

## **2. Why prohibit pesticides in areas where children play?**

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### **1. Pesticides can cause special problems for children from direct exposure, during fetal development, and through breast milk**

#### **a. children**

Children are both more exposed and more susceptible to pesticides than adults. (21) For their size children consume more food and drink than adults, and both of those can be contaminated by pesticides. (21) They play in ways that increase their potential exposure. As well, their growing and developing bodies can be particularly sensitive. (1)

The North West Coalition for Alternatives to Pesticides published a report on the some of the 2,300 school pesticide exposures reported to U.S. Poison Control Centers from 1993 to 1996. No mandatory reporting of pesticide poisonings in most of the U.S. states, lack of notification of use, and many other reasons make the reported cases the tip of the iceberg only. Many illnesses resulted from registered pesticide products applied according to label direction, indoors or out, many for cosmetic reasons. Many people got sick up to several days after application. (19)

Pesticides can cause short-term illnesses in children, but also more lasting problems. Many authoritative review reports such as those by the US EPA (5, 18), Physicians for Social Responsibility (6), the Ontario College of Family Physicians (2), and review books such as "Having Faith" by Sandra Steingraber (14) conclude that many acute and chronic conditions are linked to pesticide exposure, several affecting children. Elizabeth Guillette has been following the four and five year old Mexican children with severe neuro-cognitive deficits from pesticide exposure she studied in Mexico. (30) The neuro-cognitive deficits identified have persisted. In addition, as they grew older, the girls developed breasts 2 to 3 years earlier than the less exposed controls. These breast tissues were abnormal. For one out of three girls, they contain mostly fatty tissue, with no to very small glands (to produce milk). (27)

#### **b. fetuses**

As expectant or nursing mothers often frequent playgrounds with their other child(ren), the effects of pesticides on fetuses are important.

Fetuses are especially sensitive to pesticides and other toxins as they are in full development. Scientists now know that the effect of a toxin on a fetus depends on much more than the dose. Genetics, timing, pattern (chronicity, frequency) and duration of the dose will also have an effect. (20) Low dose exposure to environmental chemicals - parts per billion or even trillion - during a critical

window of development can cause permanent damage to organs and systems. (6, 8)

Birth defects are still astoundingly common in the U.S. at 3-4 % of American infants, with several thousands dying from major deformities every year. (13) Many birth defects have been linked to pesticide exposure during pregnancy. (8, 14) Developmental delays (15, 18), hyperactivity (15), behavioral disorders (15, 18), motor dysfunction (15, 18), nervous system disruption (1, quoting 16, 18) and learning disabilities (11, 15, 18) add to the toll pesticides take on human health.

### **C. Breast milk**

Many pesticides, like hundreds of other toxins, concentrate in breast milk, contaminating the ultimate healthy food for babies. (7-8) Each nursing mother is passing persistent organic pollutants (POP) such as DDT, its metabolite DDE and dioxins to her child through her breast milk. There are no uncontaminated mothers. "Indeed, prevailing levels of chemical contaminants in human milk often exceed legally allowable limits in commercial foodstuff."(8, quoting 27)

Biologist Sandra Steingraber extensively researched this issue. She briefed the United Nations on breast milk contamination, and feels that we should redo the food chain pyramid to put babies on top, as many toxins are found at higher concentration in breast milk than in the mother's tissues. (8) It has also been shown that organochlorines nursing babies drink in breast milk are not excreted. (8, p.263)

## **2. The evidence of pesticides causing harm to humans is constantly mounting, at very low levels of pesticide exposure (2, 3, 6, 9, 10, 25)**

Dramatic increases in the use of pesticides and other chemicals since the 1950s directly parallel the increased incidence of diseases associated with environmental contamination. There is tremendous amount of research showing that pesticides are hazardous to human health. Pesticide labels and Material Safety Data Sheets (MSDS) indicate acute effects, but do not mention long-term or chronic health effects.

