

## Executive Summary

A public health debate is raging around the world about the safety of bisphenol A (BPA). Chemical manufacturing and packaging companies claim BPA is safe and necessary to protect food from metal can corrosion and bacterial contamination.

However, scientists, health professionals, and children's and environmental health advocates are concerned that hundreds of independent peer-reviewed scientific studies have found negative health outcomes resulting from low doses of BPA.

Canada, Denmark, five U.S. states, three New York State counties, and the city of Chicago have restricted the use of BPA in certain children's products, like baby bottles and infant formula can linings. Other countries and U.S. states are actively considering BPA restrictions and bans.

This report provides new data about the amount of BPA that could be consumed from eating canned food and drinks available in the U.S. and Canada. For *No Silver Lining*, we tested the food and beverage contents of 50 cans collected from 19 U.S. states and Ontario, Canada. The report reveals that BPA is a routine contaminant in canned foods. Our study details potential exposure to BPA from not just one

can, but from meals prepared with canned food and drink that an ordinary North American person might consume over the course of a day.

It shows that meals involving one or more cans of food can cause a pregnant woman to ingest levels of BPA that have been shown to cause health effects in developing fetuses in laboratory animal studies.<sup>1</sup>

Our findings quantify exposure through only one BPA source—canned foods. Other potential routes of exposure to BPA include air, dust, and water, common products like polycarbonate water and baby bottles, 5-gallon water coolers, and printer inks, toners and thermal receipt paper (used by most gas stations and supermarkets),<sup>2</sup> where BPA can rub off paper onto our hands and into our mouths.

Exposure of animals to low doses of BPA has been linked<sup>3</sup> to cancer, abnormal behavior,<sup>4</sup> diabetes and heart disease,<sup>5</sup> infertility,<sup>6</sup> developmental<sup>7</sup> and reproductive<sup>8</sup> harm, obesity,<sup>9</sup> and early puberty,<sup>10</sup> a known risk factor for breast cancer.<sup>11</sup>

We know exposures to low doses can be harmful, and we know BPA is on our bodies. Independent, peer-reviewed scientific studies have found harm from low doses of BPA occurring at the same or similar levels found in the general



population, according to Centers for Disease Control and Prevention (CDC). CDC found BPA in the urine of 93% of the U.S. population.<sup>12</sup> The Environmental Working Group found BPA in the cord blood of newborn babies.<sup>13</sup>

### Test Methods

To determine the amount of BPA a person could be exposed to by eating a “real-life” amount of canned food, *No Silver Lining* enlisted 20 people from 19 U.S. states and Ontario, Canada to donate 50 food and beverage containers from their home pantry shelves and local groceries. Cans were collected from Alaska, California, Connecticut, Illinois, Indiana, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Montana, New Jersey, New York, North Carolina, Oregon, Vermont, Washington, Wisconsin, and Ontario, Canada.

In most cases, two cans per location were submitted: one can from a home pantry or kitchen cupboard, and a matching or similar product purchased from a chain grocery store specifically for this project. The double sampling allowed us to investigate the possible correlation between the amount of BPA in the canned food and the age of canned products.

We selected a wide variety of products, including fish, fruits, vegetables, beans, soups, tomato products, sodas, and milks, which are common ingredients and meal options for a wide range of North American consumers.

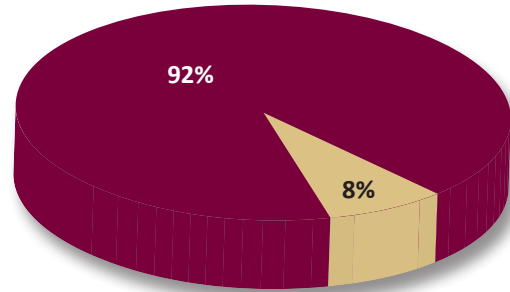
We sent the unopened cans to Anresco Laboratories, an independent laboratory in San Francisco, California. To determine the concentrations of BPA in the food within the can, the laboratory tested the food contents, not the cans themselves, for BPA. Foods were homogenized and then analyzed.

We estimated a daily ingestion of BPA based on three hypothetical menus that aggregated consumption of several canned goods throughout a day. We then calculated daily BPA totals and ingestion by body weight for an average 20-something American woman.

### Results

BPA was detected in 46 of 50, or 92%, of the canned food samples. The highest level of BPA—1,140 part per billion (ppb), to our knowledge the highest level ever found in the U.S.—was detected in DelMonte French Style Green Beans from a participant’s pantry in Wisconsin. Other high scorers included Walmart’s Great Value Green Peas from a store in Kentucky, and Healthy Choice Old Fashioned Chicken Noodle Soup from a pantry in Montana. On average, the products contained 77.36 ppb of bisphenol A.

We did not find a correlation between the age of the product—whether it came from a pantry or a store shelf—and the amount of BPA in the food.



