TRAFFIC AND ASTHMA: THE 1996 ATLANTA OLYMPICS STUDY

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Vehicle exhaust is a major source of ozone and other air pollutants. Although high ground-level ozone pollution is associated with transient increases in asthma morbidity, the impact of citywide transportation changes on air quality and childhood asthma has not been studied. The alternative transportation strategy implemented during the 1996 Summer Olympic Games in Atlanta, Georgia, provided such an opportunity.

We measured acute care visits for asthma, all-cause acute care visits, mean air pollution concentrations, meteorological variables, traffic counts, public transportation use, and monthly statewide gasoline sales during the 17 days of the Olympics. This was compared to a baseline period consisting of the 4 weeks before and after the Olympics.

During the Olympics, acute asthma events decreased 42 percent (4.2 vs. 2.5 daily events) in the Georgia Medicaid Claims file, 44 percent (1.4 vs. 0.8 daily events) in a health maintenance organization, 11 percent (4.8 vs. 4.2 daily events) in 2 pediatric emergency rooms, and 19 percent (2.0 vs. 1.65 daily hospitalizations) in the Georgia Hospital Discharge database. Acute non-asthma events changed –3.1 percent, +1.3 percent, -2.1 percent, and +1.0 percent, respectively. In multivariate regression analysis, only the reduction in asthma events among Medicaid children was significant (relative risk = 0.48; 95 percent confidence interval = 0.44-0.86). Peak daily ozone concentrations decreased 28 percent, from 81.3 ppb during the baseline period to 58.6 ppb during the Olympics. Peak weekday a.m. traffic counts dropped 22.5 percent. Traffic counts were significantly correlated with that day's peak ozone concentration (average r = 0.36 for all four roads examined). Meteorological conditions during the Olympics did not differ substantially from the baseline period.

Efforts to reduce downtown traffic congestion in Atlanta during the Olympics resulted in decreased automobile use, especially during the critical morning period. This was associated with a prolonged period of low ozone pollution and significantly lower rates of childhood asthma events. These data provide support for efforts to reduce air pollution and improve health via reductions in motor vehicle traffic.

For the full article, see Friedman et al. "The Impact of Changes in Transportation and Commuting Behaviors During the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma", J. Am. Med. Assn. 285(7):897-905, 2001 (February 21, 2001 issue).