

Office of Health Assessment and Translation (OHAT) Update

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NTP Board of Scientific Counselors Meeting
June 16, 2015



- Background on OHAT
- Updates
- Introduction to NTP tools session



Office of Health Assessment and Translation

- Literature-Based Evaluations
 - Non-cancer (OHAT) and cancer (ORoC)
 - NTP hazard and level of concern conclusions
 - State-of-science reports
- Systematic Review & Evidence Integration
 - Method development and refinement
 - Software tool development for data extraction, data display, text-mining/machine learning
- Research
 - Address research needs identified in literature-based evaluations
 - Exposure assessment
 - Risk communication





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- “Handbook for Conducting a Literature-Based Health Assessment Using OHAT Approach for Systematic Review and Evidence Integration” (posted January 2015)
- Expert Panel Meeting: Identifying research needs for assessing safe use of high intakes of folic acid (May 11-12, 2015)



- Peer-reviews expected in Q1 2016
 - Immunotoxicity associated with exposure to perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) [Andy Rooney]
 - Adverse health effects associated with occupational exposure to cancer chemotherapy agents [Kembra Howdeshell]
 - Neurological effects and pregnancy-associated hypertension associated with traffic-related air pollution [Kembra Howdeshell]

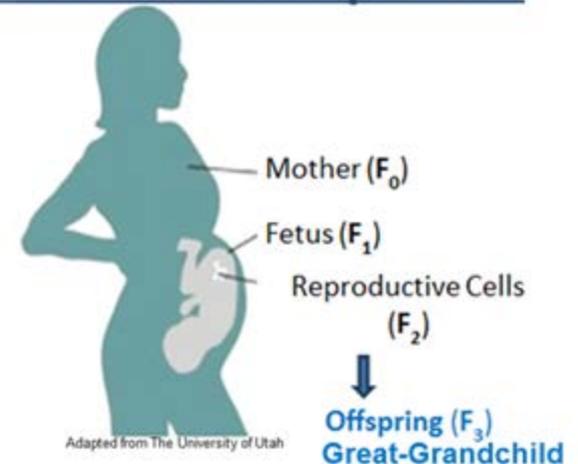


- Systematic Review of 24 BPA Analogues [Katie Pelch]
 - Overall objective: What is the biological activity of BPA analogues of emerging public health concern?
 - Systematic review of literature (mostly *in vitro*)
 - Tox21 and ToxCast analyses
 - Evaluate structural and biological similarity of analogues to each other, to BPA, and to potent estrogens
 - Conduct Tox21 network analysis to identify chemicals most biologically similar
 - Identify data gaps and research needs



- State of Science for Transgenerational Inheritance of Health Effects [Vickie Walker]
 - Overall objective: Examine extent of evidence for transgenerational inheritance of health effects
 - Refers to effects that occur in unexposed generations, i.e., F_3 (great-grandchild) generation following gestational exposure.
 - Wide range of stressors (e.g., environmental chemicals, drugs of abuse, nutrition and diet, pharmaceuticals, infectious agents, or stress) in humans or animals

Gestational Exposure





- Systematic Review of Neurobehavioral Toxicity of Fluoride in Animal Studies [Kris Thayer, Jean Harry]
 - Conducted to support an Australian National Health and Medical Research Council (NHMRC) expert panel review to address concerns related to water fluoridation and children's IQ and cognitive abilities
 - Initiated December 2014, report due June 22, 2015
 - ~5,000 studies screened, 61 included (16 non-English)
 - OHAT also received a very recent nomination to do an evaluation of developmental exposure to fluoride and neurological effects (animal, human, mechanistic)