Many of the pesticides we carry in our bodies can cause cancer (2, 8, 11, 18), neurological (11, 25), respiratory (11), skin (11) and reproductive effects, (2, 3, 8,11), disrupt our hormone systems (3), decrease fertility (12), lower birth weight (9), cause birth defects (5, 8, 10, 11, 18) or weaken our immune systems (1, quoting 13, 6). A recent study showed that early early-onset persistent asthma was 4.58 and 2.39 times more common respectively when a child was exposed to herbicides and pesticides. (23) These are just some of the known detrimental effects of particular pesticides at very low levels of exposure. (3, 7, 8, 11)

### **3. Evidence of widespread contamination of children's body tissues by pesticides is mounting (4)**

The 2003 Center for Disease Control (CDC) human exposure study showed that all Americans tested had on average 13 of the 23 pesticides tested for, and that levels in children were higher than in adults. (4) A recent Quebec study shows that over 98 % of children tested were carrying the few tested pesticides in their bodies. (4a). A Saskatchewan study showed that 21.7 % of men, women and children between the ages of 12 and 15 showed detectable levels of herbicides 4-5 months after the last agricultural application (4b). In many cases, pesticide exposure levels indicated by CDC's body burden data (4) were well above officially permitted thresholds established by government health and environmental agencies. (7)

### **4. Children's health is consistently deteriorating in North America and some pesticides have been linked to those negative health effects**

Since there has been specific monitoring for many child health problems, a tremendous increase of many problems has been noted. Asthma and cancer rates are increasing (5, 18) and "nearly 17 % children in the U.S. under the age of 18 suffer from one or more learning, developmental, or behavioral disabilities."(6)

Although the evidence is suggestive of a link, it is not always conclusive because it is very difficult to develop conclusive evidence that a particular environmental contaminant causes or contributes to the incidence of a particular health effect. (18) However, the evidence is strong enough to warrant careful consideration and to suggest preventative steps that can decrease risks (8b) of pesticide use, such as the reduction and education steps the Saskatchewan government is asked to include in their Strategy for a Green and Prosperous Economy.

Many authoritative Canadian health organizations are now convinced that the weight of current scientific evidence linking pesticides with health problems warrants an aggressive government policy of reduction in pesticide use, accompanied by a switch to pesticide alternatives. Among those, we find the Canadian Cancer Society, the Canadian Institute of Child Health (CICH), the Canadian Public Health Association (CPHA), the Ontario Public Health Association the Registered Nurses Association of Ontario, and the Ontario College of Family Physicians. In Saskatchewan, the Saskatchewan Association or Health Organizations has also taken that position. (28) Internationally, it is also recommended by the Food and Agriculture Organization (FAO), UN Environment Programme (UNEP) and World Health Organization (WHO) in a recent report. (28, at the end)

## **Conclusion**

The increase in children's health problems is costing more and more every year. Several of these health problems have been linked to pesticide exposure. Over 98 % of Quebec children tested carried pesticides in their bodies.

Eliminating cosmetic use of pesticides is an action recommended by many recognized Canadian and Saskatchewan groups and individuals. Steps to protect children from pesticide exposures, such as eliminating cosmetic pesticide use on playgrounds and in school yards and similar areas are modest, low cost, and imperative steps toward a healthier population.

## **References**

1. C. Cox, "Ten Reasons Not to Use Pesticides," *Journal of Pesticide Reform*, 21 (Winter 2001), reason # 3.
2. Ontario College of Family Physicians, "Pesticide Literature Review", April 2004, [www.ocfp.on.ca](http://www.ocfp.on.ca) ;
3. "Our Stolen Future" (<http://www.ourstolenfuture.org/>) for regular update on recent studies documenting endocrine and low dose effects (direct links to research abstracts);
4. United States Center for Disease Control, "Second National Report on Human Exposure to Environmental Chemicals"; 2003;
- 4a O. Samuel and M. Valcke, "Study on Body Contamination of Children in Quebec," presented at the "*Pesticides in Our Bodies: A Toxic Legacy*," October 18th, 2004;
- 4b K. M. Semchuk et al.; 1998; "Detection of Selected Herbicides in Human Blood Plasma Specimens from Saskatchewan Farm Families and Others in Rural Prairie Residents," presented at the "*Fourth International Symposium on Rural Health and Safety in a Changing World*" in Saskatoon
5. U.S. EPA; "America's Children and the Environment"; December 2000; EPA # 240-R-00-006 ; [http://yosemite.epa.gov/ochp/ochpweb.nsf/content/ACE-Report.htm/\\$file/ACE-Report.pdf](http://yosemite.epa.gov/ochp/ochpweb.nsf/content/ACE-Report.htm/$file/ACE-Report.pdf)
6. "In Harm's Way"; Greater Boston Physicians for Social Responsibility <http://psr.igc.org/ihw-project.htm> , with a link to the leading scientists who endorsed it.
7. PANNA; "Chemical Trespass"; May 2004; [http://www.panna.org/campaigns/docsTrespass/ChemTresMain\(screen\).pdf](http://www.panna.org/campaigns/docsTrespass/ChemTresMain(screen).pdf);
8. a. <http://www.pesticides.org/educmaterials.html> and b. <http://www.protectingourhealth.org/> for more information on linkages between pesticide exposure and specific health effects;
9. R. M. Whyatt, et al; "Prenatal insecticide exposures, birth weight and length among an urban minority cohort"; doi:10.1289/ehp.6641 (available at <http://dx.doi.org/>) online 22 March 2004
10. G.M. Shaw, C.R. Wasserman, C.D. O'Malley, et al., "Maternal pesticide exposure from multiple sources and selected congenital anomalies", *Epidemiology*, 1999, 10(1): 60–66.

