# Irritant Gas | Simple Asphyxiant Exposure

Generally supportive therapy and respiratory support is the focus of care in these exposures as there are no specific antidotes.

**Signs & Symptoms**

- Irritation/chemical burns
- Chemical conjunctivitis
- Lacrimation, rhinorrhea
- Throat burning/irritation
- Coughing, choking
- Stridor
- Wheezing
- Dyspnea
- Pulmonary edema
- Nausea/vomiting
- Abdominal pain
- Headache
- Dizziness
- Altered mental status
- Seizures
- Dysrhythmias
- Syncope
- Hypotension
- Cardiac arrest

Severe respiratory distress may resemble cholinergic crisis due to profound secretions from pulmonary edema.

Remember, patients exposed to an irritant gas will have normal or dilated pupils, whereas nerve agent or organophosphate-exposed patients will have pinpoint pupils.

Routine HAZMAT Care
(scene safety/PPE/decontamination)

Routine Medical Care
including $SpO_2$, $EtCO_2$,
cardiac monitor, 12 Lead EKG

Obtain history of exposure, identify specific agent if able

For symptomatic patients:
Give **Oxygen 15L** via NRB/BVM

If altered mental status present:
refer to **Altered Mental Status** protocol
to consider all possible etiologies

If respiratory symptoms present:
Give Albuterol/Atrovent as per **Wheezing** protocol
If patient was exposed to chlorine, give nebulized **Sodium Bicarbonate 2.5ml** mixed in 2.5ml of sterile water
Consider early CPAP with 5-10 cm $H_20$
Prepare for aggressive airway management & RSI

If hypotension present: treat as per **Shock** protocol
If seizures present: treat as per **Seizure** protocol
If dermal burns present: treat as per **Burn** protocol
If severe pain present: treat as per **Traumatic Pain** protocol

If ocular injury present:
**Irrigate eyes with 1L NaCl or $H_20$** (use Morgan lens, if available)

**If there is any sort of suicide signage, hoses, or buckets of substance visible as you arrive – do not enter!**

Immediately retreat to a well ventilated area and contact Dispatch for a HAZMAT Team

A supraglottic airway [SGA] should be considered as a last resort due to the irritant's potential to cause laryngeal edema

- Many irritant gases are heavier than air and will build up in low lying areas. Constantly reassess scene safety as the time of exposure increases. Assume that all patients are contaminated - use appropriate PPE and patient packaging techniques to prevent secondary contamination.
- A variety of gases may cause injury to multiple organ systems – the most significant of these is injuries to the upper and lower respiratory tract. Many airway/respiratory irritants have "warning properties" such as identifiable or unpleasant smells or irritation to eyes or airways.
- The most common exposures vary in their effect(s) based on their water solubility. Read more in the **HAZMAT Preambles.**
  - **Ammonia** is known for causing significant irritation to the eyes upper respiratory tract with minimal lower respiratory tract involvement.
  - **Phosgene** causes mild – if any – upper respiratory symptoms but patients may develop severe lower respiratory tract symptoms several hours after exposure due deep alveolar injury.
  - **Chlorine gas (aka hydrogen chloride)** can cause irritation and injury to be the upper and lower respiratory tracts. Liquefied chlorine (aka hydrochloric acid) can cause severe burns and dermal and ocular injuries similar to frostbite.