

## **RESEARCH LETTER: Handling of Thermal Receipts as a Source of Exposure to Bisphenol A**

JAMA February 26, 2014 · Volume 311, Number 8

<http://jama.jamanetwork.com/article.aspx?articleid=1832525>

The study looks the exposure to BPA with and without gloves over a period of time. Those with gloves had no change in the chemical from their initial urine sample. However, those without gloves saw an increase within 12 hours and 24 hours when measured from their baseline sample.

As a result of their study, the results are particularly relevant to occupationally exposed populations such as cashiers, who handle receipts 40 or more hours per week.

## **Working Together: Research- and Science-Based Regulation of BPA**

Environmental Health Perspectives · Volume 121 | Number 7 | July 2013

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3702012/>

The National Institute of Environmental Health Sciences (NIEHS) and the U.S. Food and Drug Administration (FDA) has worked together for several years to protect public health. “Both agencies call for further research focused on key questions about BPA to help address and reduce these uncertainties.”

## **Thermal Reaction: The Spread of Bisphenol S via Paper Products**

Environmental Health Perspectives · Volume 120 | Number 1 | January 2012

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3621184/>

“In January 2013 county executive Steve Bellone of Suffolk, New York, made history when he signed the “Safer Sales Slip Act”, a first-in-the-nation ban of thermal receipt paper coated with bisphenol A (BPA)... But the safety of structurally similar bisphenol S (BPS), a widely used BPA replacement, has itself come under question, with one recent study indicating the compound disrupts cell signaling at extremely low doses.”

“The amount of BPA released during recycling can vary widely depending on the processes used.”

## **Bisphenol A in Thermal Paper Receipts: An Opportunity for Evidence-Based Prevention**

Environmental Health Perspectives · Volume 120 | Number 1 | January 2012

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3261950/>

In a recent study by Taylor et al. (2011), they observed that a potentially important nonfood source of exposure to BPA may be the thermal paper used in cash register receipts. The chemical transfers readily from receipts to skin and is absorbed. Retail workers and those with more frequent exposure to cash receipts containing BPA than other Americans have been found to have elevated levels of BPA in their urine.

BPA has been shown to be capable of crossing the placenta and to be toxic during early development. Exposure to infants has been associated with behavioral anomalies. The findings of these studies underscore the need to develop a new U.S. chemical policy that would require toxicological testing of widely used chemicals already on the market and premarket safety testing of all proposed new chemicals.

While research into the effects of exposure to BPA continues, we have the opportunity to act today on the basis of the available evidence to remove BPA from thermal paper, as we strive to protect the health and future intelligence of America’s children.

### **Bisphenol A in Thermal Paper Receipts: Taylor et al. Respond**

Environmental Health Perspectives · Volume 120 | Number 1 | January 2012

<http://ehp.niehs.nih.gov/wp-content/uploads/120/1/ehp.1104409.pdf>

“In the 2003-2004 National Health and Nutrition Examination Survey (NHANES) study, the Centers for Disease Control and Prevention estimated that 93 percent of people in the United States are exposed to BPA, with higher exposures in children than adults. The potential exposure of fetuses and infants to BPA is especially concerning because BPA is not metabolized effectively during these high sensitive stages of human development.”

We “have to stop repeating the same mistakes made previously with chemicals such as lead, for which after decades of repeatedly lowering “safe” exposure estimates, the current predicted “safe level is still above levels known to cause adverse effects. For [these types of] chemicals there are no threshold doses below which exposure is safe, a reality that regulators are unwilling to acknowledge.”

### **Kroger bans BPA from store brands and receipts**

*Forbes*, May 16, 2011

<http://www.forbes.com/sites/eco-nomics/2011/05/16/kroger-bans-bpa-from-store-brands-and-receipts/>

In addition to removing BPA from the baby products it sells, Kroger is also ensuring it will not be in the store brand canned foods and purchasing BPA-free paper for its store receipts. This is a response to customer feedback and emerging concerns regarding the safety of BPA.

