

Teaching Session on EDCs for MDs

Courtesy of David Collier, ECU

This teaching session examines the concept of endocrine-disrupting chemicals (EDCs) and largely focuses on EDCs and other potentially toxic compounds that are either direct or indirect food additives that the AAP's Council on Environmental Health consider to pose health risks to children. Practical advice the pediatrician can offer is explored.

Residents should choose at least 1 question to be responsible for reporting back to the group on. The articles/resources listed below contain sufficient information to answer the questions. One copy of each article/resource will all be available in print in the CC room.

1. Introduction to Endocrine Disrupting Chemicals (EDCs) Endocrine Society and IPEN
<https://www.endocrine.org/-/media/endsociety/files/advocacy-and-outreach/important-documents/introduction-to-endocrine-disrupting-chemicals.pdf?la=en>
 2. Food Additives and Child Health (Policy Statement)
<https://pediatrics.aappublications.org/content/pediatrics/142/2/e20181408>
 3. Food Additives and Child Health (Technical Report)
<https://pediatrics.aappublications.org/content/142/2/e20181410>
 4. Food Additives: What Parents Should Know.
<https://www.healthychildren.org/english/healthy-living/nutrition/pages/food-additives.aspx>
 5. Questions & Answers: Arsenic in Rice and Rice Products
<https://www.fda.gov/Food/FoodborneIllnessContaminants/Metals/ucm319948.htm>
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1. Discuss the concept of endocrine-disrupting chemicals (EDCs) (use ref 1)
 - a. What is the Endocrine Society's definition of an EDC? (page 1 of ref 1).
 - b. How many chemicals are thought to be EDCs? (page 1 ref 1)
 - c. Name several categories of products and specific examples of chemicals that are EDCs from each category (pg 10 ref 1).
 - d. Is classical chemical risk assessment well suited for assessing risk from EDCs? Why or why not? (pg 2, 3, 23 ref 1)
 2. Children's health may be affected through ingestion of chemicals with endocrine-disrupting effects that are deliberately used in food production or packaging (Ref 2 and 3).
 - a. What are indirect vs. direct food additives and give examples of each.
 - b. Discuss the number of chemicals that are allowable in food and food packaging materials.
 - c. What is "GRAS" designation and how many chemicals are used under this designation?
 - d. What are some issues that the AAP identify as weaknesses with using GRAS designation to regulate food additives?

3. At a 2 year WCC a family asks your advice about purchasing plastic products that are labelled as “BPA Free” (ref 2 and 3)
 - a. What is BPA and where is it found?
 - b. What is the evidence that BPA is an EDC that poses health risks to humans?
 - c. What are BPA-free plastic products made with, and is this safer than BPA?
 - d. What practical advice can you offer this family if they wish to reduce risks?

4. The mother of a 4 month old child you are seeing for WCC is interested in starting to feed her child infant cereal. The grandmother insists that mom should use rice cereal exclusively because that is what the grandmother was told to do by her pediatrician but the mom has heard that there is arsenic in rice. Mom wonders if it is OK to feed her baby rice cereal and also wonders if arsenic in rice is a concern for the whole family. What advice would you give her (Ref 5)?
 - a. What are the two forms of arsenic, where do they come from and how do they get into foods.
 - b. What are health concerns with arsenic exposure?
 - c. Why is rice a concern?
 - d. Do you recommend avoiding certain rice products?
 - e. Mom asks if cooking rice like pasta (excessive water) is effective at reducing arsenic content.
 - f. What does the FDA and AAP recommend concerning feeding rice cereal to infants?

5. You were recently asked by a family in the newborn nursery if it is OK for them to use scented baby lotions, powders and soaps on their newborn infant. Based on your knowledge of endocrine disruptors you suggest that the family avoid these products as well as avoid air fresheners, scented candles, scented trash bags and fresh smelling detergents. Your attending wants to know what the basis for this advice is! (pg 45 ref 1, and ref 2,3)
 - a. What broad class of compounds with endocrine-disrupting effects are frequently used in scented products?
 - b. Where else can they be found?
 - c. What are the two classes of these compounds?
 - d. What are the routes of exposure for these two classes of compounds?
 - e. Name several health outcomes thought to be associated with exposure to this class of EDC.
 - f. How can you know what products contain this EDC?
 - g. What can you do to minimize exposure?

6. Discuss some simple low cost, low tech, approaches to minimizing EDC exposures (ref 4 and others).

7. ***Wild Card*** Choose an environmental toxin not covered in these articles that is of interest to you to report back to the group on (like a pesticide, lead etc.)