

First Aid Treatment of Pesticide Poisoning

[Symptoms and Signs - General](#)

[Symptoms and Signs - Organophosphorous Poisoning](#)

[Symptoms and Signs - Carbamate Poisoning](#)

[Symptoms and Signs - Organochlorine Poisoning](#)

[Symptoms and Signs - Pyrethroid Insecticides](#)

[Treatment - General Principles](#)

[Treatment - Poisoning by Organophosphorous Compounds](#)

[Treatment - Poisoning by Carbamate Compounds](#)

[Treatment - Poisoning by Organochlorine Compounds](#)

[Symptoms and Signs and Treatment - Poisoning by Rodenticides](#)

[Symptoms and Signs and Treatment - Poisoning by Paraquat and Diquat](#)

[Symptoms and Signs and Treatment - Pentachlorophenol and Related Compounds](#)

[Local Treatment of Pesticide Poisoning - In the Eye](#)

[Local Treatment of Pesticide Poisoning - On the Skin](#)

Signs and Symptoms of Pesticide Poisoning: General

Pesticide poisoning can mimic the signs and symptoms of other common diseases. It is important to find out exactly what happened.

Pesticide poisoning is likely only when person is known to have had recent exposure to pesticide.

The person may be wearing soaked clothing or known to have swallowed pesticide, either accidentally or deliberately.

All cases should be seen by a doctor as soon as possible. It will be important for the doctor to know the pesticide to which the person has been exposed.

If the container is available, send it with the poisoned person for the doctor to see. Otherwise, copy the trade and approved names of the pesticide from the

label.

The label may include important notes on the treatment of poisoning, which should be followed.

Supplementary points:

- Pesticide poisoning can affect the body in two ways: it can cause a local reaction when a pesticide comes into contact with exposed parts of the skin or eye, or it can be absorbed into the body and cause a systemic reaction. Local reactions vary from direct irritation following a single contact to allergic reactions, usually after multiple contacts with the same compound. Pesticide poisoning is the appearance of systemic reactions.
- Always check first if the poisoned person is breathing and has a pulse. If necessary, start resuscitation immediately, and do not waste time getting the information above. However, someone else should be asked to find the name of the pesticide, as it is important that proper antidotes be used for some types of pesticide poisoning.

Signs and Symptoms of Organophosphorous Poisoning

Poisoning by organophosphorous insecticides is the commonest form of pesticide poisoning, and needs immediate treatment.

ONSET: 1/2 - 24 hours after exposure

At first:

- Person feels sick
- Complains of headache
- General weakness or tiredness

Then:

- Person begins to sweat and salivate (water in the mouth), may vomit and have diarrhea
- Complains of stomach cramps
- Pupils (of the eyes) become very small
- Person may mention blurred vision
- Muscles twitch, and hands shake
- Breathing becomes bubbly
- Person has a fit and becomes unconscious

Supplementary points:

- All cases should be seen by a doctor as soon as possible.

Signs and Symptoms of Carbamate Poisoning

Carbamate insecticides have the same action as the organophosphorous compounds, but they are much faster in onset, and recovery is much faster. If a person is applying these compounds and does not take the proper precautions, symptoms will occur very quickly and work stop. Soon after exposure ends, the person will start to feel better, unless still absorbing pesticide from contaminated skin or clothing.

ONSET: Sometimes at work - 3 hours after exposure

At first:

- Person feels sick and may vomit
- Complains of headache and dizziness
- Tiredness and tightness in chest

Then:

- Person may begin to sweat and salivate
- May mention blurred vision
- Muscles may twitch
- Rarely, a person may have a fit and become unconscious

Supplementary points:

- If the person applying firstaid is sure that exposure has ceased, all contaminated clothing has been removed and the skin washed, and there is no recovery after one hour, the case must be seen by a doctor as soon as possible.