11. G. Solomon, O. Ogunseitan, and J. Kirsch, "Pesticides and Human Health", Physicians for Social Responsibility and Californians for Pesticide Reform (San Francisco, CA) 2000, see <http://www.psrla.org/pesthealthmain.htm>.
12. H. Swan et al; Sept 2003; "Semen Quality in Relation to Biomarkers of Pesticide Exposure"; *Environmental Health Perspectives*; Volume 111, Number 12  
<http://ehp.niehs.nih.gov/docs/montharch.html>
13. Voccia, I et al. 1999. "Immunotoxicity and pesticides: a review". *Toxicol Ind Hlth*. 15: 119-32.
14. S. Steingraber; 2003; "Having Faith"; her web site is <http://www.steingraber.com/>
15. E.A. Guillette, et al. 1998. « An anthropological approach to the evaluation of preschool children exposed to pesticides in Mexico". *Environ Health Perspect*. 106: 347-53.
16. D. Ecobichon D. 1994. "Organophosphorus ester insecticides". In: *Pesticides and Neurological Diseases*; (Ecobichon DJ, Joy RM, eds). CRC Press, Boca Raton, FL; pp 71-250
17. M. Moses M.D.; "Cancer in Children and Pesticide Exposure Summary of Selected Studies"; Updated September, 2002; Pesticide Education Center
18. EPA; "America's Children and the Environment *Measures of Contaminants, Body Burdens, and Illnesses*"; second ed; Feb. 2003; 240-R-03-001  
[http://www.epa.gov/envirohealth/children/ace\\_2003.pdf](http://www.epa.gov/envirohealth/children/ace_2003.pdf)
19. Northwest Coalition for Alternatives to Pesticides; "Unthinkable Risk How Children Are Exposed and Harmed When Pesticides Are Used at School"; April 2000
20. J.P. Myers, Ph.D.; "Does "the dose make the poison?";  
<http://www.protectingourhealth.org/corethemes/lowdose/doseresponse.htm>
21. National Research Council, National Academy of Sciences, "Pesticides in the Diets of Infants and Children", National Academy Press, Washington, DC, 1993: 184-185.
22. US EPA, Office of the Administrator, "Environmental Health Threats to Children", EPA 175-F-96-001, September 1996.
23. M.T. Salam et al; "Early-Life Environment Risk Factors for Asthma: Findings from the Children's Health Study"; May 2004; EHP 112 #6
24. "Pesticides in the Diets of Infants and Children", National Academy Press, Washington, DC, 1993: 184-185.
25. Mona Thiruchelvam, et al; "The Nigrostriatal Dopaminergic System as a Preferential Target of Repeated Exposures to Combined Paraquat and Maneb: Implications for Parkinson's Disease"; *The Journal of Neuroscience*, 20(24):9207-9214 15dec00 ( low dose mixture)
26. T. Schettler et al; "Generations at Risk: Reproductive Health and the Environment"; Cambridge MIT Press. 1999, p 205
27. E.A. Guillette; notes from her talk in Regina, May 2003
28. The following **Canadian Associations** have asked for a phase-out of pesticides used for cosmetic purposes in urban areas:  
World Wildlife Fund (Canada),  
Sierra Club of Canada,  
Toronto Environmental Alliance,

Pesticide Free Ontario

The Coalition for Alternatives to Pesticides (CAP), Quebec

David Suzuki Foundation

[http://www.davidsuzuki.org/WOL/Challenge/Newsletter/april2004\\_pesticides/](http://www.davidsuzuki.org/WOL/Challenge/Newsletter/april2004_pesticides/)

Sustainability Within a Generation: a new vision for Canada -- chapter six, Producing Healthy Food, outlines pesticide use etc. in Canada:

<http://www.davidsuzuki.org/WOL/Sustainability/>

Green Communities Association <http://www.gca.ca/indexcms/index.php?pfn>

Canadian Association of Physicians for the Environment (CAPE),

Canadian Coalition for Health and Environment (CCHE)

