Evidence Links Chronic Illnesses and Pesticide Exposure

Linking chronic diseases with exposure to specific pesticides is a complex endeavor, as very low-level exposures can result in effects long after the initial exposure occurs. In some cases, it is pesticide exposure among parents that results in health effects in their children. Still, for some health effects there is more than a suggestive correlation. Examples of diseases where studies indicate a strong linkage between pesticide exposure and illness include:1

- **Childhood Cancers** Pesticides are a risk factor for several types of cancer in children.2 Home extermination increases the risk of non-Hodgkin lymphoma, leukemia, and Wilm’s tumor.4 Living on a farm increases the risk of bone cancer and leukemia,5 and having parents who are farmers or farmworkers increases a child’s risk of bone cancer, brain cancer, soft tissue sarcoma, and Wilm’s tumor.6

Use of pesticides in the home can increase risk of childhood leukemia by as much as 11 times and brain cancer by as much as ten times.3

- **Breast Cancer** Evidence on the links between pesticide exposure and breast cancer is mixed, with many studies showing no correlation and others showing strong linkages. Recent research in Colombia, for example, showed an association between levels of DDE in the blood and risk for breast cancer, and dieldrin exposure has also been linked with significantly elevated breast cancer risk.7

A 2001 study of the combined effect of four organochlorine pesticides found that the mixture of these estrogenic chemicals enhanced the spread of breast cancer cells.8

- **Lymphoma** The Lymphoma Foundation of America recently compiled dozens of studies documenting increased risk of lymphoma from pesticide exposure.9 Increased risk of developing non-Hodgkin lymphoma was found among people exposed to lindane, DDT, organophosphorus insecticides and various herbicides including 2,4-D.10

- **Other Cancers** Living in an agricultural area where pesticides are used increases the risk of several types of cancer in adults, including, among others, leukemia, brain cancer, ovarian cancer, pancreatic cancer and stomach cancer.11 A growing body of evidence links pesticide exposure to cancer specifically among farmworkers and farmers.12 Multiple studies have shown that farmers are more likely to develop leukemia, brain, prostate, and skin cancer and non-Hodgkin’s lymphoma than the general population.13

- **Parkinson’s Disease** Strong evidence links Parkinson’s disease to pesticide exposure. Most studies are of people exposed through their work, especially to herbicides.14 There is also evidence of increased risk of Parkinson’s from exposure to pesticides in the home,15 living in a rural area,16 and using well water.17 Parkinson’s has also been linked to elevated levels of organochlorine pesticides in brain tissue.18

- **Low Birth Weight** A strong relationship has been found between prematurely delivered and low birth weight babies and mothers’ blood levels of DDE, the metabolic breakdown product of DDT.19 Similar links between low birth weights and several other pesticides have been documented, including increased birth weights in New York City following the ban of residential uses of the pesticides chlorpyrifos and diazinon.20

Children born to women who live in a high pesticide use area while pregnant have an increased risk of various birth defects.21

- **Birth Defects** Children born to women who live in a high pesticide use area while pregnant have an increased risk of various birth defects, including cleft lip/palate, limb reduction defects and neural tube defects (e.g., spina bifida and anencephaly).21 If the mother is not exposed to pesticides but the father works in agriculture, a child runs a higher risk of being born with hypospadias (undescended testicles), cleft lip/palate and other birth defects.22

- **Declining Sperm Counts** A 1992 study documented a 40% decline in sperm count worldwide over the second half of the 20th century. While there is no widely agreed explanation for these global declines, some studies have linked pesticide exposure with decreased sperm quality, and linked higher sperm density with lower pesticide exposures.23 Hormone disruption is considered a possible contributor to lower sperm counts, and dozens of pesticides are known or suspected hormone disruptors. The list includes widely used carbamates such as aldicarb and carbaryl, common organophosphorus pesticides (e.g., malathion and chlorpyrifos), and persistent chlorinated pesticides such as endosulfan, lindane and DDT.24

From Chemical Trespass, published by Pesticide Action Network North America (PANNA). For a full copy of the report go to www.panna.org.
Evidence Links Chronic Illnesses and Pesticide Exposure

Notes

1. In developing these bullets we relied heavily on the work of Dr. Marion Moses and the more detailed summary of health effects she developed for S. Kegley, A. Katten and M. Moses, Secondhand Pesticides: Airborne Pesticide Drift in California, Pesticide Action Network North America, California Rural Legal Assistance Foundation and Pesticide Education Center, 2003 (San Francisco CA). See also:
   a) http://www.pesticides.org/educmaterials.html


Evidence Links Chronic Illnesses and Pesticide Exposure

5: 941–42.


