

Integrated Pest Management for Iowa Schools



Pesticide Harmful Effects And Emergency Response

Most pesticides are designed to harm or kill pests. Because some pests have systems similar to the human system, some pesticides also can harm or kill humans. Fortunately, humans usually can avoid harmful effects by avoiding being exposed to pesticides.

Humans may be harmed by pesticides in two ways: they may be **poisoned** or **injured**. Pesticide **poisoning** is caused by pesticides that harm internal organs or other systems inside the body. Pesticide-related **injuries** usually are caused by pesticides that are external irritants.

Exposure

When a pesticide comes into contact with a surface or an organism, that contact is called a pesticide exposure. For humans, a pesticide exposure means getting pesticides in or on the body. The toxic effect of a pesticide exposure depends on how much pesticide is involved and how long it remains there.

Types of Exposures

Pesticides contact your body in four main ways:

- Oral exposure (when you swallow a pesticide)
- Inhalation exposure (when you inhale a pesticide)
- Ocular exposure (when you get a pesticide in your eyes)
- Dermal exposure (when you get a pesticide on your skin)

Avoiding Exposure

Avoiding and reducing exposures to pesticides will reduce the harmful effects from pesticides. You can avoid exposures by wearing appropriate personal protective equipment, washing exposed areas often, and keeping your personal protective equipment clean and in good operating condition.

Causes of Exposure

One of the best ways to avoid pesticide exposures is to avoid situations and practices where exposures commonly occur.

Oral exposures often are caused by:

- not washing hands before eating, drinking, smoking, or chewing,
- mistaking the pesticide for food or drink,
- accidentally applying pesticides to food, or
- splashing pesticide into the mouth through carelessness or accident.

Inhalation exposures often are caused by:

- prolonged contact with pesticides in closed or poorly ventilated spaces,
- breathing vapors from fumigants and other toxic pesticides,
- breathing vapors, dust, or mist while handling pesticides without appropriate protective equipment,
- inhaling vapors present immediately after a pesticide is applied; for example, from drift or from reentering the area too soon, and
- using a respirator that fits poorly or using an old or inadequate filter, cartridge, or canister.

Dermal exposures often are caused by:

- not washing hands after handling pesticides or their containers,
- splashing or spraying pesticides on unprotected skin or eyes,
- wearing pesticide-contaminated clothing (including boots and gloves),
- applying pesticides in windy weather,
- wearing inadequate personal protective equipment while handling pesticides, and
- touching pesticide-treated surfaces.

Eye exposures often are caused by:

- splashing or spraying pesticides in eyes,
- applying pesticides in windy weather without eye protection,
- rubbing eyes or forehead with contaminated gloves or hands, and
- pouring dust, granule, or powder formulations without eye protection.

Harmful Effects

Pesticides can cause three types of harmful effects: acute effects, delayed effects, and allergic effects.

Acute Effects

Acute effects are illnesses or injuries that may appear immediately after exposure to a pesticide (usually within 24 hours). Acute effects usually are obvious and often are reversible if appropriate medical care is given promptly.

Pesticides cause four types of acute effects:

- acute oral effects
- acute inhalation effects
- acute dermal effects
- acute eye effects

Acute oral effects -- Your mouth, throat, and stomach can be burned severely by some pesticides. Other pesticides that you swallow will not burn your digestive system, but will be absorbed and carried in your blood throughout your body and may cause you harm in various ways.

Acute inhalation effects -- Your entire respiratory system can be burned by some pesticides, making it difficult to breathe. Other pesticides that you inhale may not harm your respiratory system, but are carried quickly in your blood throughout your whole body where they can harm you in various ways.

Acute dermal effects -- Contact with some pesticides will harm your skin. These pesticides may cause your skin to itch, blister, crack, or change color. Other pesticides can pass through your skin and eyes and get into your body.

Acute eye effects -- Some pesticides that get into your eyes can cause temporary or permanent blindness or severe irritation. Other pesticides may not irritate your eyes, but pass through your eyes and into your body.

Delayed Effects

Delayed effects are illnesses or injuries that do not appear immediately (within 24 hours) after exposure to a pesticide or combination of pesticides.

Allergic Effects

Allergic effects are harmful effects that some people develop in reaction to substances that do not cause the same reaction in most other people.

Types of allergic effects -- Some people are sensitized to certain pesticides. After being exposed once or a few times without effect, they develop a severe allergy-like response upon later exposures.

