

# Health Update: Cancer Risk from Air Pollutants in a Population of Inner-city Teenagers

November 16, 2006



**California Air Resources Board**

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**California Environmental Protection Agency**

# Toxic Air Pollutants

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- Known to cause chronic health effects
  - Cancer, birth defects, serious illness
- Considered to have “no threshold” for cancer effects
- Toxic Air Contaminant Identification and Control Program

# Background

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- Data from Toxic Exposure Assessment-Columbia-Harvard project (TEACH) \*
- Inner-city high school students (41 from L.A. and 46 from N.Y.C)
- Personal, indoor, and outdoor exposures
- 13 VOCs and 6 PM-associated metals measured

\* Sax et. Al., Environmental Health Perspectives, 114, 1558-1566, Oct. 2006. 3

# Cancer Risk Assessment

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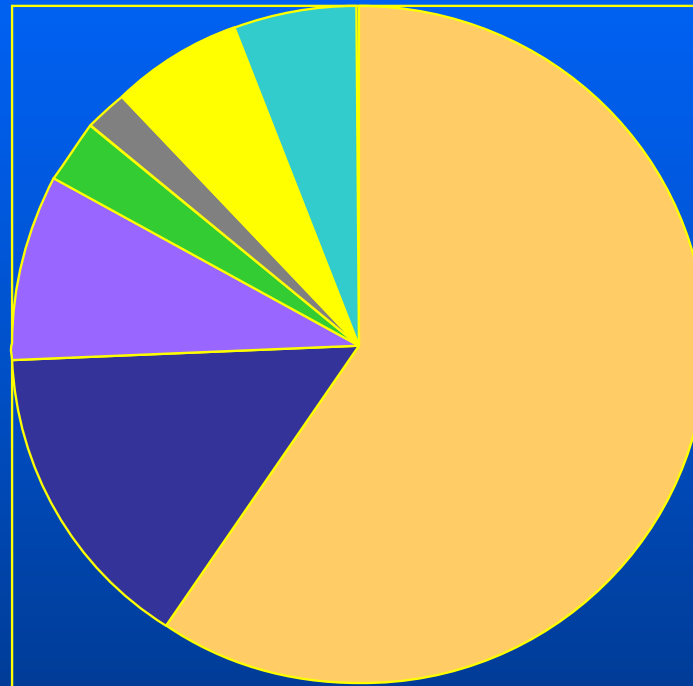
- Lifetime cancer risks were calculated from the toxics measured
- Assessment challenges
  - Limited sampling time
  - Limited numbers of students
  - Diesel PM estimates not included
  - Uncertainties in the calculated values

# Study Results

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- Lifetime cancer risk results
  - LA: 490 in a million cancer risk
  - NYC: 670 in a million cancer risk
- 4-5 times higher than risk based on outdoor ambient measurements
- Highest risk from formaldehyde and 1,4-dichlorobenzene

# Distribution of Risk from VOCs in Los Angeles Teens



- Formaldehyde
- 1,4-Dichlorobenzene
- Benzene
- Perchloroethylene
- Carbon tetrachloride
- Acetaldehyde
- Others

# Conclusions and Implications

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- Personal exposures improved indicators for evaluating cancer risks
- Most of the risk from personal exposure to formaldehyde and 1,4-dichlorobenzene
- ARB control measures to reduce risk
  - 1,4-dichlorobenzene – controlled in bathroom deodorizers, air fresheners
  - Formaldehyde – controls being developed for compressed wood products