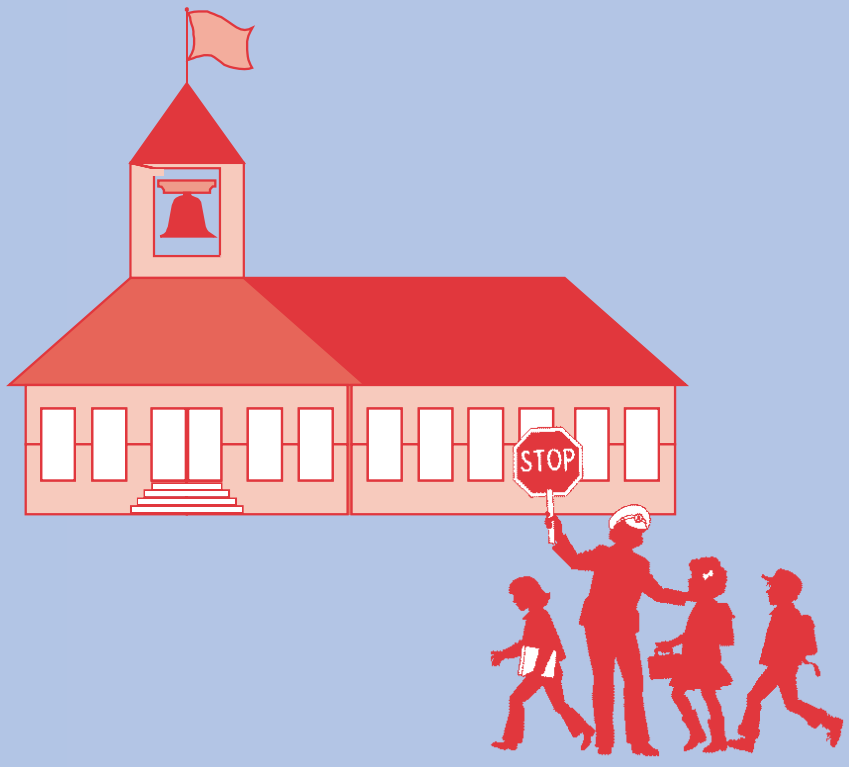
Pest Control Practices in Connecticut Public Schools



ENVIRONMENT & HUMAN HEALTH, INC.

Pest Control Practices in Connecticut Public Schools

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Environment & Human Health, Inc.

Mission Statement

Environment and Human Health, Inc., founded in 1997, is a non-profit organization made up of doctors, public health professionals and policy experts dedicated to the purpose of protecting public health from environmental harms through research, education and the promotion of sound public policy. We are committed to improving public health and to the reduction of environmental health risks to individuals.

Our mission is:

1. To conduct research to identify environmental harms affecting human populations.
2. To promote public education concerning the relationships between the environment and human health.
3. To promote effective communication of environmental health risks to those exposed and to responsible public and private officials, thereby empowering individuals and groups to take control over the quality of their environment and be more protective of themselves and their families.
4. To promote policies in all sectors that ensure the protection of human and environmental health with fairness and timeliness.

Environment and Human Health, Inc. has put human health at the center of its environmental agenda.

Pest Control Practices in Connecticut Public Schools

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Pest Control Practices in Connecticut Public Schools

Health experts and the public are increasingly concerned about children's exposure to pesticides. Environment & Human Health, Inc. has conducted a survey of pest control practices in Connecticut public schools in order to judge the magnitude of the problem, and to look at the potential for instituting safer pest control methods that would ensure the protection of our children's health. The following is an overview of our findings.

Summary of Findings

- **Most School Districts Spray Indoors and Outdoors:** Among those responding to our survey (n = 77) 87% sprayed pesticides indoors, and 53% applied herbicides to fields and grounds.

- **Toxic Chemicals Are Applied in Schools:** Pesticides reportedly applied indoors are toxic substances, and include compounds that may adversely affect the human nervous system via cholinesterase inhibition. These included organophosphate and carbamate insecticides.

- **No Prior Notification or Consent:** Pesticides are normally applied without the prior knowledge or consent of students, parents or guardians, or schoolteachers and employees. Only the applicator is aware of the chemical being applied, its concentration, the precise location and time of application.

