Reproductive Health and the Environment:
The Clinicians Role in Protecting Early Development

Jeanne A. Conry, MD, PhD
Immediate Past President
The American Congress of Obstetricians and Gynecologists
2014 - 2015
I have no conflicts of interest to declare
Educational Goals

- Describe the benefits of utilizing the precautionary principle model as a means to increase public participation and transparency in the decision making process to prevent environmental health risks to children.

- Recognize the relation between prenatal exposures to environmental toxicants and subsequent increases in neurological, developmental disabilities and, other related health concerns contributing to an increase in learning and behavioral problems.

- Identify opportunities available to educational institutions, government agencies, health organizations, child advocacy groups, elected officials, and the general public to elevate the focus and discussion on the consequences of environmental health risks to pregnant women, infants and young children.

- Relate how engaging public/private partnerships benefit health initiatives and prevention programs focused on preventing environmental health risks to pregnant women, infants and young children.

- Explain the urgent need to develop guidelines for purchasing toxic free products and adopt legislative polices for the removal of known or highly suspected environmental contaminants from children’s products.
The Conclusion

- Clinicians can and should increase awareness around a variety of healthy lifestyle choices
- Clinicians can provide information to patients that summarizes information about environmental exposures
- Clinicians can provide an occupational health history in patient evaluations
- **CLINICIANS AND THE PUBLIC MUST ADVOCATE FOR INCREASED RESEARCH AND SAFETY**
The American Congress of Obstetricians and Gynecologists (ACOG) is the nation’s leading group of physicians providing health care for women. With more than 57,000 members, ACOG strongly advocates for quality health care for women, maintains the highest standards of clinical practice and continuing education of its members, promotes patient education, and increases awareness among its members and the public of the changing issues facing women’s health care.
Preconception Health
Interconception Care
And The Environment of Care....
Lead in Lipstick
Reproductive Health: CHOICES

- Fifty percent of pregnancies are unplanned
- Eighty percent of women conceive at some point in their life, and another ten percent attempt conception
- Seventy percent of women conceive a second time
What is “The Environment”? 
“ENVIRONMENT” Includes:

- Industrial chemicals
- Agricultural chemicals
- Physical agents (heat, radiation)
- By-products of combustion and industrial processes (dioxin)
- Foods and nutrients
- Prescription drugs
- Lifestyle choices and substance abuse
- Social and economic factors
Medical Providers do not discuss Environmental Impacts on Health because

A. The research is lacking
B. We are not comfortable with the topic
C. There are no data to support the topic historically
D. We have more important topics to discuss
E. We follow the ostrich approach: we hide our heads unless we can give a full and complete answer, or solve the problem
F. We really are unaware that there is a problem
G. We do, we just have not realized it (blood sugar, hypertension)
How do we get the attention of all clinicians?
Should We Be Concerned?

Dr. Birnbaum: NIEHS, Sharpe and Irvine, 2004
Gene-Environment and Disease

- Why have some diseases increased in incidence over the past 40 years?
- Genes have not changed over that time
- Recent “epidemics” of diabetes, asthma, ADHD, obesity due to environmental, dietary and behavioral changes
- We will never understand the etiology of diseases without an understanding of the role of “environment”
Should We Be Concerned?

Increase in Diabetes (1980-2010)

Increase in Autism Prevalence

Increase in Asthma

Increase in ADHD

Dr. Birnbaum: NIEHS, Data from CDC / National Center for Health Statistics
REMEMBER THE HISTORY

- Diethylstilbestrol in the 1950’s
- Methyl mercury in the 1960’s

...And Endocrine Disruptors of the twenty-first century
WE NEED TO SHARE THE INFORMATION ABOUT RISKS
Chemicals in the environment

- 84,000 chemicals listed by the EPA
- 700 new chemicals released annually
- 3000 chemicals are “high volume” or exceed 1 million pounds of use a year
- The vast majority have not had research or been subjected to standard studies

U.S. Environmental Protection Agency. TSCA Chemical Substance Inventory. 2012 Available from: http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/basic.html.

The Synthetic Chemicals

- Polychlorinated Biphenyls (PCB)
- Polybrominated Biphenyls (PBB)
- Dioxin
- BPA
- Phthalate
- Pesticides (DDT)
- Pharmaceutical (DES)
- Soy (baby formula)
Exposures

- Every pregnant woman in the U.S. has at least 43 toxic exogenous chemicals in her body
- Virtually all pregnant women have measured levels of lead, mercury, toluene, perchlorate, bisphenol A (BPA)
- Studies have documented that each of these chemicals can be harmful to human reproduction and/or development

NAVIGATING THE SCIENCE
Navigating the Science

Pharmaceuticals must show efficacy and safety *prior to* exposing humans

Manufactured chemicals need to show evidence of harm *prior to removing* human exposure

“There is a need to shorten the time from scientific discovery to improved health outcomes”

- Frame the Question
- Select the Evidence
- Rate the Quality and the Strength
ROLE OF THE CLINICIAN
ACOG/ASRM Committee Opinion

All exposures are not created equal

Women of reproductive age with occupational exposure to toxic chemicals are highly vulnerable to adverse reproductive health outcomes.
What do physicians want?

