

**EIS Conference 2013**  
**April 22-26, 2013**

**Select Abstract:**

***Environmental Tobacco Smoke (ETS) Exposure and All-Cause Mortality: A Prospective Cohort Analysis of the Third National Health and Nutrition Examination Survey (NHANES III)***

**Authors:** Tala H.I. Fakhouri, B. Kit, L. Mirel, D. Brody, C. Ogden, K. Flegal

**Background:** A 2006 report by the U.S. Surgeon General concluded that ETS exposure has adverse health effects. Although the risk of mortality associated with ETS has been previously described, most studies have relied on self-reported ETS exposure and none have been nationally representative of the U.S. population. In this study, we sought to examine all-cause mortality associated with biomarker measured ETS exposure in a nationally representative sample of U.S. adult nonsmokers.

**Methods:** We prospectively followed a cohort of 6,480 nonsmokers in NHANES III from 1988 to 2006. Mortality information was based on the results of a probabilistic match between NHANES III and the National Death Index. Analysis included participants who were  $\geq 40$  years of age at baseline. Because a safe level of ETS exposure may not exist, exposure was defined as serum cotinine levels  $\geq 0.05$  ng/ml, which was the detection limit for cotinine. We used Cox proportional hazard regression analysis to determine the relative risk of all-cause mortality, with adjustments for birth cohort, gender, race and ethnicity, income, physical activity, diet, and former smoking status.

**Results:** Median time of follow-up was 14.2 years. After adjusting for potential confounders, the relative risk of all-cause mortality was higher (Hazard Ratio: 1.25, 95% CI [1.06–1.47]) among ETS exposed participants compared to those not exposed to ETS ( $P < 0.05$ ). Additionally, higher serum cotinine levels were associated with higher risk of all-cause mortality ( $P < 0.05$  for trend).

**Conclusion:** In a nationally representative sample of the U.S. population, environmental tobacco smoke exposure is associated with all-cause mortality. Interventions designed to reduce ETS exposure may be informed by these findings.

**Keywords:** tobacco smoke pollution, biological markers, cotinine, mortality, follow-up studies, prospective studies