

Chicago Tribune

Wednesday, September 17, 2008 | Near West



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A chemical risk you can't avoid

New study links common product to diabetes and heart disease

By Deborah L. Shelton
TRIBUNE REPORTER

Industry representatives and health advocates gave federal officials vastly different assessments Tuesday of the effects of exposure to a chemical so prevalent that it can be found in the system of almost every American.

Bisphenol A, commonly known as BPA, is used extensively in the linings of food and drink containers, plus countless consumer products, including baby bottles and sippy cups. The chemical also has been found in drinking water, dental sealants and even household dust.

Adding to a growing sense of unease about the chemical's potential effects was a study released before federal hearings Tuesday that linked exposure to bisphenol A with cardiovascular disease, type 2 diabetes and liver-enzyme abnormalities in adults.

Researchers said the study, in Wednesday's *Journal of the American Medical Association*, offered the first scientific evidence that adults with higher levels of BPA in

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their bodies were more likely to develop such diseases. This month the federal National Toxicology Program reported the chemical may affect the development of the brains and prostate glands of fetuses and young children.

Pressure has been growing for more government and corporate action on BPA, in part because the chemical is so common that it is difficult for consumers to avoid it.

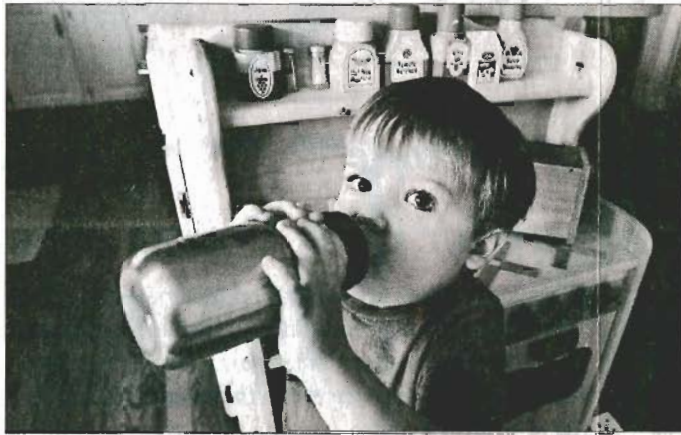
Some state and federal lawmakers have sought to ban BPA in children's products, and some companies have decided not to produce or sell BPA products. Wal-Mart is phasing out sales of baby bottles containing BPA from its U.S. stores next year, and Nalgene is removing BPA from its popular water bottles.

On Capitol Hill, Sen. Charles Grassley (R-Iowa) cited the study as he opened an investigation of the way the U.S. Food and Drug Administration has regulated the chemical.

At Tuesday's hearing, the FDA defended a draft assessment it issued last month declaring that FDA-regulated products on the market that contain BPA are safe.

"Right now, our tentative conclusion is that it's safe, so we're not recommending any change in habits," said Laura Tarantino, head of the FDA's office of food additive safety. The agency said more research was needed.

For the study released Tuesday, Dr. David Melzer



Kansas City Star photo by Rich Sugg

Husdon Tsevis, 22 months, drinks from a stainless steel bottle, an option for parents seeking to avoid BPA in plastic.

IN THE WEB EDITION

Find out more



For tips and information on BPA, visit Julie Deardorff's health blog at

www.chicagotribune.com/healthclub.

and colleagues from the Peninsula Medical School in Exeter, England, divided a representative sample of 1,455 U.S. residents ages 18 to 74 into quartiles based on BPA concentrations in their urine. The BPA data came from a 2003-04 survey conducted by the Centers for Disease Control and Prevention.

The researchers found that people in the group with the highest concentration of BPA had almost three times the odds of cardiovascular disease as did those in the lowest

quartile, even when factors such as race, income and education levels were accounted for. That group had a 2.4 times higher risk of diabetes.

Higher BPA levels also were associated with clinically abnormal concentrations of three liver enzymes. Researchers did not find a link to any other health problems.

Although previous research in animals had linked BPA to diabetes and liver damage, Melzer said the new finding on human heart disease was unexpected.