Signs and Symptoms of Organochlorine Poisoning

Poisoning by organochlorine pesticides is uncommon, and most of the more hazardous compounds have been withdrawn from the market for some years. Organochlorine poisoning is unlikely to occur from any exposure to DDT. Signs and symptoms of poisoning are due to excitation of the nervous system.

At first:

- Person complains of headache and dizziness. May appear very worried and may become excited.

Then:

- Person may vomit

- Show weakness in arms and legs
- Hands may shake
- Person may become disoriented in time and space
- Fits may follow

Signs and Symptoms of Pyrethroid Insecticide Poisoning

Although pyrethroids have been used for many years, there have been few reports of systemic poisoning by these compounds. This is because, although they are absorbed as other pesticides, they are quickly broken down to harmless products in the body after absorption. However, they do have a LOCAL REACTION.

Within hours of first exposure, pyrethroid compounds may cause tingling on exposed skin, especially around the mouth and nose.

The tingling is persistent and uncomfortable, but not painful.

There is no mark of redness or irritation on the skin where the tingling occurs.

Apart from washing the affected skin with soap and cold water, there is no treatment that will make any difference.

The tingling will disappear of its own accord within 24 hours after thorough washing.

First Aid Treatment of Pesticide Poisoning: General Principles

SPEED IS ESSENTIAL - DO NOT WAIT FOR EXPERT HELP.

ACT calmly and methodically. Avoid self-contamination during treatment.

ACT according to the patient's needs. The highest priority is adequate breathing. It must be maintained continuously.

TERMINATE EXPOSURE by removing the person from the scene of spillage or other contamination. Avoid further skin contact and/or inhalation of fumes or dust.



REMOVE CONTAMINATED CLOTHING quickly and completely, including footwear. Collect clothing in separate container for washing before re-use. Discard contaminated leather footwear.



REMOVE PESTICIDES FROM SKIN, HAIR AND EYES by using large quantities of water. Pay particular attention to the washing of the eyes, hold eyelids apart and rinse thoroughly for at least 10 minutes.



If no water is available, dab or gently wipe the skin with cloths or paper which should then be destroyed. Avoid harsh rubbing or scrubbing the skin.



First Aid Treatment

Position

Place the patient on his side with the head lower than the rest of the body and turned to one side. If the patient is unconscious, keep the chin pulled forward and the head back to ensure that breathing can take place.



Temperature

Particular care must be given to temperature control in unconscious patients. If the patient is extremely hot and sweating excessively, cool by sponging with cold water. If the person feels cold then cover with a sheet or blanket to maintain normal body temperature



Swallowed Pesticide

Induce vomiting when the chemical swallowed is highly toxic and would likely prove fatal and if medical assistance is not readily available.



Breathing

If breathing STOPS (patient's face or tongue may turn blue), pull chin forward to avoid the tongue dropping to the back of the throat. If breathing does not occur after opening the airway, then roll the patient onto their back, keep chin pulled forward and head back.



Convulsions

If fits occur, place padded material between teeth to prevent the patient from injuring themselves. Do not forcibly restrain.



Caution

Do not allow any smoking or drinking of alcohol. Do not give milk, as it may accelerate the uptake of some crop protection product from the gut. The patient may drink other fluids



Supplementary points:

- Induction of vomiting is generally not recommended as a first aid measure unless the chemical swallowed is highly toxic, likely to prove fatal and medical assistance is not readily available. Read the product label for indications as to whether or not vomiting should be induced or to determine if the product is highly toxic.
- Keep all information about the case and the first aid administered and pass it on to the medical team together with the labels and containers.
- Even if full recovery from poisoning takes place after simple first aid measures, seek confirmation by having the patient examined by competent medical staff before the patient recommences work.
- If a person has had only slight symptoms and has not been seen by a doctor, do not leave the person until he/she has appeared normal for 2-3 hours. Symptoms and signs of poisoning by some pesticides can reappear suddenly in the first 24 hours.

