PARTICULATE AIR POLLUTION AND INFANT MORTALITY

May 20-21, 2004

Air Resources Board
California Environmental Protection Agency
METHODS

- Seoul, South Korea
- Daily mortality records 1995-1999
- Few confounders adjusted for
- PM10, NO₂, SO₂, CO, O₃
- Risk of mortality calculated

## RESULTS: Air Pollution

<table>
<thead>
<tr>
<th></th>
<th>PM10 (µg/m³)</th>
<th>NO₂ (ppb)</th>
<th>SO₂ (ppb)</th>
<th>CO (ppm)</th>
<th>O₃ (ppb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>69.2</td>
<td>32.5</td>
<td>11.1</td>
<td>1.2</td>
<td>12.9</td>
</tr>
<tr>
<td>Median</td>
<td>64.2</td>
<td>31.4</td>
<td>8.9</td>
<td>1.1</td>
<td>19.4</td>
</tr>
<tr>
<td>Min</td>
<td>10.5</td>
<td>10.2</td>
<td>2.4</td>
<td>0.4</td>
<td>2.9</td>
</tr>
<tr>
<td>Max</td>
<td>245.4</td>
<td>65.1</td>
<td>46.0</td>
<td>3.4</td>
<td>69.1</td>
</tr>
</tbody>
</table>
**RESULTS: PM10 & respiratory mortality**

- Infants at greatest risk

<table>
<thead>
<tr>
<th>Age</th>
<th>1 month-1 year</th>
<th>2-64 years</th>
<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Increase in Risk*</td>
<td>102%</td>
<td>6.6%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

* Per 43 μg/m³ increase in PM10
Relevant U.S. Study

- Infants born 1989-1991 in the U.S.
- PM10 data from EPA’s Aerometric Database
  - PM10 range: 11.9-68.8 µg/m³
- 20% increase in infant mortality per 10 µg/m³ increase in PM10

Conclusions

- PM exposure associated with infant mortality from respiratory causes
- Studies add to our knowledge of the significant PM health effects
- ETS and other important factors were not considered
- Studies looked only at outdoor concentration