2.5 mg) into the nebulizer chamber
 - B. This standard dose is used for patients of all age groups.
 - C. Add Atrovent 0.5 mg solution if patient is prescribed an Atrovent, Ipratropium or Combivent inhaler
 - D. Supply with 6 LPM oxygen
 - 1) If hypoxic, may use additional oxygen per cannula or CPAP
 - E. Encourage patient to breath slowly and deeply
 - F. Nebulized Albuterol may be repeated
5. Observe for side effects
 - A. Tachycardia
 - 1) Notify **MEDICAL CONTROL** of pulse greater than 150 in patients with heart disease
 - B. Hypertension
 - C. Tremors
 - D. Nausea

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

AMIODARONE

1. INDICATIONS
 - A. Shock-refractory VF/pulseless VT **[EMT-I & P]**
 - B. Stable VT **[EMT-I & P]**
 - C. Wide-complex tachycardia, unknown origin **[EMT-P]**
 - D. Adjunct for rate control/conversion of A-fib/flutter, SVT, junctional or atrial tachycardias **[EMT-P]**

2. CONSIDERATIONS
 - A. Requires cardiac and BP monitoring
 - B. Causes vasodilation and hypotension
 - C. Prolongs QT interval
 - D. Glass ampules, if used, should be aspirated via a filter needle when time allows

3. CONTRAINDICATIONS
 - A. Known medication allergy

4. ADULT DOSAGE
 - A. Cardiac arrest
 - 1) 300 mg IV push. Administer with IV fluids running wide-open.
 - 2) Repeat 150 mg IV push in 3-5 min
 - B. Stable wide-complex tachycardia and atrial tachycardias
 - 1) 150 mg slow IV over 10 min. Administer with IV running at 500 ml/hr or diluted in 20-100 ml.
 - 2) May repeat in 10 min

5. PEDIATRIC DOSAGE
 - A. Cardiac arrest
 - 1) 5 mg/kg IV, max 300 mg
 - B. Stable wide-complex tachycardia
 - 1) 5 mg/kg IV over 20-60 mins, max 150 mg

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

ASPIRIN (ADULT ONLY)

Aspirin is essential to treating cardiac ischemia. True allergies should be considered. Patients who avoid aspirin due to stomach upset do not have true allergies. Consult medical control as needed.

1. INDICATIONS: Cardiac Chest Pain [**EMT-B through P**]
 - A. **EMT-Basic** must obtain a direct voice order from the **MEDICAL CONTROL** physician in all cases prior to administration of aspirin.
2. CONTRAINDICATIONS
 - 1) Inability to swallow
 - 2) Allergy to Aspirin or anti-inflammatories
 - 3) Patient has already taken the maximum recommended dose prior to EMT arrival (usually 2-4 81mg tablets). Repeat dose if enteric coated tablets used.
3. PRECAUTIONS
 - A. Ask about actively bleeding stomach ulcers
 - B. Patients with asthma may have a severe aspirin or anti-inflammatory allergy
4. ADMINISTRATION: **EMT-Basic**
 - A. Contact **MEDICAL CONTROL** for authorization to administer between 160-325 mg of aspirin orally
 - B. Obtain voice authorization for administration, including dosage; repeat order back to physician
 - C. ADMINISTRATION
 - 1) Verify medication and that medication has not expired
 - 2) Describe procedure to patient and obtain verbal consent.
 - 3) Administer medication-instruct patient to chew tablet(s).
 - 4) Record actions and reassess patient
 - 5) If authorization for aspirin deferred: transport
 - D. Continue treatment per Chest Pain protocol
5. ADMINISTRATION: **EMT-I Tech, I & P** may administer 2-4 81mg Baby Aspirin as indicated

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

ATROPINE

1. INDICATIONS
 - A. Organophosphate or nerve agent poisoning with MARK I kit **[EMT-B through P]**
 - 1) Self and crew member treatment only
 - B. Cardiac arrest **[EMT-I & P]**, second-line medication
 - C. Brady-PEA **[EMT-I & P]**, second-line medication
 - D. Symptomatic bradycardia **[EMT-I & P]**
2. CONSIDERATIONS
 - A. Transcutaneous pacing preferred for symptomatic bradycardia if promptly available **[EMT-P]**
 - B. Patients over age 50 or with cardiovascular disease may suffer angina or life-threatening dysrhythmias.
 - C. Not effective in patients with heart transplant
3. CONTRAINDICATIONS
 - A. Hypothermic bradycardia
 - B. 2nd degree type II and 3rd degree heart blocks, may cause further bradycardia
4. ADULT DOSAGE
 - A. Cardiac arrest and PEA
 - 1) 1mg IV every 3-5 min. Max 0.04 mg/kg total.
 - B. Endotracheal administration
 - 1) 2 mg of prediluted ampules
 - C. Symptomatic bradycardia
 - 1) 0.5 mg IV, may repeat every 3-5 mins. Max 0.04 mg/kg total.
 - D. Organophosphate or nerve agent poisoning
 - 1) See also MARK I Kit
 - 2) 2-5 mg IV/IM.
 - a. IM preferred route for large dose to avoid dysrhythmias
 - 3) May repeat every 5 min
 - 4) Titrate to respiratory secretions
 - 5) Anticipate tachycardia
5. PEDIATRIC DOSAGE
 - A. 0.02 mg/kg IV/IO/IM/ET
 - 1) Minimal dose 0.1 mg. Max 0.5 mg.
 - 2) Repeat once for ACLS. Repeat as needed for poisoning.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

