



Nerve agents

General Information

Key Points

- nerve agents are a group of chemical warfare agents that are similar to organophosphorus compounds
- the production, use or storage of nerve agents is prohibited under the Chemical Weapons Convention
- nerve agents are highly toxic
- the toxic effects of nerve agents may be caused by direct skin or eye contact, inhalation or ingestion
- exposure to a nerve agent may cause pin point pupils, nausea, vomiting, diarrhoea, tightness of the chest, sweating, muscle weakness and twitching, fitting and coma
- there is no evidence to suggest that nerve agents can cause cancer in humans

Public Health Questions

What are nerve agents?

Nerve agents are a group of chemicals that are similar to organophosphorus compounds. Chemicals in the group include tabun (GA), soman (GD), sarin (GB) and VX. They are colourless, yellow or brown liquids. Some nerve agents are volatile and readily form a vapour. Other nerve agents are oily liquids that are more persistent in the environment.

What are nerve agents used for?

Nerve agents are chemical warfare agents and their production, use and storage is prohibited under the Chemical Weapons Convention (entered into force in 1997).

How might I be exposed to nerve agent?

Following the release of a nerve agent into the air individuals are likely to be exposed by breathing in the vapour or by eye contact. Exposure can also occur following skin contact with a liquid nerve agent. Ingestion of a nerve agent is unlikely.

If I am exposed to a nerve agent how might it affect my health?

You may be exposed by breathing, eating, or drinking the substance or by skin contact. Following exposure to any chemical, the adverse health effects you may encounter depend on several factors, including the amount to which you are exposed (dose), the way you are exposed, the duration of exposure, the form of the chemical and if you were exposed to any other chemicals.

Nerve agents are highly toxic.

Inhalation exposure to nerve agents can cause salivation, chest tightness and runny nose. Skin contact with a nerve agent can cause sweating and twitching of muscles. Ingestion of food or water contaminated with nerve agents may cause abdominal pain, nausea, vomiting and diarrhoea.

Following exposure by ingestion, inhalation or skin contact nerve agents can also be absorbed into the body and may cause pin point pupils, abdominal pain, nausea and vomiting, muscle weakness and twitching, restlessness, fitting and coma. In severe cases death can occur.

Can nerve agents cause cancer?

There is no evidence to suggest that nerve agents can cause cancer in humans.

Do nerve agents affect pregnancy or the unborn child?

There are limited data available on the reproductive and developmental effects of nerve agents. Therefore, it is not possible to draw any definitive conclusions.

How might nerve agents affect children?

Children would be expected to be affected by nerve agents in the same way as adults.

What should I do if I am exposed to a nerve agent?

It is very unlikely that the general population will be exposed to nerve agents.

If exposure does occur seek medical attention immediately.

If you have got a nerve agent on your skin, remove soiled clothing (not over the head), wash the affected area with lukewarm water and soap for at least 10 – 15 minutes.

If you have got a nerve agent in your eyes, remove contact lenses, irrigate the affected eye with lukewarm water for at least 10 – 15 minutes.

Additional sources of information

NHS Choices – Poisoning: <http://www.nhs.uk/Conditions/Poisoning/Pages/Introduction.aspx>

UKTIS. Best Use of Medicines in Pregnancy <http://www.medicinesinpregnancy.org/>

This information contained in this document from the PHE Centre for Radiation, Chemical and Environmental Hazards is correct at the time of its publication.

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