**BPA was detected in 46 of 50, or 92%, of the canned food samples. BPA levels in canned food cannot be predicted by the price of the product, the quality, or relative nutrition value of the product, or where it was purchased.**

BPA exposure is particularly of concern for pregnant women, for babies, and for children. Other reports have focused on BPA leaching from baby bottles and polycarbonate containers, so for this study we imagined a pregnant woman in her 20s, of average build (71 kg or 156.5 lbs<sup>14</sup>) as the individual eating the meals we put together from different products tested. We found that, just from eating the foods below, she could easily raise her BPA intake to levels known to cause health problems in animals (see detailed summary on page 10). For example:

- By eating a serving of canned peaches with breakfast, a can of ravioli for lunch, having a snack of a can of chicken noodle soup, chili for dinner, and using coconut milk in a dessert she could ingest 75.4  $\mu\text{g}$ , or 1.06  $\mu\text{g}/\text{kg}$  body-weight of BPA;
- By eating a serving of canned peaches with breakfast, a can of lentil soup for lunch, and making tuna casserole with canned tuna, peas, cream of mushroom soup and vegetable broth for dinner, followed by bananas in canned coconut milk for dessert, a woman could ingest 87.28  $\mu\text{g}$ , or 1.23  $\mu\text{g}/\text{kg}$  bodyweight of BPA through canned foods alone; and
- By eating no canned goods in the morning and afternoon, and just one can of soda and a single serving of green beans at dinnertime, a woman could ingest 138.19  $\mu\text{g}$ , or 1.95  $\mu\text{g}/\text{kg}$  bodyweight of BPA.

This study also shows that BPA levels in canned food cannot be predicted by the price of the product, the quality, or relative nutrition value of the product, or where it was

purchased. So, a mother preparing a meal with Whole Foods' 365 brand Organic Lite Coconut Milk (74.6 ppb BPA) in Canada could expose herself and her family to as much BPA as a mother cooking with a can of Goya Lite Coconut Milk (77.6 ppb BPA) purchased from a mainstream grocery store in Vermont. And, a father serving his child a can of Healthy Choice Old Fashioned Chicken with Rice Soup (323.6 ppb BPA) that he finds in his own pantry in Montana may be dishing up more than eight times the amount of BPA than a Canadian father serving his child a can Health Valley Organic Vegetable Soup (37.7 ppb BPA).

Even cans from different batches of the same product may result in widely different BPA levels: a can of DelMonte Green Beans could contain significantly more BPA one week than the next (1,140 ppb in one can—the highest finding in the study—versus 296.2 ppb in another can).

### Key Participants in the Study

While CDC data suggests that nearly all North Americans have BPA in their bodies,<sup>15</sup> three of the participants in this study know for sure, as they have had their blood and urine tested for BPA and other toxic chemicals.<sup>16</sup> Additionally, four of the study participants are new mothers. One of them was pregnant at the time of the study.

Based on studies of infant cord blood and breast milk,<sup>17</sup> it is very likely that BPA in the blood of the pregnant study participant passed through the placenta and entered her baby's body. Those nursing mothers who ate from BPA-contaminated food cans are expected to have passed BPA on to their babies as they nursed.

### Alternatives are Emerging

Already, researchers have identified several possible substitutes for BPA in food and beverage can linings. Some companies, such as Eden Foods, offer food in BPA-free cans. Muir Glen, a subsidiary of General Mills, will begin packaging their tomato products in BPA-free cans in 2010. In addition, we know that there are other BPA-free container options, including glass and less toxic plastics (some are on the market and others are under development). Safer substitutions would help to break the cycle of chemical contamination and the myriad health problems linked to chronic, daily BPA exposures.

### Recommendations

**Congress should act to reduce BPA exposure by banning the chemical in food and drink containers.** A number of states have taken action on BPA in baby bottles, but so far, no legislation is in place that will move companies away from BPA in all food cans.

### Case Study: Bobbi Chase Wilding



One of the people who supplied samples for this project was Bobbi Chase Wilding, also a co-author of this report. At the time of the can collection, Bobbi was six months pregnant with her second child, a girl. "I wanted to be a part

of this project because I've seen the information about the role BPA can play in disrupting normal fetal development," said Bobbi. "Throughout this pregnancy, I've worked hard to avoid BPA exposure, and haven't eaten canned goods at home, but I know there are many other sources of exposure, like canned goods used at restaurants and in commercial settings, and receipt paper from weekly grocery shopping and trips to the gas station. "As a mother of two daughters, I'll always wonder if BPA exposure during pregnancy and while breast feeding will play a role in their health. It's a risk I wouldn't have taken willingly, and one no mother should have to take at all."

**Can manufacturers should move quickly to identify and adopt alternatives.** Some companies have already replaced BPA with safer substitutes, and others should do the same. Moreover, as Eden Foods did successfully, food processors should demand safer cans for their products.

**Congress should strengthen and pass the Safe Chemicals Act.** The outdated and ineffective Toxic Substances Control Act has not prevented our exposure to thousands of toxic chemicals, including BPA. Congress should ensure that the Safe Chemicals Act includes provisions for swift action to reduce the use of chemicals like BPA that are linked to cancer, hormone disruption, and reproductive and nervous system harm.

As these broad policy and market shifts occur, individuals should opt for fresh foods whenever possible followed by frozen or dried foods, and when packaged foods are needed, choose glass, aseptic packages, or less toxic plastic containers when possible. Individuals should also let food manufacturers and policymakers know they want BPA-free packaging for all foods and beverages.