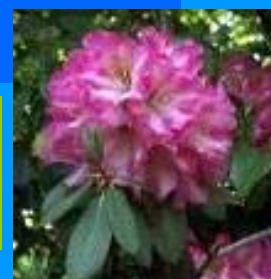
CDC
many voices-one vision
Environmental Public Health Tracking Conference
Wyndham Philadelphia | March 24-26, 2004

Building a Pesticide-Exposure and Response Data System

Steven C. Macdonald PhD, MPH
Washington State EPHTN

National Center for Environmental Health

Washington State Department of Health



Building a Pesticide-Exposure and Response Data System

- Identifying the gap & taking action
- The Tracking Solution & why this approach is right for Washington State
- Progress to date in closing the environmental public health gap
- Stakeholder reactions
- Next steps

Identifying the gap & taking action

- Washington EPHT program goals
  - Data linkage demonstration projects
    - Fish contamination – Birth defects
    - Pesticide exposure – Pesticide-related illness
  - School-related environmental conditions & student illness surveillance
  - State-HANES
  - Linkage Methods Development
  - Integrating W-EPHTN with W-PHIN
  - Core: Planning, communication, training & evaluation

Identifying the gap & taking action

- **Pesticide exposure – Pesticide-related illness objectives**
  - **Establish electronic data interchange (EDI) for pesticide exposure case reporting from Poison Control**
  - **Enhance EDI hospital reporting to include pesticide illness hospitalizations & ED encounters**
  - **Establish EDI reporting of pesticide illness cases from L&I Workers Compensation program**
  - **Develop EDI laboratory reporting of pesticide exposure test results data**
  - **Assess the utility of deterministic & probabilistic record linkage methods and software to link pesticide exposures with pesticide-related illnesses**

Identifying the gap & taking action

- 2002 ruling by the state Supreme Court
  - Farm-workers sued state Department of Labor & Industries (L&I) for failure to regulate growers
- 2003 L&I mandated cholinesterase [ChE] monitoring of farm-workers who handle ChE-inhibiting pesticides (organophosphates and carbamates)

The Tracking Solution & why this approach is right for Washington State

- History of DOH-L&I collaboration
  - Lead-exposure blood-test results reporting
  - ELR under development by WEDSS
- L&I asked DOH for partnership
  - Public Health Lab to conduct ChE tests
  - Office of Epidemiology to build data system
- Data system purposes
  - Notify program staff for potential enforcement action
  - Basis for evaluation of effectiveness of monitoring program

The Tracking Solution & why this approach is right for Washington State

- Contractor selected
  - Experience building web-based surveillance system for birth defects
  - Familiar with NEDSS standards
  - “Convenience contractor” list
- Tasks
  - Conduct review of matching-software vendors
  - Build data system
    - Electronic laboratory reporting (ELR)
    - HL7 messages
    - Consult with WEDSS

The Tracking Solution & why this approach is right for Washington State

- Cholinesterase Monitoring Data System
- Automated functions
  - an incoming case report is matched against the existing database, to determine whether a test result is new (establishing a baseline) or a follow-up test
  - changes from baseline trigger an alert if exceeding a threshold for ChE depression
  - notifications are sent to program staff for purposes of potential enforcement action

Progress to date in closing the environmental public health gap

- Contractor (Limelight Technologies) reviewed 17 software packages for probabilistic matching and record linkage
- Another DOH program partnered on selection criteria and review, and contributed funds for purchase
- "Netrics" software selected
  - May be useful for birth defects, cancer, lead, and other DOH surveillance programs

Progress to date in closing the environmental public health gap

- PHL started testing on 28 February 2004
- As of 3/15/2004
  - 1779 Specimens sent to DOH-PHL
    - 677 samples have been run
      - 90% resulted in successful RBC results
      - 50% resulted in successful RBC and serum results
    - 54 of the samples that had successful RBC and serum results are in the final QA review stage
    - since the QA review stage has not been completed for any samples, there have been no reports to clinicians
  - no HL7 messages sent to CMDS

Progress to date in closing the environmental public health gap

- Inter-agency agreement between L&I and DOH
  - PHL testing: instrument acquisition, operational costs
  - CMDS operational costs
  - Data sharing
- DOH and L&I submitting joint “Information Technology Investment Plan” to state Dept. of Information Services

Stakeholder reactions

- Highly charged political environment
- High visibility in legislature
  - Main focus on who pays for monitoring
- Growers and farm-workers both want high quality data, to buttress their position (for or against) the monitoring requirement

Stakeholder reactions

Data have power!

Next steps

- Add pesticide-exposure “Farm-worker cholinesterase monitoring test results” to list of laboratory-notifiable conditions (parallel lead-exposure blood-test results)
- In 2006, private labs may be allowed to conduct ChE tests

Next steps

- Extend contract with Limelight to enhance CMDS
  - More robust HL7 file import verification
  - “tune” Netrics to optimize matching
- New contract to assess utility of Netrics for probabilistic record linkage for
  - birth defects
  - cancer
  - lead exposure
  - other DOH surveillance programs