Environmental Health Work Group Report

May 22, 2007

EHWG

- Organization
- Charge to working groups
- Air working group response
- Environmental health-related research activities

EHWG organization

- Three working groups
  - Air
  - Water
  - Pesticides

Instructions to working groups April, 2006

1. Binational & border-wide
2. Review environmental health priority areas:
   a. Environmental monitoring
   b. Health Surveillance
   c. Capacity Building
   d. Communication
   e. Policy Development
3. Recommendations

Recommendations: Environmental Monitoring

- APF:
  - Conduct research monitoring in areas without SLAM to identify potential problems and the need for regular SLAM
  - Deploy mobile air toxics monitoring lab for the border
  - Find mechanisms to fund adequate SLAM in Mexico
  - Review US SLAM for adequacy

Comments: Health Surveillance

- **Complex problem**; much can be said. In general, the words inadequate, inconsistent, and incomplete come to mind.
- **Not easy to fix**: harmonizing definitions and codes may be impossible.
- **May not necessarily be a priority** (for air).
- **Possible first steps**: research projects to correlate ambient concentrations, personal exposure and health outcome prevalence in areas with known problems.
- **Some research ongoing**: examples later.

Capacity Building

- Need:
  - Technical capacity in managing and operating SLAM systems.
  - Local experts to explain AQ and effects to their communities.
- Recommendations:
  - APF: identify start-up and long-term training needs for SLAM systems in Mexican communities
  - EHWG: Identify a cadre of environmental and health professionals & provide them training on AQ, its effects, risks, actions to reduce risks, and communication skills to enable them to serve as local experts.

Communication: (1)

- **Need** for various "peoples" to have a more sophisticated understanding of AQ.
  - General public
  - Vulnerable populations and their care takers (VP&CT)
  - School personnel
  - Health professionals
  - Environmental Professionals
  - The media
  - Political leaders

Communication: (2)

- **Actions**: Collaborate with the Communications Task Force to:
  - design media targeted for the various peoples
  - sponsor media campaigns for the various peoples

- **Priority**:
  - Vulnerable populations & care takers
  - Schools
  - Media

Policy Development

- AQ standards are health-based, therefore
- Leave this job to the APF.

Next steps:

- Capacity building through a "Citizens Air Quality Academy"
  - 2-3 day course
  - Border specific
  - Border relevant
- Topics
  - Air quality
  - Health Effects
  - Vulnerabilities, risks and risk reduction
  - How to communicate

Air Quality Health Effects Research

Ground Level Ozone Concentrations based on Satellite Observations and Surface Monitoring in support of the US-Mexico Border 2012 Program: Environmental Health Decisions

Ground Level Ozone …

- Project lead:
  - Vance Fong. Debbie Lowe, Jan Baxter – EPA Rgn 9
- Collaborators:
  - EPA: Rgn 6, ORD, OAR, OEI/Bdr 2012 Indicators Prog
  - NASA, PAHO, SCERP, UC Berkeley, Cal Inst Tech/JPL
- Period:
  - Jan 06 –Sep 07

Ground Level Ozone … (2)

- Objectives:
  - Assess usability of satellite data to predict ground level ozone pollution
  - Assist state and local officials in defining ozone-relate health issues where satellite data can be applied
  - Develop a support tool to aid environmental health decisions incorporating both satellite and ground-level monitoring data

A Binational Pilot Study Examining the Impact of Traffic-Related Air Pollution on Asthmatic Children

- Investigators:
  - J Sarnat, Emory Univ SPH
  - S Sarnat, Emory Univ SPH
  - F. Holguin, Emory Univ School of Medicine/CDC
  - S Flores, IMSS, Cd Juarez
  - W-W Li, UTEP

- Period:
  - March 2007 – August 2008

A Binational Pilot Study Examining the Impact of Traffic-Related Air Pollution on Asthmatic Children

- Objectives:
  - Measure the background and in-school levels of traffic-related pollutants in areas of low and high traffic pollution in El Paso and Juarez;
  - Follow the health status of a cohort of 60 asthmatic children in both cities;
  - Examine the associations between pollutant concentrations and acute respiratory health outcomes, comparing across cohorts in each city; and
  - Assess the ability to detect these associations using several environmental health indicators.

ARCH Program on Border Asthma:

The effects of air and soil pollution on asthma in Latino Children in El Paso, Texas

- Investigators:
  - UTEP: NE Pingitore, M Amaya, W-W Li, H Nazeran, LE Murr, and others
  - UNM HSC: S Burchiel, M Berwick, M Gonzales, ….
- Period: Sep 2005 to August 2010
- Sponsor: NIEHS
- Funding: $4M
- Program:
  - ARCH = Advanced Research Cooperation in Environmental Health
  - One five-year major (Core) research project
  - Five three-year pilot projects, more later…

ARCH Core Research Project:

Childhood Asthma and Respiratory Health in Latino Children in the El Paso Airshed

- Investigators:
  - M Amaya, UTEP
  - M Berwick, UNM
- Activities:
  - Survey children 5-17 years old from a randomly selected cohort of 500 households
  - Home and respiratory health data
  - Household dust and yard soil samples
  - Respiratory function tests
  - AQ information from other projects

Pilot 1: *Impulse Oscillometric Evaluationo f the Effect of Air Quality on Respiratory Function…*

- Investigators:
  - H Nazeran, P Nava UTEP
  - M Goldman, MD
  - L Mansfield, MD
- Activities;
  - Evaluates a promising new, non-invasive technique for measuring lung function
  - Develop a model of lung function in normal and asthmatic children
  - Feed information to the core project

Pilot 2: *Characterization of Indoor and Outdoor Particulate Matter….*

- Investigator:
  - W-W Li, UTEP
- Activities :
  - Conduct indoor and outdoor monitoring at selected cohort households
  - Chemical speciation of PMfine and PMcoarse
  - Particle size counts
  - Feed information to the Core project

Pilot 3: *Measurement and Modeling of Air Pollutant Exposures Across El Paso County*

- Investigators:
  - M Gonzales, O Myers – UNM
  - W-W Li – UTEP
- Activities :
  - Year round NOx and VOC measurements at 12 sites
  - Ozone measurements in the summer
  - Develop a land use regression model of AQ data
  - Compare with previous EPA-ORD El Paso Children's Health Study
  - Feed information to the Core Project

Pilot 4: *Environmental PAHs in Air and Soil as Potential Triggers of Asthma*

- Investigators:
  - S Burchiel -- UNM
  - W-Y Lee, R Armijos - UTEP
- Activities:
  - Expose biological assays (lung cells) to polycyclic aromatic hydrocarbons extracted from soil and air samples from other projects
  - Produce a better understanding of the physical trigger mechanism
  - Feed information to the Core project

Pilot 5: *Ultrafine Components of El Paso Particulates: Characterization, Exposure and Inflammatory Response of Indoor Carbon Nanotube Aggregates in Tissue In-Vitro*

- Investigators:
  - LE Murr, K Garza – UTEP
- Activities:
  - Investigate prevalence of ultrafine particles and carbon nanotubes in households, especially in kitchens.
  - Investigate inflammatory response of lung cell tissue lines to exposure to carbon nanotubes
  - Feed information to the Core project

ARCH Support Core:

- Investigators:
  - NE Pingitore, W-W Li, W-Y Lee, A Barud, J Clague, H Olvera – UTEP
- Activities:
  - Year –round ambient monitoring of Pmfine, Pmcoarse, and Nox/VOC/Ozone in selected community sites
  - Data management
  - Spatial and Temporal mapping
  - Chemical Speciation (including use of Stanford Synchrotron)