ATROVENT / IPRATROPIUM

Ipratropium bromide is an anticholinergic bronchodilator. It improves the action of Albuterol in treating bronchospasm and is especially useful in patients with COPD and Emphysema. Common side effects include dry mouth, cough, or unpleasant taste.

1. INDICATIONS **[EMT-B through P]**
 - A. Per Respiratory Distress protocol for patients prescribed Atrovent, Ipratropium or Combivent inhalers or Duoneb treatments

2. CONTRAINDICATIONS:
 - A. Allergy or sensitivity to Atrovent/Ipratropium
 - B. Allergy or sensitivity to Atropine (chemically related)
 - C. Allergy to peanuts if assisting with inhaler only

3. Add Atrovent to Albuterol via nebulizer for one treatment only
 - A. Place Atrovent 0.5mg ampule of pre-mixed solution into the nebulizer chamber
 - B. This standard dose is used for patients of all age groups
 - C. Administer as per Albuterol protocol
 - D. Nebulized Atrovent may be repeated only with **MEDICAL CONTROL** authority. Consider for severe respiratory distress.

4. Observe for side effects (similar to Albuterol):
 - A. Tachycardia
 - 1) Notify **MEDICAL CONTROL** of pulse greater than 150
 - B. Hypertension
 - C. Tremors
 - D. Nausea
 - E. Worsening of glaucoma. Observe for eye pain in patients with underlying glaucoma. Have patients close their eyes to avoid contact with nebulized medications.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

BENADRYL / DIPHENHYDRAMINE

1. INDICATIONS
 - A. Allergic reaction **[EMT-P]**
 - B. Dystonic reaction to Reglan **[EMT-P]**
2. CONTRAINDICATIONS
 - A. Hypersensitivity/allergy to medication (rare)
3. DOSAGE
 - A. Adult: 25-50mg IM/IV
 - B. Peds: 1mg/kg IM/IV, max 50mg

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

CALCIUM

Calcium channel blocking cardiac medications: Adalat, Amlodipine, Baypress, Bepridil, Calan, Cardene, Cardizem, Dilacor, Diltiazem, Dynacirc, Felodipine, Isoptin, Isradipine, Nicardipine, Nifedipine, Nimodipine, Nimotop, Nisoldipine, Norvasc, Plendil, Procardia, Sular, Tiazac, Vasacor, Verapamil, Verelan

1. INDICATIONS
 - A. Known or suspected hyperkalemia, especially in dialysis patients **[EMT-P]**
 - B. Pretreatment for Diltiazem to prevent hypotension **[EMT-P]**
 - C. Antidote for Calcium channel blocker and Beta blocker effects/OD **[EMT-P]**
2. CONSIDERATIONS:
 - A. Requires free-flowing IV, infiltration damages tissue
3. CONTRAINDICATIONS
 - A. Do not give with Sodium bicarbonate, will precipitate
 - B. Digoxin overdose or over-effect
4. ADULT DOSAGE
 - A. Hyperkalemia and OD antidote
 - 1) 500-1000mg IV push. May repeat.
 - B. Diltiazem pretreatment. Consult **MEDICAL CONTROL**
 - 1) 300-500mg IV slow push
5. PEDIATRIC DOSAGE: 10-20 mg/kg IV. Consult **MEDICAL CONTROL**

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

DEXTROSE

1. INDICATIONS:
 - A. Determination of hypoglycemia with blood sugar less than 80 [EMT-I Tech, I & P]
 - B. Known diabetic with symptoms of hypoglycemia and unable to obtain glucose measurement, treat as hypoglycemic.

2. CONTRAINDICATIONS: Lack of IV access
 - A. Consider oral glucose and Glucagon IM
 - B. May also give Dextrose orally. Must have intact gag reflex.

