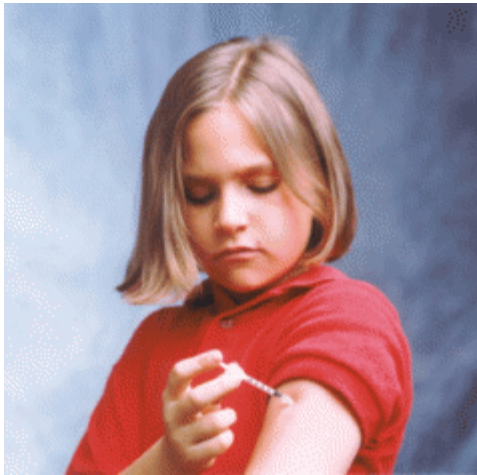


The aggressive chemical push

Dr Alison Bleaney - Tasmanian Public & Environmental health Network

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<http://tasmaniantimes.com/index.php?/weblog/article/the-aggressive-chemical-push/>



Many of these chemicals have been promoted as ‘safe’ and aggressively sold to consumers, mostly since the end of the second World War.

Preventative medicine sure seems to take a while to be implemented. Implementation of the precautionary principle and ensuring the safety of products – and in combinations - before they are released for public use is essential.

It seems it has been mostly ignored in Australia to date; it is essential these processes happen as soon as possible as a matter of urgency. **Alison Bleaney, TPEHN**

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EPA Weighing Impacts Of Chemical Exposures On Diabetes, Obesity

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EPA and several other federal health agencies are launching a push to examine whether environmental exposures to certain chemicals and increased risks of developing diabetes or obesity, health outcomes which

affect an estimated 40 percent of the adult population and that, if proven, could drive strict new regulatory requirements.

The **National Institute of Environmental Health Sciences (NIEHS)**, **US Environment Protection Agency** and the **Food and Drug Administration (FDA)** have announced a Jan. 11-13 workshop, to be held in Raleigh, NC, to evaluate the available science linking environmental exposures of certain classes of chemicals to the development of diabetes and obesity in adults and children.

Also on the agenda will be EPA's **ToxCast** program, which uses new high throughput, cellular-based assays to screen chemicals for health effects. The aim is to develop additional assays to test chemicals' ability to cause obesity or diabetes, one source says.

The objectives outlined for the January 2011 workshop include evaluating strengths, weaknesses, consistency and biological plausibility of findings reported in humans and experimental animals for certain environmental chemicals, identifying data gaps and prioritizing areas for future research.

NIEHS's **Center for the Evaluation of Risks to Human Reproduction (CERHR)** is compiling a literature review of studies examining certain classes of chemicals as "obesogens," targeting those chemicals for further research and workshop discussion. The chemicals being discussed include: arsenic, cadmium, PCBs, DDT/DDE, other organohalogens, bisphenol A, phthalates, and organotins. For example, the literature review includes between 25-30 human studies examining higher levels of arsenic exposure and diabetes, the CERHR source says.

The workshop sprang from a growing concern that environmental exposures to the chemicals may be contributing factors in the development of diabetes and obesity. Kristina Thayer, CERHR acting director, first presented the concept at a December 2009 meeting of the **National Toxicology Program's (NTP's)** Board of Scientific Counselors (BSC).

NTP director Dr. **Linda Birnbaum** noted during the 2009 BSC meeting that diabetes and obesity have clearly become an "epidemic in children today," according to minutes of the meeting. Studies have indicated that 40 percent of people over the age of 20 have diabetes or pre-diabetes and that 70 percent of type 2 diabetes risk can be attributed to obesity, with the remaining 30 percent of cases of unknown cause.

"It's an emerging environmental health science issue," one CERHR source says, adding that NTP felt "it was time to stop and take a look" at the growing body of science on environmental factors in diabetes and obesity. The group of experts at the workshop will use available data to develop a working hypothesis on the role of environmental chemicals in diabetes and obesity. Attendees are expected to include government scientists, academic researchers, and some in industry.

The agencies are also poised to utilize **ToxCast**, EPA's high throughput screening tool developed by its **National Center for Computational Toxicology** (NCCT), to examine chemical exposures and their links to diabetes and obesity. The 2011 workshop aims to use the existing literature to identify relevant cellular pathways and biological mechanisms associated with diabetes and obesity, for use in later assays for the multi-agency effort known as **Tox21**.

That effort is the result of a memorandum of understanding between EPA, NTP, FDA, NIEHS, and the National Institutes of Health Chemical Genomics Center, which seeks to use new toxicity testing techniques in order to streamline chemical testing for EPA and other agencies' rules.

The move to examine obesity and diabetes presented a "natural opportunity" for a Tox21 partnership, an NCCT source says, because ToxCast can provide more information about biological mechanisms and the way they affect metabolism.

NIEHS' Birnbaum during the 2009 meeting cautioned against limiting the study to traditional models. The comment prompted the agencies' plan to use in vitro, or cellular-based models, along with whole animal studies to identify the most "useful and relevant endpoints" for diabetes and obesity.

ToxCast has already published large amounts of data about chemicals in the classes of those targeted for discussion at the NTP workshop, and identified key receptor systems, such as peroxisome proliferator receptor alpha (PPAR-alpha), that could be relevant to diabetes and obesity outcomes, the CERHR source says. PPAR-alpha is linked to a host of chemicals, including dioxin and perfluorooctanoic acid (PFOA).

The ToxCast profiles also identified several chemicals of interest to the diabetes and obesity workshop but that were "not previously on the radar," the CERHR source says, but declined to elaborate.

Thayer said during her 2009 presentation that the available studies would limit the types of conclusions that can be drawn about each chemical class, ranging from using the studies in the literature review to focus further research to those chemicals with a wider base of scientific evidence, which may permit "drawing conclusions on consistency of effects on body weight following developmental exposures or biological plausibility," according to the presentation slides.

The workshop will not develop "level of concern" conclusions, which set threshold levels below which chemicals are not believed to pose risk for diabetes or obesity, but rather do a "broad screen" of environmental exposures for effects related to diabetes, obesity and metabolic deficiencies, according to the meeting minutes.

Mitzi Nagarkatti, of the University of South Carolina School of Medicine, said during the BSC 2009 meeting that "this is a very significant area of research." But Nagarkatti questioned how CERHR planned to prioritize the

chemicals that would be included in the literature review. Dr. Thayer responded that discussion with the experts at the workshop would help triage the chemicals.

Another board member, Edward Carney of the **Dow Chemical Company**, suggested during the 2009 meeting that CERHR should either wait for the completion of additional studies or broaden the scope beyond obesity and diabetes to developmental origins of adult disease. [**Bridget DiCosmo**]