

# Association Between Exposure to Traffic-Related Air Pollution and Adverse Health Effects in Adults



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**Air Resources Board**  
**California Environmental Protection Agency**

# Asthma

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- **Chronic respiratory disease**
- **Scope of problem in California**
  - 9% of adults have active asthma
  - 500 deaths and 16,000 hospital admissions per year
- **Air pollution and asthma**
  - Traffic-related air pollutants including PM, SO<sub>2</sub>, NO<sub>x</sub>, and O<sub>3</sub> are associated with asthma attacks and worsening of symptoms



# Impacts of Traffic Exposure on Poorly Controlled Asthma: Study Design

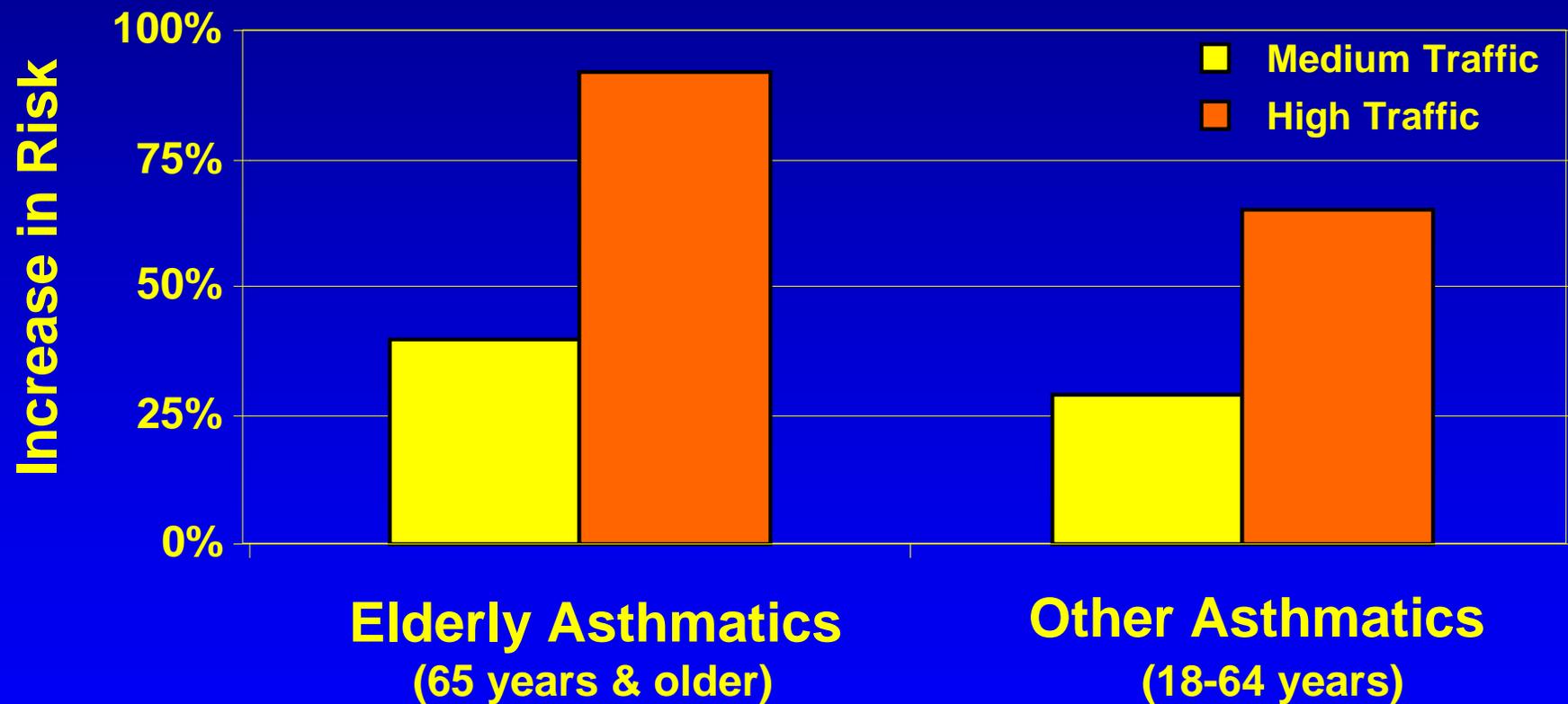
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- **Poorly controlled asthma**
  - Symptoms at least weekly, or
  - Hospitalized for asthma during the past year
- **1,600 adults with asthma in Los Angeles and San Diego Counties**



Meng YY, et al. 2007. Traffic and outdoor air pollution levels near residences and poorly controlled asthma in adults. *Annals of Allergy, Asthma, & Immunology*. 98(5):455-63. *Funded by the Agency for Toxic Substances and Disease Registry.*

