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"Toxicologic pathology in informing regulatory decisions and guiding the interpretation and application of data from new technologies and tools"

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Presentation title: "EPA perspective - exposure and effects prediction and monitoring"

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Risk-based decisions for environmental chemicals often rely on estimates of human exposure and biological response. Biomarkers have proven a useful empirical tool for evaluating exposure and hazard predictions. In the United States, the Centers for Disease Control and Prevention's National Health and Nutrition Examination Survey represents the largest publically available

source of biomonitoring data. These data reflect human exposures to hundreds of environmental chemicals, as well as biological responses that may be linked to adverse health outcomes. While NHANES biomonitoring data are intended to track national trends and set research priorities, they are increasingly used to evaluate exposure and effects predictions in support of risk-based decisions. This represents a repurposing of the NHANES biomarker data, and highlights a need for rigorous and standardized computational protocols. In response to this need, a team of EPA scientists under the Chemical Safety for Sustainability Research Program performed a series of computational case studies with the goal of clearly delineating best-practices for examining publically-available biomonitoring data. This presentation will highlight the novel methodologies used for the case-studies, key findings, and possible implications for decision making.