

Unintended Casualties

Five Children Whose Lives
Were Profoundly Affected by
Pesticide Exposures at School

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Preface

This packet contains five stories of children whose health and lives were affected in profound and permanent ways by pesticide exposures at school. In two of the cases, parents and doctors consulted by the family believe that pesticide exposure caused or contributed to the children's deaths.

This packet is intended to accompany the report, *Unthinkable Risk: How Children Are Exposed and Harmed When Pesticides are Used at School*. That report documents 98 school pesticide exposure incidents.

Michael Storey:
A Near Death Experience



First-grader Michael Storey was not the intended "pest" the day that a pest control contractor came to his Yakima, Washington elementary school to apply an insecticide around the roots of the huge old maples on the school ground in an effort to control aphids. However, Michael did end up as an unintended casualty of the application when he unknowingly touched and tasted the "sand" (actually granules of a highly toxic nerve poison) that he found in a pile under one of the trees a few days later. Shortly after returning home from school, he began experiencing blurry vision, heavy drooling, chest and throat pains, and uncontrollable vomiting. He passed out in his mother's arms, and was rushed to a hospital emergency room. Fortunately an astute physician made the right diagnosis (organophosphate pesticide poisoning) and administered the correct antidote. Michael survived, though he spent two days in intensive care "fighting for his life" and another week in the hospital following the incident.

Because of the immediate and acute symptoms, there is no doubt that Michael's harrowing experience was caused by exposure to the pesticide applied on his school ground. Luckily, he survived, but his family and doctors say they will probably never know what may be the long-term or permanent effects of this near-death experience [WSDA Case # 10-89; Pers. comm., Kathi Storey, 1990].

Emily Schultz:
Cancer Claims a Young Life



Surely no one intended to harm Indiana eighth-grader Emily Schultz on the pleasant spring day in 1994 that she returned to her junior high school classes. The day should have been a joyful occasion--the girl's first day back after grueling months of chemotherapy treatment for cancer--but it turned into an upsetting experience instead. When Emily's mother came to pick her up after school, she noticed a strong chemical odor. Much to her horror, she soon determined that an herbicide had just been applied to the school's lawn as part of the district's routine applications to kill dandelions and keep the grounds looking neatly groomed.

The weed-killer used by the school had been associated in human studies with increased risk of the type of cancer (non-Hodgkins lymphoma) that Emily had battled. Emily's mother already knew this from research she had done trying to understand what could have caused her daughter to contract this deadly disease. Emily's parents had shared their concerns about the herbicide with school administrators, and had asked them to suspend use of the chemical while Emily was attending school. They were stunned and horrified to find that the lawns had been treated again while she and other students were present. The Schultz's had thought the problem had been dealt with and that their daughter would be safe at school. Instead, they unknowingly brought her into contact with the chemical on her first day back and while she was in a weakened and vulnerable condition. Emily did not experience any noticeable illness that day, but, heartbreakingly, her lymphoma did return within the month. She died before summer's end that year.

Unlike Michael's family, Emily's parents know that neither they nor their family's doctors will ever know with certainty whether the girl's initial cancer, or her relapse, were caused by exposure to the herbicide used at the school. However, they do know that their daughter had no other known risk factors. They also know that exposing their daughter to this chemical that has been associated with non-Hodgkin's lymphoma, especially when her immune system was suppressed from chemotherapy, was a risk they would never have considered taking. They do not believe that the school should have considered taking that risk either [Pers. comm., Kathy and Jerry Schultz, 1994, 1999].

Matthew Matelko (and others):

Asthma, Stomach Aches and Bleeding Scalp



When school administrators installed automatic insecticide dispensers in classrooms, restrooms, and the cafeteria at Jurupa Hills Elementary School their intent was to control the flies that were a chronic problem due to the school's location just across the street from a chicken ranch. When these same administrators hired a pest control firm to do additional spraying on a monthly basis for other "pests" such as crickets, silverfish, ants, earwigs, spiders and roaches, undoubtedly they believed they were helping create a better learning environment for the children in their care, and it surely never crossed their minds that the "solution" they were providing might cause more harm than the "pests." But that is just what did happen.

Parents began to notice strange symptoms in their young children after they began attending the school. Five-year-old Matthew Matelko suffered rashes and blisters on parts of his body that came into contact with classroom surfaces. Matthew also developed a smoker-like cough, diarrhea, stomach pains, and shortness of breath. One fifth-grader experienced fatigue and unbearable stomach pains, and was eventually hospitalized. She missed months of school due to her illnesses. Another kindergartner began to suffer bleeding blisters on his head and hair loss when he started attending the school. Other children also experienced asthma-like symptoms. The day after a dispenser was installed in one classroom, the teacher returned to find that silkworms that she had been rearing for a class project had all died.