These allergic effects include:

- systemic effects, such as asthma or even life-threatening shock,
- skin irritation, such as rash, blisters, or open sores, and
- eye and nose irritation, such as itchy, watery eyes and sneezing.

Signs and Symptoms of Harmful Effects

Watch for two kinds of clues to pesticide-related illness or injury. Some clues are feelings that only the person who has been poisoned can notice, such as nausea or headache. These are **symptoms**. Others clues, like vomiting or fainting, can be noticed by someone else. These are **signs**.

Many of the signs and symptoms of pesticide poisoning are similar to signs and symptoms of other illnesses you might experience, such as the flu or even a hangover. Examples of signs of pesticide-related illness or injury include:

External irritants cause:

- redness, blisters, rash, and/or burns on skin, and
- swelling, a stinging sensation, and/or burns in eyes, nose, mouth, and throat.

Pesticide poisoning may cause:

- excessive sweating, chills, and/or thirst,
- chest pains,
- difficult breathing,
- cramps in your muscles or aches all over your body.

Responding To A Poisoning Emergency

Local Emergency Response

The local phone number to dial for emergency response is _____ . Ask your certified operator for the phone number and keep it with you at all times. It must be posted and available to you according to state law.

Get medical advice quickly if you or any of your fellow workers have unusual or unexplained symptoms starting at work or later the same day. Do not let yourself or anyone else get dangerously sick before calling your physician or going to a hospital. It is better to be too cautious than too late. Take the pesticide container (or the labeling) to the physician. Do not carry the pesticide container in the passenger space of a car or truck.

First Aid for Pesticide Poisoning

First aid is the initial effort to help a victim while medical help is on the way. If you are alone with the victim, make sure the victim is breathing and is not being further exposed to the pesticide before you call for emergency help. Apply artificial respiration if the victim is not breathing. Do not become exposed to the pesticide yourself while you are trying to help.

The best first aid in pesticide emergencies is to stop the source of pesticide exposure as quickly as possible. In an emergency, look at the pesticide labeling, if possible. If it gives specific first aid instructions, follow those instructions carefully. If labeling instructions are not available, follow these general guidelines for first aid:

Pesticide on skin:

- Drench skin and clothing with plenty of water. Any source of relatively clean water will serve. If possible, immerse the person in a pond, creek, or other body of water. Even water in ditches or irrigation systems will do, unless you think they may have pesticides in them.
- Remove personal protective equipment and contaminated clothing.
- Wash skin and hair thoroughly with a mild liquid detergent and water. If one is available, a shower is the best way to completely and thoroughly wash and rinse the entire body surface.
- Dry victim and wrap in blanket or any clean clothing at hand. Do not allow to become chilled or overheated.
- If skin is burned or otherwise injured, cover immediately with loose, clean, dry, soft cloth or bandage.
- Do not apply ointments, greases, powders, or other drugs in first aid treatment of burns or injured skin.

Pesticide in eye:

- Wash eye quickly but gently.
- Use an eyewash dispenser, if available. Otherwise, hold eyelid open and wash with a gentle drip of clean running water positioned so that it flows across the eye rather than directly into the eye.
- Rinse eye for 15 minutes or more.
- Do not use chemicals or drugs in the rinse water. They may increase the injury.

Inhaled pesticide:

- Get victim to fresh air immediately.
- If other people are in or near the area, warn them of the danger.
- Loosen tight clothing on victim that would constrict breathing.
- Apply artificial respiration if breathing has stopped or if the victim's skin is blue. If pesticide or vomit is on the victim's mouth or face, avoid direct contact and use a shaped airway tube, if available, for mouth-to-mouth resuscitation.

Pesticide in mouth or swallowed:

- Rinse mouth with plenty of water.
- Give victim large amounts (up to 1 quart) of milk or water to drink.
- Induce vomiting only if instructions to do so are on the labeling.

Procedure for inducing vomiting:

- Position victim face down or kneeling forward. Do not allow victim to lie on his back, because the vomit could enter the lungs and do additional damage.
- Put finger or the blunt end of a spoon at the back of victim's throat or give syrup of ipecac.
- Do not use salt solutions to induce vomiting.

Do not induce vomiting:

- If the victim is unconscious or is having convulsions.
- If the victim has swallowed a corrosive poison. A corrosive poison is a strong acid or alkali. It will burn the throat and mouth as severely coming up as it did going down. It may get into the lungs and burn there also.
- If the victim has swallowed an emulsifiable concentrate or oil solution. Emulsifiable concentrates and oil solutions may cause death if inhaled during vomiting.

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