

# PESTICIDES – WHAT YOU NEED TO KNOW



## What are pesticides?

A pesticide is a poison that is designed to kill or control living things such as weeds, bugs, spiders or anything that you do not want to live in your child care facility or yard. Roach and ant spray, flea bombs, rat poison, weed killer or mothballs are all examples of pesticides. All pesticides are potentially harmful. Pesticides should be used as a last resort. Pesticide sprays and foggers are especially harmful and should be avoided in child care programs.

## What types of pesticides are there?

There are many types and trade names of pesticides that are marketed to kill specific pests. For example, an herbicide, which kills weeds, is a pesticide. Here is a list of pesticides and the type of pests they are designed to kill.

PESTICIDE	PEST
1. Insecticides	Insects and related pests such as spiders
2. Herbicides	Weeds or other unwanted plants
3. Rodenticides	Mice, rats and other rodents
4. Fungicides	Mold, mildew and other fungi (mushrooms)
5. Bactericides	Bacteria
6. Algicides	Algae (used in swimming pools and other water storage)
7. Insect Repellents	Mosquitoes or other insects or ticks
8. Molluscicides	Snails and slugs

## Where are pesticides used?

Pesticides are often used outside, such as on lawns and in gardens. They are also commonly used in and around buildings such as homes and classrooms.

- ▶ Indoor levels of pesticides may be higher than outdoor levels because pesticides settle into carpets and on other inside surfaces, and build up in dust. Pesticides used indoors, or tracked inside on shoes, can remain for weeks, months or even years.

## WHAT ARE THE HEALTH HAZARDS?

Even though pesticides are registered with the U.S. EPA, they can still be dangerous to children and adults. Typically, the harmful effects of a pesticide depend on:

- ▶ how poisonous the pesticide is. Some are more poisonous than others.
- ▶ how long a person is in contact with the pesticide (this is called exposure).
- ▶ how much of the pesticide gets inside the body of the person exposed.
- ▶ how a person comes into contact with the pesticide. Pesticides can be swallowed, breathed in through the lungs or absorbed through the skin.

**Exposure to some pesticides can cause acute poisoning or acute health effects.** In 2008, United States (US) Poison Control Centers reported 43,526 cases of possible pesticide poisoning in children younger than six.<sup>3</sup> The signs of acute, sudden pesticide-related sickness that happen soon after exposure can be mistaken for the flu or other illnesses. See the table *Acute and Chronic Health Effects* on page 9 for more information.

<sup>3</sup> Bronstein, A. C., Spyker, D. A., Cantilena, L. R., Green, J. L., Rumack, B. H., & Giffin, S. L. (2009). 2008 Annual Report of the American Association of Poison Control Centers™ National Poison Data System (NPDS): 26th Annual Report. *Clinical Toxicology*, 47(10), 911-1084.

**Exposure to pesticides over a long time may also cause sickness or affect development.** New studies show that children regularly exposed to low levels of pesticides may not be poisoned or get sick right away, but they may suffer from health problems that don't show up for many years.<sup>4</sup>

Studies still need to be completed to know more about the health hazards of pesticides.

The best way to avoid these health hazards is to avoid using pesticides.

### Some of the acute and chronic health effects of pesticides are:

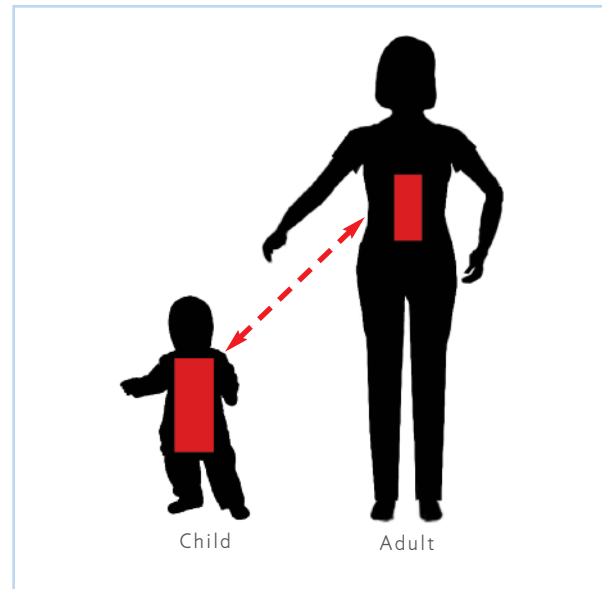
#### ACUTE HEALTH EFFECTS (SUDDEN EXPOSURE)

