Protecting Children from Environmental Contaminants Through Policy

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Environmental health policies, procedures and standards have traditionally been established to protect healthy adult males. Accepting the premise that children are not just "little adults" requires us to consider if these policy frameworks are adequately protecting our children. The ultimate policy question is: are we committed to protecting our children from environmental health threats? If the answer is yes, the ultimate policy challenges are two-fold: to prevent the exposure and to identify gaps where existing policies do not adequately protect children.

Intertwined with this challenge are related research concerns, most especially whether or not current research provides us with the knowledge we need to review existing policies to make this determination.

This article provides a brief overview of policy discussions in the pediatric environmental health community and government activity at the Federal level related to children's environmental health and related policy issues. The Federal government appears to be the most active on this issue, although there clearly is a role for state and local policy makers, and there is and will need to be action at the state and local level.

Policy Foundations

Several fora and events laid the foundation for today's perspective on pediatric environmental health. In 1992, the National Institute of Environmental Health Sciences (NIEHS) helped to establish the first national network on this issue, the Children's Environmental Health Network, which is dedicated to promote a healthy environment and to protect the fetus and the child from environmental hazards. NIEHS and the Network collaborated in sponsoring the first national workshop on pediatric environmental health research in 1993.

In June 1993, the National Academy of Sciences (NAS) released its report*Pesticides: Diets of Infants & Children,* finding that infants and children consume more of certain foods (such as apples) per unit of body weight than adults, and drink more water, thus increasing their potential exposure to toxins.[i] The report also established some clear policy guidelines, such as using an additional 10-fold margin of safety in risk assessments for infants and children in the absence of information.[ii]

Policy Recommendations

Building on the NAS pesticide report, two meetings sponsored by the Children's Environmental Health Network developed recommendations which can be used to provide a framework for the daunting task of reviewing existing policies. In March 1994, the symposium *Preventing Child Exposures to Environmental Hazards: Research and Policy Issues*[iii] provided the recommendations for the Federal government and the research community listed below. The policy recommendations for the Federal government are:

1. Adopt a public health, preventive approach to environmental exposure which protects the most vulnerable subsets of populations. Set standards regulating air, food, water, and homes.
2. Children must be incorporated into the risk assessment process.
3. Federal legislation, regulation, and agency mandate should undergo immediate review to identify where children are not taken into account.

4. A federal inter-agency work group should be convened to coordinate policies and activities regarding pediatric environmental health.
5. Community participation must be an essential part of policy development.
6. An international approach to pediatric environmental health should be adopted.

The recommendations for the public and private sector research community are:

1. New research paradigms need to be developed to study long-term, delayed and potential transgenerational health effects resulting from environmental exposures.
2. Research priorities must be expanded to include children.
3. Better and more cost-effective research tools must be developed.
4. More federal funding must be made available for epidemiological, clinical, applied and basic research; establish centers on pediatric environmental health.
5. Research must be conducted in ways that more effectively involve all affected communities.

A February 1997 conference, *Children's Environmental Health: Research, Practice, Prevention, and Policy*, where the nation's experts on pediatric environmental health met to outline a research agenda, provided additional recommendations. Policy-related findings from the just-published conference report **[iv]** include:

- Children must be placed in the center of the risk assessment process, thereby shifting the existing risk assessment paradigms to become child-focused
- Research questions need to be asked through a child-developmental lens
- Great gaps in basic knowledge and data about children exist. Future research and study needs must focus on:
    - children's greater exposures to toxicants: gathering more and better basic information on what substances children are exposed to and the extent of their exposure;
    - children's increased susceptibility to toxicants;
    - epidemiological and clinical studies, including longitudinal studies, of children;
    - ethical issues, particularly in the areas of genetics and biomarkers; and
    - the costs of environmental diseases in children.

These recommendations and discussions provide a foundation for reviews of our current policies. Examples of the kinds of questions we need to ask include:

- Does the maximum level of a contaminant allowed in drinking water take into account that the average daily fluid intake of an infant is a larger proportion of its body weight than that of an adult? When setting permitted pesticide levels, does the exposure level anticipated reflect the eating patterns of infants and children?
- Do the toxicological tests, the risk assessments, and other steps in the process of setting health and environmental standards take into account that the nervous, reproductive, and other systems of children are immature and developing, and thus perhaps are more vulnerable to damage due to environmental exposures than those of an adult?
- Do the research studies underlying these standards routinely look at effects of neonatal exposures and cumulative, synergistic, life-long and transgenerational effects?