# Traffic-Associated Increases in Poorly Controlled Asthma in Adults

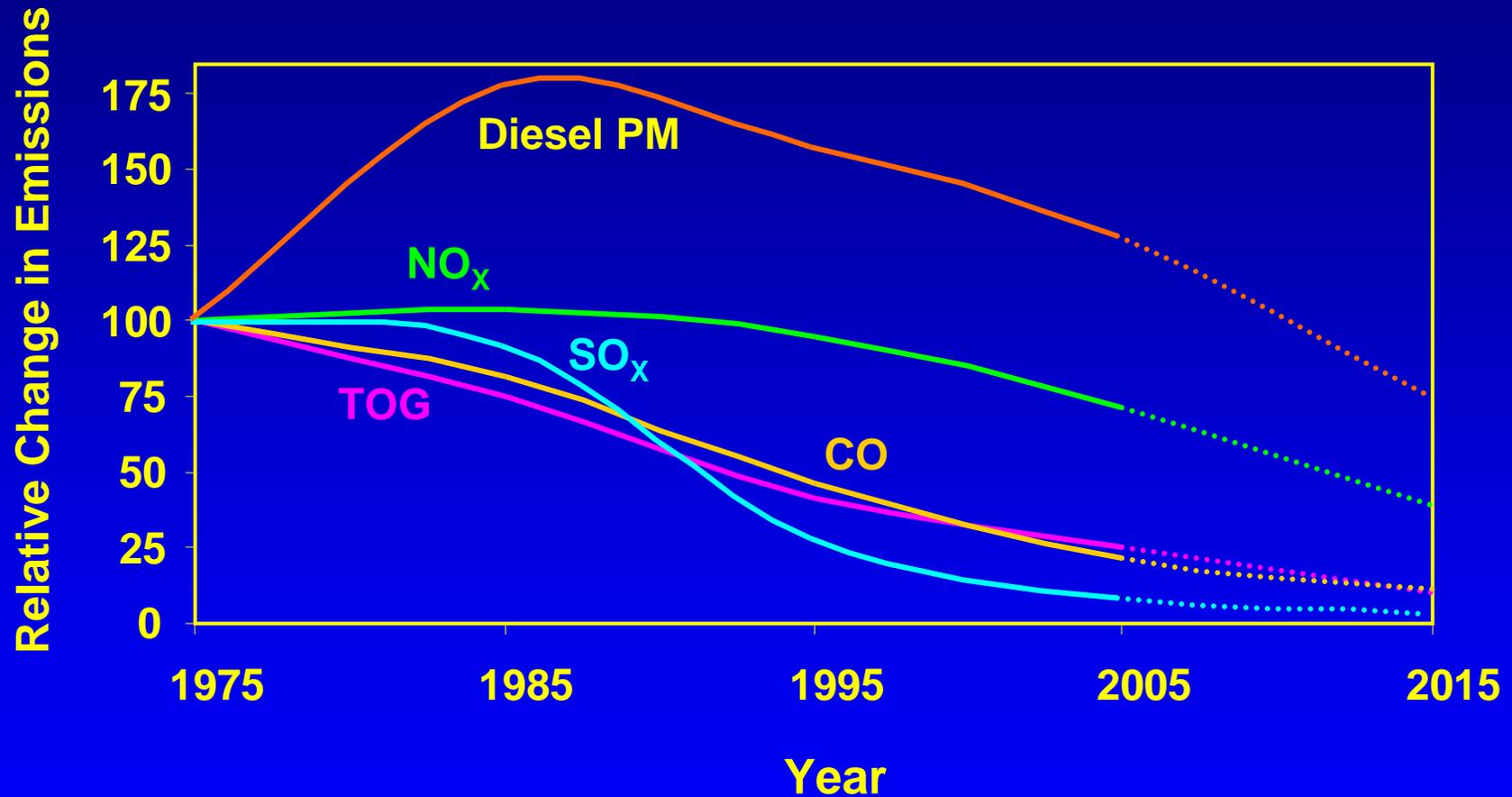


# Other Traffic-Related Health Effects in Adults

Health Effects	Short-term Exposure	Long-term Exposure
Death from cardiovascular causes	X	X
Death from respiratory causes	X	X
Hospital admissions	X	X
Atherosclerosis		X
Lung and breast cancer		X



# Trends in Emissions of Traffic-Related Pollutants



# Current ARB Research Studies on Traffic and Health

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- Cardiovascular effects in seniors during freeway travel
- Air pollution and heart disease among California teachers
- Toxicity of PM from heavy and light-duty vehicles
- Respiratory effects among bicycle commuters
- Traffic-related pollution and deaths
- Traffic, socioeconomic status, and asthma



# Conclusions

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- **Traffic-related air pollution is associated with increased risk of disease and death**
  - 1 million Californians live within 100 meters of a freeway
  - ~50% of Californians live within 1 mile of a freeway
- **Land use guidelines need to be taken into account**

