Public Perception of Disease Clusters and the Need for Health Education

Presented by:

Keera Cleare
Army Environmental Policy Institute

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PURPOSE

• Discuss the big picture of environmental health and its relation to human health
• Promote the need for health education within local communities
What are Disease Clusters?

• Occurrence of a greater than expected number of cases of a particular disease within a geographic area, a particular group of people or a certain period of time. (NCI)

• One type of cancer, rare type of cancer, OR cancer in age groups not usually affected. (CDC)

• A specific type of cancer occurring substantially more often than expected in a particular community (ACS)
SOME KNOWN CLUSTERS

• Birth defects – Mothers who took thalidomide during pregnancy in the 1960s
• Legionnaire’s Disease – contaminated water in air conditioning ducts in the 1970s
• Pneumonia – Homosexual men in early 1980s
• Mesothelioma – Asbestos used in ship building during World War II and in manufacturing many industrial and consumer products
• Lung Cancer - Smoking
RISK

The probability that a substance will produce harm under certain conditions of use.
COMPLETED EXPOSURE PATHWAY

Environmental Health Paradigm

Source of Contamination

Transport Mechanism

Point of Exposure

Route of Exposure

Receptor Population

Health Effect

No Health Effect

Contaminant Source

Air

Water

Soil

Ingestion

Absorption

Inhalation

Food
CLUSTER INVESTIGATIONS

Methodology

• Lengthy and expensive process
• Must be able to prove cause-effect relationship
• Quantifiable means of measuring
• Quantifiable means of expressing the measurement
• Quantify % population responding
CLUSTER INVESTIGATIONS

Methodology:
Challenges

• Methods for finding cause-effect relationships are limited
• Cases are too few for a clear analysis
• Must be able to address significance
• Sometimes politically driven
• Must be able to separate the exposed and effected populations from the general population
COMMUNICATION

DOD/DA

Public/Community

Federal and State Regulatory Officials

NDIA Conference, July 2, 2002 9
What is Perception?

• Perception is reality

• The conscious mental awareness and interpretation of a sensory stimulus. (Source: Academic Press Dictionary of Science Technology)

• Obtained from surroundings, specifically through senses and beliefs
PERCEPTION of RISK

• Uncertainty
  – Uncertain outcomes
  – Invisible vs. visible
  – Uncertain about exposure

• Loss of Control
  – Unable to determine degree of risk
  – Long life cycle of site
  – Slow clean up
PUBLIC PERCEPTION OF RISK

• Based on research by Paul Slovic, Univ. of Oregon, April 1987
• Examine judgment used to characterize and evaluate hazardous activities and technologies
• Research:
  – Helps policy makers and analysts to anticipate public response
  – Helps health and safety professionals communicate risk to general public
PUBLIC PERCEPTION OF RISK (cont’d)

• Risk assessment
  – Intellectual discipline designed to aid in identifying, characterizing, and quantifying risk.

• General public rely on “risk perception”
  – Intuitive risk judgments that come from experience (media, culture etc.)
  – “Zero Risk Society”
PUBLIC PERCEPTION OF RISK: Judgment Scale

- Status Characteristics
  - Voluntary
  - Dread
  - Knowledge
  - Controllability

- Benefits to Society
- Number of Deaths in an average year
- Number of Deaths in a disastrous year
PUBLIC PERCEPTION OF RISK: CONCLUSIONS

• Perceived risk is quantifiable and predictable
• Risk means different things to different people
• Acceptability is proportional to benefits
• Public will accept risk from voluntary activities
PUBLIC PERCEPTION OF RISK (cont’d)

• Presence of evidence does not change perception
• Strong initial views are resistant to change
• Contrary evidence tends to be dismissed as unreliable
CASE STUDIES (cont’d)

• Fort Ord, CA
  – Prescribe burn activities hindered
  – UXO cleanup activities hindered

• Fallon Naval Air Station, Fallon, NV
  – ALL cancer cluster

• Vieques, PR
  – Community opposes to Navy training
CASE STUDIES

• MMR, MA
  – Region 1 EPA ordered the removal of UXO from Camp Edwards
  – Restriction on Army training activities

• Sierra Army Depot, NV
  – Senator and public seeks review of OB/OD permit, files suit against DA and installation

• Kelly Air Force Base, San Antonio, Texas
  – Community concern about elevated cancer rates and birth defects
COMMUNICATION/EDUCATION

• Educate people about risk
• Reveal hidden agendas
• Must be two-way process
  – Not usually helpful
## COST ANALYSIS

### Table 2: Funds spent at and actions completed in 2000 to ATSDR.

<table>
<thead>
<tr>
<th>ATSDR ACTIVITY</th>
<th>TOTAL</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Health Assessments</td>
<td>$30,680,401</td>
<td>52%</td>
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<tr>
<td>Health Studies</td>
<td>$11,083,807</td>
<td>19%</td>
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<tr>
<td>Toxicological Profiles</td>
<td>$13,556,640</td>
<td>23%</td>
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<tr>
<td>Health Education</td>
<td>$3,795,150</td>
<td>6%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$59,115,997</strong></td>
<td><strong>100%</strong></td>
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</table>
COMMUNICATION

- Help community find and remediate the problem
- Build rapport (communication strategy)
- Risk Communication
HEALTH EDUCATION

• Agency for Toxic Substances and Disease Registry (ATSDR)
• RABs
• Help community understand
  – Cancer
  – Contaminants
  – Exposure pathways
  – Limitations of available investigative methods
CONTACT INFORMATION

Keera S. Cleare
Army Environmental Policy Institute
101 Marietta Street, Suite 3120
Atlanta, GA 30168-6202
404-524-9364 ext. 279
404-524-9368 (fax)
KCleare@aepi.army.mil