Section: ALS Hazardous Materials
Subject: ADULT CHEMICAL TREATMENT GUIDE 2A: BLUE
Section #: 346.05
Issue Date: March 21, 2011
Revision Date:
Approved By: Michael Lozano, Jr., M.D., HCFR Medical Director

1. Covered Substances
    a. Aromatic Hydrocarbons (Benzene, Toluene, Xylene)
    b. Arsenic Trioxide Compounds
    c. Carbon Monoxide Poisoning
    d. Chlorinated Hydrocarbons (Methylene Chloride)

2. Signs and Symptoms
    a. Mild exposures:
        i. Cough, hoarseness, headache, poor concentration, irritability, agitation, anxiety, drowsiness, dizziness, weakness, tremors, transient euphoria, vision and hearing disturbances, nausea/vomiting, salivation, diarrhea, stomach pain, and chemical burns w/ chlorinated hydrocarbons.
        ii. For arsenic specific signs and symptoms see below.
    b. Moderate to severe exposures:
        i. Cardiovascular collapse, tachy-dysrhythmias (especially V-fib), chest pain, pulmonary edema, dyspnea, tachypnea, respiratory failure, paralysis, altered LOC, seizures, excessive salivation, pale skin, cyanosis, rarely cherry red skin w/ CO, and delayed carcinogenic effects.
        ii. For arsenic specific signs and symptoms see below.
    c. Arsenic exposure:
        i. Severe GI fluid loss, burning ABD pain, watery or bloody diarrhea, muscle spasm, seizures, cardiovascular collapse, tachycardia, hypotension, ventricular dysrhythmias, shock, and coma. In severe cases, there may be respiratory or cardiac arrest. Acute renal failure with bronze urine within a few minutes.
    d. *CAUTION:* Products may be flammable.

3. General Supportive Care
    a. Ensure that personnel are using appropriate PPE.
        i. Obtain HIT assistance if needed.
    b. For cases of carbon monoxide or methylene chloride exposure follow HCFR standing orders for CO poisoning.
    c. Decontamination:
        i. Remove the patient from the hazardous area.
            1. If victims can walk, lead them out of the Hot Zone to the Decon Zone.
            2. Victims who are unable to walk may be removed on backboards or gurneys; if these are not available carefully drag victims to safety.
            3. Consider appropriate management of chemically contaminated children, such as measures to reduce separation anxiety.
        ii. Victims who are able may assist with their own decontamination.
            1. Remove contaminated clothing while flushing exposed areas.
            2. Double-bag contaminated clothing and personal belongings.
            3. If indicated, irrigate exposed or irritated eyes with plain water or saline for at least 15 minutes.
                a. Remove contact lenses if easily removable.
                b. Continue irrigation while transferring the victim to the Support Zone.
        iii. If the patient has external burns, irrigate copiously and cover with a dry dressing.

Section: ALS Hazardous Materials
Subject: ADULT CHEMICAL TREATMENT GUIDE 2A: BLUE
Section #: 346.05
Issue Date: March 21, 2011
Revision Date:
Approved By:  Michael Lozano, Jr., M.D., HCFR Medical Director

d. Initiate medical / trauma supportive care as indicated.
    i. In case of ingestion, do not induce emesis.
e. *Contact Poison Information Center (1-800-222-1222)*.
f. If the patient has signs and symptoms of pulmonary edema, maintain adequate ventilation and oxygenation.
    i. Non-cardiogenic pulmonary edema should not be treated with furosemide.
    ii. If intubated, use positive end expiratory pressure (PEEP) per protocol.
    iii. If spontaneously breathing, apply CPAP at the lowest level needed to alleviate dyspnea.

4. Paramedic Level Care
    a. Hydrocarbons will sensitize the myocardium to catecholamines, so place the patient in a calm reassuring environment if possible.
        i. If dysrhythmias develop, treat with the indicated HCFR protocol.
    b. For seizures, follow appropriate HCFR protocol.
    c. For CO exposure, initiate high-flow / high-concentration O_2 (preferably 100% via NRBM).
    d. Treat hypotension with vasopressors rather than with fluids unless there are signs and symptoms of hypovolemic shock.
        i. Dopamine starting at 5.0 mcg/kg/min IV and titrating to SBP > 100 mmHg in adults or the lower end of the normal range adjusted for age in pediatric patients (max dose 20 mcg/kg/min).

5. MSOT – Medic Level Care
    a. Treat hypotension with vasopressors rather than with fluids unless there are signs and symptoms of hypovolemic shock.
        i. Phenylephrine (Neo-synephrine™)
            1. *Adults*: 100 – 180 mcg/min IV as a brief initial infusion until the blood pressure stabilizes, with dosage titrated to a mean arterial pressure (MAP) of 75 – 100 mmHg.
                a. The usual maintenance infusion rate ranges between 40 and 60 mcg/min IV.
            2. *Pediatrics*: 20 mcg/kg IV bolus, followed by an initial IV infusion of 0.1 – 0.5 mcg/kg/min, with dosage titrated to a mean arterial pressure (MAP) of 75 – 100 mmHg.

6. Quality Assurance Points
    a. End-stage symptoms may resemble organophosphate poisoning. However, patients will have normal or dilated pupils – the patient will not have pinpoint pupils.
        i. These patients should not be given either atropine or 2-PAM.