Generations at Risk: Exposure to Toxic Environmental Agents and Reproductive Health

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Exposed: The Environment and The Health of Our Most Vulnerable.

A panel discussion with the nation’s leading physicians dedicated to the health of women, infants and children
American Society for Reproductive Medicine

ASRM is a multidisciplinary organization dedicated to the advancement of the art, science, and practice of reproductive medicine.

The Society accomplishes its mission through the pursuit of excellence in education and research and through advocacy on behalf of patients, physicians, and affiliated health care providers.

The Society is committed to facilitating and sponsoring educational activities for the lay public and continuing medical education activities for professionals who are engaged in the practice of and research in reproductive medicine.
ACOG/ASRM Committee Opinion

“Environmental exposures can have a profound and lasting impact on the health of our patients and future generations”
Trends in reproductive function, cancers, and developmental disorders
In a Rush to Mature: Study Finds Boys Hitting Puberty Earlier than Ever

By Laura Blue  |  Oct. 22, 2012  |  0

Puberty usually hits boys later than girls, at an average age of 11. But according to new research published in the journal *Pediatrics*, U.S. boys are now experiencing the first signs of sexual maturation — genital growth, testicular enlargement, and the appearance of pubic hair — roughly 6 months to 2 years earlier than boys at similar ages just a few decades ago.

Pediatricians now find that the earliest stage of male puberty occurs, on average, at age of 10.14 years among non-Hispanic whites, at 10.4 years among Hispanics, and at just 9.14 years among African Americans.

Age of menarche in Europe and the US from 1790 to 1980

an increase in Aggressive breast cancer in young women - http://jama.jamanetwork.com/article.aspx?articleid=1656255
Human Disease Trends

- Obesity
- Cardiovascular disease
- Diabetes
- Metabolic syndrome

- Many of these diseases are increasing in incidence, some globally.

Past (solid lines) and projected (dashed lines) overweight rates in selected Organization for Economic Co-operation and Developing countries 2012.
Rates of Preterm Delivery

- 1 out of 8 babies is born prematurely.
- Rate has increased 36% since the early 1980s.


IOM Report, Preterm Birth: Causes, Consequences, and Prevention 2008
Childhood Cancer

From 129 to 167 cases per million children
Autism

From 6.4 to 11.4 cases per 1000
What has changed?
Exposure to environmental chemicals is implicated in adverse trends in reproductive and developmental health.
U.S. Chemical Production

Chemical production has increased **15-fold** over 70 years

*Federal Reserve G.17*
Today

84,000 chemical substances registered for use in U.S. commerce
3,000 chemicals used or imported in excess of 1 million pounds
700 new industrial chemicals introduced into commerce each year

“Most environmental chemicals in commerce have entered the marketplace without comprehensive and standardized research into their reproductive or other long-term toxic effects”
Evidence that connects exposure to toxic environmental chemicals is robust
Evidence for adverse reproductive outcomes (infertility, cancers, malformations) from exposure to endocrine disrupting chemicals is strong, and there is mounting evidence for effects on … thyroid, neuroendocrine, obesity and metabolism, and insulin and glucose homeostasis.
“... to a disturbing extent babies are born ‘pre-polluted’”
The human reproductive system is vulnerable to harm from chemicals in the environment.
Timing Matters
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Cohn et al. EHP 2007

No increased risk of breast cancer

5 fold increased risk of breast cancer
ACOG/ASRM Opinion:

“An important outcome of pregnancy is no longer just a healthy newborn but a human being optimally programmed for health from infancy through old age.”
Recommendations

“… encourage women in the preconception period and women who are pregnant and lactating to eat fruit, vegetables, beans, legumes … and avoid these [high in mercury] fish”
Recommendations

“Advancing policies and practices in support of a healthy food system should be pursued as a primary prevention strategy to ensure healthy pregnancies, healthy children and healthy future generations.”
“A chemical should never be released if a concern exists regarding its effect on health.”

Safer alternatives to toxic chemicals protect workers, communities and individuals at home and abroad.