

**VERMONT
EMS DISTRICT 6
EMT-INTERMEDIATE '03
PROTOCOLS**

[Revised 06/04]

These protocols have been approved for implementation effective 0800 May 12, 2004 per Philip Brown, DO and the EMS District 6 Board.

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VERMONT EMS DISTRICT 6 EMT-INTERMEDIATE '03 PROTOCOLS

1) **Abdominal pain** – Treat per **Hypotension, a & b** protocol

2) **Altered Level of Consciousness**

a) Hypoglycemia

- i) Maintain oxygenation and ventilation per polices
- ii) Treat per **Hypotension, a & b** protocol
- iii) Measure blood glucose (do not draw blood); if blood glucose is less than 80 mg/Dl and:
 - (1) Patient is able to hold a cup without assistance - administer oral glucose, 30 Gm, PO
 - (2) Patient is not able to hold a cup without assistance, initiate large bore fluid access at TKO (KVO)
 - (a) , (☎) administer dextrose 50%, 50 cc, IV in large vein
 - (b) (☎) Administer thiamine, 100 mg, IV or IM; if indications of malnutrition are present
 - (i) Alcoholism
 - (ii) Chemotherapy
 1. Currently in treatment
 2. Last treatment within prior 6 months
 - (iii) Malnutrition, including significant dieting
- iv) (☎) If unable to administer oral glucose or initiate fluid access
 - (1) Administer glucagon, 1 mg, IM; do not repeat glucagon
 - (2) Administer thiamine, 100 mg, IM; if indications of malnutrition are present
 - (a) Alcoholism
 - (b) Chemotherapy
 - (i) Currently in treatment
 - (ii) Last treatment within prior 6 months
 - (c) Malnutrition, including significant dieting
- v) Repeat blood glucose in 10 minutes
 - (1) If blood glucose is less than 80 mg/Dl, (☎) repeat dextrose, 50 cc, IV in large vein; do not repeat glucagon
 - (2) Do not repeat thiamine

b) Overdose

- i) Treat per **Hypotension, a & b** protocol
- ii) If **narcotic** overdose is suspected, and
 - (1) Patient has pinpoint pupils WITH unlabored respiratory rate greater than 10 breaths per minute do not administer naloxone
 - (2) (☎) Patient has pinpoint pupils WITH respiratory rate less than 10 breaths per minutes;
 - (a) Administer 0.4 mg naloxone (IV, IM, IN, SQ)
 - (b) Repeat naloxone in 0.4 mg increments to maintain respirations at or above 10 breaths per minute regardless of patients mental status

- (3) (☎) Absent respiratory effort, regardless of pupils size
 - (a) Administer naloxone, 2.0 mg (IV, IM, IN, SQ)
 - (b) Repeat in 0.4 mg increments to maintain respirations at or above 10 breaths per minute
- c) Seizure – Follow **Seizure** protocol
- d) Stroke
 - i) Initiate large bore fluid access at TKO (KVO)
 - (1) May use saline lock
 - (2) Limit access attempts if patient is candidate for thrombolysis per Thrombolytic Checklist
 - ii) Monitor cardiac rhythm using Lead-II
 - iii) Determine blood glucose; treat per **Hypoglycemia** protocol
 - iv) Seizures; treat per **Seizure** protocol
- e) Toxemia – Treat per **Pregnancy Related Emergencies and Vaginal Bleeding** protocol

3) **Amputations** – Treat per **Hypotension, a & b** protocol

4) Anaphylaxis

- a) Treat per **Hypotension, a & b** protocol
- b) Monitor cardiac rhythm using Lead-II
- c) (☎) If signs of progressive anaphylaxis and/or significant respiratory distress
 - i) Administer Epinephrine 1:1000, 0.3 mg (0.3 cc) SQ
 - ii) May repeat Epinephrine 1:1000, 0.3 mg (0.3 cc) SQ if no improvement after 5 minutes

5) Burns

- a) *Thermal or Chemical*
 - i) Treat per **Hypotension, a & b** protocol
 - ii) Estimate fluid replacement based on area of significant (2nd and 3rd) degree burn
- b) *Electrical*
 - i) Treat per **Hypotension, a & b** protocol
 - ii) Monitor cardiac rhythm using Lead-II