The policies that need to be reviewed can be found in the legislative, administrative, regulatory, and research arenas.

Federal Statutory/Legislative Activity

The Clean Air Act of 1970 is a rare example of environmental legislation that specifically directs that vulnerable populations be taken into account. Air quality standards are to be set by federal regulatory agencies at levels which will protect "the most vulnerable members of society." **[v]** Thus, because the most vulnerable are often children, this language implicitly protects them.

Two other laws that specifically protect children's environmental health were enacted in 1996: The Food Quality Protection Act (FQPA) and the Safe Drinking Water Act amendments (SDWA).

Several bills addressing children's environmental health have been introduced in this Congress, though no hearings or other actions are currently anticipated. The main pediatric environmental health bills are: S. 599, introduced by Sen. Barbara Boxer (D-CA), (a House companion bill is H.R. 2451, introduced by Rep. Jim Moran (D-VA)); H.R. 1636, introduced by Reps. Henry Waxman (D-CA) and Jim Saxton (R-NJ), and S. 769, introduced by Sen. Frank Lautenberg (D-NJ). For more information on these bills, see [sidebar] or visit the Library of Congress and the Network web sites.

The most likely venue for legislative action on this issue in 1998 would be as part of a Superfund bill. Rep. Frank Pallone (D-NJ) and others are developing a Superfund reauthorization bill, titled "The Children's Protection and Community Cleanup Act," which would seek to assure "that remedies are specifically designed to protect children and sensitive populations from the threat of toxic waste in their neighborhoods."

Federal Executive Branch Policies/Agency Initiatives

In April 1997, the President issued Executive Order 13045, focusing on reducing environmental health and safety risks to children. Among other tasks, the order establishes a Health Risk Task Force, co-chaired by U.S. Department of Human Health & Services (HHS) Secretary Donna Shalala and EPA Administrator Carol Browner, to recommend strategies for better addressing children's environmental health and safety within the Federal government. In addition to the NIEHS' activities mentioned under "Policy Foundations," several Federal agencies have announced their own initiatives:

- The Agency for Toxic Substances and Disease Registry (ATSDR) launched a Child Health Initiative in April 1996 to emphasize policies and projects that promote the health of infants, children and youth. ATSDR formed a Child Health Workgroup, which presented its report and recommendations, *Healthy Children -- Toxic Environment: Acting on the Unique Vulnerability of Children Who Dwell Near Hazardous Waste Sites*, in April 1997.
- In September 1996, the EPA issued a report, *Environmental Health Threats to Children*, which included an ambitious national agenda to protect children's health from environmental threats. To assist in implementing this agenda, the agency has created an Office of Children's Health Protection. This agenda followed an EPA policy issued in October 1995 requiring the agency to consistently and explicitly evaluate environmental risks of infants and children in all risk assessments, risk characterizations, and in setting environmental and public health standards.
- The HHS Environmental Health Policy Committee (EHPC), which coordinates HHS environmental health policy, created a Subcommittee on the Public Health Approach to Children and the Environment in December 1996. The subcommittee is to coordinate HHS strategy and activities on children's environmental health.
- The National Center for Environmental Health (NCEH), part of the Centers for Disease Control and Prevention, is developing a healthy homes and communities project to address environmental health problems such as childhood lead poisoning, hypothermia, infectious diseases and injuries through a coordinated and comprehensive program.

The interest has been international as well. Prompted by the United States, the G-7 nations plus Russia issued a declaration of children's environmental health in May 1997, which provided a framework for domestic, bilateral and international efforts to improve the protection of children's health from environmental threats. Specific areas for action include: risk assessment and standard setting, lead, microbiologically safe drinking water, air quality, environmental tobacco smoke, and endocrine disrupters.

