

Symposium: Air Pollution & Health

Session 2:

Health Effects Data for Air Pollution Research, Surveillance & Accountability

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Chain of Accountability

Regulatory Action \Rightarrow

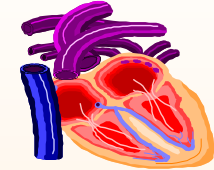
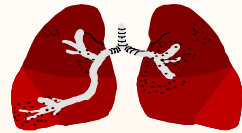
Change in emissions \Rightarrow

Change in ambient air quality \Rightarrow

Change in exposure/dose \Rightarrow

?? REDUCED human health risk

Pollutant Effects on the Lungs & Heart (AND BEYOND)



Early (hrs)

- Epithelial Injury
- IL-8, IL-6, RANTES, MIP-2, etc.
- Bronchoconstriction
- Airway Inflammation
 - PMN
 - Eosinophils
 - Lymphocytes
- Endothelial Dysfunction
- Adhesion molecules
- ↑ Circulating IL-6
- Platelet activation
- Prothrombosis
- ↓ DLCO
- Vascular tone
- ↑ HR
- HRV
- Autonomic NS
- Ischemia
- Arrhythmias

Late (days)

- ↑ Airway permeability
- ↑ A-a pO₂
- ↑ Plasma viscosity
- ↑ Fibrinogen, CRP,
- ↑ Coagulation
- ↓ HRV
- Arrhythmias

Later (Wks- mos)

- Repair & remodeling
- Progression of airways disease
- Atherosclerosis
- Progression of coronary artery disease

Challenges for the Speakers

- Sources of data for human health effects - old, new, privacy issues, etc.
 - Relationships between air pollution and acute/chronic health effects
 - Emerging relationships: neurological, autoimmune, birth outcomes, etc.
 - Address strengths and limitations, methodological limitations and research opportunities
- ⇓ ⇓
- And always with an eye on accountability

Session 2: Presentations

- Overview of Health Data Bases - Dr. Tom Sinks, CDC
- “State of the Science” for air pollution related acute health effects research - Drs. Kaz Ito & George Thurston, NYU
- “State of the Science” for air pollution related chronic health effects research - Dr. Arden Pope, BYU
- Emerging issues in health effects and air pollution - Marni Bekkedal, Wisconsin DPH