- **Areas Treated with Pesticides:** Areas treated with pesticides in Connecticut schools included: cafeterias, kitchens, children's lunch storage areas, locker rooms, showers, restrooms, teachers' lounges, common areas such as hallways, and storage rooms.

- **Routine Pesticide Applications in Schools:** Among all responding districts, 32% applied pesticides routinely regardless of need. 55% sprayed "as needed," and 13% did not spray last year. Among those districts reporting routine spraying (n = 16), most sprayed monthly, however one urban district sprayed twice monthly, and another urban district sprayed three times per month. The data suggest that the larger urban school districts may receive more routine pesticide applications than smaller rural and suburban districts.

- **Absence of Records:** Pesticide application records are not kept in schools and are difficult for the public to obtain. Information necessary to judge children's exposure and health risk includes: name of chemical, amount applied, location of application, method of application, presence of others during application, delay between application and human occupancy. The absence of records makes it difficult to correlate student and employee health outcomes with pesticide spraying.

- **Qualifications of Applicators:** Among those responding to our survey, 65% used professional applicators, 12% used only school personnel, and 23% used both professionals and school staff. Although professional applicators may understand the toxicity of pesticides better than untrained school personnel, they are allowed by law to use more potent "restricted use" chemicals. Also, our preliminary data suggest that when a school retained a professional pest control company, they tend to spray more often or "routinely" than districts that apply pesticides "as needed."

- **Presence of Children During Application:** Connecticut school districts are permitted by current law to apply pesticides indoors and outdoors while school is in session.

- **Federal Licensing of Pesticides is No Guarantee of Safety:** Federal registration of a pesticide in no way guarantees that it has been fully tested to determine toxic effects on the developing immune, nervous, and endocrine systems of fetuses, infants and children. Nearly 700 active ingredients and 2,500 inert ingredients are licensed for use within the United States.

Summary of Survey Data

Surveys were sent to each of 147 school districts in Connecticut, and 77 (52%) school districts responded. Of these:

- 87% sprayed pesticides indoors.
- 32% sprayed pesticides routinely, whether or not there was a pest problem.
- 13% had not sprayed in the last year.

Of the 77 school districts that responded:

- 65% used only professional pest control operators.
- 12% used only school personnel for pest control.
- 23% used both professionals and school personnel.

School districts using only professional pest control operators were more likely to spray on a routine basis. Of those using only a professional for indoor pest control:

- 92% sprayed pesticides indoors.
- 43% sprayed pesticides routinely, whether or not there was a pest problem.
- 8% had not sprayed in the last year.

Of those school districts that sprayed routinely:

- 88% used only professional pest control operators.
- 12% used both professionals and school personnel.
- None used school personnel alone.

A follow-up of 16 school districts which sprayed routinely indoors revealed that:

- 13 contracted for monthly spraying with a professional pest control operator, one sprayed quarterly, one sprayed twice a month, and one sprayed three times per month.
- Areas most commonly sprayed were the kitchen, cafeteria, bathrooms and children's locker rooms.
- Pesticides used indoors on a routine basis included the insecticides bendiocarb, chlorpyrifos, cyfluthrin, cypermethrin, hydramethylnon, lambda cyhalothrin, pyrethrin, piperonyl butoxide, tralomethrin, and the rodenticide bromadiolone.

Statistics from the Connecticut Department of Education were used to determine the student populations of the schools responding to the survey:

- 252,458 children attended schools in the responding school districts.
- 116,218, or 46%, of these children attended schools in school districts that reported routine spraying.

Seven school districts reported that the township was responsible for maintenance of the athletic fields. Of the 70 school districts that maintain their athletic fields:

- 53%, serving 135,347 children, used herbicides in the last year.
- 47% reported that no herbicides were used on their fields in the last year.

These findings indicate a relatively widespread use of multiple pesticides and indicate the need for better management of pesticide use in Connecticut schools.

