

Plastic linked to heart disease and diabetes

THE dispute over the dangers posed by bisphenol A (BPA), a chemical found in common plastics, has taken a new turn. Two US government bodies have previously issued conflicting advice about its safety, but now an epidemiological study suggests it raises the risk of heart disease and type 2 diabetes.

More than 2 million tonnes BPA are produced worldwide every year. The chemical is found in the plastic lining of food and drink cans and in plastic baby-milk bottles. More than 93 per cent of Americans have traces of it in their urine.

Previous investigations into the possible dangers of BPA were carried out in animals, which metabolise the chemical more slowly than humans, so the implications for people were unclear. Now David Melzer at the Peninsula Medical School in Exeter, UK, and colleagues have analysed data from 1455 American adults who took part in the US National Health and Nutrition Examination Survey in 2003 and 2004.

Overall, 79 volunteers had heart disease and 136 had type 2 diabetes – and both diseases were more common among those with high BPA concentrations. After adjusting for age and sex, the quarter of subjects with the highest concentration of BPA were almost three times as likely to have cardiovascular disease and more than twice as likely to have diabetes as those in the lowest quartile (*Journal of the American Medical Association*, vol 300, p 1303).

Tamara Galloway, a researcher on the study, points out that urine samples give an indication of exposure only in the week before the sample was taken, rather than prior to contracting disease or over a lifetime: "This is just a snapshot."

Nonetheless Nira Ben-Jonathan of the University of Cincinnati in Ohio says the findings complement her own research. She found that BPA, when applied to human fat tissue at levels found in the environment,

suppresses adiponectin, a hormone that regulates insulin sensitivity. This could explain how BPA might predispose someone to diabetes. Csaba Leranth of Yale University, who led the first study of BPA in primates, finds the results "very convincing".

Will the new research inform policy? On 16 September, the US Food and Drug Administration held a public hearing into the safety of the chemical at which the new study was

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presented. As *New Scientist* went to press, the FDA's conclusions were not known. But last month, it said in a draft report that current exposure levels posed no danger. Then, just a few weeks later, the US National Toxicology Program (NTP), a government-funded body charged with evaluating chemicals that may pose a health risk, concluded in its final report that current levels were cause for concern.

When making its decision, the FDA chose not to take into account several studies that the NTP used, apparently because of restrictions imposed by the FDA's procedural guidelines. Anila Jacob at the non-profit Environmental Working Group in Washington DC says that this difference explains the discrepancy between the two bodies.

John Bucher of the NTP says that animals are affected by BPA when exposed to comparable levels to those found in humans. The new study confirms that animal studies are relevant to humans, according to Sarah Vogel at the Chemical Heritage Foundation in Philadelphia, Pennsylvania. "We can rely on these animal models," she says. "We shouldn't be waiting decades for unequivocal epidemiological studies before we act." Alison Motluk

Fear of harmful plastics

Chemical ban urged

Simon Kearney
NATIONAL POLITICAL EDITOR

AUSTRALIA'S food regulator is under growing pressure to outlaw a controversial chemical from babies' bottles and other plastic packaging after telling the nation for years that the potentially carcinogenic substance is safe.

Bisphenol A (BPA) is found in plastic packaging and the latest research in the US says it might harm brain development and the prostate gland.

State legislators in California voted last week to get rid of BPA from food and drink containers designed for children under three following fears the chemical is "feminising" baby boys and increasing the risk of breast cancer in girls.

If the bill gets backing from Governor Arnold Schwarzenegger, California will join three other US states, Canada and Denmark in banning BPA.

BPA is widely used to harden plastics and is found in baby bottles, CD cases, plastic knives and forks and the lining of food and drink cans.

Experts estimate that BPA is detectable in the bodies of more than 90 per cent of people. It is one of the world's most widely manufactured chemicals.

The chemical is said to mimic the female sex hormone oestrogen and may interfere with the way hormones are processed by the body.

Although some animal studies have shown it is safe, others have linked it to breast cancer, liver damage, obesity, diabetes and fertility problems.

Australia last week began a phase-out of plastic baby bottles containing the substance, but *The Sunday Mail* has obtained a series of internal emails and documents from regulators Food Standards Australia New Zealand and the Australian Competition and Consumer Commission that detail attempts to cover up concerns earlier this year.

One draft report to Parliamentary Secretary for Health Mark Butler shows comments on the text that indicate Food Standards attempted to hide information about international action from him in January.

"May be too sensitive for the minister to see," the comment says.

"Would delete this - we do not want to be encouraging withdrawal of something we deem safe," another comment says about a section on industry moves to phase out products containing BPA.

A February study by the ACCC, which found no traces of BPA leaching from plastic baby bottles studied, even suggests prosecuting people who claim BPA-free products are safer.

The documents were obtained using freedom of information laws by The Australia Institute, whose executive director Richard Dennis said the emails suggested the Australian agencies were more worried about politics than what the science said.

"We don't know what's safe and what's not but it's obvious neither do they," he said.

Additional reporting Daily Mail