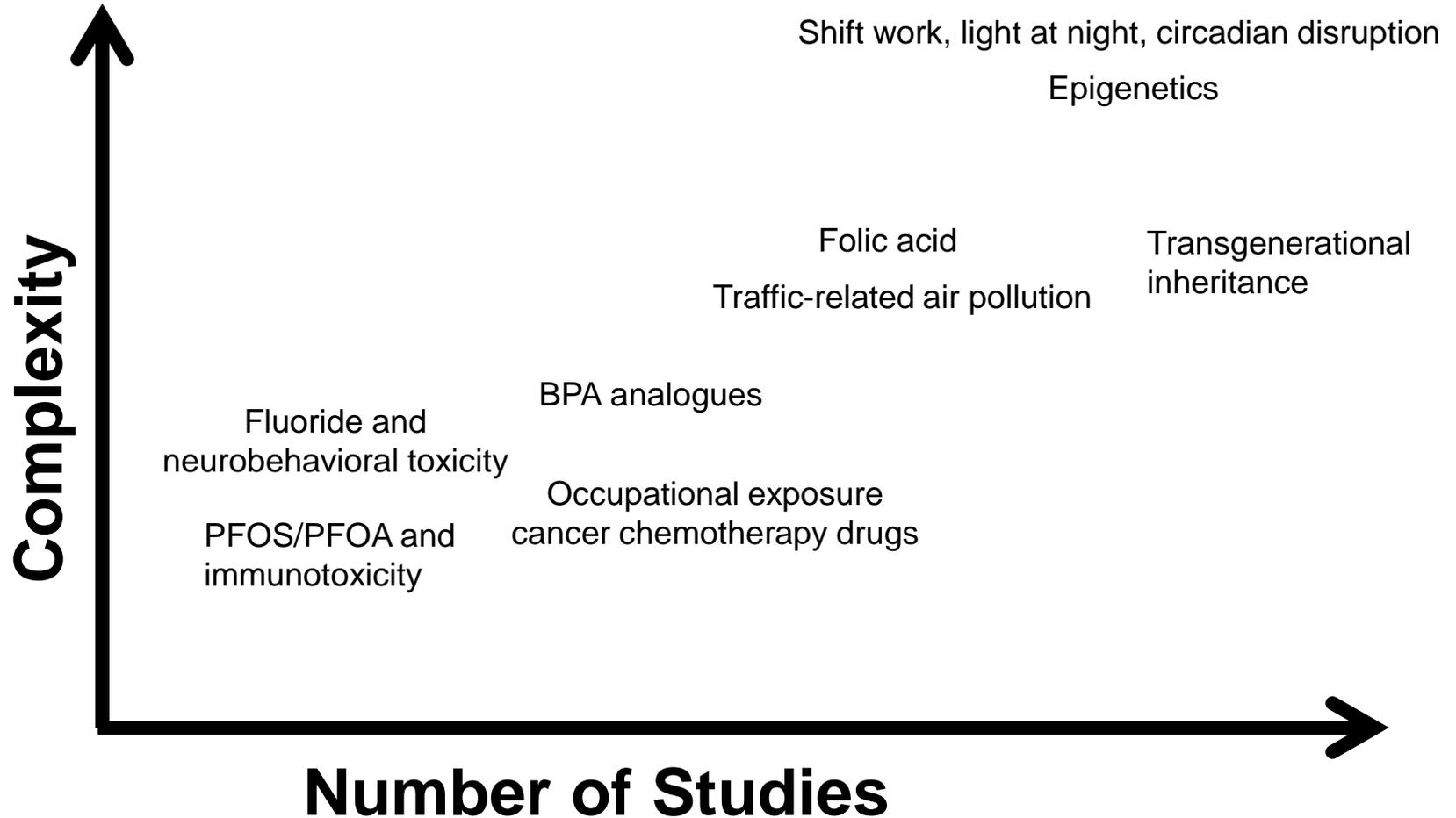
- NIEHS-EPA Collaborative Project to Improve Characterization of Personal Care Product and Home Exposures [Kyla Taylor]
 - IRB approval granted May 2015



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Topics Often Complex with Many Studies





Text-Mining & Machine Learning Tools: SWIFT

- Produce “scoping reports” to evaluate new nominations or facilitate problem formulation
 - Identify extent of literature, degree of evidence integration, and potentially relevant supporting literature
 - Use traditional systematic review methods once PECO statement identified
- Survey large, complex literatures (e.g., epigenetics, EDCs) when traditional systematic review methods not feasible
- Potentially reduce human screening burden
 - Validating tool with current projects



Data Warehousing & Display Tools: HAWC

- Structured data extraction
 - Promotes consistency within and across OHAT projects
 - Forms foundation for common data extraction repository
- Enhanced efficiency of having data stored in a database
- Interactive, web-based reports with many options for visual display



Questions