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# First Aid For Pesticide Poisoning

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To insure that pesticides continue to be beneficial to mankind, careful thought should be given to their safe use. Pesticides are used mainly for the protection of food and fiber so a continuously growing population can be adequately fed and clothed. Pesticides also suppress insects and other pests that carry human diseases such as malaria, typhus and sleeping sickness. Pesticides protect forests from insect damage; they control brush; and they make indoor living relatively free of biting and other nuisance insects. Pesticides are effective and useful products that make our lives better and help keep us healthy—when used properly.

Most pesticide poisonings result from careless use, improper storage or ignorance by the user. Of the 569 cases treated at Missouri poison control centers during 1975, 415 were children under five years of age. Pesticide accidents can be reduced if a few basic safety rules are followed by those using these chemicals.

## Read and Follow Instructions

By law, everything you need to know to apply pesticides safely is on the label. Therefore, the most important rule to follow when using pesticides is: *Read and Follow the Instructions and Precautions on the Label*. Read the label *before* buying the product, *before* opening the container, *before* mixing the solution, *before* applying the solution and *before* disposing of unused portions of the solution or of empty containers.

Besides giving instructions and precautions, the label has one of three "signal words" that show how dangerous or toxic the contents are to man (Table 1). Signal words and toxicity levels are determined by the LD50 (the dose that will produce death in 50 percent of exposed test animals) of the pesticide. The lower the LD50, the higher the toxicity of the pesticide. Therefore, a pesticide with an oral LD50 of 500 would be much less toxic than a pesticide with an LD50 of 5.

Since accidental pesticide poisoning sometimes happens despite precautions, now is the time to make a list of emergency telephone numbers so they will be readily available, if needed. Include in this list numbers for a physician, hospital, ambulance and poison control center.

## Symptoms of Pesticide Poisoning

All family members, even if they are not applying pesticides, should be aware of early symptoms and signs of pesticide poisoning. Unfortunately, all pesticide poisoning symptoms are not the same. Each chemical family, that is, organophosphates, carbamates and chlorinated hydrocarbons, attacks the human body in a different way.

Table 1 - Categories of Acute Toxicity

Categories	Signal Word Required on Label	L.D-50* mg/kg	
		Oral	Dermal
Highly Toxic	"Danger" Poison (printed in red) with skull and crossbones	0-50	0-200
Moderately Toxic	"Warning"	51-500	201-2,000
Slightly Toxic	"Caution"	501-5,000	2,001-20,000
Relatively Non-Toxic	None	over 5,000	over 20,000

\*The dose required to produce death in 50 percent of exposed test animals.

### Mild poisoning or early symptoms of acute poisoning.

Headache, fatigue, weakness, dizziness, restlessness, nervousness, perspiration, nausea, diarrhea, loss of appetite or weight, thirst, moodiness, soreness in joints, skin or eye irritation, nose and throat irritation.

### Moderate poisoning or early symptoms of acute poisoning.

Nausea, diarrhea, excessive saliva, stomach cramps, excessive perspiration, trembling, no muscle coordination, muscle twitches, extreme weakness, mental confusion, blurred vision, difficulty in breathing, cough, rapid pulse, flushed or yellow skin, weeping.

**Severe or acute poisoning.** Fever, intense thirst, increased rate of breathing, vomiting, uncontrollable muscle twitches, pinpoint pupils, convulsions, inability to breathe, unconsciousness.

*If in doubt whether poisoning has occurred, let a doctor decide!*

## First Aid for Pesticide Poisoning

First aid is the initial effort to help a victim while medical help is on the way. Doing the right thing *immediately* could prevent serious illness—even death. What should you do?

The first step you should take in any poisoning emergency, *except when you are alone with the victim*, is to call an ambulance or physician, or both. *If you are alone with the victim*, see that he or she is breathing and that no further exposure occurs. Wash the poison off the victim to reduce exposure before leaving to make a phone call.

If at all possible, take the pesticide container or label with you for the physician. If this is impossible, make sure you

know what pesticides the victim has been using.

