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Pesticides

Pesticides refer to kill unwanted pests such as insects (insecticides), rodents (rodenticides), fungi (fungicides), and weeds (herbicides). All pesticides have the potential to be toxic to humans. Pesticides sold in the United States must be registered with the Environmental Protection Agency (EPA).

How are Pesticides Used? PESTICIDES

We come into contact with pesticides through plants, soil, air, and food. Outdoor pesticides are tracked into our homes on shoes, strollers, and the bodies of children who run and play in pesticide treated areas. How a pesticide is applied can greatly affect the risk of exposure to people during and after application.

- **Sprays:** Aerosol sprays may be directly applied to a target or more broadly distributed using a "fogger" or "bomb". All of these products increase the risk of inhalational exposures. The use of foggers and bombs is not recommended as they can be particularly dangerous. Exposures via the skin can also occur from contact with sprayed surfaces. Spraying is almost always associated with pesticide drift, the dispersal of pesticides in the air beyond the target site. This means that what your neighbors apply to their lawn will likely add to your family's pesticide exposure.
- **Granular pesticides** are typically applied to the soil surface to target pre-emergent weeds or sprinkled around areas of pest infestations. Exposure to these products is most likely via ingestion or through the skin.
- **Stationary bait traps** contain pesticides in a solid or granular form. Bait traps should always be kept out of reach of children and pets to avoid accidental ingestion and contact.

WHO IS MOST AT RISK?

- **Children** are at highest risk for exposure due to their proximity to the ground where pesticides settle and their age-appropriate hand-to-mouth behaviors. Their higher breathing rates also increase risk of exposure compared with adults.
- **Fetuses:** Pregnancy is one of the most vulnerable windows for exposure to pesticides. Studies show that exposures in-utero are associated with cognitive, behavioral, and respiratory problems during childhood and beyond.
- **Agricultural workers** and their families as well as individuals living in agricultural areas experience higher exposures than the general public. Farming communities have higher rates of certain cancers including leukemia, non-Hodgkin's leukemia and lymphoma, soft tissue sarcoma, and skin, lip, stomach, brain, and prostate cancers.

WHAT ARE THE HEALTH EFFECTS OF PESTICIDES?

Health risks differ depending on the chemicals in a product and whether the exposure is acute (brief, typically high dose) or chronic (occurring over a long period of time, typically low dose). Acute exposures are most common in agricultural workers or poisonings. Chronic exposures to low doses of pesticides are more common due to consumer practices and household use.

- **Nervous system Effects:** Many classes of pesticide exert their effects by damaging the nervous system of a pest. Due to similarities across species, these pesticides have also been shown to be toxic to the nervous system of humans.



- **Endocrine Disrupting Chemicals (EDCs)** Several pesticides are classified as Endocrine Disrupting Chemicals (EDCs) due to their potential to interfere with hormones in the body. Disruption of hormonal systems can impair the development and normal functioning of the reproductive system, as well as the nervous system, particularly when exposure occurs early in life.
- **Cancer** Some pesticides have been shown to have the potential to cause cancer in laboratory and animal studies. For instance, glyphosate, the active ingredient in some pesticides is classified as a probable human carcinogen by the World Health Organization.
- **Respiratory Issues** Exposure to some pesticides during pregnancy has been shown to increase the risk of wheezing and asthma in children. Both chronic and acute occupational exposures to pesticides are associated with impaired lung function, asthma, and other respiratory diseases.



HOW CAN I REDUCE MY EXPOSURE TO PESTICIDES?

- Practice organic lawn care.
- Utilize integrated pest management (IPM) methods that eliminate or reduce the need for synthetic lawn and garden chemicals.
- Aerate your lawn to allow for healthy root growth.
- Nourish soil with organic compost since nutrient-rich soil reduces pest infestations.
- Choose native plants that thrive in your zone.
- Grow your own organic produce.
- Eliminate standing water that attracts mosquitos.
- Encourage friends and neighbors to reduce the use of pesticides. Pesticides can cross property lines.

IF PESTICIDES MUST BE USED:

- Never apply pesticides in the presence of children; always avoid areas where they play. Keep children and pets indoors during active spraying.
- Choose the least toxic pesticides. The EPA requires one of three "signal" words on all pesticide labels. In order from least toxic to most toxic, they are: 1) Caution, 2) Warning, 3) Danger.
- Avoid application of pesticides where pesticide run off could enter ponds, streams, drinking water sources, or other bodies of water.
- Hire a licensed professional applicator. If you live in an apartment building, ensure that your landlord is using one.
- Never use a pesticide without an EPA registration number on the label.
- Unregistered pesticides are sold illegally in the U.S. and may be extremely toxic.
- Target insects at the larval stage using larvicides, which can be more effective and less toxic to humans than spraying mature insects.
- Never use a pesticide in a way other than as instructed on the label. Follow directions closely and utilize recommended personal protective equipment such as gloves, goggles, and face masks.
- Never store pesticides within reach of children.
- Never pour pesticides down the drain. Always dispose of them according to directions found on their labels.
- Never store pesticides in containers other than the ones in which they are sold.



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For more information on how to reduce your exposure to pesticides, visit www.mountsinai.org/childrens-environmental-health-center. For more information on how to reduce your exposure to pesticides, visit www.mountsinai.org/childrens-environmental-health-center. For more information on how to reduce your exposure to pesticides, visit www.mountsinai.org/childrens-environmental-health-center.



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