Pyrethrins, the active ingredient of the pesticide used in the automatic dispensers, can be readily absorbed via inhalation. Symptoms of overexposure include contact dermatitis, allergic respiratory reactions such as rhinitis (inflammation of mucous membranes in the nose) and asthma, and some irritant or sensitizing reactions. According to information from the manufacturer, symptoms of exposure to the specific product used in the dispensers include headaches, nausea, vomiting, abdominal cramps, and dermatitis.

The families' doctors were initially baffled by the children's strange symptoms. Matthew's mother was the first to suspect that pesticide exposure at the school might be the cause of her child's ill health. She contacted the county Department of Agriculture to request pesticide application records from the neighboring chicken farm, and then learned that the school itself was applying pesticides. Her request for records triggered an investigation of the school's pesticide use practices by the Department of Agriculture. Investigators did find some violations of pesticide laws (some of the pesticide dispensers in the school's cafeteria were located too close to food handling surfaces). But no air or surface swab samples were taken in classrooms or anywhere else.

Following the initial contact by the Department of Agriculture, the school principal ordered that the automatic pesticide dispensers be turned off. However, school officials continued to assure parents that pesticides were not the cause of their children's health problems. "Experts" consulted by the school district, relying on strictly theoretical calculations, wrote letters stating that any exposures the children would have received from the pesticide mists that were automatically dispensed over their heads every fifteen minutes would be far lower than a dose that could conceivably cause harm. The parents of one child were told that his bleeding scalp was likely caused by the family's shampoo.

Skeptical parents were not convinced. Several families initiated lawsuits against the school and/or the pest control company that serviced the pesticide dispensers. One case is still pending [Matelko, Janine. Pers. comm. ; Friedman, Michael. Pers. comm. Hixson, Lorena. Pers. comm. 12/99-1/00; 1995. Pesticide Episode Investigation Report. San Bernardino County Department of Agriculture, 3/28; 1998. Lethal consequences. *Inland Valley Daily Bulletin* (Ontario), 2/10; 1999. EPA Recognition and Management of Pesticide Poisonings; 1990. MSDS, Purge III Insect Killer, Waterbury Companies, Inc. (8/1)].

Chrissy Garavito *Loss of Consciousness and a Sudden Death Due to Cardiac Arrhythmia*



When a middle school in Fontana, California hired a pest control firm to apply insecticides in an effort to control flies and other insect pests at the school, surely school administrators did not believe that they could be putting children at risk of serious harm or death. When eighth-grader Chrissy Garavito started visiting the school nurse multiple times a week after experiencing headaches, nausea, and dizziness in class, the nurse was concerned enough to phone her mother, but no one suspected pesticides might be the cause of the girl's health problems. Even after Chrissy experienced multiple frightening episodes at the school where she inexplicably stopped breathing, lost consciousness, and had to be rushed to the emergency room, school officials and medical experts did not connect pesticide exposure with her condition. Doctors diagnosed her at different times as having epilepsy, hypoglycemia, and finally, "psychosomatic" illness.

Finally, just a month after completing her first year in high school, Chrissy suddenly stopped breathing and collapsed into a coma while playing baseball at a local park. She was rushed to a hospital, but this time she was not so lucky--doctors were unable to revive her and she never regained consciousness. She died six days later, after being taken off life support.

Electrocardiogram (EKG) tests taken during the week she was on life support showed that Chrissy was experiencing an unusual and very serious disturbance in her heart rhythm. It was also during this week that Chrissy's mother, Janine, first learned that an EKG taken after one of her daughter's earlier episodes at the middle school had also shown the same abnormal heart rhythm. These EKG results now led doctors to speculate that Chrissy might have had a previously undiagnosed genetic 'syndrome' known to put certain people at heightened risk for the heart rhythm disturbance.

Things might have been left at that, except that Chrissy's mother was not content with these vague answers. Wanting to find an explanation for why her athletic young daughter would suddenly collapse and die, she ordered

extensive genetic testing on her daughter's body tissues. The results failed to identify any known genetic factors that might have predisposed the girl to the heart rhythm abnormality.

Continuing her search of the medical literature and consulting with experts, Janine learned that the heart rhythm disturbance that killed her daughter can also be triggered by exposure to some specific classes of chemicals, and that these chemicals include certain medications, as well as certain nerve-poisoning insecticides.

Doctors ruled out exposure to medications as a cause of Chrissy's problem. Janine then requested the pesticide application records from her daughter's middle school and from other local agencies, and learned that the herbicide Roundup, and several nerve-poisoning insecticides, including diazinon, chlorpyrifos, cyfluthrin, and cypermethrin were used regularly at the school during the time that the girl had experienced seizures and other illness symptoms. Insecticides were also regularly sprayed in the community by the County Vector Control agency, and various herbicides and other pesticides were used regularly in the park, including on the baseball field where the girl died.

