



## Navigating the Scientific Evidence to Improve Prevention

A workshop to develop a guide for efficient evaluation of reproductive environmental health science to catalyze preventative action in medical, public health and policy arenas.

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UCSF Program on Reproductive Health and the Environment  
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### Workshop Rationale

*Translate Reproductive Environmental Health Science into Prevention-Oriented Action in Clinical Care and Policy Arenas*

A rapidly expanding body of research indicates that exposure to chemicals in our environment can harm reproductive health across generations.<sup>1</sup> The evolving science points to potential public health impacts of great consequence. For example, preconception and prenatal environmental exposures are associated with infertility, childhood learning disabilities, child and adult onset of cancer and other health problems. As the science of reproductive environmental health has advanced, so has the need to take timely action to prevent harm.

Reproductive health clinical practice is one of the key opportunities for intervention to prevent harm from chemical exposure. While many scientific questions remain, there is enough public interest in reproductive environmental health that clinicians need to be prepared to respond to inquiries from their clients. For example, most clinicians are not prepared to respond to patient inquiries about biomonitoring studies or concerns about chemical exposures encountered at home, at work and in their community.

Beyond the clinic, medical professionals can play a leading role in shaping public health policy if they are prepared and mobilized. Lessons for this can be drawn from the role of medical professionals' impact on smoking rates. Initially doctors were slow to adopt a "no-smoking" message. After many years, doctors began educating their patients on the risks of cigarette smoke, and eventually they became critical leaders in efforts to establish tobacco control policy. Their involvement played an important role in shifting the public debate, and had they been activated earlier on the issue, many people could have been spared immense suffering.

#### *Use the Scientific Evidence in a Systematic and Timely Manner*

One limiting factor in engaging clinicians in reproductive environmental health issues is the lack of a roadmap to assist them in transparently and efficiently sorting the existing and emerging scientific evidence and apply it to prevention in real-life situations. This is one gap that contributes to delays in taking preventive actions at the individual, household, community, state and national levels.

To communicate effectively with patients and policy makers on reproductive environmental health issues, health care professionals must address uncertainty, take an appropriate precautionary stance, and provide patients specific advice on avoiding exposures. The Navigating the Scientific Evidence to Improve Prevention workshop will be dedicated to developing a transparent methodology that will clarify how clinicians can:

- **Identify the utility of existing chemical assessments:** Dozens of different government agencies define chemicals of concern, but there is very little if any coordination between these databases, and not all databases have transparent methodologies. How can clinicians know which databases to trust in their analysis? Are there databases that are so widely respected that their analysis requires no further investigation?
- **Evaluate the types of evidence that should be considered in identifying chemicals of concern:** There is often a lag between the publication of research and the incorporation of that research into government agencies' evaluation of chemicals. In that interim, what types of data should be considered in evaluating how to respond to questions about risks from these chemicals? For example, how much weight should be given to epidemiological studies, animal toxicology studies, wildlife studies, etc. Under what general circumstances or exposure conditions (for example environmental or occupational) do identified chemicals pose different levels of concern?

The workshop will involve leaders across scientific disciplines, including but not limited to environmental, reproductive, occupational and public health, toxicology, pharmacology and medicine. The outcome of this workshop will be a jointly-authored peer-reviewed article published in an academic journal that proposes a transparent methodology for clinicians to

understand how to sort the significance of reproductive environmental health science. It is hoped that over time this methodology can be translated and applied to other purposes, such as community organizing and advocacy.

### Project goals

#### Short-term

- Foster cross-discipline cooperation and learning between reproductive health specialists, environmental health scientists, clinicians, community and public health leaders and others.

#### Mid-term

- Mainstream reproductive environmental health in clinical practice.

#### Long-term

- Contribute to making the world a place where couples can conceive if they wish, have a healthy pregnancy, a healthy child, and ultimately, healthy future generations.

### Project objectives

#### Short-term:

- Publish the methodology in a peer-reviewed academic article.
- Gain wide-spread endorsement for the published methodology from key scientific leaders, clinicians and their professional organizations, patients, consumers, workers and other populations impacted by exposure to environmental toxins.

#### Medium-term:

- Develop science-based recommendations for prevention in clinical care and policy arenas based on the methodology.
- Translate the methodology to so it can be used by lay audiences, such as community members, advocates and policy makers.
- Support clinicians in being spokespeople on important environmental and reproductive health concerns.

#### Long-term:

- Build an online database that shows the strength of the evidence for different environmental contaminants' potential for harm using the guide to sort and interpret research.
- Train clinicians, community activists and policy advocates to understand and apply the methodology as one element of prevention-oriented public health work.

### **Workshop Format**

The workshop will begin with several presentations that give an overview of why this methodology is needed from a prevention-oriented perspective, what some of the considerations are for clinicians using the methodology and what are other relevant models to vet evidence for other applications. Next, the workshop will consider one or more case studies. During the bulk of the workshop participants will deliberate on the methodology proposed in the pre-event paper and develop consensus on how to modify the methodology. The workshop will be followed by

revisions to the pre-event paper by all workshop participants to prepare it for submission to an academic journal for publication.

### **Questions for Consideration During the Workshop**

1. What are accepted sources of scientific evidence for clinicians? What are the underlying assumptions, values, types of evidence and goals of intervention used to assess harm to human health?
2. What are accepted sources of scientific evidence for reproductive environmental health specialists? What are the underlying assumptions, values, types of evidence and goals of intervention used to assess harm to human health?
3. How are these sources of information similar? How are they different?
4. What are the goals for evaluating information in the clinical setting and in environmental health?
5. Based on the answers to the questions above, what are the steps needed for clinicians to assess reproductive environmental health science?
6. What is a transparent methodology that clinicians can use to determine what recommendations they should make in a clinical and public policy arena.

<sup>1</sup> Woodruff TJ, Carlson A, Schwartz JM, Giudice LC. Proceedings of the Summit on Environmental Challenges to Reproductive Health and Fertility: executive summary. *Fertil Steril*. 2008 Feb;89(2 Suppl):e1-e20.