First Aid Treatment of Organophosphorous Poisoning

There are two antidotes for organophosphorous poisoning. One of these must be given by a doctor. The other, ATROPINE, can be given immediately upon diagnosis by the person administering first aid.

Start treatment immediately in the following sequence:

1. Check the patient's respiration and see that airway is clear.
2. Give artificial respiration, if needed.
3. Check need for decontamination to stop exposure, and remove clothing and wash as necessary.
4. Give atropine two milligrams by a syringe, or by auto-injector into the thigh or upper arm.
5. Repeat every 10 minutes until:
 - The face flushes, or
 - The tongue becomes dry, or
 - The pupil of the eye dilates or
 - The pulse beats at more than 140 beats per minute
6. Transport to medical attention quickly, but only after the above treatment has been started.
7. During transportation, continue treatment, or continue to observe the person and give more atropine if their condition worsens. Do not give

any morphine or barbiturates. If the person has a fit, gentle restraint should be used

Supplementary points:

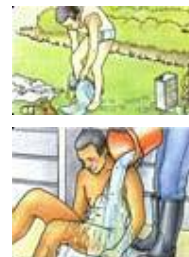
- When organophosphorous insecticides are being used on a large scale, suitable supplies of atropine should be readily available in the field.

First Aid Treatment of Carbamate Poisoning

Fatalities are very rare with carbamate poisoning. It is important that the person administering first aid know the type of compounds that have been in use on the day when the poisoning occurs.

Recovery is rapid in carbamate poisoning.

Observation may be the only treatment required after exposure has been terminated by removing contaminated clothing and washing the skin.



If the patient has collapsed, a single dose of atropine, 2 milligrams, should be given by a syringe or by auto-injection into the thigh or upper arm.

This dosage of atropine cannot harm the person.

Supplementary points:

- In rare cases of carbamate poisoning, if symptoms recur after a single dose of atropine, more atropine may be needed. The question must then arise whether exposure has in fact ceased or some other agent or medical condition is responsible for the patient's symptoms.

First Aid Treatment of Organochlorine Poisoning

There is no specific antidote for organochlorine poisoning.

Treatment should first be directed at preventing further exposure by:

Removing clothing



Washing the skin with soap and water



Inducing vomiting if the compound has been taken by mouth



Breathing must be watched and maintained by artificial respiration if it fails.

The person must be kept as quiet as possible. Excitement must be controlled, and the person may be given a normal dose of a barbiturate or a tranquillizer, if conscious. Patients having fits must be gently restrained.

Observation must be continued until the person has been transported to medical care.

Poisoning by Rodenticides - Symptoms and Signs and Treatment

Anticoagulant Rodenticides

Onset: Usually Low

Symptoms and Signs

Signs that the blood's normal clotting ability has been affected include easy bruising, prolonged bleeding from minor injuries or painful swelling of a large joint after no apparent injury

Treatment

If the person has been poisoned by mouth, induce vomiting. The person needs to be seen by a doctor as a blood test is necessary for diagnosis. The doctor can also give a specific antidote (Vitamin K).

Calciferol Derivatives

Onset: Usually Low

Symptoms and Signs

Loss of appetite, feeling sick with pain in the abdomen, headaches in the back of the head and sensitivity of the scalp. Later, mental confusion and

loss of memory.

Treatment

If the person has been poisoned by mouth, induce vomiting. The person has to be seen by a doctor, who will need to make tests to confirm the diagnosis.

All Other Rodenticides

Except for zinc phosphide, if the person has been poisoned by mouth, induce vomiting. Medical treatment is needed for all cases. Zinc phosphide is corrosive and vomiting should never be induced. All cases of rodenticide poisoning must be seen by a doctor.

Poisoning by Paraquat and Diquat - Symptoms and Signs and Treatment

Paraquat and diquat cause little trouble when used according to the formulators' directions. Repeated use without skin or face protection may cause malformation of the fingernails and nosebleeds.

However, if these compounds are accidentally or deliberately drunk, they are very dangerous.

