

PESTICIDE SAFETY AND POISON CONTROL CENTERS

PESTICIDE EXPOSURE

Before injuries can occur, pesticides must enter the body through one of three routes of exposure: dermal (absorption through the skin or eyes); respiratory (inhalation through the lungs); or oral (ingestion by mouth).

Dermal absorption is the most common route of pesticide exposure for the applicator. Contact with the concentrated product during mixing and loading presents the greatest risk of exposure. The degree of absorption depends on the properties of the pesticide, its formulation, and the parts of the body exposed. The forearms and hands are the most likely sites of pesticide accumulation during normal pesticide applications. Hands left unwashed after pesticide use can contaminate other parts of the body. Figure 5 gives examples of specific body regions and their relative susceptibility to pesticide absorption. Eyes also are extremely sensitive to pesticides. They are highly absorptive, and direct eye injury can occur when pesticides are accidentally splashed in the face.

Respiratory exposure by inhalation occurs during the handling of powders, dusts, fine sprays, and gases (fumigants). The lungs provide a point of rapid entry into the bloodstream.

Oral exposure generally results from improper storage or handling. Keep pesticides in their original containers; **never** transfer pesticides into bottles or food containers of any kind. This is extremely important in case of poisoning, because unmarked containers provide no instructions to medical personnel regarding pesticide class and treatment of the poisoning. Always keep pesticide containers tightly closed and out of the reach of children and animals.

PREVENTING PESTICIDE EXPOSURES

Here are some suggestions for reducing levels of pesticide exposure and minimizing potential hazards:

- Select the safest formulation usually granular or micro encapsulated materials.
- Use a pesticide with a reduced concentration of active ingredient.
- Reduce the rate of application to the lowest effective level.
- Mix only enough pesticide to complete the assigned task.
- Select a method of application that minimizes personal contact.
- Purchase only enough pesticide to do the job.
- Wear all protective clothing stipulated on the label.
- Avoid direct contact with the pesticide when mixing and filling equipment.
- Use pesticides only in well-ventilated areas.
- Be cognizant of others around you during application. Consider their safety.
- Dispose of pesticide containers properly.
- Be attentive to re-entry intervals specified on the label.

- Always keep pesticides in their original, labeled pesticide containers.
- Avoid pesticide drift.
- Avoid conditions which might lead to ground water contamination.

PROTECTIVE CLOTHING AND PERSONAL SAFETY

Preventing exposure to pesticides requires personal protective equipment (PPE) as shown in Table 3. The types of PPE required vary according to the toxicity of the pesticide. Read the pesticide label for complete instructions and specific requirements related to PPE. Notice that mixing pesticides normally requires more personal safety equipment than applying them (except fumigation). This is because the mixing process necessitates handling pesticides in their most concentrated form. Pesticide exposures can be minimized by following all safety precautions found on the pesticide label. Remember, the primary line of defense against exposure to pesticides is personal protective equipment.

After obtaining the proper equipment, give your employees and family members the necessary training for using it. If you are serious about reducing health risks from pesticide exposure, you must inspect the job site to ensure compliance with personal safety requirements.

HANDLING PESTICIDE-CONTAMINATED CLOTHING

Always assume that clothing worn while working with pesticides has been contaminated. It should be laundered after each use. The longer pesticide- contaminated clothing remains unwashed, the more difficult the process of pesticide removal. It is best to presoak contaminated clothing in hot water containing a heavy-duty liquid detergent. Start the wash cycle after the presoaking water has been drained. Prerinsing and regular washing are the most effective methods of removing low level pesticide contamination from clothing. Clean the washing machine immediately after the wash cycle by running a complete cycle of new water and detergent through it. Line drying is preferable to machine drying, as it eliminates the potential for dryer contamination.

Care must be exercised when handling pesticide contaminated clothing. If there is any doubt that contaminated clothing can be laundered effectively, discard it. For example, absorbent clothing contaminated with liquid concentrates should be discarded. Nonabsorbent items may be reused: certain types of chemical resistant gloves, boots, and aprons.

PESTICIDE SAFETY TIPS

Always read the label before buying and/or using pesticides. Use pesticides only for the purpose(s) listed and in the manner directed.

- Pesticides that require special protective clothing or equipment should be used only by trained, experienced applicators.
- Do not apply more than the specified amount of pesticide: It is illegal to apply more than labeled rates. Over-application is wasteful and can harm people and the environment.
- Keep pesticides away from food, dishes, and utensils.
- Keep children and pets away from pesticides and areas where pesticides have been applied.
- Do not smoke or eat while applying pesticides; avoid inhaling pesticides.
- Never spray pesticides outdoors on a windy day.

