



### Diseases Fact Sheet – Acute Pesticide Poisoning

#### South Dakota Department of Health

**Office of Disease Prevention Services - 605-773-3737 -(1-800-592-1861 in South Dakota only)**

This material is provided for informational purposes only and is not a substitute for medical care. We are not able to answer personal medical questions. Please see your health care provider concerning appropriate care, treatment or other medical advice.

#### What is it?

Pesticide poisoning occurs when a person or an animal is exposed to a pesticide and develops symptoms. "Acute" means the exposure was a high dosage and happened within a short time frame. (1)

#### What should I do to help someone who may have pesticide poisoning?

Immediately bring the person to the emergency room and explain with as much detail as possible that you believe that the patient has pesticide poisoning, sharing your best guess as to which pesticide or family of pesticides it may be. If the patient was not the one using the pesticide or does not know the name/family of the pesticide, it may be necessary to ask employers or farmers at the exposure site which pesticides are in use on their crops or fields.

Most symptoms of pesticide poisoning are similar to other sicknesses like the cold, the flu and heat exhaustion. (2) A detailed environmental and occupational history may be needed to diagnose pesticide poisoning. A few screening questions about home and work may be used to indicate if the patient has pesticide poisoning.

If you are working with pesticides in an enclosed area, like a greenhouse, and you or anyone else within the enclosed area begin to feel ill, have everyone immediately leave the enclosed area and get out into fresh air. If someone passes out within the enclosed area, do not enter without proper personal protective equipment (PPE) and training.

#### Who is at risk of pesticide poisoning?

The people most at risk of pesticide poisoning are farmers and farmworkers that handle pesticides during their work, but pesticides can affect everyone, young and old. Pesticides may drift from the locations where they're applied which means people who work on or live near farms have the highest chance of being exposed to pesticide drift. Pesticide drift may apply to the lawn or landscaping in the yard and contaminate toys, play areas and food within the area.

### **What are the symptoms of acute pesticide poisoning? (2, 3)**

- Breathing difficulty
- Skin irritation
- Dizziness
- Weakness
- Headache
- Abdominal cramps
- Vomiting
- Nausea
- Diarrhea
- Drooling
- Reduced pupil size
- Convulsions
- Muscle spasms
- Blue colored lips, fingertips and nails (Hypoxia)

### **What are pesticide types and pesticide families?**

Pesticides may be split into categories based on the type of pest they control. They include insecticides (insect killers), herbicides (weed killers), fungicides (fungus killers), rodenticides (rodent killers) and antimicrobials (microorganism killers). (4) Different pesticides may present different hazards based on their chemical makeup. The pesticide family may be based on the reactive group, active ingredients or structural chains of the pesticide. For example, the herbicide Atrazine belongs to the Triazine family, the herbicide 2,4-D belongs to the Chlorophenoxy family, and the insecticide DDT belongs to the organochlorine family. (2, 3)

### **What is pesticide sensitization?**

Some people may have allergic reactions to some families of pesticides or inert ingredients that are mixed with the pesticides. People who are allergic to a pesticide or an ingredient of a pesticide may have a more serious reaction when exposed than someone who is not allergic. (5)

### **What are the routes of pesticide absorption?**

Pesticides may be eaten, breathed in or absorbed through the skin. (2) Eating or breathing in a pesticide may affect you differently than absorbing a pesticide through your skin. Typically pesticides absorbed through the skin may cause irritation and rashes on the contact site, while pesticides that are eaten or breathed in may affect the internal organs.

### Where are pesticides found?

Pesticides can be found in storage areas and locations where it is applied. Pesticides may also be agricultural or residential. Agricultural pesticides are used in growing crops and protecting them from insects, weeds and fungi. Residential pesticides are used to kill pests around a household like rodents, weeds, insects (for example, termites) and fungi.

Agricultural pesticides may be stored in homes, garages, barns, businesses or in tanks of farm equipment. Stored agricultural pesticides may be concentrated in their containers and then diluted before use. Once pesticides are applied they may leach into the soil, be washed off during watering or rainstorms, reside within the leaves or food item of the crops, or drift into nearby areas. The residual agricultural pesticides which are washed off may be carried within the water to nearby rivers, lakes, and streams. After agricultural pesticides are applied, avoid walking through the crops and follow any Restricted Entry Intervals (REIs) to prevent contaminating your clothing or hands, which could transfer to food when eating. Employers should provide any necessary safety information and safety equipment at the worksite for those working with pesticides.