3. CONSIDERATIONS
 - A. Requires free-flowing IV access. Infiltration destructive to tissue. Dilution of D50 highly recommended for any administration.
 - B. 1 ampule D50 is 50ml of 50% Dextrose = 25 grams
 - C. Use with caution with undetermined glucose and signs of stroke. Hyperglycemia is detrimental to stroke victims.

4. DOSAGE
 - A. Adult: 0.5-1 gram/kg IV = 1-2 ampules D50
 - B. Peds:
 - 1) Older than 2 yrs: D50 = 1-2ml/kg
 - 2) 1 month to 2 yrs: D25 = Dilute 1:1 in NS, give 2ml/kg
 - 3) Neonates 1 to 28 days: D12.5 = Dilute 1:3 in NS, give 4ml/kg
 - 4) Consult **MEDICAL CONTROL** to confirm pediatric dosing or dilution as needed.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

DILAUDID / HYDROMORPHONE (ADULT ONLY)

Controlled Substance

1. INDICATIONS
 - A. Pain management **[EMT-P]**
 - B. Special consideration for cardiac chest pain refractory to NTG **[EMT-P]**
 - C. May also be used for severe dyspnea in CHF **[EMT-P]**
 - D. May be used in patients allergic to Morphine

2. CONSIDERATIONS:
 - A. May cause hypotension if given rapidly. Small titrated dosing preferred.
 - B. Dilaudid is 8x more potent than Morphine
 - C. Reverse with Narcan/Naloxone
 - D. Not recommended for children

3. CONTRAINDICATIONS
 - A. Medication allergy/hypersensitivity
 - B. Hypotension

4. DOSAGE:
 - A. 0.5-1mg IV/IM. Max total 2.5 mg.
 - B. Titrate to effect, see Analgesia Guidelines for further dosing.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

DILTIAZEM / CARDIZEM

1. INDICATIONS
 - A. Rate control in A-fib or flutter **[EMT-P]**
 - B. Rate control in refractory SVT, second-line drug **[EMT-P]**

2. CONSIDERATIONS
 - A. Requires **MEDICAL CONTROL** order to confirm indications and dose
 - B. Requires cardiac and BP monitoring
 - C. If hypotensive, initiate fluid bolus. Consult **MEDICAL CONTROL** for Calcium preload prior to Diltiazem use.

3. CONTRAINDICATIONS
 - A. Wolff-Parkinson-White Syndrome
 - B. Wide-complex tachycardia of unknown origin

4. DOSAGE
 - A. 0.25 mg/kg IV slow push over 2 min, max 20 mg
 - 1) 10 mg dose often effective, especially in the elderly
 - B. If refractory, 0.35 mg/kg IV slow push, max 25 mg

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

DOPAMINE

1. INDICATIONS
 - A. Symptomatic hypotension **[EMT-P]**
 - B. Symptomatic bradycardia, second-line drug **[EMT-P]**
2. CONSIDERATIONS
 - A. Requires free-flowing IV. Infiltration causes tissue necrosis.
 - B. Requires cardiac monitoring
 - C. Inactivated by Sodium bicarbonate. Do not infuse in same line.
3. CONTRAINDICATIONS
 - A. Hypovolemia. Fluid resuscitation must be accomplished first.
 - B. Tachydysrhythmias
4. DOSAGE-titrate to effect
 - A. Agency concentration: 800 mcg/L, packaged as 400 mcg/500ml
 - B. Low dose: 1-5 mcg/kg/min IV
 - C. Moderate/cardiac dose: 5-10 mcg/kg/min IV
 - D. High/vasopressor dose: 10-20 mcg/kg/min IV

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

EPINEPHRINE - IV/ET

1. INDICATIONS
 - A. Cardiac arrest **[EMT-I & P]**
 - B. Anaphylaxis-severe **[EMT-P]**

2. CONSIDERATIONS:
 - A. Patients over age 50 or with cardiovascular disease may suffer angina or life-threatening dysrhythmias.
 - B. There are no contraindications in true anaphylactic shock.

3. ADULT DOSAGE
 - A. Cardiac arrest
 - 1) IV 1mg of 1:10,000 every 3-5 min
 - 2) ET 2mg every 3-5 min
 - a. 2 x 1:10,000 premixed ampules
 - OR**
 - b. 2 x 1:1000 diluted in 10ml NS
 - B. Anaphylaxis-severe
 - 1) Consult **MEDICAL CONTROL** for IV use.
 - 2) 0.1mg = 1ml of 1:10,000
 - OR**
 - 3) 0.1mg = 0.1ml of 1:1000
 - 4) SLOW IV over 5 min
 - 5) Dilute in 10 ml NS or infuse with IV running wide-open
 - 6) May repeat

