

Bayfield-Ashland Counties EMS TOXINS / ENVIRONMENTAL Chemical Exposure	EC-2 AIRWAY RESPIRATORY IRRITANTS
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SYMPTOMS: Respiratory distress due to respiratory irritant, airway injury, respiratory injury, chemical respiratory injury, and/or toxic inhalation. Symptoms may be delayed and may include unusual odor or smell, tearing or itchy eyes, burning sensation and burns to the nose pharynx and respiratory tract, sneezing, general excitation, cough, chest tightness, nausea, shortness of breath or dyspnea, wheezing, stridor, dyspnea on exertion, dizziness, change in voice, airway obstruction include laryngospasm and laryngeal edema, pulmonary edema (non-cardiogenic), seizures, cardiopulmonary arrest.

NOTES:

- A. Inhalation of a variety of gases, mists, fumes, aerosols, or dusts may cause irritation or injury to the airways, pharynx, lung, asphyxiation, or other systemic effects.
- B. Inhaled airway or respiratory irritant agents will interact with the mucus membranes in the upper and lower airways based on solubility, concentration, particle size and duration of exposure.
- C. The less soluble and smaller the particle size of the agent, the deeper it will travel into the airway and respiratory systems before reacting with adjoining tissues, thus causing a greater delay in symptom onset.
- D. Many airway and respiratory irritant agents have “warning properties” such as identifiable or unpleasant smells or irritation to eyes or airways.

ASSESSMENT and TREATMENT

ALL LEVELS

- 1. Don appropriate PPE; respiratory protection may be critical.
- 2. Make sure the scene is safe.
- 3. Have victim move from the toxic environment if possible or request assistance in removing the victim by trained and equipped personnel. [Many gases are heavier than air and may build up in low lying areas. Be aware that subsequent casualties may occur when unprotected rescuers attempt to save the first downed victim.]
- 4. Remove the patient’s clothing carefully. Place clothing in double bag.
- 5. Perform early eye irrigation.
- 6. Treat topical chemical burns per [Topical Chemical Burns guideline \[EC-7\]](#).
- 7. Obtain and monitor vital signs including temperature when possible.

EMR-O; EMT-R

- 8. Rapidly assess the patient respiratory status, mental status, and oxygenation.
- 9. Assure a patent airway.
 - a. Administer oxygen as appropriate for dyspnea or distress with a target of achieving greater than 93% saturation for most acutely ill patients.
 - b. Maintain the airway and assess for airway burns, stridor, or airway edema.
 - c. Use bag-valve-mask (BVM) ventilation if hypoventilation, respiratory failure or arrest.
- 10. Administer albuterol [2.5-5mg nebulized or 6 puffs MDI] to all patients in respiratory distress with signs of bronchospasm. This medication should be repeated as needed.
- 11. In severe respiratory irritation, consider consultation for transfer to a facility with hyperbaric oxygen therapy.

EMT-O

- 12. Administer Ipratropium [0.5mg nebulized] up to 3 doses in conjunction with albuterol [2.5 mg nebulized].

13. Use continuous positive airway pressure (CPAP) or bi-level positive airway pressure (BIPAP) for severe respiratory distress or impending respiratory failure.

AEMT-R

14. Consider isotonic IV/IO fluid bolus 20ml/kg normal saline.

AEMT-O

15. Consider IV/IO fluid bolus 20ml/kg lactated Ringer's.

INT-O

16. Perform early intubation if indicated by respiratory status.
17. If patient is experiencing significant pain, administer IV/IO analgesics:
 - a. Fentanyl [0.5-1mcg/kg IV/IO/IN maximum initial dose of 100mcg]
 - b. Morphine [.1 mg/kg max of 10 mg]

PARA-O

18. Use High Flow Nasal Cannula (HFNC) for severe respiratory distress or impending respiratory failure.