- When mixing pesticides, be careful to avoid splashing.
- Avoid damage to or spills from pesticide containers.
- If you spill a pesticide on your skin, wash immediately with soap and water. If you contaminate your clothing with a pesticide, change immediately and launder it according to instructions given above.
- Wash with soap and water after using pesticides, and launder clothes before wearing again.
- If someone swallows a pesticide, call a physician, hospital, or local poison control center immediately. Keep the pesticide label or labeled container with you as a reference for the physician.
- Store pesticides under lock in original containers with proper labels. Never transfer a pesticide to another container (e.g., soft drink bottle).
- Dispose of empty containers properly, as described on the label.
- Keep adequate pesticide use and application records.

PLAN OF ACTION FOR ACUTE PESTICIDE POISONINGS

A pesticide user should establish a plan of action to follow in case of a pesticide-related accident. Advanced planning and preparation should be routine. Make sure all employees are familiar with appropriate emergency procedures.

Contact Medical Personnel

Step one in any poisoning emergency is to prevent further exposure and make sure the victim is breathing; then call emergency medical personnel.

Maintain Vital Signs

Administer first aid while help is on the way. Maintenance of vital signs is imperative, and cardiopulmonary resuscitation techniques may be required. The cause of death of most pesticide poisoning victims is respiratory failure. Many victims will recover if the supply of oxygen to the body can be maintained. Only a doctor will have the medication and equipment necessary to treat a poisoning victim properly. Always provide attending medical personnel with a copy of the pesticide label.

Eliminate Further Contamination

Ingested Pesticides. If an individual swallows a pesticide, act immediately: Do not wait for symptoms to appear.

The pesticide label will indicate whether or not vomiting should be induced; care should be taken to verify that vomiting is permissible. Never induce vomiting if the victim is unconscious or convulsive. In cases where vomiting can be induced safely, fast action can mean the difference between life and death for the poisoning victim. Syrup of ipecac is useful for inducing vomiting; make sure the victim assumes a forward kneeling position or remains on his right side, if lying down, to prevent vomitus from aspirating into the lungs. Gastric lavage--performed by a physician--is another method for removing stomach contents. The latter must be performed as soon as possible after ingestion of the pesticide--and no longer than two hours afterward. After two hours, the pesticide will have passed into the intestine, thus requiring a different approach to effect removal of the poison; physicians can administer absorptive charcoals to prevent the absorption of the pesticide from the intestine and promote its elimination in the feces.

It is important to remember to consult the pesticide label before proceeding with first aid. There are certain situations where inducing vomiting might only cause additional damage. Vomiting should not be induced if the pesticide formulation contains organic solvents or corrosives such as strong acids and bases since these materials can cause serious, permanent damage to sensitive tissues of the esophagus--or the lungs, if aspiration occurs.

Pesticides on the Skin. Wash the pesticide off the victim as soon as possible to prevent continued exposure and injury.

- Remove clothing and drench the skin with water (shower, hose, faucet, pond, etc.).
- Cleanse skin and hair thoroughly with soap and water. (Don't abrade or injure the skin while washing.)
- Dry the person and wrap in a blanket.

Chemical Burns of the Skin. Taking immediate action is extremely important.

- Remove contaminated clothing.
- Wash skin with large quantities of cold running water.
- Immediately cover the affected area loosely with a clean, soft cloth.
- Do not use ointments, greases, powders, or other drugs recommended as first aid treatments for chemical burns.

Pesticides in the Eye. It is very important to wash out the affected eye as quickly but as gently as possible.

- Hold eyelids open; wash eyes with a gentle stream of clean running water at body temperature, if possible.
- Continue washing for 15 minutes or more.
- Do not use chemicals or drugs in wash water; they may increase the potential for injury.

Inhaled Pesticides. If the victim is in an enclosed area, wear an appropriate respirator when removing the person from the contaminated area.

- Immediately carry the victim to fresh air.
- Loosen all tight clothing.
- Apply artificial respiration if breathing has stopped or is irregular.
- Keep the victim as quiet as possible.
- If the victim is convulsing, watch breathing and protect the person from falling and striking his head. Pull the chin forward so that the tongue does not block the air passage.
- Prevent chilling. Wrap patient in blankets but do not overheat.

NEW ENGLAND POISON CONTROL CENTERS

CONNECTICUT 800-222-1222
Hearing Impaired 866-218-5372
Connecticut Poison Control Center
University of Connecticut Health Center
263 Farmington Ave., Farmington CT 06032

MAINE 800-222-1222
Northern New England Poison Center
22 Bramhall Street
Portland ME 04102

**MASSACHUSETTS &
RHODE ISLAND** 800-222-1222
Regional Center for Poison Control and Prevention
300 Longwood Avenue
Boston MA 02115

NEW HAMPSHIRE 800-222-1222
Northern New England Poison Center
22 Bramhall Street
Portland ME 04102

VERMONT 800-222-1222
Northern New England Poison Center
22 Bramhall Street
Portland ME 04102

***1-800-222-1222 is the national number to access all poison control centers in the country.**

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