Introduction

During the past decade, environmental health experts have increasingly recognized the special health threats faced by children when exposed to pesticides and other toxic substances. Children's physiological susceptibility and their particular patterns of exposure are the dominant factors contributing to heightened risk. There is broad expert acceptance of the conclusion that laws and regulations have not sufficiently protected children from pesticide-related health threats.[1] Congress recognized the vulnerability of children by passing the Food Quality Protection Act of 1996[2], following recommendations by the National Academy of Sciences in 1993 that special safety factors be adopted to ensure protection of America's infants and children from pesticide residues in food, drinking water and other environments.[3] This problem has become a top priority within the U.S. Environmental Protection Agency (EPA) which recently created the Office of Children's Health.

Although considerable federal regulatory attention has been given to food and water contamination by pesticides, little attention has been directed toward pesticide contamination of indoor environments.[4,5] Even less is known about pesticide use in schools, children's exposures and associated health threats. The amount of time children spend within the school environment (normally 6-7 hours per day, for 180 days per year) guarantees that if schools become contaminated, there is a potential for significant childhood exposure and risk.

Some school systems effectively control pests without the application of pesticides. Some have adopted "integrated pest management" (IPM), defined by EPA as "an effective and environmentally sensitive approach to pest management that relies on a combination of common sense practices."[6] These methods decrease the pests' access to necessary food and habitat, demand routine monitoring of pest problems, and always consider the potential of physical solutions (such as repairing leaks, screens, and more frequent washing or sweeping) before chemical treatments are chosen. Synthetic

pesticide applications are considered appropriate as last resorts and then only if the least toxic and least persistent chemicals are used. Even then, children's exposure to pesticide residues should be avoided.

The National Parent Teachers' Association in 1992 declared in a position statement that our nation's children are at increased risk of cancer, neurobehavioral impairment and other health problems as a result of their exposure to both the active and inert ingredients in pesticides. They advocate the elimination of health hazards caused by pesticide use in and around schools and day care centers, and the implementation of IPM practices.[7]

Very little was known or published on pesticide use in Connecticut schools districts prior to this research effort. Although the Connecticut Department of Environmental Protection (DEP) has assisted three school districts in implementing IPM, and DEP has model IPM plans available, no law requires IPM to be applied within municipal or town school districts. There is no requirement that parents, guardians, employees or children be notified prior to pesticide applications in or outside of schools. Pesticides may legally be applied while children are in school. School personnel — regardless of pesticide training — may now apply some pesticides both within and outside schools. Finally, records of pesticide applications are not easily accessible. For all of these reasons, Environment and Human Health, Inc. initiated this research effort.

Methods

A preliminary telephone survey of ten school districts revealed that the survey should be short and only request the most basic and pertinent information. The school administrators surveyed were not required to keep pesticide records. Therefore, they were not necessarily able to answer questions about the specific pesticides used.

A three-question survey was developed. The questions were:

1. Who performs your pest control? (Please check all that apply.)
   A) Professional Pest Control Company
   B) School personnel

2. Do you spray insecticides indoors:
   A) To prevent pest problems on a routine basis?
   B) Only when a problem appears?
   C) Not in the last year?

3. Do you apply herbicides on your fields:
   A) To prevent weeds on a routine basis?
   B) Only in areas where there is a problem with weeds?
   C) Not in the last year?

Optional questions asked for the name of the school district's professional pest control operator and whether there was any additional information the respondent would like to communicate.

Surveys with cover letters and self-addressed, stamped envelopes were sent to all 147 school superintendents and three archdioceses in Connecticut. The superintendents were asked to forward the survey to the appropriate school employee who oversees the pest control process for the district. After ten days, an additional survey and cover letter were sent to the school boards of the school districts which had not yet returned the survey.

Two months after the second surveys were sent, phone calls were made to school districts which had not yet returned the survey. When possible, survey forms were filled out over the phone. Student populations of the school districts were used to determine the number of students potentially exposed to pesticides through routine spraying methods.

At the same time, a second survey was performed by phone of all those who reported routine indoor spraying. When the name and number of the professional was available, they were contacted to obtain information.

Questions asked were:

1) How often is routine spraying done?
2) Which areas are routinely sprayed?
3) What chemicals are routinely used?

