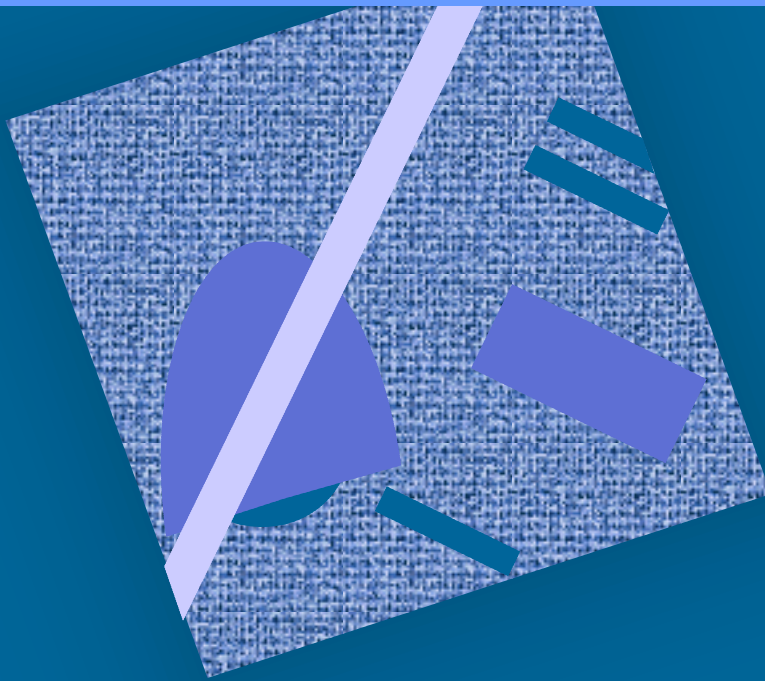


Recognizing and Reporting Pesticide-Related Illnesses and Injuries



Pesticide Poisoning
Registry
New York State
Department of Health



Goals of Module

- The goals of this pesticide training module are to:
 - Increase the medical community's awareness of the adverse health effects that may result from exposure to certain pesticides
 - Increase the medical community's awareness of the Pesticide Poisoning Registry and its reporting requirements



Objectives of Module

Upon completing this presentation, the participant should be able to:

- Identify the routes and patterns of exposure that place individuals and the public at risk for exposure to pesticides
- Discern the importance of taking an occupational and environmental exposure history for timely diagnosis of pesticide poisoning
- Recognize the signs and symptoms of acute organophosphate, carbamate, and pyrethrins/pyrethroids poisoning
- Understand how to make a report to the Registry

Definition of Pesticide

What is a Pesticide?

Pesticides are a category of chemicals that are used to kill or control insects, weeds, fungi, rodents and microbes. (Calvert et. al 2004)

Pesticides come in various forms, including sprays, liquids, powders, granules, baits and foggers (total release aerosols)



Photo by Tom Bowman
Virginia Tech Pesticide Programs

Definition of 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.





Routes of Pesticide Exposure

Pesticides come into contact with the body in four ways:

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



Who is most at risk for pesticide exposure?

- Individuals who prematurely enter a treated area outdoors or fumigated home
- Employees that manufacture chemicals, workers involved in the formulation of pesticides
- Those who load, mix, or apply pesticides
- Children living where household cleaning products, repellents and rat/roach bait are kept within their reach
- Tenants or homeowners who apply pesticides in their homes

How workers may be exposed

Workers may be exposed while performing their routine duties or experience an accidental exposure such as:

Accidental Ingestion- (e.g. removing pesticide from its original container and pouring the contents into a drinking bottle; smoking or eating without washing hands after applying pesticides)

Accidental Inhalation- (e.g. inhaling a powder that is being sprinkled in a corner; a waiter becomes ill after inhaling fumes from a flour mill across from his restaurant that was fumigated)