Onset

Immediate with burning sensation in the mouth and throat

Followed by

Nausea and vomiting, pain in the stomach

Later

Tightness in chest, bubbly breathing

Treatment

Vomiting should be induced. Take the person to hospital immediately. There is no specific antidote.

If there is likely to be any delay in getting the patient to a hospital, find some uncontaminated fine earth or clay, make a watery mix with it, and give as much as possible to the person to drink. Activated carbon should also be given if available.

Supplementary points:

Both of these compounds are highly toxic if drunk, but paraquat causes the most deaths. This is because lung damage occurs after a week or so, even if the person seems to be recovering from the first symptoms. Once lung damage has occurred, it is very difficult to treat, and accounts for the high mortality rate among those poisoned weeks after ingestion has taken place.

Pentachlorophenol and Related Compounds - Symptoms and Signs and Treatment

Onset

Rapid

At First

Mental and physical fatigue, headache and disorientation, loss of appetite, feeling of sickness and vomiting, fever and sweating.

Later

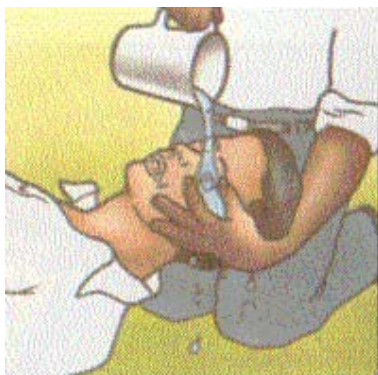
High fever and profuse sweating, some compounds cause fits (not pentachlorophenol). Death is due to heart failure.

Treatment

There is no specific antidote. Keep the person cool with damp cloths, and take to hospital as soon as possible.

Local Treatment of Splashes of Pesticides: In the Eye

The only first aid treatment for any chemical splash in the eye is plenty of clean water.



The eye must be washed out immediately, and the washing must be continued for at least 10 minutes.

The eyelids may have to be held open gently during washing. The person applying first aid may need an assistant to do this.

The water can be applied from an eye-wash bottle. If this is not available, a

teapot can be used. The water may be cold or tepid but not hot.

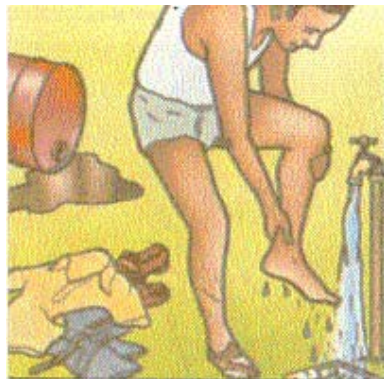
No other chemicals, used as antidotes or neutralizers, should ever be added to the water.

The person splashed may have to hold his eye open under a running tap.

Supplementary points:

- Pesticides splashed into the eye are rapidly absorbed. The eye may also be directly irritated by the pesticide or by other products in the formulation.
- Organophosphorous compounds splashed into the eye can cause blurring of vision which may last several hours.

Local Treatment of Splashes of Pesticides: On the Skin



Any soaked clothing should be removed at once. Splashes on the skin should be washed off with soap and clean water.

No other chemicals, used as antidotes or neutralizers, should ever be added to the water.

If a large area of skin has been contaminated, the worker should shower.

If the pesticide formulation was of moderate or greater hazard, the worker should not risk any further exposure to the pesticide on that working day, and should be advised to report any sickness to a medical centre.

Supplementary points:

- Some pesticides are readily absorbed through the skin, either through soaked clothing or directly splashed onto the skin. Exposure to any pesticide should always be kept to a minimum, even though they may present only a very slight hazard.
- If the splash has been large, the wash water from the first wash should be disposed of in the same way as other contaminated wash waters.
- If the chemical penetrates the skin rapidly it is possible that symptoms similar to those experienced following oral ingestion will be encountered.

- The rules above apply to any splashes of industrial chemicals on the skin.