Results: Initial Survey

• Indoor Spraying Routines

From a total of 147 surveys mailed to the public school districts in Connecticut, 77 (52%) were completed and returned or filled out over the phone. Of these 77 school districts, 65% reported using only professional pest control operators for their indoor pest control; 12% used only school personnel and 23% used both professionals and school personnel.

Figure 1: Pest Control Routines in Connecticut School Districts

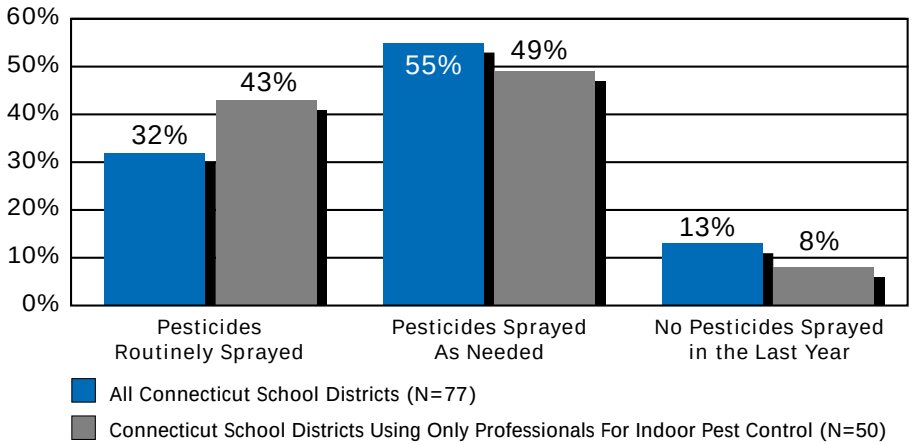
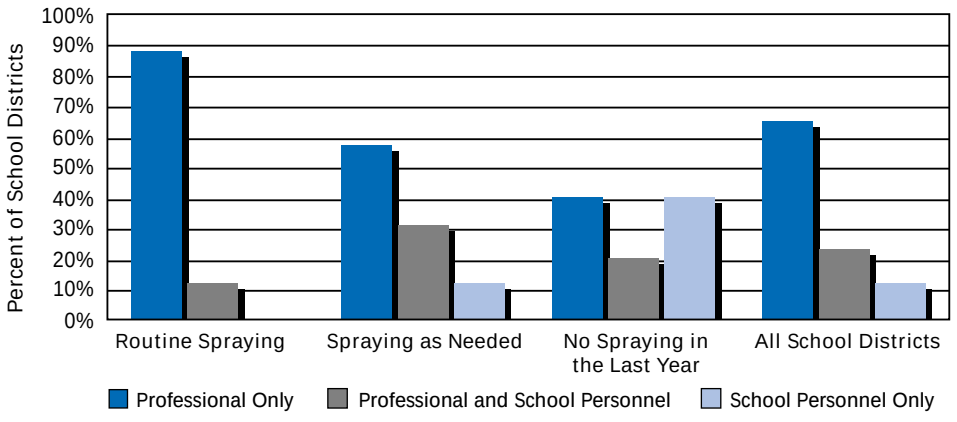


Figure 1 illustrates the difference among spraying routines between all responding school districts and those using only professionals. Of all responding school districts, 32% sprayed pesticides on a routine basis regardless of need, 55% sprayed pesticides as needed, and 13% did not spray in the last year. When only professionals were used for pest control in a school, the percentage of schools routinely spraying pesticides increased to 43%. The number of schools not spraying in the last year decreased to 8% when only professionals were used for pest problems; 49% of the school districts using only professionals sprayed as needed.

• Who Sprays Pesticides on a Routine Basis?

Routine use of pesticides, regardless of the presence of a pest problem, suggests that pesticides were sometimes sprayed unnecessarily, and non-chemical options were not being fully explored. Figure 2 shows that 88% of the routine spraying was done when the school districts relied on professionals alone, and 12% of the routine spraying was performed when both professional and school personnel were used. None of the routine spraying was performed in school districts where the school personnel were solely respon-

Figure 2: Effect of Who Performs Pest Control on the Spraying Routine in Connecticut Public Schools



sible for pest control. Spraying "as needed" was performed 57% of the time by professionals alone, 31% of the time by either professionals or school personnel and 12% of the time with school personnel alone.