Steven G. Hentges, executive director of the Polycarbonate/BPA Global Group of the American Chemistry Council, an industry trade group, noted several limitations of the research.

"Urinary concentrations tell you the exposure over the last 24 hours, but heart disease and diabetes do not occur overnight," he said. "Bis-

phenol A would have to be measured over the time period when heart disease or diabetes is actually occurring, so that's a major limitation of the study."

Hentges also said the study showed that people were being exposed to very low levels of the chemical, "levels that are far below scientific-based safety standards established by government agencies."

Small amounts of BPA can leach into the contents of food or drinks from some types of plastic containers and the linings of cans. The chemical is excreted in urine, making urinary tests the best available measure of recent exposure, the researchers said.

The authors cautioned that further research is needed to confirm their findings.

"From this one study we can say that the effects of BPA in humans need to be examined more closely," said Melzer, a professor of epidemiology and public health. "Until we are able to repeat these results and clarify that the effects are definitely due to BPA itself, we cannot say for certain that BPA causes disease in humans."

Frederick vom Saal, a professor of biology at University of Missouri at Columbia, said the findings were "absolutely no surprise" to scientists who have studied the chemical, which he described as "one of the largest food contact items in existence." He served on a scientific consensus panel of 38 experts that recently reviewed 700 studies of BPA and concluded that it had a high probability of

causing harm.

"If a study comes out of nowhere on a subject that has never been studied, you might say, 'How in God's name can bisphenol A possibly be related to diabetes?'" said vom Saal. "But we have a large literature of animal studies that explains the molecular details."

Dr. Anila Jacob, senior scientist for the Environmental Working Group, a Washington-based research and public health watchdog organization, said the study suggested BPA might play a more significant part in chronic diseases than had been thought.

"We don't know causality [in this study], but associations are important in public health," Jacob said. "These types of large epidemiologic studies are important in pointing us in the right direction."

Some scientists are urging the FDA to declare the chemical toxic and ban it from products that come into contact with food and drinks.

"We have always been concerned about infants and children because we know they have higher exposures compared to adults and we also know they are more vulnerable because their brains are developing and their organ systems are maturing," Jacob said. "But we believe there is reason for concern for everyone."

Tribune wire services contributed to this report.

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BPA demographics

The chemical bisphenol A was higher in some demographic groups than in others according to a newly released study. Researchers called for more studies to determine why.

MEAN BPA CONCENTRATION Nanograms per milliliter

GENDER	Value
Men	4.53
Women	4.66
AGE	Value
18-29	5.69
30-39	4.34
40-49	4.17
50-59	4.95
60-74	3.41
RACE	Value
Mex. American	4.45
Other Hispanic	4.74
White	4.45
Black	6.50
EDUCATION	Value
No H.S. diploma	5.00
Some college	4.32
INCOME	Value
Less than \$25,000	5.38
More than \$55,000	3.72
WEIGHT	Value
Recommended weight	3.91
Overweight	4.18
Obese	5.10

SOURCE: Journal of the American Medical Association

TRIBUNE GRAPHIC

What is BPA?

Bisphenol A is a key ingredient in

polycarbonate plastics and epoxy resins. It exists in thousands of products. BPA can leach out over time, especially when heated. BPA gets in the body most often when it is swallowed, but it also can enter through the skin or be inhaled.

5 THINGS THAT OFTEN CONTAIN BPA

- Shatterproof plastic baby bottles, water bottles
- Reusable plastic food and drink containers
- Paints and adhesives
- Linings of metal cans
- CDs and DVDs



5 SURPRISING THINGS THAT CONTAIN BPA

- Organic canned tomatoes (resin lining for acidic contents)
- Recycled cardboard, such as pizza boxes
- Wine and beer (fermented in resin-lined vats)
- Carbonless credit-card receipts
- Aluminum pop cans



3 WAYS YOU CAN MINIMIZE EXPOSURE

- Microwave food in glass, rather than plastic.
- Look for products marketed as BPA-free.
- Plastics marked with the number 7 in a triangle often contain BPA—but not always.

For more information on specific products, go to www.safemama.com.