While you wait for the doctor or ambulance to arrive, give first aid as follows:

**Poison on the skin:** The faster the poison is washed off the patient, the less injury will result.

- Remove clothing.
- Drench skin with water (shower, hose, faucet, pond).
- Cleanse skin and hair thoroughly with detergent and water. (Detergents and commercial cleansers are better than soap.)
- Dry and wrap the victim in a blanket.
- **WARNING:** If at all possible, do not allow any pesticide to get on you while you are helping the victim.

**Chemical burns of the skin:**

- Remove contaminated clothing.
- Wash with large quantities of running water.
- Immediately cover loosely with a clean, soft cloth.
- Avoid use of ointments, greases, powders and other drugs in first aid treatment of burns.

**Poison in the eye:**

- It is most important to wash the eye out as quickly, but as gently, as possible.
- Hold eyelids open and wash eyes with a gentle stream of clean running water.
- Continue washing for 15 minutes or more.
- Do not use chemicals or drugs in wash water. They may increase the extent of the injury.

**Inhaled poisons (dusts, vapors, gases):**

- If victim is in an enclosed space, do not go in after him without an air supplied respirator.
- Carry patient (do not let him walk) to fresh air immediately.
- Open all doors and windows.
- Loosen all tight clothing.
- Apply artificial respiration if breathing has stopped or is irregular.
- Keep patient as quiet as possible.
- If patient is convulsing, watch his breathing and protect him from falling and striking his head. Keep his chin up so his air passage will remain free for breathing.
- Prevent chilling (wrap patient in blankets, but don't overheat).
- Do not give alcohol in any form.

**Swallowed poisons:** The most important choice you must make when aiding a person who has swallowed a pesticide is whether you should make the victim vomit. The decision must be made quickly and accurately; the victim's life may depend on it. *Usually it is best to get rid of the swallowed poison fast ...* But there are exceptions:

- *Never* induce vomiting if the victim is unconscious or in convulsions. The victim could choke to death.
- *Never* induce vomiting if the victim has swallowed a corrosive poison. A corrosive poison will burn the throat and mouth as severely coming up as it did going down. Find out what poison the person has ingested. A corrosive poison is a strong acid or alkali such as dinoseb, and the victim will complain of severe pain and have signs of severe mouth and throat burns.
- *Never* induce vomiting if the person has swallowed petroleum products (kerosene, gasoline, oil, lighter fluid). Most pesticides that come in liquid formulations are dissolved in petroleum products. The words "emulsifiable concentrate" or "solution" on the pesticide label are signals *NOT* to induce vomiting in the poison victim if he has swallowed the concentrates. Concentrated petroleum products (like corrosive poisons) cause severe burns. They will burn as severely when vomited back up. If the victim has swallowed a diluted form of these products, however, he should be forced to vomit immediately.

## How to Induce Vomiting

Do not waste a lot of time inducing vomiting. Use it only as first aid until you can get the victim to a hospital. Make sure the victim is lying face down or kneeling forward while retching. Do not let him lie on his back because vomited matter could enter the lungs and do more damage.

- First give the patient large amounts of milk or water—one to two cups for victims up to five years old; up to a quart for victims five years and older.
- Induce vomiting by using *syrup of ipecac* (use only on physician's orders) or by putting your finger or the blunt end of a spoon at the back of a victim's throat. Do not use anything that is sharp or pointed! A glass of soapy water or salt water will also cause the victim to vomit.

## Dilute Poison Quickly

The best first aid for a person who has swallowed a poison is to dilute the poison as quickly as possible and to neutralize the acid or alkali causing the burns. Also, get the victim to a hospital without delay.

- For *acid- or alkali-based* pesticides, give the victim water or preferably, milk—one to two cups for victims under five years; up to a quart for patients over five years. Milk is better than water because it dilutes and helps neutralize the poison. Water only dilutes the poison.
- If you are *sure* the poison is an *acid*, give the victim milk of magnesia (one tablespoon to one cup of water), baking soda or chalk in water.
- If you are *sure* the poison is an *alkali*, give the patient lemon juice or vinegar.

## "Universal Sponge"

Use these "sponges" to absorb excess poisons only after first aid suggestions for the corrosive or noncorrosive poisons are followed.

