

**Toxicity: Endocrine Disrupting Chemicals**

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**Citation:** Gore AC, et.al. *Executive Summary to EDC-2: The Endocrine Society's Second Scientific Statement on Endocrine-Disrupting Chemicals. Endocrine Reviews 36: 09, 2015. doi: 10.1210/er.2015-1093*

**Summary of the publication:**

In this new review paper prepared for the Endocrine Society on Endocrine Disrupting Chemicals (EDC) the authors review the available data on this growing health problem. The review focused on seven areas which included obesity and diabetes, female reproduction, male reproduction, hormone-sensitive cancers in females, prostate cancer, thyroid, and neurodevelopment and neuroendocrine systems. A cursory look at those areas would clearly associate with some of the most common areas of clinical presentation in any health care practitioners office. This is an enlightening and honest review work and is the most aggressive work of its type in the arena of endocrine disruption via toxicants.

In the review EDCs such as bisphenol A, phthalates, pesticides, persistent organic pollutants (such as polychlorinated biphenyls, polybrominated diethyl ethers, and dioxins) were emphasized “because these chemicals had the greatest depth and breadth of available information”. The Statement also included thorough coverage of studies of developmental exposures to EDCs, especially in the fetus and infant, because “these are critical life stages during which perturbations of hormones can increase the probability of a disease or dysfunction later in life”. In my two decades of patient care as a naturopathic physician and a prior decade in allopathic medicine I believe I have seen the endocrine cases become harder and harder to treat over that time. Additionally the cases with “equivocal” lab studies not matching the level of symptomatology are growing. And I know I am not alone in this observation.

The authors list a number of areas of concern including cardiovascular, reproductive, thyroid, neurological, oncologic and other common conditions. The data is very compelling albeit not encouraging. The authors relay the concern we all have regarding these chemical toxicants and in their summary statements include the following:

“Clearly, not all chemicals are EDCs, but substantial information needs to be provided before inclusion of a new compound in a food storage product, a water bottle, health and beauty products, or a household product. Replacement chemicals provide excellent

examples of why precaution is merited. The BPA substitute, BPS, is now shown to have endocrine-disrupting activity on par with BPA in experimental studies discussed in EDC-2. A further need for precaution is based on evidence that individuals exposed to EDCs may carry that body burden for their entire lives in the case of long-lived chemicals; that even short-lived chemicals may induce changes that are permanent; and that some actions of EDCs are observed in an individual's offspring. Transgenerational effects of EDCs mean that even if a chemical is removed from use, its imprints on the exposed individual's DNA may persist for generations and possibly forever. These observations, which have cut across all areas of EDC research reviewed in EDC-2, make it paramount to evaluate any new chemical before inclusion on the open market in any form in order to avoid any further contribution to the problem."

To compound the environmental and human impact of these chemical toxicants we now understand that the half-lives of many of the chemicals are not within "natural elimination" in an average human life span. Additionally the data are just emerging regarding the potential for compounded (epigenetic) effects on the fetus and neonate that may be less pronounced in an adult who is exposed.

#### **Discussion of clinical impact:**

While this phenomenon is not new it does seem to have the force of expansion behind it. Where we may in past decades only have heard of these issues periodically we now not only face clinical effects in our patients but also are faced with such data constantly. So our task in the face of all the negative is to seek a stance regarding our involvement in the problem. I would suggest the following as starting places in this task:

1. Work to reduce the current and eliminate future manufacture and distribution of these chemicals worldwide.
2. Recognize that in most of our patients with endocrine and related health issues these effects are ubiquitous.
3. Educate ourselves regarding the clinical management of patients with EDC effects including:
  - a. Looking at patient cases where the lab results and clinical symptoms simply do not match as potential EDC overlay cases.
  - b. Learning how to properly adjust therapies not simply looking at those laboratory data to compensate for the EDC effects while we are treating the larger issues in the case.

- c. Educating ourselves in proper depuration and detoxification procedures for our patients.
- d. Supporting our patients ReDox status, exercise, hydration, liver and digestive support and other predicates for elimination.

In summary integrative health care providers are uniquely set up to be on the front line of the care of patients with EDC effects. Our role includes environmental protection, patient education, proactive reduction of chemical exposure and therapies to assist in depuration and detoxification. In many areas of medicine there is an equal need for allopathic and natural interventions, in this area the benefits of natural interventions are clearly superior and greatly needed.