NIEHS-Supported
Air Pollution Research

J. Patrick Mastin, Ph.D.
Division of Extramural Research and Training (DERT)
National Institute of Environmental Health Sciences (NIEHS)
NIEHS-Supported Air Pollution Research

In vitro

Animal

Controlled Human Exposure

Epidemiology
  • Morality/Morbidity
  • Panel

All-cause

Respiratory Disease
  • Asthma
  • COPD

Cardiovascular Disease

Adverse Birth Outcomes
  • Birth Defects

Real World (CAPs, ROFA): Exposure Assessment

“Artificial” (Diesel, Single component aerosols)
NIEHS-Supported Air Pollution Research

Research Needs

- Identification of environmental agents
- Identification of diseases / disease conditions that are associated with environmental exposure and affected cells / tissues
- Identification of susceptibility factors for environmentally induced CVD
- Elucidation of mechanisms of action of environmental agents
- Need for multidisciplinary research / application of cardiovascular research tools / atmospheric sciences tools
Need for multidisciplinary research

“Progress on assessment of hazardous PM components is central to the national research portfolio and to any refinement of the current mass-based NAAQS for PM.”


- Better characterization of toxic pollutants / components
- Better exposure assessment
- Ability to predict public health concerns
NIEHS-Supported
Air Pollution Research

J. Patrick Mastin, Ph.D.

mastin@niehs.nih.gov
## NIEHS-Supported Air Pollution Research

### 2004 Air Pollution Research

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>$44.8 M</td>
</tr>
<tr>
<td>Targeted</td>
<td></td>
</tr>
<tr>
<td>Children’s Centers</td>
<td>$2.2 M</td>
</tr>
<tr>
<td>Translational Research</td>
<td>$1.2 M</td>
</tr>
<tr>
<td>CVD Air Pollution</td>
<td>$2.0 M</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>1999 %</th>
<th>2000 %</th>
<th>2001 %</th>
<th>2002 %</th>
<th>2003 %</th>
<th>2004 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Targeted</td>
<td>22.2%</td>
<td>22.9%</td>
<td>32.7%</td>
<td>33.7%</td>
<td>33.5%</td>
<td>33.3%</td>
</tr>
</tbody>
</table>
NIEHS-Supported Air Pollution Research

Intramural Research
- Laboratory of Respiratory Diseases
- Epidemiology Branch

Extramural Research
Research Project Grants:
“R01” grants, Pilot/Developmental grants, Program Projects
Extramural Research (cont.)
Centers for Children's Environmental Health and Disease Prevention Research

Environmental Health Science Centers

Superfund Basic Research Program

Fellowship, Career Enhancement, and Training Grants

Translational Research Program
  ➢ Environmental Justice
  ➢ Community-Based Participatory Research
  ➢ Health Disparities