Drift-Movement of pesticide away from the treatment site (i.e. spray, mist, fumes, or odor is carried through the air away from the site of application) (e.g. an individual on the ground becomes exposed during an aerial application)

Early Re-entry- An applicator or other worker(s) who has entered, or remained in an area that is being treated or has been treated

Pesticide Exposures Impact Multiple Occupations

Workers in many different occupations can be exposed to pesticides

- Agricultural Workers
- Biologists and Chemists
- Electrician
- Emergency Responders
- Food Service Workers
- Groundskeepers and Gardeners
- Housekeepers/Custodial Staff
- Landscapers
- Medical personnel
- Migrant Farmworkers
- Office Worker
- Pesticide Control Operators
- School teacher
- Store clerks where pesticides are sold



This is only a sample list of occupations/industries that may encounter pesticides on the job

Pesticide Exposures in Occupational Settings

Workers contact pesticides in both agricultural and non-agricultural settings. Some are exposed while conducting their routine job functions and others are exposed although they are not directly involved with the application. Settings include:

- Airplanes
- Commercial Kitchens
- Farms
- Food Processing Facility
- Golf Course
- Hospitals
- Office/Business
- Pesticide Manufacturing Facility
- Retail chain stores
- Roadways



Examples of Non-occupational exposures

Accidental Ingestion-

(e.g. children eating rat/roach bait placed within their reach, a product removed from its original container and poured into an unlabeled water bottle)

Intentional Ingestion-

(e.g. an individual ingests a pesticide in an attempt to commit suicide)

Early Re-entry into Pre-treated Area -

(e.g. treating a living room area for fleas and returning to the room prior to the furniture/carpet drying completely)

Misuse or Overuse of Product-

(e.g. applying too much pesticide from a commercially purchased product or applying the product in a way that is unintended on label)

Pesticide Exposures in Non-Occupational Settings

There is potential for people to be exposed to pesticides in their everyday lives

Business/Office

Day Care Center

Home (single/multi-unit home or mobile home)

Lawn and Garden store

Park and Recreational Locations

Retail and Service Establishments

Schools



Photo by Tom Bowman
Virginia Tech Pesticide Programs

Pesticide Exposures: Uncommon Ground

Pesticide exposures can happen in very uncommon ways and in unpredictable places. Being aware of the type of exposures, may help you readily recognize:

1. pesticide exposures,
2. symptoms usually associated with pesticide poisoning, and
3. treatment options.

The following slide provides several case scenarios of people who have been exposed to pesticides under various circumstances.

Pesticide Exposures with Adverse Health Effects

- A woman enters her office and sits at her desk. Her office was treated with a pesticide the previous day. She begins to smell fumes from the application. The smell made her nauseous and gave her a headache.
- A man applies a flea control product all over his body. He did not read the label. The label states that the product is not to be used on humans. He developed hives, a rash and increased itchiness.
- A plastic bottle of Diazinon fell to the floor and broke in a department store stockroom. The stock handler developed miosis, dizziness and a headache.
- A custodian reached for a product off a shelf. The container was improperly stored and the content spilled on her face, causing facial swelling and dermatitis.
- A journey lineman was performing routine duties on a train platform. A spray train came by and sprayed an herbicide out of both of its doors. The lineman's clothes were fully saturated. Multiple neurological, dermal, respiratory and gastrointestinal symptoms were experienced.



Susceptibility to Pesticide Poisoning

An individual's response to a pesticide depends on a number of factors. Some examples include:

- **Health condition of the individual**: pregnancy, presence of disease, integrity of skin (e.g. cuts, bruises)
- **Age**: The elderly and young children are more likely to experience an adverse health effect after exposure to pesticides than a healthy adult
- **Personal behaviors**: Smoking, poor eating habits, drug use and personal hygiene may influence response to pesticide exposure
- **Size Matters**: The effect of a dose on a person is related to their body weight. The heavier the person, the more poison it will take to cause an adverse effect