6) **Cardiac Arrest** – No Change

7) Chest Pain

- a) Initiate large bore fluid access at TKO (KVO)
- b) (☎) Administer aspirin, up to 325 mg, PO, unless the patient has contraindications, including
 - i) Allergy to aspirin or aspirin induced asthma
 - ii) History of active bleeding disorder (i.e., hemophilia)
 - iii) Current ulcer or GI bleeding
 - iv) Patient receiving anticoagulation therapy
 - v) Suspected aortic dissection

NOTE: USE CAUTION in patients with history of asthma!

- c) Monitor cardiac rhythm using Lead-II

- d) Initiate large bore fluid access at TKO (KVO) prior to administration of nitroglycerin for patient's that have not taken nitroglycerin in the past
 - i) Treat per **Hypotension, a & b** protocol
 - ii) Limit access attempts if patient is candidate for thrombolysis per Thrombolytic Checklist
- e) (☎) Administer Nitroglycerin 0.4 mg (tablet or spray), SL every 5 minutes until
 - i) Patient is pain free
 - ii) Systolic BP under 100 mm/Hg
 - iii) Arrival at hospital
 - iv) Arrival of paramedic services

NOTE: If the patient has taken Viagra, Levitra, or any similar medication, within the previous 24 hours from time of call, or Cialis within the previous 48 hours from time of call, DO NOT ADMINISTER NITROGLYCERIN WITHOUT OLMC APPROVAL.
- f) Complete "**Thrombolytic Checklist**" en route to the hospital

8) **Cold Exposure** – No change

9) **Diabetic Emergencies** – Treat per **Altered Level of Consciousness** protocol

10) **Difficulty Breathing**

- a) Initiate large bore fluid access at TKO (KVO); may use Saline Lock
- b) Monitor cardiac rhythm using Lead II
- c) (☎) Asthma/COPD
 - i) Administer nebulized albuterol (2.5 mg in 3 cc of saline; 1 unit dose) as needed
 - ii) May repeat up to three doses

11) **Eye Emergencies** – No changes

12) **Headache**

- a) Initiate large bore fluid access at TKO (KVO); may use Saline Lock

13) **Head Trauma**

- a) Initiate large bore fluid access at TKO (KVO); may use Saline Lock

14) **Heat Exposure**

- a) Suspected Heat Exhaustion
 - i) Initiate large bore fluid access at TKO (KVO); may use Saline Lock
- b) Suspected Heat Stroke
 - i) Treat per **Hypotension, a & b** protocol
 - ii) Monitor cardiac rhythm
 - iii) Seizures – Follow **Seizure** protocol

15) **Hemorrhage and Bleeding Wounds** – Treat per **Hypotension, a & b** protocol

16) **Hypertension**

- a) Initiate large bore fluid access at TKO (KVO); may use Saline Lock
- b) **Do not** contact OLMC for treatment direction; transport the patient

17) Hypotension (Shock Protocol)

- a) If shock syndrome is not present and systolic BP is greater than 90 mm/Hg, initiate large bore fluid access at TKO (KVO)
- b) If shock syndrome is present and systolic BP is less than 90 mm/Hg, initiate large bore fluid access as needed to maintain BP between 90 and 100 mm/Hg
 - i) Consider fluid bolus of 250 or 500 cc's
 - ii) May repeat to max of 1,000 cc's
- c) If GCS is less than 13, notify receiving hospital from scene
- d) Perform all treatments en-route, if possible
- e) Maintain oxygenation and ventilation per policies
- f) Consider PASG – (☎) for inflation

18) Major Multi-Trauma

- a) Treat per **Hypotension, a & b** protocol
- b) Maintain spinal precautions
- c) If GCS is less than 13, notify receiving hospital from scene
- d) Perform treatments en-route, if possible
- e) Maintain oxygenation and ventilation per policies
- f) Consider PASG – (☎) for inflation

19) Nausea and Vomiting

- a) Treat per **Hypotension, a & b** protocol
- b) Determine blood glucose; treat per **Hypoglycemia** protocol

