

Pesticide Illnesses in Schools

Welcome to the Washington State Department of Health (DOH) Web site on pesticide illness incidents in schools. Find information about:

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For more information about pesticide-related illnesses and injuries, visit the [DOH Pesticide Program](http://www.doh.wa.gov/ehp/Pest/default.htm) Web site (<http://www.doh.wa.gov/ehp/Pest/default.htm>).

For more information about school environmental health and safety, visit the [DOH School Environmental Health and Safety Program](http://www.doh.wa.gov/ehp/ts/School/default.htm) Web site (<http://www.doh.wa.gov/ehp/ts/School/default.htm>).

Pesticide-related illnesses and injuries in school environments: National report, JAMA 2005

An article in the [July 2005 issue of the Journal of the American Medical Association \(JAMA\)](http://jama.ama-assn.org/cgi/content/short/294/4/455) (<http://jama.ama-assn.org/cgi/content/short/294/4/455>) highlights problems that children and school staff can experience when pesticides are used at or near schools. The study identified 2,593 pesticide-related illnesses at schools nationwide over a recent 5-year period, (<http://www.doh.wa.gov/ehp/ts/Pest/pest-school-wadata.htm>).

Findings from the JAMA article include the following:

- Reported symptoms included: skin and eye irritation; coughing and other respiratory effects; nausea, vomiting, and dizziness; and allergic and asthmatic reactions.
- 90% of the illnesses were classified as mild symptoms consisting mostly of short-term and irritant symptoms which resolved without medical treatment.
- 70% of the exposures were from pesticides applied on school grounds. These incidents occurred when:
 - custodians or gardeners were accidentally exposed to pesticide during application;

- pesticides drifted into school buildings from a nearby or adjacent outdoor application;
- children inhaled residual pesticide after entering treated buildings or grounds.
- 30% of the cases involved exposures to pesticides that had drifted into schools from neighboring farmland.

Did You Know...?

Pesticide Illness is a Notifiable Condition in
Washington State

For more information check here

<http://www.doh.wa.gov/Notify/nc/pesticide.htm>

Pesticide illnesses in schools are preventable

Is a pesticide really needed? To help minimize pesticide exposure, use an [Integrated Pest Management \(IPM\)](http://www.doh.wa.gov/eHP/Pest/pest-school.htm) approach. Choose the most effective and least hazardous method to control pests.

To help minimize or prevent pesticide exposure:

1. Do not apply pesticides when staff or students are present.
2. Use gels, baits and other formulations that can be applied in places that are inaccessible to children.
3. Use products that stay where they are applied. Avoid products that cause the pesticide to become airborne, such as aerosols and products that volatilize.
4. If a pesticide is used indoors, be sure to thoroughly ventilate the area before allowing re-entry.
5. If an odor is present after the recommended ventilation time, ventilate again before allowing students or staff back in.
6. Pesticide applicators must be appropriately trained and/or licensed. They should follow all instructions and restrictions specified on the label.
7. All posting and notification rules must be followed so that students and staff can avoid the treated area and have access to more information.

Most incidents in schools have occurred when:

- Pesticide was applied when staff or students were nearby.
- Airborne volatiles from a pesticide product lingered and bothered people when they re-entered the building or field.
- Pesticide drifted into a school from a nearby yard or farm.
- The person applying the pesticide accidentally exposed him/herself to the product.

IPM is the preferred pest control approach in schools

The Washington State Department of Health encourages pesticide applicators to be careful when using pesticides in schools. We recommend that schools and daycares take a preventative approach to pest control. This approach is referred to as Integrated Pest Management (IPM).

IPM focuses on addressing the underlying cause of the insect, rodent or weed problem. While pesticides may be used, the IPM approach seeks first to change the conditions which allow pests to survive and thrive.

For example, cockroach and rodent control would include maintaining good sanitation practices around kitchens and garbage cans, and repairing holes and cracks where rodents can enter.

IPM is endorsed by EPA, the National PTA, and the National Education Association.