Classification of Pesticides

- Botanicals (e.g. Pyrethrins)
- Disinfectants/Sanitizers (e.g. Alcohols, Aldehydes, Pine oils)
- Fungicides (e.g. Substituted Benzenes, Copper Compounds)
- Herbicides/Plant Growth Regulators (e.g. 2,4-D, Paraquat)
- N-Methyl Carbamates (e.g. Aldicarb, Eugenol)
- Nematocides/Fumigants (e.g. Methyl bromide, Phosphorous Compounds)
- Repellents (e.g. Boric acid, DEET)
- Rodenticides (e.g. Indandiones and Coumarins)



Commonly Reported Pesticide Classes: Carbamates, Organophosphates, Pyrethrins/Pyrethroids

The vast majority of common insecticides used by homeowners, commercial applicators (exterminators, lawn pesticide applicators, etc.), and farmers fall into one of the three classes:

- Carbamates
- Organophosphates
- Pyrethrins/Pyrethroids

A brief discussion on the health effects of each of these follows on the next three slides

ACUTE HEALTH EFFECTS OF Carbamates

Carbamates are generally responsible for causing symptoms related to the nervous system

- Malaise, muscle weakness, dizziness, and sweating.
- Headache, salivation, nausea, vomiting, abdominal pain, and diarrhea.
- Miosis with blurred vision, incoordination, muscle twitching and slurred speech.
- In more severe cases: Central nervous system depression (coma, seizures and hypotonicity), hypertension and cardiorespiratory depression. Also dyspnea, bronchospasms and bronchorrhea with eventual pulmonary edema.

Please note that this is not an exhaustive list of potential health effects. It is meant to provide a baseline for the type of symptoms that individuals who have been exposed to products containing these active ingredients may experience. Your patient may experience some or none of the above symptoms.

***Source: Pesticideinfo.org**

See Recognition and Management of Pesticide Poisonings, 5th edition, U.S. EPA, Chapter 5, page 50 for treatment information

ACUTE HEALTH EFFECTS OF Organophosphates

Organophosphates are generally responsible for causing symptoms related to the nervous system

- Excessive salivation, sweating, rhinorrhea and tearing.
- Muscle twitching, weakness, tremor, incoordination.
- Headache, dizziness, nausea, vomiting, abdominal cramps, diarrhea.
- Respiratory depression, tightness in chest, wheezing, productive cough, fluid in lungs.
- Pin-point pupils, sometimes with blurred or dark vision.
- Severe cases: seizures, incontinence, respiratory depression, loss of consciousness.
- Cholinesterase inhibition.

Please note that this is not an exhaustive list of potential health effects. It is meant to provide a baseline for the type of symptoms that individuals who have been exposed to products containing these active ingredients may experience. Your patient may experience some or none of the above symptoms.

*Source: Pesticideinfo.org See: [Recognition and Management of Pesticide Poisonings, 5th edition, U.S. EPA, Chapter 4, page 40 for treatment information](#)

ACUTE HEALTH EFFECTS OF Pyrethrins/Pyrethroids

Pyrethrins are natural pesticides. Pyrethroids are synthetic chemicals. Pyrethrums is a general name that covers both compounds. People exposed to these compounds may experience:

- Irritation of skin and eyes
- Irritability to sound and touch, abnormal facial sensation, sensation of prickling, tingling/creeping on skin and numbness
- Headache, dizziness, nausea, vomiting, diarrhea, increased salivation, fatigue
- In severe cases: fluid in lungs and muscle twitching may develop. Seizures may occur and are more common with more toxic cyano pyrethroids

Please note that this is not an exhaustive list of potential health effects. It is meant to provide a baseline for the type of symptoms that individuals who have been exposed to products containing these active ingredients may experience. Your patient may experience some or none of the above symptoms.

