

# **STUDY OF HEALTH EFFECTS OF TOXIC AIR POLLUTANTS ON ASTHMATIC CHILDREN IN HUNTINGTON PARK**

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**Air Resources Board**

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**California Environmental Protection Agency**

# **METHODS: Health Outcomes**

- **Twenty-six Hispanic asthmatic children**
- **Daily symptom diaries**
- **Twice daily measures of airway function**
- **Breath samples**
- **November 1999 to January 2000**
- **Daily air pollution data**
- **Exposure assessment study**

**Delfino RJ, et al. Environmental Health Perspectives 111:647-656 (2003).**



**Delfino RJ, et al. Journal of Exposure Analysis and Environmental Epidemiology 13: 348-363 (2003).**

# RESULTS: Exposure Assessment

- Personal and indoor VOCs highly correlated
- Breath VOCs lower than indoor VOCs
- Breath VOCs did not correlate with outdoor VOCs
  - Except benzene, *m,p*-xylene



# RESULTS: Health Outcomes

- **Outdoor VOCs associated with asthma symptoms**
  - **Breath benzene also significant**
- **Outdoor air pollutants associated with asthma symptoms**
  - **ozone, particulate matter, nitrogen dioxide, sulfur dioxide**
  - **organic and elemental carbon**



# IMPLICATIONS

- Preliminary evidence of acute adverse associations of VOCs with asthma
- Pro-inflammatory nature of traffic-related pollutants associated with adverse health effects in asthmatic children
  - VOCs may be a marker of traffic emissions
- Past and ongoing motor vehicle and fuels control programs are reducing exposure to traffic emissions