The spokesperson for the store states the change in products and purchasing is to “keep customers happy”. Kroger’s move affects its private-label brands which include Kroger, Value Brand, Private Selection, Comforts, Mirra, Active Lifestyle and Fresh Selections.

### **RESEARCH LETTER: Concentration of bisphenol A in thermal paper**

Green Chemistry Letters and Reviews · Volume 4 | Number 1 | March 2011, 86-88

<http://www.tandfonline.com/doi/abs/10.1080/17518253.2010.502908#.Uxkz0GeYa00>

“BPA safety and source determination is critical in light of evidence that suggests significant BPA exposure and accumulation are occurring in the general population.”

The study presents evidence of an additional source of potential BPA exposure to the general public in the form of widely used thermal paper. Eight of the ten receipts tested had quantifiable concentrations of BPA. A few receipts had level of BPA below the detection limit of the method. According to the report, “Since BPA in thermal paper exists as free, unreacted molecules, there is the potential for mobility and therefore human exposure during handling of receipt paper.” Sample receipts were taken from suburban Boston businesses.

### **On the Money: BPA in Dollar Bills and Receipts**

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[http://watoxics.org/files/onthemoneyreport\\_final2.pdf](http://watoxics.org/files/onthemoneyreport_final2.pdf)

Receipts from 20 states and Washington D.C. were collected and tested for BPA. The results of the study show that the chemical appears on other products have escaped from other products, most likely receipts and the contaminated money supply.

Three of the key findings include: 1) about half of thermal paper receipts are made with large quantities of unbound BPA; 2) BPA transfers from thermal paper receipts to human skin; 3) Unregulated use of hormone-disrupting BPA has contaminated our money supply.

A complete list of stores can be found on page 9 of the research. Some of the stores include Safeway, Kroger, Trader Joes, Target, Wal-Mart and Costco.

### **Toxin BPA Found on receipts from Safeway, Whole Foods, Walmart**

*Fast Company*, July 27, 2010

<http://www.fastcompany.com/1674881/toxin-bpa-found-receipts-safeway-whole-foods-walmart>

A recent study found BPA easily makes the transfer from receipts on to skin and penetrates at such a deep level it cannot be washed off. The Environmental Working Group decided to see just how much BPA we are exposed to everyday at these stores.

After testing 36 different stores, BPA was found in significant levels in receipts from chains including Safeway, KFC, Whole Foods, Walmart and McDonalds. The variance in levels of BPA is in the different types of receipts the stores use – some thermal paper manufacturers make an effort to produce BPA-free products.

The author states that employees at the stores have little recourse, but consumers do. Some actions to take include refusing receipts, washing hands after touching them and keeping receipts in separate envelopes. Further, she states the ability to pressure stores to ditch BPA-coated receipts as the ultimate goal.

NOTE: Walmart has made a public effort to remove BPA-contaminated receipts from all of its stores in the time since the original publication of this story.

### **BPA Coats Cash Register Receipts: Tests Find Chemical-Laden Receipts at National Retailers**

*Environmental Working Group*, July 27, 2010

<http://www.ewg.org/bpa-in-store-receipts>

Two-fifths of the paper receipts tests by a major laboratory commissioned by the Environmental Working Group were on heat-activated paper that was between 0.8 to nearly 3 percent pure BPA by weight. Wipe tests conducted with a damp laboratory paper easily picked up a portion of the receipts' BPA coating, indicating that the chemical would likely stick to the skin of anyone who handled them. The receipts came from major retailers, grocery stores, convenience stores, gas stations, fast-food restaurants, post offices and automatic teller machines (ATMs).

Major retailers using BPA-containing receipts in at least some outlets McDonald's, CVS, KFC, Whole Foods, Walmart, Safeway and the U.S. Postal Services. Receipts from some major retailers, including Target, Starbucks and Bank of America ATMs, issued receipts that were BPA-free or contained only trace amounts.