***Source: Pesticideinfo.org**

See: [Recognition and Management of Pesticide Poisonings, 5th edition, U.S. EPA, Chapter 8, page 88 for treatment information](#)



Facts to Consider about the Diagnosis of Pesticide Poisoning

- Pesticide poisonings often go unrecognized because the patient may present with a non-specific illness that makes it difficult to give an accurate diagnosis
- A proper occupational and exposure history may aid in diagnosing pesticide poisonings sooner. In addition, knowing that the patient has been exposed will help determine proper treatment and follow-up options
- Taking an extensive exposure history may also lead to reduction or preventable pesticide exposures in the future

Occupational/Environmental Exposure History

During the physical exam, be sure to ask the patient to identify current or past exposures

- What kind of work do you do?
- Are pesticides or chemicals being used at home or work?
- Do you get sick or dizzy after or while you are working?
- Do you have any symptoms that seem to improve when you are away from work?
- Have you been exposed to pesticides, chemicals, or solvents in the past?



This is only a sample list of questions and is not intended to provide an extensive exposure history questionnaire. Questions are also available in Spanish upon request.

Pesticide-Related Diagnoses as reported to the Registry

The following is a list of diagnoses that are reported to the Pesticide Poisoning Registry. Note: This is only a sample list of reported diagnoses. Based on exposure history, physical exam, signs reported, symptoms observed, relevant lab results, and professional medical judgement, you will be able to determine the appropriate diagnosis.

Respiratory

Bronchitis or Bronchitis w/Acute Asthma

Bronchospasms

Upper Respiratory Irritation

Neurological

Dizziness

Fasciculations

Headache

Cardiovascular

Bradycardia

Tachycardia

Ocular

Corneal Abrasion

Chemical Conjunctivitis

Gastrointestinal

Gastritis

Gastroenteritis

Dermal

Dermatitis

Hives

Pruritis

General

Chemical Exposure

Chemical Inhalation

Renal

Hematuria

Proteinuria

How are reports made to the Registry?

Physicians and other medical staff are required to report suspected or confirmed pesticide poisoning by calling 1-800-322-6850. Registry staff will answer the phone during normal business hours of 8:30 AM-4:30 PM Mon.-Fri. Outside normal business hours, please leave the patient's name, name of hospital, name of treating physician, and name and number of the person who will be holding the patient's chart. Someone from the Registry will return the call on the next business day.

Call



1-800-322-6850 to make a Report

What information should be reported to the Registry?

- **1-800-322-6850**
- Patient Name, DOB,
- Address, Phone #
- Signs, Symptoms
- Treating physician
 - Information on the event(s) leading to the patient's exposure (How patient was exposed)
- Product information
- EPA Reg. No.
- Was the exposure work-related?



Why Should You Report?

- Reporting suspected or confirmed pesticide poisoning is required under New York State Public Health Law.
- Reporting enhances prevention of pesticide related illnesses. It helps NYSDOH identify problem pesticides, pesticide labels, and application methods that result in hazardous exposures. Regulatory agencies can use this information to correct problems. DOH can use this information to develop pesticide illness prevention programs.
- Surveillance for occupational, residential and environmental pesticide-related illnesses and injuries is designed to protect individuals and communities by determining the magnitude and underlying causes of over-exposure to pesticides in the workplace, home, or environment.
- We can make a difference in your patient's life. We can offer resources to help your patient learn about the safe use of pesticides and prevent recurrence of pesticide-related illness. .



Public Health Benefits of Reporting Pesticide Poisoning

Based on previous reports, the Registry has developed educational material to help prevent future exposures and adverse health effects.

Examples of Positive Public Health Impact

A number of pesticide exposures involving the misuse of total release foggers (i.e. “bug bombs”) have been reported. Tenants generally apply too many foggers or set them off near an ignition source (e.g. stoves, heaters, and water heaters). This misuse has proved to be a fire and explosion hazard and has caused burns and injuries. The Registry staff responded by creating a fact sheet for the safe use of roach bombs and foggers.

