

SOCIETY FOR RISK ANALYSIS ANNUAL MEETING 2007

T2-G.4 11:30 Evaluation of human health risks posed by air pollution in the Houston metropolitan area. *Harris M*, Tachovsky JA, Williams ES, Scott LF, Nguyen L, Haws LC;*

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Abstract: Recently, a Task Force convened by The University of Texas Health Science Center at Houston issued a report identifying 12 airborne pollutants that posed definite health risks for the Houston population residing in the metropolitan area. The Task Force utilized air concentrations of chemicals reported from the USEPA's National Air Toxics Assessment (NATA), where air concentrations were calculated for each census tract using HAPEM and ASPEN air models. In this present study, modeled air concentrations were benchmarked using both 1-hour and 24-hour measured air concentrations of benzene and butadiene obtained for 15 air monitoring locations in Houston, TX. ArcGIS 9.2 was utilized to map NATA air concentrations by census tracts and overlay air monitor locations. Descriptive statistics were prepared for air monitoring data available for 2003 through 2006, and compared to concentrations modeled using ASPEN and HAPEM for the relevant census tract in which each air monitoring station is located. In most cases, the modeled concentrations are above the 75th percentile of the distribution of measured 24-hour air concentrations with many above the 95th percentile. To better understand the magnitude of the risk posed by these airborne pollutants, this investigation further evaluated population level health risks. For example, it was estimated that the air concentrations of benzene would result in 68 excess cancers using the USEPA slope factor or 252 excess cancers using the CalEPA slope factor for the 10-county area. However, the incremental increase in cancers attributable to these airborne pollutants is relatively small when compared to the expected incidence of cancer for the Houston population.