20) Nosebleed – Treat per **Hypotension, a & b** protocol

21) Poisoning and Overdose – Treat per **Altered Level of Consciousness** protocol

22) Pregnancy Related Emergencies and Vaginal Bleeding – Treat per **Hypotension, a & b** protocol

23) Seizures

- a) Initiate fluid access at TKO (KVO); may use Saline Lock
- b) Determine blood glucose; treat per **Hypoglycemia** protocol
- c) Consider possibility of overdose; treat per **Altered Level of Consciousness** protocol

24) Sexual Assault – Treat per **Hypotension, a & b** protocol

25) Sudden Infant Death Syndrome

- a) Initiate fluid access at TKO (KVO); limit access attempts to 2
- b) Monitor cardiac rhythm using Lead-II

26) Skeletal Emergencies - Treat per **Hypotension, a & b** protocol

27) Spine Trauma – Treat per **Hypotension, a & b** protocol

28) Violent Patient – No Change

29) Weakness, Malaise, Fever

- a) Treat per **Hypotension, a & b** protocol; may use Saline Lock
- b) Measure blood glucose; treat per **Hypoglycemia** protocol
- c) Monitor cardiac rhythm using Lead-II

(☎) = On-Line medical Control (OLMC) **required** per Vermont State EMS Protocol

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MEDICATIONS

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ALBUTEROL

Class

Sympathomimetic

Actions

Albuterol is a potent, bronchodilator. The onset of improvement in pulmonary function is within 2 to 15 minutes after the initiation of treatment; the duration of action is 4 to 6 hours. As a β_2 agonist albuterol induces bronchial dilatation, but has occasional β_1 overlap with clinically significant cardiac effects.

Indication

Treat bronchial asthma and reversible bronchial spasm that occur with chronic pulmonary disease

Precautions

- 1) The patient should be monitored for dysrhythmias; clinically significant dysrhythmias may occur, especially in patient's with underlying cardiovascular disorders such as coronary insufficiency and hypertension
- 2) Paradoxical bronchospasm may occur with excessive administration
- 3) Skeletal muscle tremors are a potential side effect

Technique

- 1) O₂ should be set at a **minimum** of 6 liters per minute
 - a) COPD patients should be monitored carefully for CO₂ retention
 - b) Do not reduce oxygen liter flow
- 2) Patients should be instructed to breathe as follows
- 3) Inhale slowly
- 4) Hold your breath as long as you can without discomfort
- 5) Exhale passively through your nose

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ASPIRIN

Class:

Anti-inflammatory agent, platelet inhibitor

Actions:

Aspirin inhibits prostaglandin and disrupts platelet function. It is also a mild analgesic and anti-inflammatory agent

Indications

- 1) Unstable angina
- 2) Acute myocardial infarction aspirin
- 3) Ischemic chest pain patients

Precautions

- 1) Allergy to aspirin or aspirin induced asthma
- 2) History of active bleeding disorder (i.e., hemophilia)
- 3) Current ulcer or GI bleeding
- 4) Patient receiving anticoagulation therapy
- 5) Suspected aortic dissection

Side Effects

- 1) High doses of aspirin can cause ringing in the ears (tinnitus)
- 2) Heartburn
- 3) Nausea
- 4) Vomiting

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DEXTROSE 50%

Class

Carbohydrate

Actions

Glucose is the body's basic fuel. It produces most of the body's quick energy. Its use is regulated by insulin, which stimulates storage of excess glucose from the bloodstream and glucagon that mobilizes stored glucose into the bloodstream.