4. PEDIATRIC DOSAGE
 - A. Neonatal resuscitation
 - 1) 0.03 mg/kg of 1:10,000 IV/IO **OR** 1:1000 ET. Repeat every 3-5 minutes.
 - B. Cardiac arrest
 - 1) 0.01 mg/kg of 1:10,000 IV/IO
 - OR**
 - 2) 0.1 mg/kg of 1:1000 ET diluted with 2-3 ml NS as needed.
 - C. Anaphylaxis-severe
 - 1) Consult **MEDICAL CONTROL** for IV use.
 - 2) 0.01 mg/kg of 1:10,000 IV/IO, max 0.1 mg, every 5 minutes as needed.
 - 3) Infuse with fluid boluses

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

EPINEPHRINE - INTRAMUSCULAR INJECTION

1. INDICATIONS
 - A. Allergic Reaction protocol [**MFR through EMT-P**]
 - 1) Signs of severe allergic reaction and complaints of respiratory distress
 - 2) Signs and symptoms of shock (hypoperfusion)
 - 3) **MFR** may only utilize EpiPen unit dose autoinjector. Requires additional training and approval.
 - B. Respiratory Distress refractory to Albuterol [**EMT-I & P**]
2. CONTRAINDICATIONS
 - A. There are no contraindications in anaphylactic shock
3. CONSIDERATIONS:
 - A. Mild symptoms do not require epinephrine
 - B. Half of patients with an Epi Pen do not know correct indications
 - C. Pregnancy, avoid use if possible
 - D. Patients over age 50 or with cardiovascular disease may suffer angina or life-threatening dysrhythmias.
4. DOSAGE
 - A. Immediate epinephrine administration allowed for true anaphylactic shock. Notify responding ambulance or **MEDICAL CONTROL** ASAP.
 - B. Contact **MEDICAL CONTROL** otherwise [**EMT-B & I Tech**]
 - 1) Request implementation of epinephrine protocol.
 - 2) Obtain voice authorization for injection
 - 3) Order with dosage
 - a. Adults (above 44 pounds or 20 kg)
 - i. One Epi Pen Adult (1:1000 solution)
 - ii. 0.3 mg epinephrine = 0.3 ml of 1:1000 solution
 - b. Children (less than 44 pounds or 20 kg)
 - i. One Epi Pen Junior (1:2000 solution)
 - ii. 0.15 mg epinephrine = 0.15 ml of 1:1000 solution
 - C. Repeat order back to physician
 - D. If epinephrine protocol not granted, continue assessment, care and transport
5. ADMINISTRATION
 - A. Verify correct dosage
 - B. Clear and not discolored
 - C. Correct route, not for IV administration.
 - D. Describe procedure to patient and obtain verbal consent if possible
 - E. Administer autoinjector with firm contact and hold for 10 seconds, or per IM injection.
 - F. Massage injection site to increase absorption
 - G. Examine autoinjector, if needle exposed the injection was successful.
 - H. Dispose of injector/syringe properly
6. Reassess patient and VS in 2 minutes
7. Transport immediately; continue to reassess and monitor patient
8. Epinephrine may be repeated in 10 minutes with order from **MEDICAL CONTROL**.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

GLUCAGON

This protocol may be used by properly trained and licensed EMTs for the treatment of patients who have been previously diagnosed with diabetes and are currently experiencing an altered mental status. EMT Basic must obtain a direct voice order from the **MEDICAL CONTROL** physician prior to the administration of glucagon.

1. INDICATIONS
 - A. Blood glucose less than 80 [**EMT-B through P, EMT Basic requires order**]
 - B. Unable to tolerate oral glucose
 - C. Known diabetic with symptoms of hypoglycemia and unable to obtain glucose measurement, treat as hypoglycemic

2. CONTRAINDICATIONS:
 - A. Known hypersensitivity to the drug

3. CONSIDERATIONS
 - A. Preferred for prompt treatment of hypoglycemia in children unable to tolerate oral glucose. Utilize IM route rather than attempt IV access.
 - B. May not be effective if malnourished, as no glucose storage
 - C. Administer with caution to patients with a history of cardiovascular disease, renal disease or adrenal gland tumor
 - D. Side effects rare: hypotension, dizziness, headache, nausea, and vomiting

4. DOSAGE
 - A. Adult: 1 mg
 - B. Peds: 0.1 mg/kg, max 1mg

5. ADMINISTRATION
 - A. Consult **MEDICAL CONTROL** for order [**EMT-Basic**]
 - 1) Request administration of Glucagon for Hypoglycemia
 - 2) Obtain voice authorization for injection
 - 3) Order with dosage
 - a. Adult: 1 mg
 - b. Peds: 0.1 mg/kg, max 1mg
 - 4) Repeat order back to physician
 - 5) If glucagon order not granted, continue assessment, care and transport
 - B. Must be reconstituted before using
 - 1) Add the diluent to the powdered medication
 - 2) Gently shake to mix thoroughly
 - C. Administer intramuscularly (subcutaneous administration delays effect)
 - D. Massage injection site to facilitate absorption