Websites with more information on IPM:

- [Washington State Urban Pesticide Education Strategy Team \(UPEST\)](http://www.ecy.wa.gov/programs/swfa/upest/)
(<http://www.ecy.wa.gov/programs/swfa/upest/>)
- [U.S. EPA: IPM in Schools](http://www.epa.gov/pesticides/ipm/) (<http://www.epa.gov/pesticides/ipm/>)
- [University of California at Davis: IPM Online](http://axp.ipm.ucdavis.edu/index.html) (<http://axp.ipm.ucdavis.edu/index.html>)
- [Washington State University: IPM Certification Program](http://ipm.wsu.edu/cert/cert.html)
(<http://ipm.wsu.edu/cert/cert.html>)

What is IPM?

IPM is Integrated Pest Management. In IPM, we learn about pests and select the best control methods with the least risk to people, pets, and the environment. IPM involves monitoring for pests, and integrating physical, mechanical, biological and, if necessary, chemical methods to achieve long-term control.

For more information, see the [EPA Web site on IPM in Schools](http://www.epa.gov/pesticides/ipm/)
(<http://www.epa.gov/pesticides/ipm/>).

DOH and OSPI Recommend IPM

Recommendations from the Washington State Department of Health (DOH) and the Washington State Office of Public Instruction (OSPI) for pest control in schools can be found at the following Web sites:

DOH: [School Indoor Air Quality Best Management Practices Manual](http://www.doh.wa.gov/ehp/ts/IAQ/schooliaqbmp.pdf)
(<http://www.doh.wa.gov/ehp/ts/IAQ/schooliaqbmp.pdf>) (see page 75).

OSPI and DOH: [Health and Safety Guide for K-12 Schools in Washington](http://www.k12.wa.us/SchFacilities/HealthSafetyGuide.aspx)
(<http://www.k12.wa.us/SchFacilities/HealthSafetyGuide.aspx>) (see Part 2, School Safety Guide Checklist, page 45).

What other organizations are saying about IPM in schools

“The National PTA encourages the use of integrated pest management (IPM) at homes and schools to minimize exposure to pesticides. Instead of relying solely on pesticides to control pests, IPM uses natural biological pest control methods such as introducing natural predators and removing elements – food, shelter, and water – that pests need to survive.”

-- **National PTA Leader’s Guide to Environmental Issues**

"A healthy school environment is essential. All students and staff have a right to learn and work in a healthy school environment, safe from air pollution, radiation, sound and mechanical stress, and chemical exposures."

-- **National Association of School Nurses**

“Integrated Pest Management (IPM) is a least toxic approach to getting rid of pests. ... IPM has worked well in large commercial facilities, schools, agricultural areas, and homes.”

-- **Children’s Environmental Health Network**

“Put simply, integrated pest management (IPM) is a safer, and usually less costly option for effective pest management in a school community.”

-- **EPA, Office of Pesticide Programs**

To read what other organizations are saying about IPM, please visit the [EPA Integrated Pest Management in Schools](http://www.cehn.org/cehn/pesticides.html) (<http://www.cehn.org/cehn/pesticides.html>) Web site.

Schools near agricultural activities

DOH supports efforts to reduce practices that contribute to hazardous agricultural pesticide drift and its associated health risks. Factors that contribute to hazardous pesticide drift include: use of highly toxic pesticides, use of volatile pesticide products, use of equipment that produces fine sprays, windy conditions, and temperature inversions.

Most agricultural pesticide labels include the following warning:

“Do not apply this product in a way that it contacts workers or other persons either directly or through drift.”

This warning makes it illegal for a nearby farm to cause pesticides to drift anywhere people are likely to be exposed, including onto school property.

Prevent drift

Pesticide applicators must adhere to specific practices listed on the pesticide label to prevent drift. To further reduce the chance of pesticide drift into schools, do not spray near schools when:

- Application equipment creates fine sprays that are prone to drift, or
- The product is volatile, and
- Wind is variable or blowing towards the school or daycare, and
- Children are present or will be present the next day. Farmers and other pesticide applicators are encouraged to contact area schools for the calendar of events and sport activities scheduled to occur outside of normal school hours.

