Xenoestrogens and the mother: new lessons from a BPA-replacement chemical

Laura N. Vandenberg
University of Massachusetts – Amherst
School of Public Health & Health Sciences
All children are born pre-polluted
The womb was once thought to be a protected place, a fortress.
ALCOHOL (1950s-70s)

DRUGS (1950s-60s)

HORMONES (1970s)
It is well known that developing individuals are sensitive to estrogens.
For many years, it was assumed that estrogenic chemicals wouldn’t affect adults...

Estrogen & Progesterone Levels During Pregnancy

![Graph showing the relative serum concentrations of estrogen and progesterone during pregnancy.](image-url)
Looking at exposed mothers... Is pregnancy a sensitive window of development?
Bisphenol-A (BPA), a xenoestrogen, is found in a wide variety of consumer products.
BPA replacements
Question 1: Does BPS exposure alter milk production?
BPS alters the lactating mammary gland in exposed mothers

LaPlante et al, Endocrinology 2017
These lactation problems may be responsible for deficits in the offspring.

LaPlante et al, Endocrinology 2017
Question 2: Does BPS alter maternal care?
BPS alters some aspects of maternal behavior in exposed mothers

Catanese & Vandenberg, Endocrinology 2017
BPS alters some aspects of maternal behavior in exposed mothers

Catanese & Vandenberg, Endocrinology 2017

- Pups well retrieved to nest
- Pups scattered in cage, not retrieved

- Time to touch pups (sec)
  - Control
  - Low BPS
  - High BPS

- Time to retrieve first pup (sec)
  - Control
  - Low BPS
  - High BPS

* indicates significant difference
Daughters exposed in the womb also have disrupted maternal behaviors

Catanese & Vandenberg, Endocrinology 2017
Some disruptions to these daughters are severe

![Bar chart showing the percentage of infanticide/severe neglect, poor care (dirty/bruised pups), and total with maternal deficits in control, low BPS, and high BPS groups.]

Catanese & Vandenberg, Endocrinology 2017
Warning, this may be disturbing to some viewers
Question 3: Do other xenoestrogens alter aspects of maternal health?
Obsessive-compulsive behavior in ethinyl estradiol-exposed mothers

Vandenberg & Catanese, Repro Toxicol 2017
Obsessive Compulsive Disorders in the postpartum period
Why does this matter?

• Good behavior begets good behavior... (and bad begets bad)
Why does this matter?

- Pediatric diseases associated with insufficient breastfeeding include acute lymphoblastic leukemia, ulcerative colitis, lower respiratory tract infection requiring hospitalization, necrotizing enterocolitis, and sudden infant death syndrome.
- 80% of women experience problems initiating or maintaining breastfeeding.
The mother isn’t merely a vessel
BPS is a regrettable substitution... right?

**MOST WANTED**

Highly Suspicious Chemical Characters

*Have you seen or heard of alternatives to...*

**WANTED**

Bisphenol A
A.K.A. "Bad Ass BPA"

Accused of: Associating with heart disease, diabetes, and obesity, and generally messing with fertility – correlating with lowered sperm count, fibroids, ovarian cysts, and miscarriage; increasing the risk of prostate and breast cancer.

Last seen: Leaching from metal food can lining, hard plastic bottles, receipt paper, recycled paper, dental fillings, sunglasses, CDs and DVD's, electronic equipment, automobile parts, sports gear... pretty much everywhere.

**BPA-FREE IS A LOAD OF B(P)S LITERALLY.**

Bisphenol-A has been replaced by its nasty cousin, Bisphenol-S. Sound similar right? Well so do their associated health hazards...

www.bodyunburdened.com
Chemical exposures that affect the mother are unsustainable

The “7th generation” principle taught by Native Americans says that in every decision, be it personal, governmental or corporate, we must consider how it will affect our descendants seven generations into the future.
Mary Catanese
Corinne Hill
Charlotte LaPlante
Durga Kolla
Aastha Pokharel
Mary Morcos
Danny McSweeney
Lauren Hurley
Michelle Levine
Klara Matouskova
Brian Martin
Shawn Hallett
Michael Lemieux
Alison Bowler
Archana Gopal
Sarah Sapouckey
D’Andre Quinerly
Deb Pimentel
Anupama Singh
Lauren Masse
Meg Bernier
Alfred Kimani

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