Indications

- 1) Hypoglycemia states usually associated with insulin shock in diabetes
- 2) The awake hypoglycemic patient able to hold a "glass" without assistance, may drink 50 cc of dextrose 50%
- 3) The unconscious patient, when a history is unavailable
- 4) In hypoglycemic patients with any local or partial neurologic deficit or altered mental status

Precautions

- 1) Extravasation of dextrose 50% will cause necrosis of tissue
- 2) IV should be secure and free return of blood into the syringe or tubing should be checked 2 to 3 times during administration
- 3) Report extravasation of the drug to receiving hospital personnel and document on PCRf

Side Effects/Special Notes

- 1) Recent research suggests that hyperglycemia may complicate or worsen a number of medical conditions (i.e., myocardial infarction, stroke)
 - a) Dextrose 50% should be given when hypoglycemia is documented by blood glucose meters or colorimetric reagent strips
 - b) If these objective signs are not available, the EMT should use judgment based on signs and history
- 2) Dextrose may precipitate Wernicke's Encephalopathy or Korsakoff's psychosis in patients who are malnourished
 - a) Significant dieting, Including
 - i) Anorexia
 - ii) Bulimia
 - iii) Not including
 - (1) Atkins Diet
 - (2) South Beach Diet
 - iv) Alcoholism
 - v) Chemotherapy
 - (1) Currently in treatment
 - (2) Last treatment within prior 6 months

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GLUCAGON

Class

Antihypoglycemic agent

Actions

Glucagon is a hormone that causes glucose mobilization in the body. It works opposite of insulin (which causes glucose storage), and is present normally the body. It is released at times of insult or injury when glucose is needed and mobilizes glucose from body glycogen stores. if the patient is hypoglycemic, return to consciousness should be within 20 minutes of an IM dose.

Indications

Known hypoglycemia (demonstrated by blood glucose determination) when a patient has an altered mental status, and

- 1) Dextrose 50% is not available, or,
- 2) IV access cannot be established

Precautions

- 1) IV glucose or dextrose is the treatment of choice for hypoglycemia
- 2) Use of glucagon is restricted to patients who are seizing, combative or with collapsed veins and in whom an IV cannot be started

Side Effects/Special Notes

- 1) Nausea and vomiting may occur
- 2) Persons with no liver glycogen stores (malnutrition, alcoholism, or recent chemotherapy) may not be able to mobilize any glucose in response to glucagon

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GLUCOSE, ORAL

Class

Carbohydrate

Actions

Glucose is the body's basic fuel. It produces most of the body's quick energy. Its use is regulated by insulin, which stimulates storage of excess glucose from the bloodstream, and by glucagon, which mobilizes stored glucose into the bloodstream.

Indications

The conscious patient where a suspicion of hypoglycemia exists or a blood glucose measurement indicates a low blood glucose level (equal to or less than 80 mg/Dl), with altered mental status

Precautions

To give oral solutions, the patient must be able to hold a "glass" without assistance; the patient must be continually assessed for ability to protect the airway

Side Effects/Special Notes

- 1) Hyperglycemia may complicate or worsen a number of medical conditions (i.e., myocardial infarction, stroke)
- 2) Dextrose 50% should be given whenever hypoglycemia is documented by blood glucose meters or colorimetric reagent strips.
- 3) If these objective signs are not available, the EMT should use judgment based on signs and history
- 4) Effect is delayed in the elderly and people with poor circulation
- 5) If patient is unconscious, or unable to hold a "glass" without assistance
 - a) DO NOT give oral glucose
 - b) Support "ABC's"
- 6) Oral glucose may be better tolerated when administered with liquid between doses
- 7) Patients condition may require repeated doses, repeat glucose determination in 10 minutes, if equipment is available

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NALOXONE

Class

Narcotic antagonist

Actions

Naloxone is a narcotic antagonist that competitively bonds to narcotic receptor sites but exhibits almost no pharmacologic activity of its own. Duration of action is 1 to 4 hours

Indications

- 1) Reversal of narcotic effects, particularly respiratory depression, due to narcotic drugs either ingested, injected, or administered in the course of treatment, including
 - a) Aspirin/oxycodone (Percodan®)
 - b) Atropine/diphenoxylate (Lomotil®)
 - c) codeine
 - d) Heroin
 - e) Hydromorphone (Dilaudid®)
 - f) meperidine (Demerol®)
 - g) Morphine
 - h) pentazocine (Talwin®)
 - i) propoxyphene (Darvon®)
- 2) Diagnostically, in coma of unknown etiology, to rule out or reverse narcotic depression

Precautions

- 1) In patients physically dependent on narcotics, violent withdrawal symptoms may be precipitated
- 2) Be prepared to restrain the patient