If drift occurs:

- Turn off school ventilation system, close windows, and keep students and staff inside.
- Contact the applicator to stop the application. Request information about the ingredients in the spray.
- Contact the local fire department HAZMAT team for advice on hazard assessment and evacuation.
- Contact [your local health department](#) (<http://www.doh.wa.gov/LHJMap/LHJMap.htm>) for health advice or contact the following:
 - [Washington State Department of Health, Pesticide Program](#): <http://doh.wa.gov/ehp/pest/default.html> (877) 485-7316 (Monday - Friday, 8 am - 5 pm)
 - [Washington Poison Center](#) (<http://www.wapc.org/>): (800) 222-1222
 - [National Pesticide Information Center](#) (<http://npic.orst.edu/>): (800) 858-7378.
 - University of Washington, [NW Pediatric Environmental Health Specialty Unit](#) (<http://depts.washington.edu/pehsu/>), (877) 543-2536. This organization offers free consultations by physicians on pesticides and other environmental hazards for children.
- Report the incident immediately to the Washington State Department of Agriculture, (877) 301-4555, for investigation and enforcement.
- Notify parents about the incident.
- Irrigate the grounds and wash down playground equipment before children reenter the play areas. Change air filters on the ventilation system.

Pesticide rules for schools

1. Chapter 246-366-050 WAC (School Buildings):

(5) The premises and all buildings shall be free of insects and rodents of public health significance and conditions which attract, provide harborage and promote propagation of vermin.

(6) All poisonous compounds shall be easily identified, used with extreme caution and stored in such a manner as to prevent unauthorized use or possible contamination of food or drink.

2. RCW 17.21.415 (Washington State Department of Agriculture):

Schools and daycares in Washington State are required by law to have a written pest control policy, to notify interested parents before pesticides are used indoors or outdoors, and to post all areas treated with a pesticide. This law is intended to help reduce or eliminate the possibility of student or staff exposure to pesticides.

For complete information on this posting and notification rule, see:

- [Text of RCW 17.21.415](http://apps.leg.wa.gov/rcw/default.aspx?cite=17.21.415) (<http://apps.leg.wa.gov/rcw/default.aspx?cite=17.21.415>)
- [Compliance Guide for the Use of Pesticides at Public Schools and Daycare Centers](http://agr.wa.gov/PestFert/Pesticides/docs/ComplGuidePub075.pdf) – (<http://agr.wa.gov/PestFert/Pesticides/docs/ComplGuidePub075.pdf>) from Washington State Department of Agriculture

- [Pesticide Notification and Records Check List](http://agr.wa.gov/PestFert/Pesticides/docs/SchoolNotificationChecklistrevised2.pdf)
(<http://agr.wa.gov/PestFert/Pesticides/docs/SchoolNotificationChecklistrevised2.pdf>) –
from Washington State Department of Agriculture

School cases in Washington State, 2000 - 2006

In Washington State, health care providers are required to report cases of pesticide related illness or injury to DOH. DOH investigates reported cases and collects information that can be used for prevention. Between the years 2000-2006, there were fifteen reported pesticide-exposure incidents involving 43 sick persons at schools. Eighteen were children and 25 were adults. These cases were classified by DOH as possibly, probably, or definitely due to pesticide exposure (see [How DOH classifies cases](http://www.doh.wa.gov/ehp/Pest/pest-illness-investigation.htm#Howclassifycases), <http://www.doh.wa.gov/ehp/Pest/pest-illness-investigation.htm#Howclassifycases>). The DOH Pesticide Program does not detect every case that occurs (see [Limitations of DOH Pesticide-Illness Data](http://www.doh.wa.gov/ehp/Pest/pest-illness-investigation.htm#SurveillanceLimitations), <http://www.doh.wa.gov/ehp/Pest/pest-illness-investigation.htm#SurveillanceLimitations>).

Details of reported cases are listed below.

Year	County	DOH Determination	Pesticide Involved	Incident Description
2000	Grant	1 Possible	Ortho Diazinon Insect Spray 2	38 year-old pregnant teacher developed symptoms after smelling drift from an insecticide application to back yard fruit trees next to the school. She sought medical treatment the same day. WSDA (Washington State Department of Agriculture) investigation noted that the odor had entered the school air conditioning system.
2000	King	1 Possible	Strikeforce II Residual with Dursban	20 y/o female sprayed an insecticide in her college dorm room for spiders. The can had been provided by maintenance staff. It was industrial strength and she used it incorrectly. She became ill shortly after applying the product and sought medical care. Symptoms resolved in one week.
2000	Grant	13 Probable	Bravo 825	Nine teachers and 15 students