**Activated charcoal.** It absorbs many poisons at a high rate. Mix it with water into a thick soup for the victim to drink. Activated charcoal is found in aquarium filters or is available from a drug store.

**Homemade absorber.** A homemade "universal sponge" for poison is a mixture of four tablespoons of toast (burnt black), two tablespoons of strong tea (instant ice tea mix will do), and two tablespoons of milk of magnesia. This is used to absorb and neutralize most poisons.

## Shock

Sometimes poison victims go into shock. If untreated or ignored, shock can kill a victim even if the poisoning injuries would not have been fatal.

**Symptoms.** The skin will be pale, moist, cold and clammy. The eyes will be vacant and lackluster with dilated pupils. Breathing will be shallow and irregular. The pulse will be very weak, rapid and irregular. The victim may be unconscious or in a faint. First aid steps follow:

- Unless he is vomiting, keep the victim flat on his back with his legs raised 1 to 1½ feet above his head level.
- Keep the victim warm enough to prevent shivering. Do not overheat.
- If the victim is conscious and has not swallowed any poison, give small amounts of water or a dilute salt solution (½ teaspoon of table salt to 1 quart of water). Give as often as the victim will accept it.
- Keep the victim quiet and reassure him often.

## Warnings

- Never try to give anything by mouth to an unconscious victim.
- In an emergency, use any source of fairly clean water such as irrigation canals, lakes, ponds, watering troughs etc. Don't let the victim die while you worry about how dirty the water is.

## First Aid Kit for Field and On-The-Job Use

A well equipped first-aid kit that is always readily available can be important in a pesticide emergency. Make up your own Pesticide First-Aid Kit from a lunch pail, tool box or a sturdy wooden box. It should have a tight fitting cover with a latch so it won't come open or allow pesticides to leak inside. Label it clearly with paint or a water proof marker.

### Contents:

1. A small plastic bottle of a common *detergent*, used to wash pesticides quickly off the skin.
2. A small plastic container of *salt* or *syrup of ipecac*. Salt is used with water to induce vomiting or to aid a person in shock.
3. A box or plastic container of *baking soda* or a bottle of *milk of magnesia*. These mixed with water will neutralize acidic chemicals that have been swallowed.
4. A plastic bottle of *lemon juice* or *vinegar*. These are used with water to neutralize basic or alkaline chemicals that have been swallowed.
5. A small package or bag of *activated charcoal*. Mixed with water and swallowed, activated charcoal acts as an absorber of all pesticides.

6. A *shaped plastic airway* for mouth-to-mouth resuscitation.
7. A thermos or large plastic bottle (at least one pint) of *clean water*. If there is no clean water, use any pond or stream water available.
8. Simple *adhesive bandages, a roll of gauze and tape*. All cuts and scrapes should be covered to prevent pesticides from easily entering the body.
9. *Change* for an emergency phone call should always be taped to the inside cover of the first aid kit.
10. A small, plastic *empty jar* with a tight fitting lid is useful as a drinking glass for inducing vomiting or feeding activated charcoal. It also can be used for collecting vomited matter to take to a doctor.

## Poison Control Centers

Poison Control Centers (listed on back) have been established to give pertinent information on all types of poisonings, including pesticide poisonings. On a 24-hour daily basis, the centers provide to the medical profession current and accurate information concerning the prevention and treatment of pesticide poisonings. The centers also will prescribe a course of action to be taken if local physicians are unavailable or unacquainted with antidotes for specified pesticides or other poisonous and potentially poisonous materials.

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Some of the preceding material was adapted from the Pesticide Applicator Training manual - Northeastern Regional Pesticide Coordinators.

