

**AIR POLLUTION AND ADVERSE
BIRTH OUTCOMES:
THREE RECENT CALIFORNIA
STUDIES**

April 25, 2002

Air Resources Board



California Environmental Protection Agency

ADVERSE BIRTH OUTCOMES STUDIES IN CALIFORNIA

- **Birth records used to assess:**
 - low birth weight
 - premature birth
 - birth defects
- **Ambient pollution levels linked to residential zip code**
- **South Coast Air Basin**



LOW BIRTH WEIGHT

- **Increased risk with high ambient carbon monoxide (CO)**
 - during last trimester
 - 22% increase for CO greater than 5.5 ppm compared to less than 2.2 ppm



PREMATURE BIRTH

- **Increased risk with high PM10 and CO during 6 weeks before birth**
 - 20% increase per 50 $\mu\text{g}/\text{m}^3$ PM10
 - 12% increase per 3 ppm CO
- **Increased risk with high PM10 and CO during first month of pregnancy**
 - 16% increase per 50 $\mu\text{g}/\text{m}^3$ PM10
 - 4% increase per 3 ppm CO



HEART BIRTH DEFECTS

- **Increased risk with high ambient CO and ozone**
 - **200% increase in risk for higher CO**
 - **150% increase in risk for higher ozone**
 - **Second month a critical time for heart defects**



SIGNIFICANCE

- **Strengths of associations**
 - Consistency of timing and dose response
 - Effects comparable to other studies
- **Caveats**
 - CO may be surrogate for other vehicle-related pollutants
 - Exposure estimations
 - Other risk factors
- **Raises concerns for fetal effects**



THANK YOU

