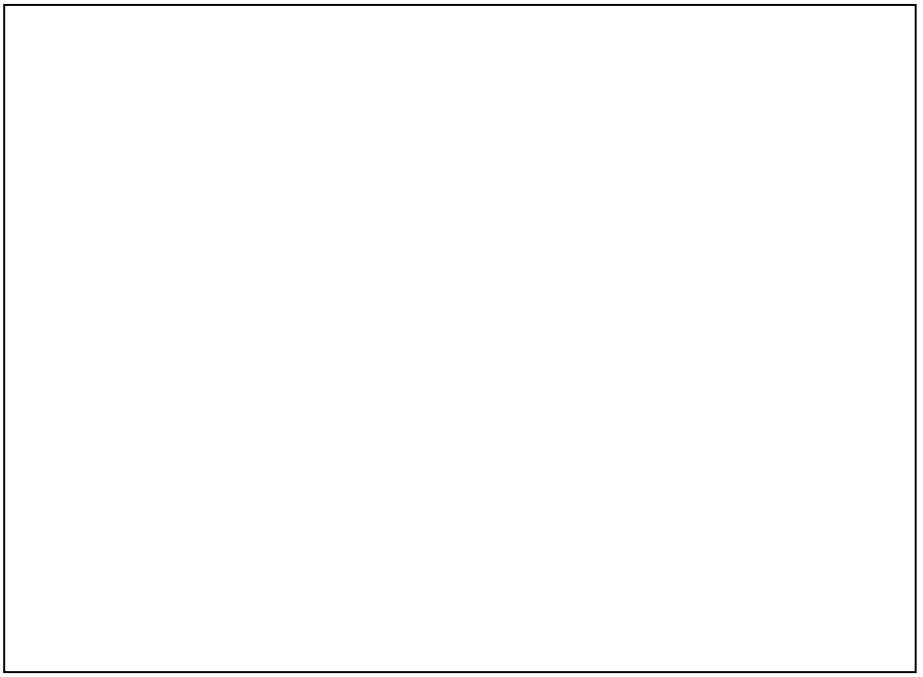


Air Quality Index (AQI)

Air Quality Index (AQI) Values	Levels of Health Concern	Colors
When the AQI is in this range:	*...air quality conditions are:*	*...as symbolized by this color:*
0 - 50	Good	Green
51 - 100	Moderate	Yellow
101 - 150	Unhealthy for Sensitive Groups	Orange
51 - 200	Unhealthy	Red
201 - 300	Very Unhealthy	Purple
301 - 500	Hazardous	Maroon

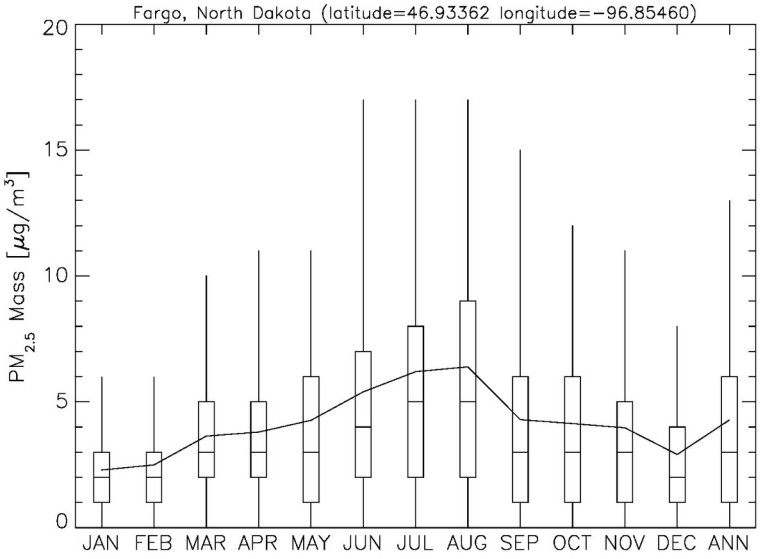
Air Quality Health Effects

Each 10 ug/m^3 elevation in fine particulate air pollution was associated with:

4 % increased all cause morality
6% increased cardiopulmonary mortality
8% increased risk lung cancer mortality