6. Record actions, transport and continue to monitor
 - A. Hypoglycemia should resolve within minutes. If it does not, consider other causes or need for IV therapy.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

GLUCOSE

1. INDICATIONS
 - A. Hypoglycemia with blood sugar less than 80 **[MFR through EMT-P]**
 - B. Known diabetic with symptoms of hypoglycemia and unable to obtain glucose measurement, treat as hypoglycemic.

2. CONTRAINDICATIONS
 - A. Unprotected airway, no gag reflex
 - B. NEVER PUT ANYTHING IN THE MOUTH OF A PATIENT WHO HAS A SIGNIFICANT DECREASE IN LEVEL OF CONSCIOUSNESS.
 - C. Use with caution with undetermined glucose and signs of stroke. Hyperglycemia is detrimental to stroke victims.

3. Dose: Up to one tube of glucose

4. ADMINISTRATION
 - A. Apply to tongue depressor
 - B. Place between cheek and gum
 - C. Repeat after glucose has dissolved

5. Record actions, transport and continue to monitor
 - A. Hypoglycemia should resolve within minutes. If it does not, consider other causes or need for IV therapy.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

LIDOCAINE

1. INDICATIONS
 - A. Cardiac arrest from VT/VF and wide complex tachycardia **[EMT-I & P]**
 - B. Stable VT and wide complex tachycardia **[EMT-P]**
2. CONSIDERATIONS
 - A. Give per treatment algorithms only, not prophylactically
 - B. Note endotracheal dose does not need to be doubled, as is well absorbed.
3. CONTRAINDICATIONS
 - A. Allergy or hypersensitivity
 - B. Junctional or ventricular escape rhythm providing adequate perfusion
4. DOSAGE
 - A. Cardiac arrest
 - 1) 1-1.5 mg/kg IV/ET
 - 2) Repeat full or half dose in 5-10 min
 - 3) Max 3 mg/kg total dose
 - B. Perfusing dysrhythmia
 - 1) 0.5 mg/kg up to 1.5 mg/kg IV may be used
 - 2) Repeat dose 0.5-0.75 mg/kg IV
 - 3) Max 3 mg/kg total dose
 - C. Maintenance infusion **[EMT-P]**
 - 1) 2-4 mg/min IV in NS or D5W
 - 2) Repeat dose 0.5-0.75 mg/kg IV in 8-10 minutes may be substituted

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

MAGNESIUM (ADULT ONLY)

1. INDICATIONS
 - A. Eclampsia **[EMT-P]**
 - B. Torsades de Pointes or refractory VF **[EMT-P]**
 - C. Suspected hypomagnesemia (malnutrition) with ventricular dysrhythmias **[EMT-P]**
 - D. Ventricular dysrhythmias in Digoxin toxicity **[EMT-P]**

2. CONSIDERATIONS:
 - A. May cause hypotension if given rapidly, especially in concentrated solution
 - B. Rapid boluses are quickly cleared by the kidney with normal renal function

3. CONTRAINDICATIONS
 - A. none

4. DOSAGE
 - A. Eclampsia
 - 1) 2-4 gm slow IV over 5-20 min
 - 2) If seizing, 1-2 gm IV push followed by slow infusion. May repeat up to 6 gm.
 - B. Cardiac
 - 1) 1-2 gm IV push for arrest; over 5 min for rhythm with pulses

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

MARK 1 KIT

Nerve agent (Sarin, Soman, Tabun, VX) and organophosphate insecticide exposure temporary treatment for self and partner use only, now considered victims. Treatment is titrated to decreasing the respiratory secretions.

Signs/symptoms: **Salivation/secretions**
 Lacrimation/tearing
 Urination
 Defecation
 GI upset/nausea/cramps
 Emesis
 Miosis/pin-point pupils
 CNS changes: agitation, muscle twitching, seizure

1. INDICATIONS

- A. Nerve agent/organophosphate poisoning **[EMT-B through P]**
 - 1) Signs and symptoms
 - 2) Known exposure, prior to onset of signs and symptoms

