

References:

In addition to references included in individual presentations, we include herein references offered by participants on the workshop; there are both omissions and duplications in this list.

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**Toxicology Studies of Traffic, Diesel, or Vehicle Exhaust
Toxicology and Epidemiology Studies of Ultrafine Particles**

Extracted from “*Provisional Assessment of Recent Studies on Health Effects of Particulate Matter Exposure*”, EPA/600/R-06/063
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National Center for Environmental Assessment, Office of Research and Development
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Mortality

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Firestone Institute pulmonary function cohort (5228 adults), using residence w/in 50 m or major urban road or w/in 100 m of a highway as traffic index. CVD mortality significantly associated with pollution index [RR 1.06 (1.00-1.13)]; stronger association with deprivation index (RR 1.15) and traffic indicator (RR 1.40). In 2- and 3-variable models, pollution index reduced (RR 1.04 and nonsignificant) with little change in traffic indicator and some reduction for deprivation index. Deprivation and pollution indices were highly collinear, so created a combined (sum) index; both traffic and deprivation/pollution index were significantly association with CVD mortality (RR 1.05, 1.01-1.10)

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Firestone Institute pulmonary function cohort (5228 adults), using residence w/in 50 m or major urban road or w/in 100 m of a highway as traffic index. Significant association between mortality and residence w/in a road/highway buffer: RR 1.18 (1.02-1.38) for all subjects. By interpolation from Ontario life tables, estimated “rate advancement period” associated with traffic pollution of 2.5 years (0.2-4.8).

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American Cancer Society cohort, using traffic buffers of 500 and 100 m from freeway based on zip code centroids (22,905 subjects in 267 zip code areas). Significant association between

PM_{2.5} and deaths from all causes; after adjustment for 44 covariates and freeways w/in 500 m, significant associations were reported with death from all causes (RR 1.17, 1.05-1.31) and IHD (RR 1.38, 1.11-1.72).

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Veterans cohort; traffic volume estimated from [vehicle-km traveled/county land area] using data from 1985, 1990 and 1997. Significant association with traffic (RR 1.176, 1.100-1.258 per 2.6 in 1999 data). In 3-pollutant models, traffic effect was little changed, with the PM_{2.5} effect estimate reduced and not significant (RR 1.032) and PM_{10-2.5} effect negative and nonsignificant.

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Veterans cohort; traffic volume estimated from [vehicle-km traveled/county land area], also PM_{2.5} speciation data. Significant associations between mortality and traffic density, EC, nitrates, V and Ni, with the strongest effects for traffic density and EC. Positive, nonsignificant associations with PM_{2.5} mass and sulfates. Negative nonsignificant associations with elements association with crustal particles (Al, Ca, Si).

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Respiratory morbidity:

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The Netherlands: respiratory symptoms for 4,135 in birth cohort, 3,730 reassessed at 2 yr; numerous cities. Associations with NO₂, PM_{2.5}, soot; long-term average based on 2-wk samples. Positive, borderline significantly associations between all three pollutants and prevalence of wheeze, E, N, T infections, and flu/serious colds

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Buckeridge DL, Glazier R, Harvey BJ, Escobar M, Amrhein C, Frank J. (2002) Effect of motor vehicle emissions on respiratory health in an urban area. *Environ Health Perspect* 110(3):293-300.

Three year hospitalization rates determined in SE Toronto; PM_{2.5} emissions estimated from traffic data; modeled exposures. Hospitalization rate for subset of respiration diseases (asthma, bronchitis, COPD, pneumonia, URI) significantly increased with PM_{2.5} emission density (RR 1.24, 1.05-1.45)

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PM₁₀, PM_{2.5} via dichot, daily for 3-wk and 2-wk periods, before and after bypass; respiratory symptoms in 448 adults living in congested and uncongested neighborhoods. PM_{2.5} means decreased between before/after bypass by 23.5% in congested and 26.6% in uncongested neighborhoods. Reduction in symptoms with decreased traffic for any wheeze -6.5% (-14.9, 2.0) and number of attacks -8.5% (-18.2, 1.2). No association with cough, phlegm, consulted doctor, rhinitis. Positive association with "affects activities" 10.3 (3.1, 17.3).

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