No spraying was performed in the last year in 13% of the respondent school districts. Out of these 13%, 40% would use professional pest control operators when they had a problem, 40% would rely on school personnel, and 20% would use a combination of professional and school personnel.

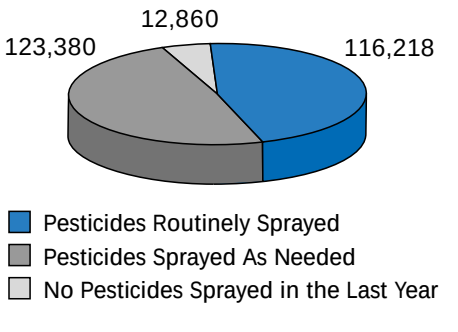
Total school district data show that 65% of school districts rely solely on professional pest control operators, while 12% rely on school personnel alone and 23% use both.

School districts that performed routine spraying whether or not a problem existed were more likely to depend on a professional pest control operator. Schools that used pesticides only on an "as needed" basis, or not at all, were more likely to have their school employees involved in their pest control procedures.

• How Many Children May Be Exposed to Pesticides?

Using information from the Connecticut Department of Education, we calculated that 252,458 children attend the 77 school districts responding to this survey. We next calculated children's attendance in school districts using the three different types of pest control methods. Figure 3 illustrates that 116,218 children attended schools within districts that reported routine spraying whether or not a pest problem existed. Another 123,380 children

Figure 3: Student Population and Pest Control Practices in Responding Connecticut School Districts

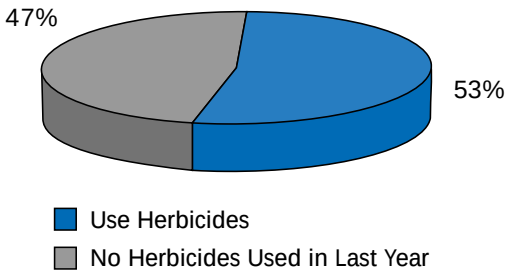


attended school districts where some pesticides had been sprayed in the last year; 12,860 children attended schools that had not been sprayed in the last year.

• Outdoor Pesticide Application Results

Of the 77 surveys returned, seven indicated that the town was responsible for maintenance of the athletic fields. The 70 districts that reported responsibility for their athletic fields are represented in Figure 4. Herbicides were used by 53% of the school districts, and 47% maintained their fields in the last year without using herbicides.

Figure 4: Connecticut School Districts Responsible for Athletic Field Maintenance (N=70)



• Other Comments

The survey included an optional question asking whether the respondents had any other comments that they would like to offer for our information. Of the 77 school districts responding to the survey, 17 noted that they were trying to reduce their use of pesticides. Of these, nine reported using an IPM program.

Follow-up Indoor Routine Spraying Information

Of the 25 school districts that routinely sprayed pesticides indoors, 16 were able to give more specific information by phone about their pesticide applications and/or the chemicals they used. These 16 school districts were asked how often pesticides were sprayed, where they were routinely sprayed regardless of a pest problem, and what pesticides were routinely used.

Thirteen school districts sprayed monthly. One reported quarterly spraying, one sprayed twice a month, and one sprayed three times per month.

Each of the 16 school districts routinely sprayed the kitchen and/or the cafeteria. Other commonly sprayed areas included locker rooms, storage rooms and restrooms. Also mentioned were showers, home economics rooms, teachers' lounges and the areas used for the children's lunch storage.

In order to gain information on what pesticides were routinely used, we contacted the school administrator who had completed the initial survey and/or the professional pest control operator by phone. Five administrators did not know what chemicals were used and were unable to assist us in gaining the information. Two refused to divulge information on specific pesticides.