Year	County	DOH Determination	Pesticide Involved	Incident Description
			Comite Agricultural Miticide	reported mild symptoms after an aerial application to a potato field next to a school district. The application occurred shortly before staff and students arrived. WSDA tests were positive for pesticide residues around the buildings.
2001	Chelan	1 Probable	Sevin brand of Carbaryl Insecticide	A 12 y/o female middle school student developed systemic symptoms after orchard spray drifted onto school grounds. WSDA samples of vegetation and of her clothes were positive for residues in the grassy area where she sat during her PE class. She sought treatment at Emergency Room.
			ABG-6404 Biological Insecticide	
			Guthion Solupak 50% Wettble Powder Insecticide	
			Carzol SP in water soluble packaging	
			Ethrel brand Ethephon Plant Regulator	
2001	King	1 Probable	Roundup herbicide	41 year old male campus gardener was spraying weeds when the spray splashed back into his left eye. He immediately washed out his eyes. The local fire department was summoned and they irrigated his eyes, but he continued having discomfort and sought medical care.
2001	Douglas	1 Probable	Misty Dualcide	A 51 y/o female elementary school teacher developed symptoms after entering a building that had been treated. An application was conducted next to her workspace which left a smell. She sought medical treatment for respiratory symptoms.

Year	County	DOH Determination	Pesticide Involved	Incident Description
2002	Franklin	1 Possible 1 Probable	Dimethoate 400	24 children and their bus driver were exposed to insecticide on their way home from school. Spray drift came through their school bus windows from an aerial application to a field adjacent to the road. Two individuals had mild symptoms. Neither sought medical care. WSDA samples were positive for pesticide residues in bus.
2003	Thurston	1 Possible	Chemsico Tralomethrin insecticide fogger	A 46 y/o male community college custodian inhaled fog while activating a fogger. The release mechanism malfunctioned and the custodian stayed in the room longer than he should have as he tried to correct the problem. He sought medical care for respiratory symptoms.
2004	Benton	5 Probable	Pendulum 3.3 EC herbicide	An unlicensed school employee applied an herbicide to a school parking lot and sidewalk at 6:30 AM on a school day. Notification and signage were not carried out. Several students and faculty members became ill after smelling the vapors from the application. Students and employees were evacuated from the facility.
2004	King	1 Probable	Roundup Ultra	A 43 y/o female teacher was on break outside when an herbicide application was taking place. She smelled the chemical and she relocated. She began coughing. When her coughing continued for about 3 hours she sought medical care.
			Surflan A.S.	

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2004	Pierce	1 Possible	Roundup Ultra	A 23 y/o male landscaper assistant made a weed control application with a hand sprayer at a high school. He did not recall any significant contact with a chemical. However, that evening he developed dermal symptoms on his extremities. The next day he went for medical treatment for what was believed to be an allergic reaction.
2006	King	1 Possible	Phantom Termiticide	A 52 y/o female university employee had a severe but short-lived asthma attack after a nearby office was sprayed with insecticide. No samples were taken to confirm drift. She took asthma medications and was seen in the ER 30 minutes post-exposure. Symptoms resolved shortly afterwards. In response, her employer implemented new policy to use alternative methods of pest control and notify her before any application in her area.
2006	Adams	1 Possible	Drexel Carbaryl 4F insecticide Maxcel Plant Growth Regulator	A 63 y/o female school bus driver reported symptoms after her bus received drift from an orchard sprayer. She reported spray was heavy enough that she had to turn on her windshield wipers. Her window was open. She did not seek medical attention. No students on the bus reported symptoms from the incident. WSDA investigated but did not take samples.

Year	County	DOH Determination	Pesticide Involved	Incident Description
2006	Pend Oreille	1 Possible	Gordon's Amine 400 2,4-D Weed Killer	A 56 y/o female kindergarten teacher reported smelling herbicide odor in her classroom. An outside area 25-30 ft away had been treated one hour before. Within 45 minutes she reported neurological, ocular and respiratory symptoms. She left school early and sought medical care the next day. WSDA investigated and all notification requirements had been met. No other reports of illness.
2006	Thurston	1 Probable	Safer Insecticidal Soap Concentrate	A 20 y/o female student in college horticulture class received drip of insecticidal soap in eyes while spraying hanging baskets. She developed eye symptoms and sought health care the following day. Teacher planned to use this as a teaching case to motivate students to "always wear gloves and goggles, even with insecticidal soap."

For more information on the Pesticide Program, please contact Cynthia López at cynthia.lopez@doh.wa.gov, or 360-236-3340.