To be able to give sound advice to patients regarding the impact of environmental toxicants on reproductive health
Precautionary Principle

If a chemical exposure has a suspected risk of causing harm, in the absence of **scientific consensus** that the chemical is harmful, **the burden of proof** that it is *not* harmful falls on those who expose the public.
What do we need?

- Clinicians must understand that we will NEVER see double-blinded case controlled studies.
- If that is what we hold out for as a “Gold Standard” when evaluating ENVIRONMENTAL exposure, we will always be dealing with pennies *not gold*.

Environmental Exposures


The American Congress of Obstetricians and Gynecologists
Ob-gyns don’t need to be experts in environmental health to provide useful information to patients. However, they should:

- Be familiar with their geographic area
- Take an exposure history early
- Provide information about how the food system affects health
- Communicate the science and areas of uncertainties about environmental exposures

**Food Matters: What to Eat?**

Your health depends on the food you eat.

The health of communities and the environment we depend on for life are also impacted by how food is grown and how it gets to your dinner plate.

This brochure provides tips for making food choices to protect your health and the health of your family and community.

The brochure also provides many more resources to learn more about how the food we eat impacts our health. For more information, visit: [http://www.prhe.ucsf.edu/prhe/foodmatters.html](http://www.prhe.ucsf.edu/prhe/foodmatters.html)

There are many ways to make a difference. Here are some suggestions to get started.
Individual Action Alone is Not Enough

MEET MOLLY GRAY.

- Nine pregnant women tested from Washington, Oregon, and California, during the second trimester had detectable:
  - Bisphenol A
  - Mercury
  - At least four phthalates
  - At least two and up to 4 perfluorinated chemicals
HOW CAN WE HELP CLINICIANS
Our Vision

- Wouldn’t it be great to open the “environmental equivalent” of Drugs in Pregnancy and Lactation?
- Wouldn’t it be great to have an easy on-line resource, click on bisphenol a and see what to recommend?
- Wouldn’t it be great for clinicians to even KNOW to ask about exposures?
Exposure to Toxic Environmental Agents

ABSTRACT: Reducing exposure to toxic environmental agents is a critical area of intervention for obstetricians, gynecologists, and other reproductive health care professionals. Patient exposure to toxic environmental chemicals and other stressors is ubiquitous, and reproductive and perinatal exposure to toxic environmental agents can have a profound and lasting effect on...
In the case of pharmaceuticals, the onus is on the pharmaceutical company to do the research with toxicity testing, randomized control trials and post-exposure observational studies,"

"With environmental chemicals, the manufacturer puts out a product, and the onus is on the regulatory bodies, environmental groups and lay public to find problems and study the effects.”"
How Can We Lead?

- ACOG and ASRM produced a committee opinion on Reproductive Health and the Environment
- ACOG, ASRM, SMFM developed a joint statement for all women’s health experts
- We support state and national legislation on environmental health
- We MUST Create educational opportunities
  - Annual Meetings
  - Regional Meetings
  - Residency Training and Board Exams
Resources for Clinicians

- American Academy of Pediatrics: The Green Book
- PEHSU: The Pediatric Environmental Health Specialty Unit, why not include Maternal Health?
- UCSF Program on Reproductive Health and the Environment is invaluable
- http://prhe.ucsf.edu/prhe/
Clinicians and the Public Policy Agenda

- Collaborate with colleagues in backing a “green agenda” in our homes, workplace and communities
- Apply evaluation of research so that Medical organizations can advocate on behalf of women to reduce exposure to potential toxicants
Can We Change the Responses?

Medical Providers do not discuss **Environmental Impacts** on Health because !!

A. The research is lacking: *PRHE and the Navigation Guide*
B. We are not comfortable with the topic: *Educate*
C. Where are no data to support the topic historically: *DES, Mercury*
D. We have more important topics to discuss: *Well woman health*
E. We follow the ostrich approach: we hide our heads unless we can give a full and complete answer, or solve the problem: *Human Nature*
F. We really are unaware that there is a problem: *No longer!!*
We share a common goal: we want healthy mothers, healthy infants, and a healthy future. IF there was no doubt about research, if there was no cost impact for implementing change, if there was a uniformity of agreement in all the discussions, we would have no work. So finding points of agreement has got to be where we start, educating our clinicians, the public and the governing bodies then is the ideal next step so that finally we see that we have implemented change.