Of the 16 districts that were willing to participate in the follow-up survey, nine gave the names of the pesticides they were using on a routine basis. They were: bendiocarb (Ficam, Ficam Plus), bromadiolone (Contrac), chlorpyrifos (Dursban, Empire 20), cyfluthrin (Tempo), cypermethrin (Demon), hydramethylnon (Seige), lambda cyhalothrin (Demand), pyrethrin (PT-565), piperonyl butoxide (PT-565), and tralomethrin (Saga). Of these ten pesticides:

- eight are insecticides that act as nerve toxins to the target pest;
- one is a rodenticide — bromadiolone — that acts as an anticoagulant to the target pest;
- one is a synergist — piperonyl butoxide — that acts by inhibiting the enzymes which break down the companion pesticide.

Three of the nine school districts reported using chlorpyrifos. Chlorpyrifos is a pesticide that is presently undergoing special review by the EPA due to concerns about exposures and toxicity.[8]

Discussion

Our survey demonstrates that approximately 116,000 children attended school districts in Connecticut that routinely sprayed pesticides indoors. Some of the pesticides applied have the potential to cause immediate or long term health problems. In fact, many of these children may have been exposed to pesticides through routine pesticide applications, without apparent consideration of the presence of a pest problem or consideration of the safer methods of pest control that might be available. This is 46% of all those children attending the responding 77 school districts, which suggests a broad-based health concern.

The eight insecticides used routinely in Connecticut schools have as their mode of action the ability to damage the insects' nervous systems. These insecticides can be neurotoxic to humans as well.[9] Organophosphate insecticides, including chlorpyrifos, have been given top priority for reassessment by EPA due to their potential hazards.[10,11]

The effects of any toxin on an individual depend on the toxicity of the chemical, the amount absorbed and the time period of exposure. The individual's age, previous exposures, genetics and general health at time of exposure are also important factors. Those who are young or elderly, under stress, undernourished, sick or otherwise sensitive to toxins can possibly suffer more from exposure to these chemicals.

• The Special Susceptibility of Children

Children are highly susceptible to health damage from many pesticides. Following conception, a child's susceptibility changes as organ systems grow and certain functions mature, such as the detoxification potential of the liver or the filtration potential of the kidneys. Nearly 100 pesticides studied by EPA are suspected of posing some cancer risk to humans. Children may be especially vulnerable to carcinogens during periods when their cells are reproducing most rapidly.[12]

Children may be more susceptible to loss of brain function if exposed to neurotoxins during critical periods of development. This is suggested by irradiation, drug, fetal alcohol, and lead studies.[13]

The reproductive organs of children appear to have special periods of vulnerability, both very early in life and later during puberty or menarche. Vulnerability is also associated with nutritional deficiencies, those with certain genetic disorders, those with other illnesses, those consuming medications (some pesticides are also registered as drugs), and those who experience heightened chemical sensitivity.[14,15]

• Pregnant Teachers and Other Employees

Teachers, administrators and other employees are often of childbearing age. Many pesticides cross the placenta and may pose special risks to the developing fetus. Organ systems and functions are developing most rapidly in utero, and this is an especially important time for women to avoid exposure to toxic substances. Some compounds concentrate in body fat, including breast milk, and may thus be transferred to nursing infants.[16,17]

• Sources of Human Exposure

Childhood exposure in schools commonly occurs in addition to “background” exposure from other sources. Most Americans are exposed daily to dozens of pesticide residues in the foods they consume; tens of millions of Americans are exposed to pesticides from contaminated drinking water; and many spray chemicals on their lawns, gardens, pets, and within their homes.[18]

Some studies suggest that the safe or acceptable level of human exposure to organophosphate insecticides is already exceeded from normal childhood dietary exposure alone. This means that any additional exposure to organophosphate insecticides in school or elsewhere increases the probability of health loss.[19,20,21]

• Routes of Exposure

Pesticide residues may enter the human body via three routes: inhalation, absorption through skin, and ingestion of food or water. Many pesticides are easily absorbed through all three routes. The most likely routes of exposure in schools are inhalation and dermal contact, unless the school's water supply is contaminated. If cafeterias, lockers and lunch storage shelves are sprayed, there is also a significant potential for food contamination. Children stay in school an average of 6-7 hours per day, 5 days per week, 180 days per year. The only other enclosed place young children spend more time is their home. Thus it is especially important that the school environment be free from toxic residues, including pesticides, given the high potential of dermal, inhalation, and ingestion exposure.[22,23]