2. CONTRAINDICATIONS

- A. None with known exposure

3. CONSIDERATIONS

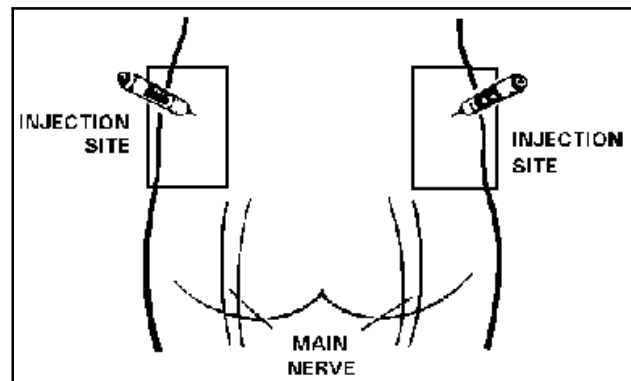
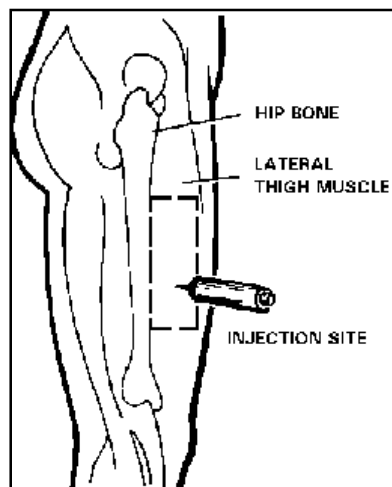
- A. Exposed EMTs are now patients
- B. Both the agent and the antidote inhibits your ability to function as a rescuer
- C. Accidental digital injection will NOT deliver an effective dose

4. DOSAGE per kit

- A. Atropine 2mg per 1ml autoinjector
- B. 2-PAM/pralidoxime chloride 600mg per 2 ml autoinjector

5. PROCEDURE

- A. Evacuate contaminated area
- B. Dermal decontamination ASAP after appropriate MARK 1 dosage
- C. Identify landmarks with large muscle groups:
 - 1) Lateral thighs/vastus lateralis muscle (preferred)
 - 2) Upper-outer buttock/gluteal muscle (secondary)



SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

- D. Grasp the clip with your nondominant hand
- E. With your dominant hand, remove the Atropine (smaller) injector from clip. It is now armed.
- F. Press green tip firmly against injection site and hold for 10 seconds. May be administered through clothing.
- G. Remove injector and deposit in sharps container. If no container available, bend the exposed needle against a hard surface to avoid sharps exposure.
- H. Massage injection site as time allows
- I. Repeat with 2-PAM (larger) injector. This tip is black.
- J. Further treatment for significant exposure requires EMT-I/P scope of practice

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

METOPROLOL / LOPRESSOR

1. INDICATIONS
 - A. ST-elevation MI [EMT-P]

2. CONSIDERATIONS
 - A. Selective beta1 receptor blocker
 - B. Requires cardiac and BP monitoring
 - C. Causes bradycardia
 - D. May cause hypotension or bronchoconstriction

3. CONTRAINDICATIONS
 - A. Beta-blocker allergy
 - B. Bradycardia less than 60 bpm
 - C. Hypotension less than 100 mmHg
 - D. Cardiogenic shock or heart failure with pulmonary edema
 - E. AV nodal blocks, especially 2nd degree type 2 and 3rd degree
 - F. Active bronchospasm; beta2 cross-reaction may exacerbate
 - G. Cocaine-induced MI; beta blockade can result in unopposed alpha stimulation hypertension

4. ADULT DOSAGE
 - A. 5mg slow IV push
 - B. May repeat in 5-15 min
 - C. Maximum of 3 doses / 15mg total

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

MORPHINE

Controlled Substance

1. INDICATIONS
 - A. Pain management **[EMT-I & P]**
 - B. Cardiac chest pain refractory to NTG **[EMT-I & P]**
 - C. Dyspnea in CHF **[EMT-I & P]**
2. CONSIDERATIONS:
 - A. May cause hypotension if given rapidly, small titrated dosing preferred.
 - B. Reverse with Narcan/Naloxone
3. CONTRAINDICATIONS
 - A. Medication allergy/hypersensitivity
 - B. Hypotension
4. DOSAGE
 - A. Chest pain or CHF: 2 mg IV every 3-5 min. Max total 20 mg.
 - B. Adult analgesia: 2-5 mg IV/IM. IV route preferred. Max total 20 mg.
 - C. Peds analgesia: 0.05-0.1 mg/kg IV/IM, max 5 mg per dose. IV route preferred.
 - D. Titrate to effect. See Analgesia Guidelines for further dosing.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

NALOXONE / NARCAN

Opiate/opioid/narcotic antagonist. Examples of narcotics: Codeine, Demerol/Meperidine, Dilaudid/Hydromorphone, Diphenoxylate/Lomotil, Heroin, Hydrocodone/Vicodin/Lortab, Methadone, Morphine/MS Contin, Oxycodone/Percocet, OxyContin, Propoxyphene/Darvocet, Pentazocine/Talwin