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## MISSOURI POISON CONTROL CENTERS

City	Name and Address	Telephone	Director & Ass't Director
Cape Girardeau	Poison Control Center St. Francis Hospital 825 Good Hope Street 63701	334-4461 Ext. 49	Robert G. Weeks, M.D. James O. Alyea, M.D.
Columbia	Poison Control Center University of Missouri Medical Center 807 Stadium Road 65201	882-8091	Helen Yeager, M.D.
Hannibal	Poison Control Center St. Elizabeth's Hospital 109 Virginia Street 63401	221-0414 Ext. 213	J. H. Waltersheid, M.D. Fred Tonnes, R.Ph.
Joplin	Poison Control Center St. John's Hospital 2727 McClelland Boulevard 64801	781-2727 Ext. 276	Howard H. Roberts, M.D. Joe P. Brasal, R.Ph.
Kansas City	Poison Control Center Children's Mercy Hospital 24th and Gilham Road 64108	471-0626 Ext. 220	Ned W. Smull, M.D. George W. Wise, M.D.
	Poison Control Center Kansas City General Hospital and Medical Center 23rd and Cherry Streets 64108	421-8060 Ext. 257 or 235	W. K. McNabney, M.D. Jean Armstrong, R.N.
Kirksville	Poison Control Center Kirksville Osteopathic Hospital 800 West Jefferson Street 63501	665-4611 Ext. 240	Richard H. Mercer, D.O. Martin Lowry, D.O.
Poplar Bluff	Poison Control Center Lucy Lee Hospital 330 North Second Street 63901	785-7721 Ext. 33	Charles A. Raper, M.D.
Rolla	Poison Control Center Phelps Co. Memorial Hospital 1000 West 10th Street 65401	364-3100 Ext. 31	Barbara Russell, M.D. Robert B. Young, M.D.
Springfield	Poison Control Center Lester E. Cox Medical Center 1423 North Jefferson Street 65802	865-9631 Ext. 253 or 254	Paul S. Quinn, M.D. Noel R. Lewis, M.D.
	Poison Control Center St. John's Hospital 1235 East Cherokee 65804	881-8811 Ext. 248	Michael J. Clarke, M.D. Richard Loeb, M.D.
St. Joseph	Poison Control Center Methodist Hospital & Medical Center Eight & Faraon Streets 64511	232-8461 Ext. 277	H. E. Peterson, M.D. H. C. Senne, M.D. Martin Christ, M.D.
St. Louis	Poison Control Center Cardinal Glennon Children's Memorial Hospital 1465 South Grand Avenue 63104	865-4000 Ext. 417	Fernando de Castro, M.D. Ursula Rolfe, M.D.
	Poison Control Center St. Louis Children's Memorial Hospital 500 South Kingshighway 63110	367-6880 Ext. 220	J. Neal Middelkamp, M.D. Dorothy, J. Jones, M.D.
West Plains	Poison Control Center West Plains Memorial Hospital 1103 Alaska Avenue 65775	256-3141 Ext. 8	Marvin Fowler, M.D. Joan Pettit, R.N.

## NEARBY OUTSTATE POISON CONTROL CENTERS

City	Name and Address	Telephone	Director & Ass't Director
ILLINOIS			
Belleville	Poison Control Center The Memorial Hospital 4501 North Park Dirve	618-233-7750 Ext. 250	
Cairo	Poison Control Center Padco Community Hospital 2020 Cedar Street	618-734-2400 Ext. 42	Sister M. Emerita, R.N.
Chester	Poison Control Center Memorial Hospital 1900 South State Street	618-826-4581	
Granite City	Poison Control Center St. Elizabeth's Hospital 2100 Madison Avenue	618-876-2020 Ext. 421	
Quincy	Poison Control Center Blessing Hospital 1005 Broadway	217-223-5811 Ext. 255	
	Poison Control Center St. Mary's Hospital 1415 Vermont Street	217-223-1200 Ext. 260	
ARKANSAS			
Harrison	Poison Control Center Boone County Hospital 620 North Willow Street 72601	501-365-6141 Ext. 120	
Osceola	Poison Control Center Osceola Memorial Hospital 611 Lee Avenue West	501-563-2611 Ext. 53	
KANSAS			
Kansas City	Poison Control Center Bethany Medical Center 51 North 12th Street 66102	913-621-6600	Charles Hammontree, M.D. Roxanne Marquess, R.N.
	Poison Control Center Medical Center University of Kansas 39th St. and Rainbow Blvd. 66103	913-831-6633	William Sosloow, M.D. John Doull, M.D.