Ontario College of Family Physicians (April 2004 report)

Canadian Cancer Society

Canadian Institute of Child Health (CICH)

Canadian Public Health Association (CPHA)

the Ontario Public Health Association,

Canadian Environmental Law Association,

Registered Nurses Association of Ontario, (Partnership for Pesticide Bylaws, Ontario)

Association of Early Childhood Educators - Ontario, (Partnership for Pesticide Bylaws, Ontario)

Breast Cancer Prevention Coalition, (Partnership for Pesticide Bylaws, Ontario)

Women's Healthy Environments Network, (Partnership for Pesticide Bylaws, Ontario)

unions and churches

- The Catholic Women's League of Canada -Resolution - 97.05

- Great Lakes United (Partnership for Pesticide Bylaws, Ontario)

- Canadian Union of Postal Workers (Partnership for Pesticide Bylaws, Ontario)

- United Steel Workers of America (Partnership for Pesticide Bylaws, Ontario)

- Local 5 of the Canadian Union of Public Employees asked Hamilton and Hamilton-Wentworth city councils to ban cosmetic use of pesticides

The Canadian Medical Association (CMA) adopted a resolution on Monday, August 16, 2004, calling for the **ban of combined fertilizer and pesticide products**, ("Weed and Feed") so to ensure that each be sold separately to consumers. Products that combine a fertilizer with pesticides contribute to the unnecessary use of pesticides with the result that the toxic chemical compounds inherent in these pesticides can be harmful to human beings, animals, and fish. (Beyond Pesticides, <http://www.beyondpesticides.org/> , daily news stories, August 20, 2004)

In Saskatchewan, the following organizations, MDs and scientists requested a cosmetic pesticide bylaw at the Regina city hearings and/or as letters to the school boards:

- Regina Urban Environment Advisory Council (RUEAC) (presented by Roger Petry and Curt Shroeder) (city bylaw)

- Saskatchewan Lung Association (city bylaw)

- Saskatchewan Environmental Society (SES) (city bylaw)

- Dr James Gomes MSc, PhD, formerly of the Institute of Agricultural, Rural and Environmental Health, U of S, and U of R. Asst. Professor and Director, Environmental Health and Science Program at SIFC, U. of Regina. (city bylaw)

- Elizabeth A. Guillette, Ph.D. Assistant Scientist, Department of Anthropology PO Box 117305, University of Florida, Gainesville, FL. (city bylaw)

- Dr. Delores Logan, Medical Coordinator, **Regina Community Clinic**, (letter to the Regina Public School Board),

- **The University of Saskatchewan, Academic Family Medicine, Regina Division**, (letter to the Regina Public School Board),

- Dr. Maurice Hennick, Deputy Medical Health Officer, **Regina Health District** that states, "... I have forwarded to you the position statement of the Canadian Institute of Child Health, which we, from a public health stance, would support. In the same way Public Health has also indicated that we support the views expressed by the Canadian Public Health Association."

Scientists:

- Tanya Dahms, U of R chemistry professor,  
“In summary, I think that I have made a strong enough case for you **to completely disregard the presentation made to the committee by Dr. Solomon (University of Guelph)**... I would like to see a pesticide bylaw phased in over several years.” City of Regina Parks and Recreation Committee hearings, Dec 12, 2002)
- Renata Bailey, U of R chemistry professor (City of Regina Parks and Recreation Committee hearings, Dec 12, 2002)
- Fiona Goorman, representing the Biology Undergraduate and Graduate Society, U of R (City of Regina Parks and Recreation Committee hearings)

### **International**

**United Nations:** October 5, 2004: “Childhood Pesticide Poisoning: Information for Advocacy and Action” has been published by the Food and Agriculture Organization (FAO), UN Environment Programme (UNEP) and World Health Organization (WHO).

<http://www.who.int/ceh/publications/en/pestipoison.pdf> (does not go directly - search the title on google) It confirms that pesticide poisoning is a serious health problem that disproportionately affects infants and children. *“An estimated 1 million to 5 million cases of pesticide poisonings occur each year, resulting in several thousand fatalities, including children”*...and urges steps to minimize youngsters' exposure to such potentially deadly chemicals, including pesticide reduction, public education, and education of pesticide users in alternatives.

These three recommended actions reflect the three points expressed in resolution HE-06 at the NDP 2004 AGM. These three points also cover three of the four Saskatchewan government stated priorities in the Strategy for a Green and Prosperous Economy: youth, health and sustainability.