1. INDICATIONS
 - A. Suspected narcotic overdose with RR < 10 or hypotension **[EMT-I Tech through P]**
2. CONSIDERATIONS:
 - A. May cause narcotic withdrawal. Titrated dosing preferred.
 - B. Be prepared for violent awakening, consider need for restraints.
 - C. Rare anaphylactic reactions reported.
3. CONTRAINDICATIONS
 - A. Medication allergy/hypersensitivity
 - B. Stable airway (including intubation) and BP
 - C. Narcotic withdrawal
4. DOSAGE
 - A. Cardiorespiratory arrest
 - 1) 2 mg IV/IM/ET. Repeat as needed up to 10 mg total dose.
 - 2) Peds: 0.1 mg/kg, max 2mg per dose. Repeat as needed up to 10 mg.
 - B. Narcotic over-effect
 - 1) 0.4 mg slow IV, titrate primarily to respiratory effect.
 - 2) 1-2 mg IM if difficult IV access
 - 3) EMT-P may administer IN route

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

NITROGLYCERIN - ADMINISTERED

This protocol may be used by properly trained and licensed EMTs for Advanced Life Support treatment.

1. INDICATIONS
 - A. Chest pain **[EMT-I Tech through P]**
 - B. Pulmonary edema **[EMT-I Tech through P]**

2. CONTRAINDICATIONS
 - 1) Hypotension or blood pressure below 100 mm Hg systolic
 - 2) Head injury
 - 3) Pediatric patients
 - B. Patient has already met the maximum prescribed dose (usually 3) prior to EMT arrival. Consult **MEDICAL CONTROL** for further doses. Note that patient's NTG often expired and inactive. Active NTG should cause tingling under the tongue.
 - C. Use of Viagra within 24 hrs, or Cialis/Levitra within 48 hours.

3. CONSIDERATIONS:
 - A. Previous hypotension with NTG administration
 - B. If heart rate >140 or <50, assess for dysrhythmia. Treat dysrhythmias primarily.

4. ADMINISTRATION
 - 1) Do not shake spray bottle.
 - 2) Ask patient to lift tongue and place tablet or spray dose under tongue (wear gloves) or have patient place tablet or spray under tongue.
 - 3) Ask patient to keep mouth closed with tablet under tongue (without chewing or swallowing) until dissolved and absorbed
 - 4) Doses may be repeated in 3-5 minutes if no relief and SBP > 100, up to a maximum of 3 doses total.
 - 5) Record actions, transport and continue to monitor and reassess
 - 6) Monitor blood pressure within 3 mins. Must be assessed between doses.
 - 7) Record effect on pain relief utilizing pain scale
 - 8) Record any side affects (headache, hypotension, pulse rate changes)

5. Cardiac monitor
 - 1) Assess for dysrhythmia if heart rate remains >140 or <50. Treat dysrhythmias primarily.

6. Establish IV access. Do not delay treatment.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

NITROGLYCERIN - ASSISTED

This protocol may be used by properly trained and licensed EMTs for treatment patients who have been previously diagnosed as having heart disease, have prescribed nitroglycerin (NTG), and are having chest pain thought to be of cardiac origin. The **EMT-Basic** must obtain a direct voice order from **MEDICAL CONTROL** in all cases prior to administration of patient's nitroglycerin.

1. INDICATIONS: Cardiac chest pain [**EMT-B**]
2. CONTRAINDICATIONS
 - A. Hypotension or blood pressure below 100 mm Hg systolic
 - B. Head injury
 - C. Pediatric patients
 - D. Patient has already met the maximum prescribed dose (usually 3) prior to EMT arrival
 - E. Use of Viagra within 24 hrs, or Cialis/Levitra or similar drugs within 48 hours
3. CONSIDERATIONS:
 - A. Previous hypotensive response to NTG. Have patient supine.
4. Perform patient assessment.
 - A. Perform initial assessment
 - B. Perform focused history and physical exam for cardiac patient
 - 1) Past medical history: cardiovascular disease, diabetes
 - 2) Onset of chest pain, or change in symptoms
 - 3) Interventions (previous medications taken, aspirin, nitroglycerin)
 - C. Assess baseline vital signs and SAMPLE history
 - 1) Assure SBP above 100 mmHg systolic
 - 2) Apply cardiac monitor if trained to do so
 - 3) ALS intercept for diagnostic telemetry if pulse remains greater than 140 or less than 50.
5. Administer oxygen (if not done previously)
6. Consider Advanced Life Support intercept
7. Contact **MEDICAL CONTROL**
 - A. Specifically request implementation of nitroglycerin protocol for chest pain, report findings
 - B. Obtain voice authorization, including dosage and discuss giving single versus repeated doses.
 - C. Repeat order back to physician.
 - D. Verify:
 - 1) Patient's own medication
 - 2) Medication not expired
 - 3) Right route = sublingual
 - 4) Patient is alert
8. If authorization granted, facilitate administration of medication
 - A. Ask patient to lift tongue and place tablet or spray dose under tongue (wear gloves) or have patient place tablet or spray under tongue. Do not shake spray bottle.
 - B. Ask patient to keep mouth closed with tablet under tongue (without swallowing) until dissolved and absorbed
 - C. Doses may be repeated in 3-5 minutes if no relief, SBP > 100 and with physician authorization, up to a maximum of 3 doses total.
 - D. Record actions, transport and continue to monitor and reassess