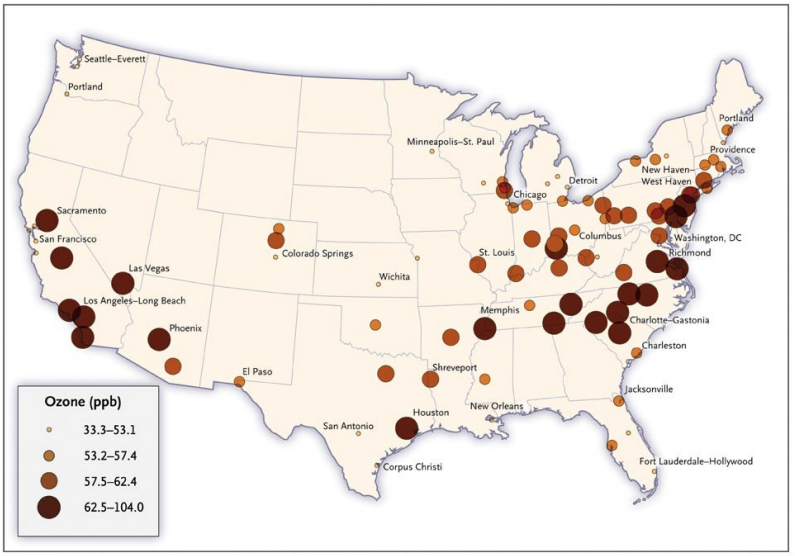
Source: Pope et al., 2002 JAMA, 287: 1132-1141

Fargo Air Quality Station 2000-2003



Monthly statistical distributions show low PM2.5 in the winter and a peak in summer month of August.

Metropolitan Ozone Concentrations



Ozone Concentrations in the 96 Metropolitan Statistical Areas in Which Members of the American Cancer Society Cohort Resided in 1982. Jerrett M et al. N Engl J Med 2009;360:1085-1095

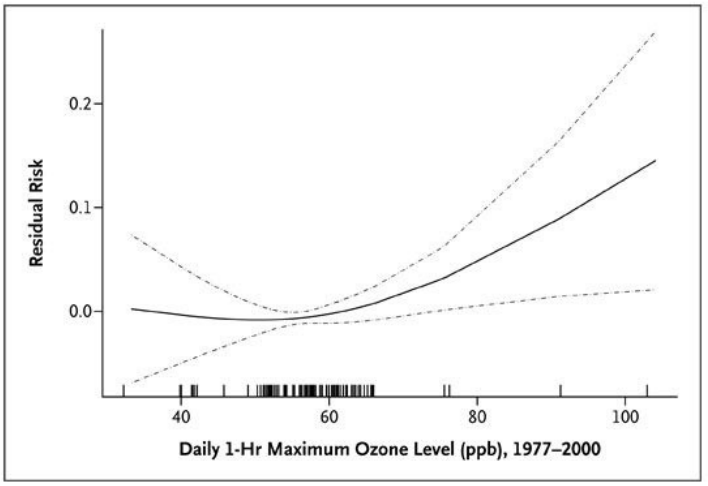
Number of Deaths in the Entire Cohort and According to Exposure to Ozone

Cause of Death	Entire Cohort	Concentration of Ozone [ppb]			
		33.3-53.1	53.2-57.4	57.5-62.4	62.5-104.0
	N=448,850	N=126,206	N=95,740	N=106,545	N=120,359
Any Cause	118,777	32,957	25,642	27,782	32,396
Cardiopulmonary	58,775	16,328	12,621	13,544	16,282
Cardiovascular	48,884	13,605	10,657	11,280	13,342
Heart Disease	27,642	7,714	6,384	6,276	7,268
Respiratory	9,891	2,723	1,964	2,264	2,940

Table shows that Exposure to Ozone had Any Cause of 118,777 where 58,775 were from Cardiopulmonary, 48,884 from Cardiovascular, 27,642 from Heart Disease and 9,891 from Respiratory.

Reference - Jerrett M et al. N Engl J Med 2009;360:1085-1095

Exposure-Response Curve



The curve is based on a natural spline with 2 df estimated from the residual relative risk of death within a metropolitan statistical area (MSA) according to a randomeffects survival model. The dashed lines indicate the 95% confidence interval of fit, and the hash marks indicate the ozone levels of each of the 96 MSAs. Reference is Jerrett M et al. N Engl J Med 2009;360:1085-1095.

Summary

- **Fine particulate air pollution was associated with increased morality.**

- **Ozone Pollution:**
  - **Not able to detect an effect of ozone on the risk of death from cardiovascular causes when the concentration of PM2.5 was taken into account.**
  - **There is a significant increase in the risk of death from respiratory causes in association with an increase in ozone.**