Residential pesticides may be stored in homes, businesses, and garages. Stored residential pesticides may be pre-diluted and ready for use or may be diluted by professionals on the worksite. Once applied, pesticides may leach into soil around the household. After applying pesticides to your home make sure to keep children and pets away from the application area for at least 24 hours. After applying pesticides, wash your hands and face before eating, and make sure to follow any manufacturer's directions on the label. If a professional is performing a pest remediation, you may be asked to leave your home and return only when monitoring finds the amount of pesticide remaining in the house has reached a safe level.

### How can I prevent pesticide poisoning?

The easiest way to prevent pesticide poisoning is to read the health and safety warning on the label and make sure you properly label any containers that you use to mix or dilute pesticides. If you have to work with or handle pesticides, wear chemical resistant gloves and use approved respiratory protection to decrease your exposure.

Do not store your pesticides near any food or drink to prevent them from being unintentionally eaten or from contaminating any nearby food and drink. Do not eat near any areas that are used for storing or mixing pesticides. Never drink out of any containers that may have come in contact with pesticides even if they have been washed. Always wash your hands and face before eating, drinking, chewing gum or using tobacco, and wash your hands before going to the bathroom.

After working with pesticides follow these housekeeping procedures to reduce pesticide exposure to you and your family:

- Remove your shoes before entering your house and if possible store the shoes outside the house, such as in the garage.
- Remove and change your clothes before interacting with children. If possible remove your clothes outside and store within a bag for clothes that are contaminated by pesticides, and wash these clothes separately from any other clothes.
- Shower upon returning home to wash any pesticides from your body before interacting with children or pets to reduce their exposure and contaminating any furniture within your household.
- Remove pesticide-contaminated shoes and clothing before walking through any outdoor or indoor areas where children frequently play.

### How should I store my pesticides?

Buy only the amount that you need rather than storing an excess of a pesticide. Store pesticides in a cool dry location; a locked cabinet away from children is best. Leave the pesticide in its original container with its original label and never store it near food or drinks. Never store a pesticide in food or drink containers. Always store solid pesticides above liquid pesticides to reduce the chance of cross contamination of pesticides. (6)

### How do you use pesticides safely?

Read the manufacturer's label carefully before using the pesticide and wear appropriate personal protective equipment when using it. Store pesticides out of reach of children and pets, and prevent children from entering an area where pesticides have been applied for at least 24 hours or more based on the manufacturer's recommendations found on the label.

### Pesticide Safety

[EPA-do's and don'ts of pesticide control.](#)

### Sources

1. IUPAC. Compendium of Chemical Terminology, 2nd ed. (the "Gold Book"). Compiled by A. D. McNaught and A. Wilkinson. Blackwell Scientific Publications, Oxford (1997). XML on-line corrected version: <http://goldbook.iupac.org> (2006-) created by M. Nic, J. Jirat, B. Kosata; updates compiled by A. Jenkins. ISBN 0-9678550-9-8.
2. Signs and Symptoms of Pesticide Poisoning. 1997. Lincoln NE: University of Nebraska. [Accessed September 07,

- 2016]. <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2221&context=extensionhist>.
3. Symptoms of Pesticide Poisoning. c2012. Ithaca NY: Cornell University. [Accessed September 07, 2016]. <http://psep.cce.cornell.edu/Tutorials/core-tutorial/module09/index.aspx#9-1>.
  4. Types of pesticide ingredients. 2016, January 7. US Environmental Protection Agency. [Accessed September 07, 2016] <https://www.epa.gov/ingredients-used-pesticide-products/types-pesticide-ingredients>.
  5. Allergies and Pesticides. 2015. Charleston, SC: Medical University of South Carolina. [Accessed September 07, 2016] [http://academicdepartments.musc.edu/family\\_medicine/oem\\_agmed/Allergypes-ticides.htm](http://academicdepartments.musc.edu/family_medicine/oem_agmed/Allergypes-ticides.htm).
  6. What You Need to Know About Storing Pesticides. 2013. University Park, PA: Pennsylvania State University. [Accessed September 07, 2016] <http://extension.psu.edu/pests/pesticide-education/applicators/factsheets/consumer/what-you-need-to-know-about...storing-a-pesticide>.

### Related Sites:

For further information on safe pesticide application visit these following websites: South Dakota codified law:

- Pest Control Activities SDCL [38-20](#)
- Pesticides SDCL [38-20A](#)
- Agricultural Pesticide Application SDCL [38-21](#)
- Weed And Pest Control SDCL [38-22](#)

In the state of South Dakota, the regulation of pesticides is managed by the South Dakota Department of Agriculture. [Visit their website for information on their program for education, licensing and regulation.](#)