Special Notes

- 1) The duration of some narcotics is longer than the naloxone and the patient must be monitored closely.
- 2) Repeat doses of naloxone may be required
- 3) Patients who receive naloxone must be transported to the hospital
- 4) May need large doses to reverse propoxyphene (Darvon) overdose

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NITROGLYCERIN

Class

Antianginal agent; smooth muscle relaxant

Actions

Cardiovascular effects include:

Reduced venous tone, causing pooling of blood in peripheral veins and decreased return of blood to the heart

Decreased peripheral resistance

Dilatation of coronary arteries

General smooth muscle relaxation

Indications

- 1) Chest pain thought to be related to cardiac ischemia
- 2) Pulmonary edema to increase venous pooling, lowering cardiac preload and afterload

Precautions

- 1) May cause profound hypotension, especially orthostatic hypotension, and reflex tachycardia
- 2) Nitroglycerin loses potency easily, should be stored in dark glass container with tight lid and not exposed to light
- 3) DO NOT ADMINISTER NITROGLYCERIN WITHOUT OLMC APPROVAL, if the patient has taken:
 - a) Viagra, Livitra, or any similar medication, within the previous 24 hours from time of call, or
 - b) Cialis within the previous 48 hours from time of call

Side Effects

- 1) Throbbing headache
- 2) Flushing
- 3) Dizziness

Contraindications

- 1) Blood pressure less than 100 mm/Hg systolic

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OXYGEN

Class

Medical Gas

Actions

Oxygen added to inspired air raises the amount of oxygen in the blood and the amount delivered to the tissues. Tissue hypoxia causes cell damage and death. Breathing in most persons is regulated by small changes in acid/base balance and CO₂ levels. It takes relatively large drops in blood oxygen concentration to stimulate respiration

Indications

- 1) Suspected hypoxemia or respiratory distress from any cause
- 2) Acute chest pain in which a myocardial infarction is suspected
- 3) Shock (decreased oxygenation of tissues) from any cause
- 4) Major trauma
- 5) Carbon monoxide poisoning

Precautions

- 1) If the patient is not breathing adequately, the treatment of choice is ventilation
- 2) In a small percentage of patient's with chronic lung disease administration of oxygen will decrease respiratory drive
 - a) Do not withhold oxygen because of this possibility
 - b) Be prepared to assist ventilation if needed
 - c) Initial oxygen flow should be no greater than 2 liters per minutes in these patients; do not hesitate to increase flow if patient does not improve.

Special Notes

- 1) Nasal cannulas work equally well on nose or mouth breathers
- 2) Non-humidified O₂ is drying and irritating to the mucous membranes; limit non humidified administration to less than 60 minutes
- 3) Oxygen toxicity is not a risk in acute administration
- 4) Restlessness may be an important sign of hypoxemia

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THIAMINE

Class

Vitamin B₁

Actions

Thiamine is found in adequate amounts in the normal diet, but deficient in malnutrition. The deficiency can cause **Wernicke's syndrome**, an acute reversible encephalopathy characterized by ataxia, eye muscle weakness, (diplopia and nystagmus) and mental derangements. Of more serious concern is **Korsakoff's psychosis**, also caused by thiamine deficiency and characterized by memory disorder. Korsakoff's psychosis may be irreversible once it becomes established; for this reason, treatment with thiamine is indicated if Wernicke's or Korsakoff's psychosis is recognized. Since thiamine is utilized in carbohydrate metabolism, the syndromes may be precipitated by the administration of dextrose in the patient with already depleted thiamine stores.

Indications

- 1) Concurrent with, or immediately following, administration of dextrose 50% or oral glucose, in persons suspected to be malnourished, including
 - a) Significant dieting
 - i) Anorexia
 - ii) Bulimia
 - iii) Not including
 - (1) Atkins Diet
 - (2) South Beach Diet
 - b) Chronic Alcoholism
 - c) Chemotherapy
 - i) Currently in treatment
 - ii) Last treatment within prior 6 months

Precautions

- 1) Allergic reactions occur, but are rare
- 2) Rapid IV administration has been associated with hypotension; give IV over one minute