Impacts of the Food Quality Protection Act on Children's Exposures to Pesticides

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What are Children?

- They are 30% of our population
- Not merely a "special" group. They are the current inhabitants of a vulnerable developmental stage through which all humans must pass
- The protection of children is essential for the sustainability of the human species

Children are Especially Vulnerable to Environmental Toxins

"Children are not little adults"

- Greater exposure pound-for-pound
- Diminished ability to detoxify and excrete many chemical toxins
- Heightened biological vulnerability
- More years of future life

National Academy of Sciences, 1993

Patterns of Disease in Children are Changing

- Infectious diseases are a less powerful influence over patterns of disease and death
- Chronic diseases increasingly important
- Chemicals in the environment are believed to be contributing to these changes

"The New Pediatric Morbidity"

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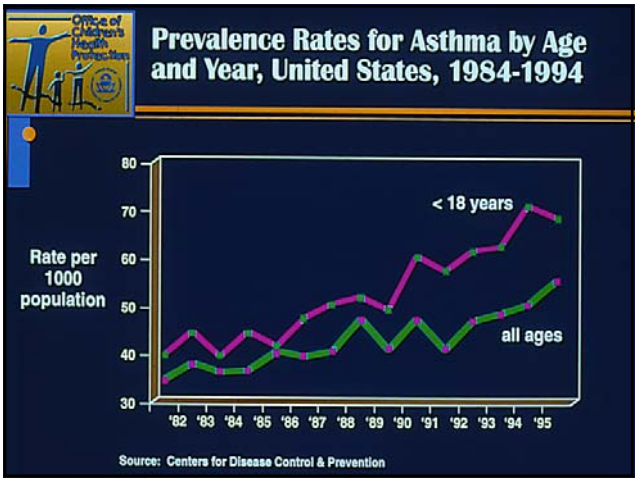
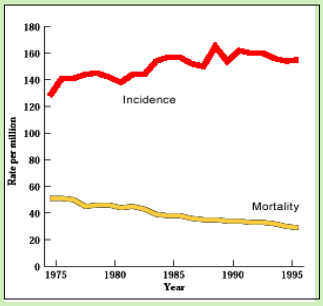
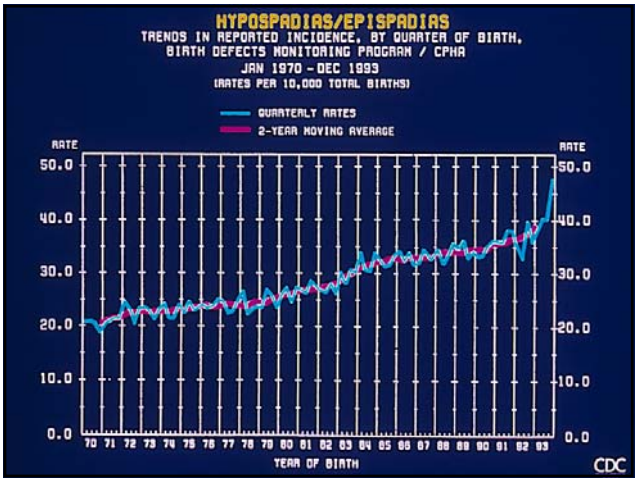


Childhood Cancer (Age 0-19), Age-Adjusted Incidence and Death Rates, 1975-1996



Source: Pediatric Monograph 1999, Surveillance, Epidemiology, and End Results Program Division of Cancer Control and Population Sciences, National Cancer Institute. American Cancer Society, Surveillance Research

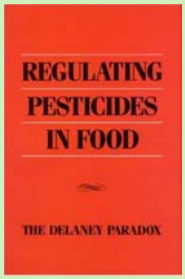


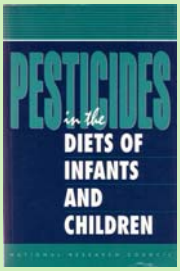
Developmental Disabilities

- Affect 3 – 8% of all American children
- Include:
  - dyslexia
  - attention deficit disorder (ADHD)
  - mental retardation
  - autism
- The causation of only 10 – 20% can be explained on familial or genetic grounds

EVIDENCE FOR ENVIRONMENTAL CAUSATION IS INCREASING

NAS Reports Provide Framework for Science-Based Regulation





Passage of the FQPA

- House passage on a unanimous vote, July 24, 1996
- Senate passage, unanimous consent, less than one minute of discussion, July 25th

Passage of the FQPA

- "…a rare legislative compromise in which all sides can declare a measure of victory."

Washington Post, July 28, 1996

"Peace of Mind Act"

Fundamental shift in focus of pesticide regulation from healthy adults to vulnerable population groups, especially pregnant women, infants and children

Major Provisions of the FQPA

- "Reasonable certainty of no harm" standard – no consideration of benefits
- 10-X added safety factor
- Aggregate exposure
- Common mechanism of action

Impacts of the 10-X Provision

- Set at 10-X, unless "weight of evidence" shows young animals are fully protected and human exposures are well characterized
- 10-X applied to about 16% of organophosphate (OP) aPADs and cPADs (acute/chronic Population Adjusted Doses)

Impacts of the 10-X Provision

- 3-X applied to about 16% OP aPADS/cPADs
- About one-third of OP aPAD/cPAD decisions impacted by 10-X provisions
- Recent science raises new questions about impacts on young animals

Impacts of the FQPA on Residential OP Exposures

- Home uses of OPs were immediate, major focus of EPA
- "Risk cup" concept forced companies to choose between defending residential and agricultural uses

Impacts of the FQPA on Residential OP Exposures

Major residential uses of diazinon and chlorpyrifos voluntarily cancelled in 1999-2000 under threat of EPA cancellation

