BPA Study Report Card

The criteria identified in this Report Card have been established by the National Institute for Environmental Health Sciences (NIEHS) for use in evaluating research studies funded by the agency. The NIEHS criteria were developed in 2009 to provide the best parameters for assessing human health effects of BPA.

Study Meets Criteria	Study Criteria Unknown	Study fails criteria

Study: Bisphenol-A Treatment During Pregnancy in Mice: A New Window of Susceptibility for the Development of Diabetes in Mothers Later in Life

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CRITERIA	SCORE	COMMENTS
Diet, must not interfere with the sensitivity of the model to BPA		Although diet was detailed in paper, no estrogenicity testing was mentioned
Species and strain of animals, (must be sensitive to estrogenic chemicals at low doses)		
Sufficient sample size		5 mice per group
Internal dose of BPA (total and free BPA should be measured in blood and if possible also in urine throughout the study),		No BPA testing in blood or urine performed
Dose responses (single dose experiments are not acceptable),		2 doses used, both orders of magnitude higher than human exposure
Phenotype (endpoint must be an actual phenotype, disease/dysfunction not just toxicity)		
Litter must be used as statistical unit for developmental exposures		
Route of exposure should be oral or justified to provide similar blood levels as oral route		Animals were exposed through subcutaneous injection
Males and females should be used when feasible		
Molecular targets and mechanism should be assessed when possible including gene expression, receptor binding and epigenetic studies. These effects should be linked to the exposure and the disease/dysfunction endpoints.		

Note: The research describes using subcutaneous injection of BPA in pregnant mice at 10ug/kg BW/day and 100ug/kg BW/day. This route of exposure has been cited by US Food and Drug Administration and the European Food Safety Authority as having little relevance to human health because humans are exposed to 99% of BPA in diet. Previous experiments have shown that humans metabolize >99% of ingested BPA, so animals in this experiment were exposed to "Active" BPA at levels orders of magnitude higher than human exposure.

From FDA's website on BPA: (http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm064437.htm)

- Found evidence in rodent studies that the level of the active form of BPA passed from expectant mothers to their unborn offspring, following oral exposure, was so low it could not be measured. The study orally dosed pregnant rodents with 100-1000 times more BPA than people are exposed to through food, and could not detect the active form of BPA in the fetus 8 hours after the mother's exposure.
- Demonstrated that oral BPA administration results in rapid metabolism of BPA to an inactive form. This results in much lower internal exposure of BPA (i.e., the active form) than what occurs from other routes of exposure such as injection.
- Found that primates (including humans) of all ages effectively metabolize and excrete BPA much more rapidly and efficiently than rodents.