• Poor Science Underlies Federal Pesticide Licenses

Although pesticides are better studied for their human health effects than other types of contaminants, federal licensing of pesticide products is no guarantee that they are safe. In December of 1998, EPA stated that pesticides now licensed for use have not been studied to determine their potential for toxic effects on children, or even developing animals.[24] The Agency especially noted that most currently licensed pesticides have not been tested to determine their potential to adversely affect the developing immune, endocrine and nervous systems; nor have they been sufficiently tested to determine their functional effects on organs such as the kidney and liver. EPA is still debating how they should best address the absence of toxicity data in these areas.[25,26,27] Congress recognized these problems when it required the application of an additional tenfold safety factor to protect fetuses, infants and children in the absence of reliable data demonstrating sufficient safety.[28,29,30] EPA, however, has not yet applied this safety factor to most of the chemicals it regulates.[31]

• Additive or Synergistic Effects

Because pesticides have been regulated individually, the health effects from being exposed to pesticide mixtures has rarely been studied by EPA or anyone else. EPA and its Scientific Advisory Panel recently concluded that organo-phosphorous pesticides should be assumed to have at least an additive effect, since they disrupt the transfer of electronic signals among nerve cells in a similar manner.[32,33] Synergists, chemicals that induce a greater than additive effect, are added to some of the pesticides applied in some Connecticut schools.

• Evidence of Absence of Risk

The absence of toxicity or exposure data does not demonstrate the absence of risk. Until the passage of the Food Quality Protection Act in 1996, the absence of reliable data was used to justify delays in federal regulation. There is sufficient evidence to justify a presumption of significant risk to children, that should be relieved only if reliable data demonstrate safety.[34]

• When is it Safe to Return to the Classroom?

The hazard to children and others from pesticides in part depends upon ventilation of the area sprayed. The spraying of pesticides in unventilated rooms poses a special danger to children, who may breathe the contaminated air for days following application. No simple and inexpensive test exists to detect all of the pesticides allowed by the federal government to be released within schools. Children are allowed to remain within or return to facilities in the absence of testing.

• Poor Record-Keeping of Pesticide Applications

Schools are not required to keep accurate records of pesticide use in schools. These records are essential to better estimate exposure within the school, and to explore whether adverse health effects may be related to these exposures. Records should be easily available for public review within each school.

• Symptoms Difficult for Physicians to Interpret

Symptoms of pesticide exposure may be similar to common viral infections, such as colds or flu. Accurate records of both pesticide applications and student illness are necessary to better understand the effects of pesticides on children's health.

• Misunderstanding of Health Threat

There is considerable misunderstanding of the health threats posed by pesticides among school administrators, applicators, local health officials, and even medical doctors. This confusion results from the large number of chemicals licensed for release into the environment, the diversity of symptoms they may cause, the poor understanding of their mode of action, and their persistence in the environment.[35]

• Exposure Without Knowledge or Consent

Children's exposure to pesticides in schools is occurring without the knowledge or consent of parents, guardians, or the children themselves. No law now demands informed consent prior to school applications.

• Prior Notification

Neither parents, children, teachers nor staff are notified before or after spraying occurs, nor are they asked for their consent. Most parents have no knowledge when their children's school has been treated with pesticides.

• The Pesticide Universe

Pesticides are intentionally toxic substances, specifically designed to injure the cells or disrupt normal growth of insects, plants or animals. Nearly 700 pesticide active ingredients and 2000 inert ingredients are registered by the Environmental Protection Agency for use in the United States.[36] In 1998,

Should chlorpyrifos be used in schools?