- ▶ Cough or difficulty breathing
- ▶ Nausea or vomiting
- ▶ Stomach pain
- ▶ Diarrhea
- ▶ Headache
- ▶ Blurred vision or irritated eyes
- ▶ Dizziness
- ▶ Rash or other skin irritation
- ▶ Confusion

#### POSSIBLE LONG-TERM HEALTH EFFECTS

- ▶ Asthma
- ▶ Low birth weight and length
- ▶ Birth defects
- ▶ Genetic syndromes
- ▶ Learning disabilities
- ▶ Cancers
- ▶ Hormonal changes (disruption of the endocrine system)

4 Marks, A. R., Harley, K., Bradman, A., Kogut, K., Barr, D. B., Johnson, C., et al. (2010). Organophosphate pesticide exposure and attention in young Mexican-American children. *Environmental Health Perspectives*. Advance online publication. doi: 10.1289/ehp.1002056.



If a pesticide is present in air, food or water, a greater amount will be taken in by a child in proportion to their body size or weight than by an adult.

### Children are more vulnerable to pesticides in their environment than adults because they:

- ▶ eat and drink more per pound of body weight than adults. If a pesticide is present in food or drink, a greater amount will be taken in by a child in proportion to their body size or weight than by an adult.
- ▶ breathe more air per pound of body weight than adults.
- ▶ put their hands in their mouths a lot and roll on and touch floors and other surfaces where pesticide residues or contaminated dust are commonly found.
- ▶ have more skin surface area relative to their body weight than adults. Thus, children absorb more pesticides through their skin than adults.
- ▶ are still developing. Some pesticides that children are exposed to can interfere with a child's developing brain.



## Other hazards of using pesticides

Pesticides are poisonous to pests, but they are also poisonous to people, animals and the environment. Pesticides enter the environment through water and air. Pesticides can enter storm drains, seep through the ground or run off of sidewalks or soil into streams and lakes that provide drinking water to humans and animals.

Pesticides can also sometimes make pest problems worse.

- ▶ Over time, pests often become resistant to pesticides so the pesticides stop working, and stronger ones are needed to manage pest problems.
- ▶ While pesticides kill pests, they can also kill valuable insects, such as predators that keep pests in check.

## Choosing safer pesticide products

IPM practices that don't use any pesticides at all are often effective and eliminate pest problems. If nonchemical approaches are not effective by themselves, you may need to use pesticides.

Here are the key points about choosing a safer pesticide product:

### Use pesticides that are exempt from the Healthy Schools Act requirements

Products that are exempt from reporting under the Healthy Schools Act such as baits and gels have all been determined to be safer for use around children than other pesticide products. They are safer either because they have very low toxicity or are used in a form, such as a bait station, that makes them less hazardous because there's reduced risk of exposure to the pesticides. Exempt products should be used and stored out of children's reach.

For more information on choosing safer pesticides for individual pests, review the *CCHP Health & Safety Notes* included in this *Toolkit* on individual pests common in ECE programs. These *CCHP Health and Safety Notes* provide information about nonchemical and safer options appropriate for individual pests that should be tried before resorting to nonexempt pesticides. These *CCHP Health and Safety Notes* can also be found on CCHP's website:

[www.ucsfchildcarehealth.org/html/pandr/hsnotesmain.htm](http://www.ucsfchildcarehealth.org/html/pandr/hsnotesmain.htm)

### Use pesticides registered for use by the EPA and DPR

Except for a few products that are made from food-grade substances, all pesticides must be registered by the U.S. EPA and the California Department of Pesticide Regulation (DPR) to be sold or used in California. Be sure you only use registered products. Some unregistered products that are illegal in California are very dangerous.

