

Office of Environmental Health Hazard Assessment



Linda S. Adams
Secretary for Environmental Protection

Joan E. Denton, Ph.D., Director

Headquarters • 1001 I Street • Sacramento, California 95814

Mailing Address: P.O. Box 4010 • Sacramento, California 95812-4010

Oakland Office • Mailing Address: 1515 Clay Street, 16th Floor • Oakland, California 94612



Arnold Schwarzenegger
Governor

Higher Risk of Miscarriage Found Among African-Americans, Nonsmokers Living Near Busy Roads

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CONTACT: SAM DELSON (916) 324-0955 (office)

(916) 764-0955 (mobile)

SACRAMENTO – Pregnant women who are African-American or nonsmokers are more likely to have miscarriages if they live near heavy traffic, according to a new state study.

Researchers examining health-care data on nearly 5,000 pregnant women in California found that African-Americans were about three times more likely to miscarry if they lived within a half-block of a freeway or busy boulevard than if they resided near lighter traffic. Among nonsmokers, living near busy roads increased their odds of miscarriage about 50 percent.

“This study adds weight to the growing body of evidence that constant, heavy exposure to traffic exhaust significantly increases the risk of reproductive harm,” said Dr. Joan Denton, director of the Office of Environmental Health Hazard Assessment (OEHHA), which led the research. OEHHA is part of the California Environmental Protection Agency.

Several studies have shown links between exposure to air pollution or traffic and low birth weight, premature birth and birth defects. The OEHHA research is the first published study of the effect of residential traffic exposure on the risk of miscarriage, according to Dr. Shelley Green, who led the study.

The paper was published in the scientific journal *Environmental Health Perspectives*. Dr. Green specializes in the health effects of air pollution. Co-authors of the paper included researchers from OEHHA, the California Department of Public Health and the University of Rochester School of Medicine and Dentistry.

Dr. Green analyzed data from telephone interviews that Kaiser Permanente conducted in 1990-1991 when pregnant women called to schedule their first prenatal appointment at clinics in the East Bay and in the counties of Santa Clara and San Bernardino. The survey of residential, medical and pregnancy history was limited to volunteers who were no more than 12 weeks pregnant.

California Environmental Protection Agency

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About 9 percent of the almost 5,000 women in the OEHHA study had miscarried, which is within the normal range. Researchers examined the miscarriages in relation to traffic exhaust, using residential proximity to busy roads as a proxy for exposure to vehicle pollution. The roads carried average traffic of at least 15,200 vehicles per day.

Pregnant women who lived within 50 meters or 55 yards of busy roads showed a higher rate of miscarriage compared with women who lived further away from roads with heavy traffic. The scientists found statistically significant associations between miscarriage and proximity to traffic for African-Americans and those who did not smoke while pregnant.

While the association with high traffic was more evident for the nonsmokers, their neighbors who smoked had a 10 percent higher risk of miscarriage.

”Because smokers already are exposed through their tobacco smoke to many of the same chemicals found in vehicle exhaust, the effect of traffic may be masked by the smoking effect,” Dr. Green said.

She said further studies with larger sample sizes are needed to confirm the findings and shed light on the biological causes of the effect.

The study can be downloaded at <http://ehp.niehs.nih.gov/docs/2009/0900943/abstract.html>.