Federal Regulatory Activity

Regulatory action is where policy statements are most clearly translated into reality -- or are ignored. Regulatory agencies will determine to what degree statutes and initiatives like those mentioned above will be incorporated into consistent actions -- such as risk assessments, risk characterizations, environmental and public health standards -- that explicitly consider and reflect children's vulnerabilities.

Examples of recent or upcoming relevant rulemakings include:

- In proposing updated air quality standards for ozone and particulate matter in early 1997, the EPA indicated it considered children's unique vulnerabilities to air pollutants and issued stronger regulations as a result.
- The EPA is now in the process of implementing the FQPA and SDWA (see Federal Statutory/Legislative Activity) though it is not yet clear how consistently the agency will incorporate pediatric questions throughout its decision-making process.
- As one of its commitments in the September 1996 EPA agenda mentioned above, the agency has begun the process to expedite the re-evaluation of five standards to ensure that they are protective of children. The agency plans to announce the five standards to be reviewed in May 1998.
- The Food and Drug Administration proposed a rule in August 1997 requiring pediatric studies of some new drugs to provide pediatric use information.

Federal Research Activity

In August 1997, NIEHS and the EPA issued a request for application (RFA) for up to six research centers dedicated to children's environmental health research. This RFA, the first of its kind, reflected one of the recommendations of the 1994 symposium and indicated a commitment toward increasing research and data on children's health as it relates to environmental exposures.

A September 1995 issue of *Environmental Health Perspectives*, published by NIEHS was devoted to child health, and an upcoming issue will do the same.

However, a recently-released federal report on research on children found the nation's investment in pediatric research to be meager. Less than 0.4 percent of the total governmental expenditures on children and youth was spent on research and development[vi], of which research on environmental illness is only a small subset. This amount also represented less than 3 percent of the total Federal research enterprise, although children and youths under age 21 make up 30 percent of the nation's population.[vii] When total national R&D is considered, the share directed toward children is even less -- less than 1.2 percent.[viii]

Conclusion

Though it is heartening to see the present flurry of policy-related activities in this area, it remains to be seen if today's rhetoric will lead to a genuine actions that will protect children tomorrow and into the future. Substantial time and resources will be required to fulfill the promises that have been made. In addition, while it is heartening to see the interest in taking into account children's vulnerabilities by changing the standards and processes that determine safe exposure levels, the current policy discussion has seldom focused on another key aspect of protecting children: prevention of the exposure. To quote the 1997 research conference report: ". . . pollution reduction must be a constant and unwavering goal of our government agencies. Future environmental policies must include as high priorities (1) pollution reduction and elimination and (2) research on exposure reduction." [ix]

Footnotes

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[i] National Research Council, National Academy of Science, *Pesticides in the Diets of Infants & Children*,National Academy Press, Washington, DC, 1993, p. 10, 173, 181-194.

[ii] National Research Council, National Academy of Science, *Pesticides in the Diets of Infants & Children*,National Academy Press, Washington, DC, 1993, p. 9.

[iii] Children's Environmental Health Network, *Preventing Child Exposures to Environmental Hazards: Research and Policy Issues*, March 18-19, 1994, Symposium Summary, p. v-vi.

[iv] Children's Environmental Health Network, *Children's Environmental Health: Research, Practice, Prevention, and Policy,* February 21-23, 1997, Conference Report, p. 6, 26, 32.

[v] P. Landrigan, J. Carlson, "Environmental Policy & Children's Health," *The Future of Children: Critical Issues for Children & Youths*, Vol. 5, No. 2, Summer/Fall 1995, p. 43.

[vi] Alexander D, Goldman L., *Investing in Our Future: A National Research Initiative for America's Children for the 21st Century,* Executive Office of the President, Office of Science & Technology Policy, April 1997, p. 2.

[vii] Alexander D, Goldman L., *Investing in Our Future: A National Research Initiative for America's Children for the 21st Century,* Executive Office of the President, Office of Science & Technology Policy, April 1997, p. 2.

[viii] Alexander D, Goldman L., *Investing in Our Future: A National Research Initiative for America's Children for the 21st Century,* Executive Office of the President, Office of Science & Technology Policy, April 1997, p. 20.

[ix] Children's Environmental Health Network, *Children's Environmental Health: Research, Practice, Prevention, and Policy,* February 21-23, 1997, Conference Report.