

### **AMMONIA: Health Care Information**

Ammonia is commonly used as a cleaner, refrigerant and fertilizer. Anhydrous ammonia is an irritant gas that is highly water-soluble. Ammonia forms ammonium hydroxide (an alkali) on contact with the water in the upper airways. Ammonia is commonly stored in large storage containers and is extensively transported by rail and truck as a compressed/pressurized liquid. Releases of ammonia may occur as an industrial accident or by intentional rupture of a holding tank at a factory, port or rail car. Ammonia gas is colorless, but often appears white when released from pressurized tanks.

**Recognition and Triage:** Patients may report immediate **irritation of the skin and mucous membranes (pharyngitis, rhinitis, conjunctivitis)**. High concentration or prolonged exposure may lead to **upper airway swelling, stridor, cough and pneumonitis**. Physical findings include erythema and/or edema of the mucosal membranes. Patients may be triaged as follows: **(immediate)** respiratory rate >30/min or upper airway edema; **(minor)** mild mucosal irritation; **(delayed)** asymptomatic.

**Personal Protective Equipment (PPE) (at the health care site):** Personnel who decontaminate patients should wear splash-proof PPE (waterproof outer garment and chemical resistant gloves) and a filtered air respirator. Personnel treating patients who have already been decontaminated require no PPE other than universal precautions.

**Decontamination (at the health care site):** Sufficient decontamination includes removal of **ALL** clothing and jewelry and thorough washing of the skin and hair with water for 3 to 5 minutes. Exposed or painful eyes should be flushed with 1 to 2 liters of water or normal saline, then continue flushing until the ophthalmic pH is between 7 and 8. An ophthalmic anesthetic should be used prior to flushing.

**Diagnosis and Treatment:** Treatment is supportive. **Oxygen** may be required for hypoxemia. **Early intubation should be considered for upper airway swelling. Bronchodilators** (e.g., albuterol) may be used for wheezing or cough. Contact the Poison Center (1 800 222 1222) for specific questions or advice on individual patients.

**Patient Monitoring:** Ammonia has no systemic effects. Continuous monitoring of pulse oximetry and end-tidal carbon dioxide may help assess oxygen exchange; however, patients with impending airway obstruction should be intubated early.

**Disposition Criteria (when to send patient home):** Initial mild symptoms may progress to corneal opacity, airway obstruction and pneumonitis. Patients with significant ocular or airway irritation should not be discharged. Patients with mild or no symptoms should be observed for a 4-hour period. If symptoms are gone or mild after 4 hours and pulse oximetry is normal, patients may be discharged with instructions to return if symptoms worsen.

**Reporting/Coordination Link:** Call the **Poison Center (1 800 222 1222)** for information on specific patients. Contact the local or state public health authority (**Oregon Public Health Hotline: 1 800 805 2313**) to report a mass casualty incident.