Examples of illegal pesticides that are highly toxic and dangerous to use:

- ▶ **Naphthalene moth repellents** are made from naphthalene and are white or colorful balls that look like candy or toys to children.

- ▶ **Illegal insecticide chalk (ant and cockroach chalk)**, also called



Illegal insecticide chalk.

Miraculous Chalk or Chinese Chalk, is usually imported from China and is not expensive. It looks like simple blackboard chalk.

- ▶ **Tres Pasitos** is a colorful pesticide that looks like candy. It is used to kill rats.



### Use caution when choosing organic, green or natural products

Choosing safer pesticide products can be hard because there is a lot of conflicting information available on the Internet and in the media. Some pesticides are advertised as *organic*, *green* or *natural* to make them seem safer than traditional pesticides, but some may also have significant hazards, especially if the directions on the label are not followed.

The terms *green* or *natural* should be viewed with suspicion. Of the terms *green*, *natural* and *organic*, only the term *organic* has an official definition.

### Use pesticides registered for use by the EPA and DPR

*Organic* pesticides:

- ▶ must be derived from natural sources, such as plants, animals, microorganisms or minerals.
- ▶ cannot be synthesized using chemical reactions.
- ▶ can have adverse effects on people, animals and the environment even though many of these products may be less toxic than conventional chemical pesticides. An example is the insecticide pyrethrin, which is made from chrysanthemum daisies. It is organic because it only comes from plants, yet pyrethrins are very toxic to fish, and can cause allergic reactions in people.
- ▶ can cause problems if used in areas with poor ventilation. Some organic sprays are made with essential oils and may smell good at first, but they can cause children and staff to cough or suffer eye irritation and trigger asthma. For example, thyme oil can irritate the skin, eyes and lungs and cause allergic reactions.

Pesticides, including organic or so-called green pesticides, should only be used as a last resort. Try alternate ways to get rid of pests and resist using sprays even if they are labeled organic or green products.

### Use safer products to protect against bacteria and viruses

The prevention of diseases caused by bacteria and viruses is a priority in ECE settings. California Community Care Licensing requires that certain surfaces in ECE settings be sanitized or disinfected. Sanitizing and disinfecting (antimicrobial) products that kill bacteria and viruses are pesticides. All products used to sanitize or disinfect must be registered by the EPA. Bleach is the most commonly used product for sanitizing and disinfecting in ECE. It has a short killing time and it does not need to be rinsed since it breaks down quickly. But there are increasing concerns about the health effects of bleach, particularly for children with asthma. Many ECE providers are looking for alternatives to bleach for sanitizing.

The EPA's Design for the Environment (DfE) Antimicrobial Pesticide Pilot Project is a new program that identifies disinfectants that are at the safer end of the disinfectant spectrum. DfE scientists have screened disinfectant ingredients for potential human health and environmental effects. They have identified the following as least-toxic active ingredients in disinfectants:

- ▶ Stabilized hydrogen peroxide
- ▶ Lactic acid
- ▶ Citric acid



Products containing these ingredients that pass the DfE tests for safety and efficacy will be listed on their website, [www.epa.gov/dfe/](http://www.epa.gov/dfe/). If you see the DfE logo on an EPA-authorized antimicrobial pesticide label, you can be assured that, based on the best currently available information, the product contains only ingredients that pose the least health and environmental concerns. Using sanitizing/disinfecting products with the DfE logo can protect the health of children and staff as well as the environment.

For more information, see the CCHP Health and Safety Notes, *Green Cleaning and Sanitizing Safely and Effectively*. Also see the Resources section on page 31.