- In 1995, DowElanco was fined $876,000 for failing to disclose at least 215 personal injury claims due to Dursban (chlorpyrifos) exposure.[37]
- The 1997 EPA Review of Chlorpyrifos Poisoning Data reported:[38]
  - 5,189 cases of unintentional chlorpyrifos poisoning were recorded by Poison Control Centers in 1994.
  - Of 101 cases of chlorpyrifos poisoning reported to the EPA in 1995:
    - 79% were due to a residential application by a professional
    - 38 cases involved neurobehavioral symptoms
    - 59 cases reported developing multiple chemical sensitivity, in which the individual reacts to very low doses of common household chemicals.
  - Symptoms most often reported were irritability, memory impairment, inability to concentrate, confusion and depression.
- In 1997, an agreement was reached between DowElanco and the EPA in an effort to reduce exposure to chlorpyrifos. Some indoor uses were eliminated and the industry agreed to work with the EPA to prohibit use around certain areas and revise label directions.[39]

23,000 different uses of pesticides were separately regulated or "registered" by the U.S. EPA.[40] Pesticides may enter the school environment when applied to control insects, rodents, and weeds.

• EPA's Slow Pace of Regulation

Pesticides are still regulated one at a time by the Environmental protection Agency. It is common for EPA to delay regulation following new evidence of a chemical hazard for more than a decade. Most decisions to remove pesticides

from the marketplace have taken two decades. Thus a child in school today can hardly depend upon federal regulation to offer sufficient protection. During EPA's review, children and others continue to be exposed to pesticides.

What School Personnel Can Do To Reduce Pesticide Use in Schools

All districts that sprayed routinely and that responded to further questions had a contract with a professional to spray routinely in specific areas and to spray other areas as needed. Often the school administrator would not have knowledge or a record of what chemical was used.

When school personnel were involved with the pest control, it was less likely that pesticides would be sprayed. However, Connecticut currently has no requirements for training or certification of school personnel.

If school administrators are to ensure that the safest pest control measures are employed, they should take care when hiring a professional. They should seek the assistance of the Connecticut Department of Environmental Protection for model IPM contracts and check for any prior regulatory or enforcement action taken against a potential contractor. Schools should only enter into contracts which specify that certain IPM measures be taken and that pesticide application be used only as a last resort. It is essential that the school personnel are aware and active in school pest control programs. Through the vigilance of school personnel, infestations could be detected early and maintenance procedures such as caulking, fixing leaks and sanitation could be implemented before chemical methods were employed. Pesticides should be chosen from among the least toxic agents possible. As a matter of school policy, children and school personnel should be removed from an area prior to pesticide application.

What Parents and Others Can Do

• The first step to protecting children from pesticides in schools is to determine pesticide use in your school district. Are schools treated? If so, when, how often, which facilities, and by whom? What chemicals are used? What is their toxicity? Are children at school when treatment occurs?

• Find out who is responsible for pesticide application in your school district. Ask the responsible party what precautions are taken to assure children are not exposed.

• Ask for public notification before pesticides are applied to school facilities. Notification should include sufficient information to allow parents or other responsible parties to avoid exposure.

• Facilities should never be treated with pesticides while occupied by children or any other individual.

• Ask your board of education to develop a plan to reduce the use of toxic chemicals in your school system. Our children often confront other toxins in school as well, and these chemical exposures add to the total chemical loading that our children face.

• Day-care centers may also spray their facilities with pesticides. Ask the same questions posed above to their managers before leaving your children in their care.

RECOMMENDATIONS

Environment and Human Health, Inc. investigated the use of pesticides in Connecticut schools. We found that many children are exposed to pesticides at school. We recommend that the following steps be taken to reduce pesticide exposures at school.

1. **A statewide program of Integrated Pest Management (IPM) should be adopted, with the goal of reducing or eliminating children's exposure to pesticides at school. IPM educational materials and workshops with hands-on experience should be offered to school personnel, including those responsible for the maintenance of the athletic fields.**
2. **At the beginning of each school year, parents, guardians and school personnel should be notified of the school's pest control policy.**
3. **Notification of parents, guardians and school personnel should take place before pesticides are used in schools.**
4. **Only trained and certified applicators should spray pesticides in and on school grounds.**
5. **A copy of the record of each pesticide application, including date, location, name of chemical used, and the material safety data sheet, should be kept in the school nurse's office or, if there is no school nurse, in an office designated by the school principal.**
6. **Warning labels should be posted around the treated areas of the school.**
7. **Schools should not be treated with pesticides while school is in session.**
8. **Schools should never use pesticides for merely aesthetic reasons, such as on their playing fields.**

Notes

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