Several major classes of insecticides, including organophosphates and synthetic pyrethroids, kill insects by disrupting their nervous systems. While these chemicals do not all act by exactly the same mechanism, they all disrupt electrical signals in a way that has the potential to cause heart rhythm abnormalities. Perhaps more surprisingly, exposure to some commonly-used herbicides, including those used in the park, can also cause rapid heartbeat, heart palpitations, disruption of electrical signals in the nervous system, or other adverse neurological (nerve-poisoning) effects in humans.

Though initially sceptical, a cardiologist (and director of electrophysiology) at Loma Linda Medical Center consulted by the family now believes that exposure to nerve-poisoning pesticides is the only likely explanation for what could have triggered the heart arrhythmia episodes that eventually killed Chrissy Garavito. The school district has signed a legal settlement with the family, and a lawsuit is still pending against the city and county [Matelko, Janine. Pers. comm. 12/99, 1/00; Platt, Dr. Mark (Loma Linda Medical Center). Pers. comm. 12/99, 1/00; 1996 and 1997. Pesticide use records from Southridge Middle School and Fontana's Village Park. San Bernardino Department of Agriculture; 1998. Pesticides. *Inland Valley Daily Bulletin* (Ontario), 2/9].

Michael Eash *Chronic "Flu" and Chemical Sensitivity*



When school officials at Montgomery Elementary School hired a contractor to make regular pesticide applications in the cafeteria (and elsewhere) to control ants, undoubtedly they believed they were acting to protect the health of the children and staff at the school. However, the evidence suggests that the pesticides themselves were responsible for triggering chronic "flu-like" symptoms in many children, and chemical sensitivity in one boy.

According to his pediatrician, Michael Eash was a healthy child until he began attending first grade at the school in 1992. There, he missed 30 days of school due to "flu-like" symptoms. After starting second grade in the fall of 1993, the boy continued to experience low grade fevers, intermittent bouts of diarrhea, and daily headaches and nausea. His mother, Connie, noticed that his symptoms increased over the week, but cleared up over the weekend, and that his headaches and nausea seemed to occur when he was in the school cafeteria or after lunch. She began to pick him up and take him out for lunch each day.

By late October, Connie was in constant contact with the school, and with her family's doctor, trying to determine what was making her son so sick. Among other things, she learned that the school was making regular applications of the organophosphate pesticide Dursban (chlorpyrifos) in the kitchen, cafeteria, and teacher's lounge in an effort to control ants. Pesticide "spot treatments" were also occasionally made to other areas of the school, though the district and the pest control firm said that no treatments had been made to classrooms that year.

Still believing that her son might be experiencing recurring bouts of flu, Connie made an appointment for him to get a flu shot in the first week of November. Meantime, at a conference with her son's teacher in early November, she learned that the teacher and at least eleven other students in his class were also experiencing frequent headaches, stomach aches, and low grade fevers, and that one girl suffering from the symptoms had a grand mal seizure.

When she arrived at school to pick up her son for his doctor's appointment a week later, Connie noticed that the classroom has a strong odor. Not only that, but Michael was again at the nurse's office, complaining of headache and nausea, and with a low-grade fever. Two other mothers who went to the classroom that afternoon also noted the odor, and reported feeling ill after being in the room. After looking at Michael later that afternoon, his doctor suggested that Connie contact state and federal agencies and have the school tested for environmental contaminants.

The next day, she did contact numerous federal, state, and local agencies. She also contacted other parents, who returned with her to the school and again noticed the odor in the classroom. Also, after doing her own research on the subject of pesticides, Connie learned that a blood cholinesterase test is the diagnostic tool for organophosphate pesticide exposure. She requested that this test be done on her son, and it was done in mid-November. The results showed abnormally low levels of cholinesterase, indicating a recent exposure to organophosphate insecticides.

Michael's mother took him out of school and began home schooling him. His cholinesterase levels were checked again two weeks later, and at five weeks. The levels were significantly increased at two weeks after leaving school, and had returned to a normal level at 5 weeks. He remained symptom-free while he was out of school.

Both Michael's mother and his doctor believe that pesticide exposure at school caused his constant "flu-like" symptoms. His doctor also wrote a letter stating that he believes the boy is now chemically-sensitive, and will develop headaches, nausea, and other symptoms whenever he is re-exposed to even small amounts of pesticides or similar compounds [1994. Law targets school pesticide use. *The Morning Call* (Allentown, PA), 1/26; Letter from Dr. Jeffrey Fogel, MD, 8/7/95; 1993. Indoor Air Quality Report for Montgomery Elementary School. Montgomery County Health Dept., 11/15; Eash, Connie. Pers. comm. 12/15/99 and 1/16/00; Uram, Joe (Pennsylvania Dept. of Agriculture); Pers. comm. 12/8/99; Riecke, Bob (US EPA). Pers. comm. 1/20/00; Scott, Marilyn (Oregon Health Division). Pers. comm. 1/18/00].