

RISK EVALUATION - POSTERS

THE AMERICAN PEOPLE'S DIOXIN REPORT

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Dioxin is a potent toxicant with the potential to produce a broad spectrum of effects (1). It is a powerful endocrine disruptor (2) and a known human carcinogen (3). In 1994, the US EPA released a draft reassessment report on dioxin which updated the scientific data and understanding of the adverse health effects that result from exposure to dioxins (4). Among the conclusions of this report was the fact that at levels currently present in the average American, dioxin has been found to suppress the immune system, decrease testes size, reduce testosterone which effects male fertility, and alter glucose tolerance which increases the risk of diabetes.

The scientific information in the 1994 report painted a picture of a serious public health threat that the American people needed to know about and that government needed to act on. Instead, there have been continuous delays and excuses and no final report. Without the final agency document, state and local governments are forced to make decisions about the health risks posed by dioxins without the best scientific information and guidance available. As a result new regulations for dioxin-emitting industries have been passed, discharge permits issued, and new facilities sited without the benefit of the most up-to-date scientific information on the dangers of dioxin.

By the spring of 1999, the Center for Health, Environment and Justice had decided that the American people had waited long enough for the US EPA to finalize its report on dioxin. As part of our Stop Dioxin Exposure Campaign (5), CHEJ decided to complete EPA's draft reassessment report. With the help of a team of scientists who participated either as chapter authors or as peer-reviewers, CHEJ published "*America's Choice: Children's Health or Corporate Profit, the American People's Dioxin Report* (6), in November, 1999. This report provides a comprehensive evaluation of the sources and health effects of dioxin and a list of recommendations to eliminate dioxin sources.

There are three sections to this report. First is a summary of the newest scientific research findings on the health effects of dioxin. The second section provides policy recommendations for twelve sources of dioxin that were developed by a diverse group of over 50 grassroots leaders, scientists, and policy experts. These recommendations provide clear workable solutions to eliminating dioxin sources without hurting the economy. Sources included medical, garbage, and hazardous waste incinerators, pulp and paper mills, cement kilns, pesticides, wood waste burning, and PVC. The impact on workers affected by these recommendations was addressed as part of this effort. The third section is the Technical Support Document which provides the scientific basis and support for the policy recommendations. This document describes where dioxin comes from, how it moves through the environment and gets into food, how it builds up in the human body, and how it affects people's health. Particular emphasis is given to immune, reproductive, and developmental effects.

The overall conclusion of this report was that the American people are at serious risk from their daily intake of dioxin in food. This exposure appears to be affecting the growth and development of children, notably the development of the immune, reproductive and nervous systems,

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impacting cognitive and learning abilities. While exposure of the general population occurs through ingestion of many common foods, children exposed *in utero* during critical periods of development appear to be the most sensitive and vulnerable to the toxic effects of dioxin.

Key scientific findings from the report:

- o All American children are born with dioxin in their bodies. The greatest impact of this exposure appears to be on the growth and development of children. Disrupted sexual development, birth defects and damage to the immune system may result.
- o Dioxin exposure has been associated with IQ deficits, increased prevalence of withdrawn/depressed behavior, adverse effects on attentional processes, and an increase in hyperactive behavior in children. These effects have been documented in 42-month old Dutch children whose exposure to dioxins and PCBs came primarily before birth. The children's mothers were exposed to "background" levels of dioxins and PCBs as a result of the daily ingestion of dioxin in food.
- o Dioxin exposure has been associated with alterations in immune function including increased susceptibility to infections and changes in T-cell lymphocyte populations. These effects have been reported in 42-month old Dutch children exposed to dioxins and PCBs primarily before birth. Altered immune function, reported at birth, 3, and 18 months of age, persists to 42 months of age in these children. Reported immune effects included an increase in middle ear infections and chicken pox, and a decrease in allergic reactions.
- o There is evidence of both developmental and reproductive effects in children exposed to dioxin. These effects include defects in permanent teeth, adverse effects on thyroid hormones, altered sex ratio (more females than males), and increased respiratory infections.
- o Dioxin interferes with the hormone insulin and alters glucose tolerance which leads to diabetes. New studies of soldiers exposed to Agent Orange and residents of Seveso, Italy add to the existing evidence from studies of workers that exposure to dioxin increases the risk of developing diabetes.
- o The average daily intake of dioxin in food poses a substantial cancer risk to the general public. The lifetime risk of getting cancer from exposure to dioxin is 1 in 10,000 for the general American population and 1 in 1,000 for highly exposed members of the population. These risks are 100 and 1,000 times higher, respectively, than the generally accepted one-in-a-million risk for carcinogens.
- o Updates of ongoing studies of cancer rates in dioxin-exposed workers in the U.S. and Germany, and in residents of Seveso, Italy all indicate increasing cancer rates in the highest exposure groups.
- o Nearly all Americans are exposed to dioxin through ingestion of common foods, especially meat and dairy products. Dairy cows and beef cattle absorb dioxin by eating dioxin contaminated feed crops. The crops become contaminated by airborne dioxins that settle onto soil and plants. Dioxins enter the air from thousands of sources including incinerators that burn medical, municipal, and hazardous waste, chemical processing facilities that use chlorine to make products such as pesticides and PVC plastic, and metal refining and smelting operations.

