



## NERVE AGENTS

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| <b>Agent information:</b>   | Nerve agents are highly toxic organophosphates that include chemical warfare agents sarin (GB), tabun (GA), soman (GD), and VX. These chemicals rapidly disrupt the nervous system and other vital body functions. They were originally produced for insecticide purposes but were later evaluated for military use. Depending on their purity, nerve agents may have no odor or a faint, sweet smell. Since they are denser than air, they accumulate in low areas.   |
| <b>Route of exposure:</b>   | In a gas or aerosol state, exposure is primarily through the respiratory tract, but can also be absorbed through eyes or skin. In a liquid state, they can be ingested or absorbed through the skin.   |
| <b>Signs and symptoms:</b>  | <p>Signs and symptoms vary depending on the route and level of exposure. Onset from aerosols is seconds to minutes; from liquids is minutes to hours. If exposed to high amounts, loss of consciousness can occur within seconds and death within minutes.</p> <p>Symptoms for gas or aerosol exposure include a profuse watery runny nose, increased respiratory rate, excessive bronchial secretions, hypersalivation, lacrimation, profuse sweating, abdominal pain, diarrhea, nausea and vomiting, urinary incontinence, headache, and contraction of pupils. Late symptoms may include decreased respiratory and heart rates, low blood pressure, loss of consciousness, convulsions, paralysis, and death.</p>   |
| <b>Protective measures:</b> | <p>Persons whose skin or clothing is contaminated with a nerve agent can contaminate rescuers by direct contact or through off-gassing vapor. Persons whose skin is exposed only to nerve agent vapor pose little risk of secondary contamination; however, clothing can trap vapor. Once a patient's clothing is removed, eliminating any trapped gases, the risk of secondary contamination is reduced.</p> <p>Utilize appropriate level of Personal Protective Equipment (PPE) as identified by the Environmental Protection Agency and Hazmat protocols. Respiratory protection includes pressure-demand, Self-Contained Breathing Apparatus. Skin protection consists of chemical-protective clothing and butyl rubber gloves. Decontaminate casualties before transport.</p> |

**Emergency Medical Services and Preparedness Section**  
**24/7 Emergency Contact Number: 1-888-295-5156**  
**Contact Number: 302-223-2999**

Revised: 02/2023

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- Prophylaxis:** Appropriate PPE to avoid secondary contamination.
- Treatment:** Supportive medical care. Antidotes are a critical step in treating a nerve agent victim. Mark I kits contain one auto-injector of atropine 2mg and one auto-injector of pralidoxime chloride (2-PAM Cl) 600mg. Diazepam is administered to actively seizing patients. A slurry of activated charcoal may be given to an alert patient after ingesting a nerve agent.
- Reporting:** Suspect cases should be immediately reported to the Division of Public Health at 1-888-295-5156 (24/7 coverage).
- Additional information:** Visit <https://emergency.cdc.gov/>, <https://www.osha.gov/>, and <https://www.atsdr.cdc.gov/>.