Whyatt et al. Provides First Evidence of Positive Impact of FQPA

"Prenatal Insecticide Exposures and Birth Weight and Length among an Urban Minority Cohort," *EHP*, July 2004

- Four groups based on maternal exposure levels
- Tested relationships between exposure and birth outcomes before January 2001 and after

Differences in birth weight (g) and birth lengths (cm) by cord plasma organophosphate exposure groups

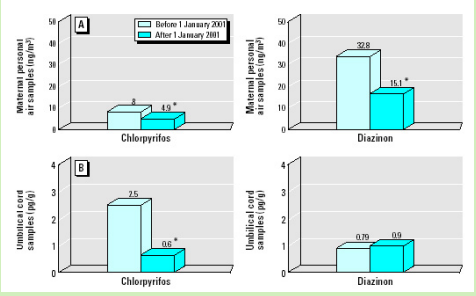
Birth Weights	CHLORPYRIFOS	CHLORPYRIFOS & DIAZINON
Group 1 vs group 2	39.2	-78.5
Group 1 vs group 3	-50.9	-33.1
Group 1 vs group 4	-150.1	-186.3
Birth Lengths		
Group 1 vs group 2	0.17	-0.06
Group 1 vs group 3	-0.21	-0.005
Group 1 vs group 4	-0.75	0.8

Source: Whyatt et. al., Prenatal insecticide exposures and birth weight and length among an urban minority cohort. EHP, 2004 July;12:10.

Group 1 – Lowest exposure group
Group 2 – Lowest 1/3rd of detectable levels
Group 3 – Middle 1/3rd of detectable levels
Group 4 – Highest 1/3rd of detectable levels

Exposures Dropped Post-January 2001

* Significant
p≤0.01



Regression anayses of birth weight (grams/unit) and length (cm/unit) and OP levels in umbilical cord plasma samples for infants born before and after January 1, 2001

Born Before Jan 1 2001	BIRTH WEIGHT (g/unit)	BIRTH LENGTH (cm/unit)
Chlorpyrifos	-67.3	-0.43
Sum Chlorpyrifos & diazinon	-72.5	-0.46
Born After Jan 1 2001		
Chlorpyrifos	NS	NS
Sum Chlorpyrifos & diazinon	NS	NS

Source: Whyatt et. al., Prenatal insecticide exposures and birth weight and length among an urban minority cohort. EHP, 2004 July;12:10.

The FQPA and Dietary Exposures: A Very Big Job

- 9,721 tolerances in need of review
- 1,780 important food uses (applications 1% or more national acreage)
- 381 uses covered by the "Pesticide Data Program" residue testing

Dietary Risk Drivers: Consumers Union Toxicity Index Analysis

- 125 pesticide-food combinations account for 99% risk (Consumers Union, 2001)
- 63 involve use of OPs
- Methyl parathion in peaches highest risk use

EPA's 2001 Cumulative Risk Assessment of the OPs*

73% total OP dietary risk –

- Dimethoate/omethoate in grapes and apples
- Azinphos methyl in apples and pears

* Assumes full impact of methyl parathion and chlorpyrifos tolerance actions

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EPA's 2001 Cumulative Risk Assessment of the OPs*

- Eight OPs account for 97% cumulative OP risk Azinphos methyl in apples and pears
- Four foods account for 85% risk (grapes, apples, pears, beans)

* Assumes full impact of methyl parathion and chlorpyrifos tolerance actions

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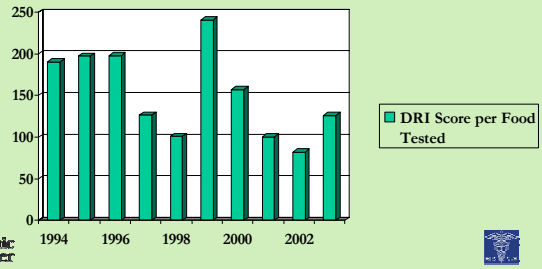
Dietary Risk Index – EPA OIG Analysis, PDP Data 1994-2003



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Growing Importance of Imports

- Domestic DRI scores per crop tested down from 225 in 1994 to 65 in 2003
- Import DRI scores up from 98 to 244
- Combined DRI scores fell 191 to 126, or 34%

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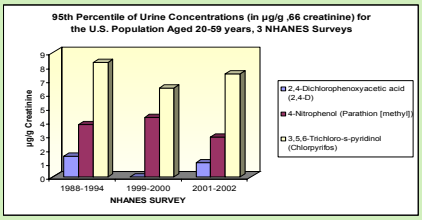
Human Exposure to Three Major Pesticides: Not Much Progress



Conclusions and Challenges Ahead

The FQPA provided EPA important new tools and a clear mandate –

- Mixed record in reducing dietary risks reflects lack of political will, not problems with the statute

Conclusions and Challenges Ahead

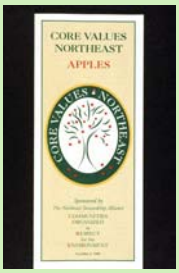
- Dietary risks, especially for infants and children, still too high
- Lack of tolerance reductions opens door for tomorrow's risk drivers – already evident in imports

Conclusions and Challenges Ahead

- New "reduced risk" chemistry has clearly helped lower average risks
- Integrated Pest Management remains too focused on efficiency of pesticide use

Conclusions and Challenges Ahead

Most ecolabel programs lack emphasis on reducing dietary exposures, and reach less than 3% of harvested acreage anyway



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Conclusions and Challenges Ahead

Organic production delivers the most significant reductions in dietary exposures and risks.

Consumer demand will determine pace and degree of risk reduction.

Thanks for your attention.

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