

## **America's Choice: Executive Summary**

(Full Report w/references available at: [www.besafenet.com/report.html#Executive%20Summary](http://www.besafenet.com/report.html#Executive%20Summary))

The American People's Dioxin Report discusses the latest scientific research on the toxic effects caused by or associated with exposure to dioxin. This document is intended to inform the public and their representatives in government so appropriate action can be taken to safeguard the health of the American people. It is clear that there is an extensive body of high quality scientific information describing the toxic effects of dioxin in people. This data indicates that dioxin is a potent chemical that produces a wide variety of toxic effects in animals and that some of these effects are occurring in people.

This report's overall conclusion is 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, in particular, 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.

The newest studies on dioxin's effects on human health lead to the following conclusions:

- All American children are born with dioxin in their bodies. The greatest impact of this exposure appears to be to the growth and development of children. Disrupted sexual development, birth defects and damage to the immune system may result.
- Dioxin exposure has been associated with IQ deficits, increased prevalence of withdrawn/depressed behavior, adverse effects on attentional processes, and an increase in hyperactive behavior in children.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.
- 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.
- 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.

- Hormonal effects associated with dioxin exposures in humans include a decrease in testosterone in dioxin-exposed workers and a decrease in thyroid hormones following prenatal exposure to background levels of dioxin in infants.
- 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.
- The average daily intake of dioxin in food poses a substantial cancer risk to the general American population. 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 "acceptable" one-in-a-million cancer risk for carcinogens.
- 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. These studies provide strong support for the decision by the World Health Organization's International Agency for Research on Cancer (IARC) to define dioxin (TCDD) as a "known human carcinogen." This decision is further supported by evidence from animal studies and data on dioxin's mechanisms of action in the body.
- 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.
- The average daily intake of the American people is already well above two federal guidelines for "safe" exposure. The American average daily intake is more than 200 times higher than the Environmental Protection Agency's cancer risk guideline and over twice the Agency for Toxic Substances and Disease Registry's lowest adverse effect level.
- 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.

- The average daily exposure of dioxin and dioxin-like chemicals in the U.S. is approximately 3-6 pg TEQ/kg body weight per day. Nursing infants ingest about 50 times this much each day.
- Dioxin accumulates in biological tissue. The average tissue or "body burden" level of Americans ranges from 36 to 58 ng TEQ/kg lipid (36-58 ppt). Approximately 10% of the population may have tissue levels as much as three times higher than this level.
- 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.
- While TCDD is the most toxic form of dioxin, 90% of the total toxicity resulting from exposure to dioxins is due to dioxin-like compounds other than TCDD.
- There is an extensive body of high quality, published information on the toxicity of dioxin. This body of data indicates that dioxin is a potent toxin which produces a wide variety of adverse effects in animals and that some of these effects are likely already occurring in people.

Dioxin is an ubiquitous poison that is in our food and causes many toxic effects in people and animals. The neurodevelopmental and reproductive effects observed in children may be the most disturbing new evidence of dioxin's toxicity. These small shifts in cognitive ability or thyroid levels may be just the tip of the iceberg of our understanding of the impact of dioxin on the general American population.

We know that the daily intake of Americans is already too high, and exceeds two federal risk guidelines. We also know that some members of the general population are particularly sensitive and that others are exposed to dioxins at greater than the average daily levels. These are infants and children, people who live near contaminated sites, fishermen and indigenous people who rely on fish as a main staple of their diet, some workers, and others with high exposures. These groups have suffered a disproportionate share of dioxin exposure and many already suffer the adverse health effects caused by these exposures.

We agree with the World Health Organization who recommended that "every effort should be made to limit environmental releases of dioxin and related compounds to the extent feasible in order to reduce their presence in the food chains, thereby resulting in continued reductions in human body burdens..." (WHO, 1998). Americans have a choice: take action to protect public health by eliminating dioxin creation or continue to allow dioxin to be created and not burden industry with the short term transition costs of eliminating dioxin and related compounds.