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o The average daily intake of dioxin in the U.S. is 3-6 pg TEQ/kg body weight per day. This intake is over 200 times higher than the US EPA's cancer risk guideline. Nursing infants ingest about 50 times this much.

o Some groups of people are at higher risk of exposure to dioxin. These groups include children, nursing infants, some workers, people who eat fish as a main staple of their diet, such as some indigenous peoples and fishermen, and people who live near dioxin release sites. These groups of people are likely exposed to at least 10 times as much dioxin as the general population.

o The average tissue or body burden level of dioxin in the U.S. ranges from 36 to 58 ng TEQ/kg lipid (36-58 ppt). Approximately 10% of the population may have tissue levels three times higher.

o There is a small difference between the body burdens of dioxins that cause adverse non-cancer effects in animals and average levels in the general human population. Some people who have above average levels are already suffering from the adverse effects of exposure to dioxin.

Policy Recommendations

The policy recommendations are specific to each of twelve sources. They provide workable solutions to the many problems posed by dioxin exposure. All of the recommendations have several core principles in common which provide a foundation for reducing dioxin emissions regardless of the source. These principles are prevention not control, the precautionary principle, environmental justice, just transition for workers, no transfer of dioxin from one media to another, and the right to know the extent of dioxin contamination.

After the *American People's Dioxin Report* was released, a series of town meetings were held to provide information directly to the American people. The purpose of these meetings was to educate people about the dangers of dioxin and to develop coalitions to address and eliminate local dioxin exposures. Town meetings were held in Savannah, GA, Rochester, NY, Jacksonville, FL, Chicago, IL, Baton Rouge, LA, Oneida, WI, Oakland, CA, Hartford, CT, Raleigh, NC, and Seattle, WA.

The American People's Dioxin Report is part of the larger Stop Dioxin Exposure Campaign which began in 1994 as a nationwide educational effort in response to the release of US EPA's draft reassessment report. The goal of this campaign is to achieve a sustainable society in which there is no dioxin in our food or breast milk because there is no dioxin formation, discharge or exposure. Key elements of the campaign included 1) stopping all forms of incineration; 2) exposing and challenging all dioxin assaults on low income and people of color communities; 3) phasing out industrial uses of chlorine including its use in pulp and paper manufacturing and in PVC plastics; 4) including provisions for workers; 5) identifying more clearly the many sources of dioxin; 6) determining the levels of dioxin in food and breast milk; and 7) promoting safe, alternative jobs, products and technologies.

These objectives are being achieved by building local coalitions, public education, keeping communities connected, working with labor unions, supporting pollution prevention laws and programs, initiating campaigns that encourage if not convince government, institutions and consumers to buy only products that don't add to dioxin levels in food and in people, and by opposing all forms of incineration.

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A major element of the campaign has been to develop strategies that can be applied locally to stop dioxin exposure. Initial strategies were published in 1995 in *Dying from Dioxin, A Citizen's Guide to Reclaiming Our Health and Rebuilding Democracy* (7). This book, which also provides a summary of health effects, has been translated into Russian, Spanish, and Japanese. These strategies were refined at a meeting of nearly 600 activists and published in *Taking Action to Stop Dioxin Exposure, Strategy Recommendations from the 3rd Citizens Conference on Dioxin and Other Synthetic Hormones* (8). Strategies focused on incineration, pulp and paper mills, PVC, dioxin contaminated sites, dioxin in food, the availability of scientific expertise, identifying allies; and educating the public and media about dioxin. This handbook has been translated into Russian.

As a result of the Stop Dioxin Exposure Campaign, the Americans as well as people across the world are more aware of the dangers of dioxin. In the U.S., numerous dioxin emitting facilities, including many medical and municipal waste incinerators, have been shut down. With the release of the *American People's Dioxin Report*, there are now a set of policy recommendations that provide clear, workable solutions for eliminating dioxin sources. These recommendations identify processes which can dispose of waste, make paper white, and produce plastics without destroying the economy.

By actively proposing strong protective policies, and by involving a broad segment of the American people, we hope to force EPA to finalize their reassessment report and issues their own policy recommendations. As made clear by the evidence that body burden levels in the general U.S. population are at or near the concentration where adverse effects might occur, there is now little or no "margin of exposure" and every effort must be made to eliminate all dioxin exposures.

References

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