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

- E. Monitor blood pressure within 3 mins. Must be assessed between each dose.
 - F. Record effect on pain relief utilizing pain scale
 - G. Record any side affects (headache, hypotension, pulse rate changes)
9. If authorization for nitroglycerin deferred, transport and monitor patient

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

REGLAN / METOCLOPRAMIDE

1. INDICATIONS
 - A. Significant or recurrent emesis [EMT-P]
2. CONTRAINDICATIONS
 - A. Bowel obstruction
 - B. Seizure disorder
 - C. Known hypersensitivity/allergy
3. CONSIDERATIONS
 - A. Avoid rapid administration
 - B. Agitation, restlessness or dystonic reaction possible
 - 1) Reverse with Benadryl 1mg/kg up to 50 mg IV/IM
4. DOSAGE
 - A. 0.1 mg/kg IM or slow IV, max 10 mg
 - B. During interfacility transfer, may repeat once.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

SODIUM BICARBONATE

Tricyclic/Tetracyclic antidepressants: Amitriptyline, Amoxapine, Anafranil, Ascendin, Aventyl, Clomipramine, Desipramine, Doxepin, Elavil, Etrafon, Imipramine, Limbitrol, Ludiomil, Maprotiline, Norpramin, Nortriptyline, Pamelor, Protryptiline, Sinequan, Tofranil, Triavil, Vivactil.

1. INDICATIONS

- A. Known or suspected hyperkalemia, especially in dialysis patients **[EMT-P]**
- B. Known acidosis or prolonged resuscitation **[EMT-P]**
- C. Antidote for Tricyclic antidepressant OD **[EMT-P]**

2. CONSIDERATIONS:

- A. Requires adequate ventilation to be effective
- B. Do not give with any other medications during resuscitation, will inactivate or precipitate. Separate by 30-60 sec of CPR.

3. CONTRAINDICATIONS

- A. Do not give with Calcium, they will precipitate.

4. DOSAGE

- A. 1 mEq/kg IV. 1 ampule is 50 mEq in 50 ml.
- B. Repeat 0.5 mEq/kg every 10 min.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

VALIUM / DIAZEPAM

Controlled Substance

1. INDICATIONS
 - A. Seizure **[EMT-I & P]**
 - B. Sedation **[EMT-P]**
2. CONSIDERATIONS:
 - A. Respiratory depression, may need airway support
 - B. Not well absorbed by IM route
3. CONTRAINDICATIONS
 - A. Known medication allergy
4. DOSAGE
 - A. Adult 2-5 mg IV
 - B. Peds 0.05-0.2 mg/kg IV, max 10 mg
 - C. Peds rectally 0.5 mg/kg
 - D. May repeat in 10 min. See Analgesia Guidelines for further dosing.

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

VASOPRESSIN (ADULT ONLY)

1. INDICATIONS
 - A. Cardiac arrest VT/VF **[EMT-I & P]**
2. CONTRAINDICATIONS:
 - A. Do not administer per ET tube
 - B. Not to be used for Asystole or PEA. Epinephrine is medication of choice.
3. CONSIDERATIONS:
 - A. Vasoconstriction with less tachycardic side effects than Epinephrine.
 - B. If ineffective, give Epinephrine.
4. DOSAGE
 - A. 40 unit IV push, single dose

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

VERSED / MIDAZOLAM

Controlled Substance

1. INDICATIONS
 - A. Seizure **[EMT-I & P]**
 - B. Sedation **[EMT-P]**
2. CONSIDERATIONS:
 - A. Respiratory depression, may need airway support
 - B. Onset and resolution more rapid than Valium
3. CONTRAINDICATIONS
 - A. Known medication allergy
4. DOSAGE
 - A. Adult 1-5 mg IV/IM/IN
 - B. Peds 0.05-0.1 mg/kg IV/IM, max 5 mg
 - C. May repeat in 5 min