Opportunities and Initiatives to Minimize Children's Exposure to Pesticides

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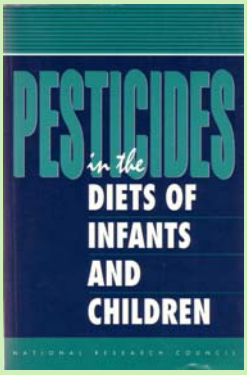
Symposium Overview: How Effective In Reducing Pesticide Risks?

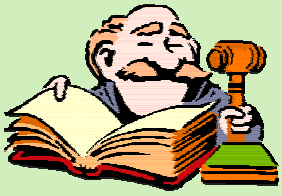
- Reduced-risk and biologically-based pesticides
- Biointensive pest management systems, including organic methods
- Marketplace incentives and ecolabels
- Regulation



New Scientific Consensus –

Regulation Must Protect the Most Vulnerable

NAS/NRC, 1993



New Political Consensus Forms in July 1996 –

The Food Quality Protection Act (FQPA)

- Unanimous passage by both House and Senate
- Hailed as historic landmark

www.ecologic-ipm.com
Consumers Union FQPA
Project Homepage

- Provided EPA with new regulatory tools: 10-X, aggregate exposure, common mode of action
- 10-year timeline to review and update 9,700 food tolerances
- Established health-based standard for pesticide regulation to protect infants and children

Indicators of Pesticide Exposure

Pesticide Data Program (PDP), USDA

- About 15,000 samples annually
- Focus on major children's foods, both fresh and processed
- Proportional sampling by geographic origin and market claim

Exposures Surprisingly Common

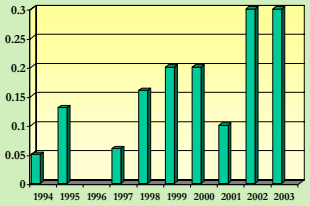
For individuals under 20 years of age on a daily basis --

- 200 million exposures in food
- 250 million exposures through drinking water
- Average of five exposures through food and water combined

Source: Frequency of residues data from PDP results; servings data from USDA

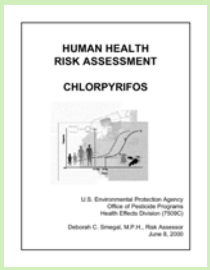
Over 500,000 Over-Tolerance Exposures Daily, and Rising

Percent of PDP samples found to have residues exceeding the established EPA tolerances, 1994-2003

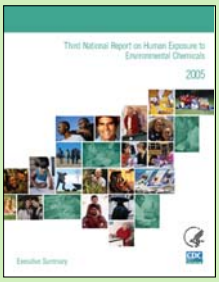


Contemporary Pesticide Risks

Organophosphate (OP) insecticides pose the greatest risks to infants and children and have been EPA's dominant focus since 1996 in the implementation of the FQPA.



Tracking OP Exposure Levels



National Center for Environmental Health

Division of Laboratory Sciences

Atlanta GA 30341-3724

NCEH Pub. No. 05-0570

The Need to Further Reduce Pesticide Exposures

Enduring Consequences

Both a woman's egg and a man's sperm are extraordinarily vulnerable and can carry heritable epigenetic changes from one generation to the next…

and the next….and the next

Source: Anway et al., 2005, *Science*

Maternal serum DDE concentration in relation to odds of preterm or small-for-gestational-age birth

	Serum DDE (µg/L)				
	<15	15-29	30-44	45-59	≥ 60
Preterm birth					
Number of cases	34	153	80	50	44
Number of controls	375	944	404	176	120
Adjusted odd ratio (95%CI)	1	1·5	1·6	2·5	3·1
Small-for-Gestational-Age					
Number of cases	20	106	47	22	26
Number of controls	389	991	436	204	138
Adjusted odd ratio (95%CI)	1	1·9	1·7	1·6	2·6

Source: Longnecker et al., 2001, *The Lancet*, "Association between maternal serum concentration of the DDT metabolite DDE and preterm and small-for-gestational-age babies at birth."

Significant Research

"Critical windows of exposure to household pesticides and risk of childhood leukemia"

(Ma et. al., 2002. *Environ Health Perspectives* **110**:955-60)

- Exposures heighten the risk of leukemia
- The more frequent exposures, earlier in life, the greater the risk

Significant Research

"Pesticide exposures in children with non-Hodgkin lymphoma"

(Buckley et. al., 2000. *Cancer* **89**:2315-21)

Exposures during fetal development and in early infancy increased the risk of non-Hodgkin lymphoma, with odds ratios as high as 9.6 for Burkitt lymphoma

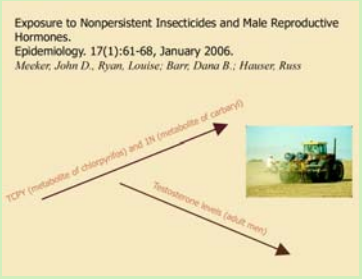
Significant Research

"An exploratory analysis of the effect of pesticide exposure on the risk of spontaneous abortion in an Ontario farm population"

(Arbuckle et. al., 2001. *Environ Health Perspectives* **109**:851-57)

Exposures to pesticides three months prior to conception through pregnancy increased risk of spontaneous abortions

Significant Research



So What Works in Reducing Pesticide Risks?

- Alex Lu will describe a key dietary intervention study that highlights the potential benefits of organic food
- Chuck Benbrook reviews private sector efforts and identifies come clear winners and losers
- Phil Landrigan probes the impacts of the FQPA after 10 years of implementation and provides an overall assessment of progress made and challenges ahead

Session papers and Powerpoints posted at:
http://www.organic-center.org/science.events.php