A product called AllerCare™ was recalled based on efforts of Registry staff, other states with pesticide surveillance programs and the U.S. Environmental Protection Agency. Consumers were repeatedly reporting asthma attacks and other medical problems after using this product. The recall successfully removed a product from the market that caused negative health effects to consumers.

NYS Pesticide Poisoning Registry

Reporting Requirements

Who Should Report?

State regulations require

- Every physician, health facility and clinical laboratory in attendance on a person with confirmed or suspected pesticide poisoning or with any of the clinical laboratory results as described in Chapter 1 of the State Sanitary Code §§22.12 shall report such occurrence to the State Commissioner of Health within 48 hours.
- **Suspected or confirmed pesticide poisoning should be reported by calling 1-800-322-6850 within 48 hours of treating the patient or obtaining relevant lab results.**
Calls will be answered M-F 8:30 AM-4:30 PM.
- If a call is made after normal business hours, please leave a message with the patient's name, name of facility, and name of person who will be holding the chart. Staff will contact the facility on the following business day.



Reporting and HIPAA

While the information you send will contain confidential medical information, submission of the requested information will not violate the Health Insurance Portability and Accountability Act (HIPAA). The Bureau's authority to access, inspect and copy the information is set forth in Public Health Law §§ 206(1)(d), 206 (1)(e), 206 (1)(j) and 225(5)(t) and N.Y.C.R.R. §§ 22.11 and 22.12. The information collected by the NYS Pesticide Poisoning Registry is for public health surveillance.

All information will be held in confidence consistent with public health law and carefully monitored so that the identity of individuals is not disclosed.

Pesticide Poisoning Resources Online

ATSDR ToxFAQs™- is a series of summaries about hazardous substances developed by the ATSDR(Agency for Toxic Substances Disease Registry) Division of Toxicology. Information for this series is excerpted from the ATSDR Toxicological Profiles and Public Health Statements. Each fact sheet serves as a quick and easy to understand guide. Answers are provided to the most frequently asked questions (FAQs) about exposure to hazardous substances found around hazardous waste sites and the effects of exposure on human health. <http://www.atsdr.cdc.gov/toxfaq.html#bookmark05>

Centers for Disease Control and Prevention (CDC) National Biomonitoring Program-Provides an overview of Biomonitoring and the benefit of using this method to assess the amount of chemicals present in an individual's body fluids. <http://www.cdc.gov/biomonitoring/default.htm>

Information Center (NPIC)- NPIC (National Pesticide Information Center) provides objective, science-based information about pesticides and pesticide-related topics to enable people to make informed decisions about pesticides and their use. NPIC is a cooperative agreement between Oregon State University and the U.S. Environmental Protection Agency. Answers inquiries from the general public and from health care professionals about pesticides. **1-800-858-7378**
<http://npic.orst.edu/>

Recognition and Management of Pesticide Poisonings U.S. Environmental Protection Agency- A resource guide designed to provide health hazards of pesticides.
<http://www.epa.gov/pesticides/safety/healthcare/handbook/handbook.htm>

Reducing Pesticide Exposure- A brochure developed by the New York State Department of Health that offers tips for the public to reduce their exposure to pesticides. <http://www.health.state.ny.us/environmental/pests/reduce.htm>



Obtaining Treatment Advice

Advice regarding treatment is available from a New York State Regional Poison Control Center.

They can be reached by calling

1-800-222-1222



Pesticide Poisoning Registry

Contact Information

- If you wish to contact NYS DOH staff regarding the content of this presentation, please call toll free at 1-800-322-6850.
- To report a poisoning, send a copy of the patient's medical record or lab results to this address:

Attn:

NYS DOH
Pesticide Poisoning Registry Program Coordinator
Flanigan Square
547 River Street, Rm.# 230
Troy, NY 12180

- Medical records or lab results can be faxed to: NYS DOH Pesticide Poisoning Registry Program Coordinator at (518) 402-7909

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