

PESTICIDES IN SCHOOLS & CHILDCARES: WHAT ARE THE HEALTH RISKS?

A FACTSHEET FROM SAFER PEST CONTROL PROJECT



The Problem

Pesticides are chemicals, designed to kill, control, or repel pests. Pesticides can also be harmful to humans, especially children. They are often used in school and childcare buildings and on playing fields. Illinois laws require public schools and licensed childcare facilities to use Integrated Pest Management (IPM) – a safer method of pest control – and to notify parents and staff prior to pesticide applications inside school buildings. Schools must also notify parents of outdoor applications of pesticides.

Health Effects

Pesticide exposure can occur when chemicals are released into the air children breathe or when applied to the surfaces they touch. Spraying, bombing or fogging are of particular concern.

Pesticide exposure has been linked to a number of chronic health problems that include cancer, birth defects, endocrine disruption, asthma, neurological disorders, and immune system deficiencies. Acute symptoms such as nausea, headaches and asthma attacks can occur in the short term when children and adults are exposed to pesticides.

Cancer Research

There is an extensive body of evidence linking pesticides and cancer – particularly leukemia, brain cancer and soft tissue sarcomas.

- › Household and garden pesticide use can increase the risk of childhood leukemia as much as seven-fold.^{1,2}
- › Risk of childhood brain cancer increased two- to four-fold in families that used no-pest-strips, pesticide bombs, garden pesticides, flea collars and certain head lice pesticides.³
- › Children receive 50% of the lifetime cancer risk in the first two years of life.⁴

Asthma Triggers

Multiple studies recognize cockroaches and their byproducts as allergens⁵⁻⁹ and have linked asthma to allergens associated with cockroaches.¹⁰⁻¹⁴ Unfortunately, many people believe that the solution is to increase pesticide use in order to reduce roach populations. However, pesticides themselves can exacerbate asthma. Children have a greater risk of developing asthma by age five after pesticide exposure within the first year of life.¹⁵

Targeting Children

In 1993, the National Research Council published a report documenting that infants and children face higher risks from exposure to pesticides than adults exposed at the same level. Children have faster metabolisms, their organs are in the process of rapid development and their bodies retain some toxins for longer periods of time than adults. Children also spend much of their time in childcare facilities, school or on the playground, three areas where pesticides are commonly used. In addition, children's behavior, including crawling and frequent hand-to-mouth activity, exposes them to much higher levels of pesticides than adults.

Does Environmental Protection Agency (EPA) Pesticide Registration Equal Safety?

No EPA-approved pesticide is 100% safe. For this reason, the EPA regulates pesticides to ensure that their use does not pose unreasonable risks to human health or the environment. However, many of the pesticides currently registered have not been adequately studied. In addition, EPA risk assessment doesn't analyze the impact of inert ingredients, some of which can be more hazardous than the pesticides themselves.

The Solution: Integrated Pest Management

Integrated Pest Management (IPM) is an effective, economical method of pest control that eliminates the root cause of pest problems using a variety of non-toxic measures, such as improved maintenance and sanitation, which minimize pests' access to food, water, and hiding places. Existing pest problems are handled in the least hazardous way in order to minimize pesticide use, toxicity, and risk of exposure. Integrated Pest Management has been endorsed by the U.S. EPA, Illinois Department of Public Health and the National Parent Teacher Association. For further information on how to start an IPM program in your school or childcare facility, contact Safer Pest Control Project at (312) 641-5575.

IPM is required by law in public schools and licensed childcare facilities and is strongly recommended anywhere children gather. How does your school or childcare facility manage pests?



- 1 Lowengart, R. et al. 1987 Childhood Leukemia and Parent's Occupational and Home Exposures. *Journal of the National Cancer Institute* 79:39.
- 2 Ma, Xiaomei, Patricia A. Vuffler, Robert B. Gunier, Gary Dahl, Martyn T. Smith, Kyndaron Reinier, and Peggy Reynolds. 2002. Critical Windows of Exposure to Household Pesticides and Risk of Childhood Leukemia. *Environmental Health Perspectives* vol. 110, no. 9: 955-960.
- 3 Davis, J.R., et al. 1993. Family pesticide use and childhood brain cancer. *Archives of Environmental Contamination and Toxicology* 24 (February): 87-92.
- 4 US EPA. 2003. Draft Final Guidelines for Carcinogenic Risk Assessment. Washington DC.
- 5 Bernton, H.S., and H. Brown. 1964. Insect allergy preliminary studies of the cockroach. *Journal of Allergy*. 35:506-513.
- 6 Lehrer, S.B., W.E. Horner, P. Menon, and R.S. Stankus. 1991. Comparison of cockroach allergenic activity in whole body and fecal extracts. *Journal of Allergy and Clinical Immunology*. 87:574-580.
- 7 Pope, A.M., R. Patterson, and H. Burge, 1993. Indoor Allergens: Assessing and Controlling Adverse Health Affects. (National Academy Press) 308 p.
- 8 Richman, P.G., H.A. Khan, P.C. Turkeltaub, F.J. Malveaux, and H. Baer. 1984. The important sources of German cockroach allergens as determined by RAST analyses. *Journal of Allergy and Clinical Immunology*. 73: 590-595
- 9 Bernton, H. S., T. F. Memahon, and H. Brown. 1972. Cockroach asthma. *British Journal of Diseases of the Chest*. 66:61-66
- 10 Call, R. S., T. F. Smith, E. Morris, M. D. Chapman, and T. A. E. Platts-Mills. 1992. Risk factors for asthma in inner-city children. *Journal of Pediatrics*. 121:826-866
- 11 Garcia, D. P., M. L. Corbett, J. L. Sublett, S. J. Pollard, J. F. Meiners, J. M. Karibo, H. L. Pence, and J. M. Petrosko. 1994. Cockroach allergy in Kentucky: a comparison of inner city, suburban, and rural small town populations. *Annals of Allergy*. 72:203-208
- 12 Kang, B. 1976. Study on cockroach antigen as probably causative agent in bronchial asthma. *Journal of Allergy and Clinical Immunology*. 58:357-365
- 13 Kang, B., D. Vellody, H. Homburger, and J. W. Yunginger. 1979. Cockroach cause of allergic asthma: its specificity and immunological profile. *Journal of Allergy and Clinical Immunology*. 63:80- 86
- 14 Gordon, T.: Amdur, Mo.O. Responses of the Respiratory System to Toxic Agents. In *Casarett and Doull's Toxicology: The Basic Science of Poisons*, 4th ed.; Amdur, M.O., Doull, J., Klaassen, C.D., Eds.; Pergamon Press, Inc.: New York, 1991; pp 383-406
- 15 Salam, Muhammed Towhid, Yu-Fen Li, Bryan Langholz and Frank David Gilliland. 2004. Early-Life Environmental Risk Factors for Asthma: Findings from the Children's Health Study. *Environmental Health Perspectives* 6:760-765

Safer Pest Control Project is dedicated to reducing the health risks and environmental impacts of pesticides and promoting safer alternatives in Illinois.

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