AIR POLLUTION RELATED ASTHMA INPATIENT HOSPITAL ADMISSION IN THE LAS VEGAS VALLEY

Abstract

Asthma is a chronic respiratory condition characterized by inflammation in the lungs that causes airflow to be restricted. The goal of our study was to determine the nonlinear lagged relationship between Asthma Related Inpatient Hospital Admissions (ARIHA) and the Environmental Protection Agency’s (EPA) criteria air pollutants in the Las Vegas Valley using hospital and pollution monitoring station data. In Southern Nevada’s Las Vegas Valley, the natural basin geography causes air pollutants to accumulate. Research has linked air pollution with worsening asthma symptoms. Ultimately, we determined if there was a statistically significant difference between the relative risk (RR) Asthma Related Inpatient Hospital Admission (ARIHA) by ZIP Code. We considered several airs pollutants and identified which air pollutants most strongly predicted the risk of ARIHA across a given lag period. In addition, we analyzed the geographic disparities of ARIHA by ZIP Code. Overall, we found a statistically significant increased RR of ARIHA due to PM$_{2.5}$ levels from 0-35 μg/m$^3$ between 7 and 13 days, and at 75 μg/m$^3$ between 9-10 days. Finally, 17 ZIP codes exhibited a statistically significant increased RR of ARIHA after adjusting for all variables.

Date: Thursday, November 15th, 2018
Time: 1:00 p.m.
Location: BHS 131

Faculty, students, and the general public are invited.

Committee In Charge:
Dr. Lung-Chang Chien, Advisory Committee Chair
Dr. Sheniz Moonie, Advisory Committee Member
Dr. Lung-Wen Chen, Advisory Committee Member
Dr. Amei Amei, Graduate College Representative