To: OPP HED[OPP_HED@epa.gov]
From: Woods, Stacy
Sent: Fri 1/6/2017 8:32:43 PM
Subject: Report: Using 21st Century Science to Improve Risk-Related Evaluations
NAS Using 21st Cen Sc to Improve Risk Related Evaluations.pdf

Hi HED,

The release event for the new National Academies report *Using 21st Century Science to Improve Risk-Related Evaluations* covered a number of topics of interest for our office. I have attached the report; the 10 page summary should cover everything presented in today's event.

The report focuses on the promises and challenges of integrating data streams from rapidly emerging technologies in exposure science, toxicology, and epidemiology to better quantify risk. Today's event discussed tech advances in these fields, new uncertainties introduced by extrapolation from new tech, and the movement in risk science towards a focus on biological pathways and not just on atypical responses. The shift away from animal testing and towards alternative models was also discussed. During today's Q and A, the committee predicted that the future of animal testing will be more directed to specific research questions and far less common.

The report includes case studies that may be of particular interest to many of you, including a case characterizing a data-poor chemical and another case that employs a Bayesian approach to integrate diverse data streams in a toxicological assessment of complex mixtures. Other topics of potential interest include issues of interpersonal variability and how this informs the dose-response curve and analysis assumptions, validation issues for quickly emerging technologies, and the sufficient-component-cause model as a useful tool to conceptualize the multiple contributing pathways model for disease. I also appreciated the committee's recommendation to apply the Bradford-Hill criteria across disciplines to assess causality.

The report release was very interesting, and I look forward to reading the report in full!

Happy reading,

- Stacy

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