Environmental Health Resoures Self Learning Module

Risk Communication

Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations

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Overview and Objectives

This module has been created to provide local health agencies a quick overview of risk communication as well as more detailed resources. The module consists of a printable overview of risk communication basics and a more in-depth self-study module. While geared to local health departments (LHDs), the materials may be useful for other environmental health professionals.

Objectives:

- Gain familiarity with risk communication **terminology**
- **Raise or enhance understanding** of risk communication activities in brownfields/land reuse communities or communities in general
- Use the modules to **prepare for community engagement**, community **requests**, or **more detailed risk communication** activities

Module Organization

This Epidemiology resource is organized by:

1. A **printable summary** of epidemiology basics.
2. A **self-study module** that contains more detailed training and resources about epidemiology.

Risk Communication
Part One: Summary Overview

Risk Communication Definition

Essentially, risk communication is **how we talk to the public about substances or behaviors that can be harmful**.

The Role of Local Health Agencies

Communicating Risks

Sauk County Health Department staff facilitating a community health event as part of a redevelopment plan (ATSDR image, 2008)

Community residents often look to LHDs as a resource to interpret and communicate information about exposures and risks from land reuse and hazardous waste sites.

Addressing Community Concerns

Abandoned industrial site. ATSDR, 2010

People who live near brownfields or land reuse sites may be concerned about contaminated groundwater, landfill leakage, rodents, physical hazards, or air quality contaminants, among other concerns.

Knowing Your Audience

Who will you communicate with?

Community meeting, ATSDR 2015

If you are speaking to the general public and don't know the community, contact a local organization, such as a local community group to learn about the community first.

Oscar Tarrago, a risk communicator with ATSDR, recommends **some points to consider about your audience** (Tarrago, 2014):

- Education
- Income level
- Knowledge and past experience with the risk
- Age
- Languages spoken and read
- Cultural background norms and values
- Geographic location
- Religious beliefs
- Knowledge of environmental contamination
- How close do they live to brownfields sites?
  - » Are they concerned about these sites?
  - » It is ok to ask!

Messaging

An important aspect of Risk Communication is messaging: **how we get the message to our community about environmental risks**.

To communicate risks, written, spoken, or visual statements can be used to create the "message" for the target audience. **Messages are generally simple, one-sentence statements.** Here are some examples:

- Reduce, reuse, recycle
- Three tests before age three [for blood lead screening]
- Boil water
- Think green
- Shop local

Message Map

Vincent Covello, PhD, Center for Risk Communication, is an expert in Risk Communication. He has created a useful **Message Mapping document**.

Message Map

Stakeholder question or concern:		
Key Message #1 9 words on average	**Key Message #2** 9 words on average	**Key Message #3** 9 words on average
Supporting message 1a	Supporting message 2a	Supporting message 3a
Supporting message 1b	Supporting message 2b	Supporting message 3b
Supporting message 1c	Supporting message 2c	Supporting message 3c

Message Map. Source: Covello, 2007

Risk Communication Pointers

- Involve the public early in the process.
- Ensure the public that you are their partner, working in collaboration with them.
- Listen and ask questions for clarification.
- Use plain, clear language.
- Don’t promise more than you can deliver.
- Be honest. It is OK to say, “I don’t know, but I will try to find an answer for you.”
- Follow up promptly to maintain trust.

Case Study 1: Asbestos Mine

Stream and wetlands impacted by asbestos mine tailing runoff. The streams exhibit a color similar to milk; a direct result of suspended asbestos fibers in the tailings runoff. Photographed by ATSDR during a site visit in 2006.

From the early 1900's to 1993, the ABC Site was an active asbestos mine. During the mine's operation, millions of tons of chrysotile asbestos ore was excavated. The ore excavation process generated tons of waste rock and mine tailings. Contaminated runoff from the mine tailings included impacts to the surface water, stream, and sediments. Site investigations showed asbestos material extended to downstream wetland areas. Asbestos in the wetlands areas, as well as the tailings piles represent an ongoing source of airborne asbestos. This is a particular concern for people who previously accessed the site. The site was known as a great place for recreation, such as hiking. These activities often occurred on the tailings piles.

Asbestos exposure is not a problem if solid asbestos is left alone and not disturbed.

However, people who recreated on the site could be exposed to asbestos by these activities. **Asbestos exposure results from breathing in asbestos fibers.** If rocks, soil, or products containing asbestos are disturbed, asbestos fibers can be released into the air. These fibers can be breathed into the lungs and could remain there for a lifetime.

More about asbestos:
https://www.atsdr.cdc.gov/asbestos/index.html

Asbestos Mine Key Messages

Being exposed to asbestos does not mean you will develop health problems. Many things need to be considered when evaluating whether you are at risk for health problems from asbestos exposure. The most important of these are:

- how long and how frequently you were exposed
- how long it has been since your exposure started
- how much you were exposed
- if you smoke cigarettes: cigarette smoking with asbestos exposure increases your chances of getting lung cancer
- the size and type of asbestos you were exposed to
- other pre-existing lung conditions can exacerbate or accelerate exposure risks

Recommendations and Messages for Regulatory and Health Agencies

- **Restrict access to the ABC mine property.** This includes taking steps to prohibit and discourage recreational use of the site to minimize exposure of residents.
- **Prevent the reuse of tailings and all other material** from the ABC site for use beyond the ABC property
- **The wetland** located downstream **should not be used for camping or other activities**

Outcome

- An education and awareness campaign was developed by federal and state environmental and health agencies.
- The campaign informed residents about asbestos exposures and encouraged residents to minimize exposure to asbestos by staying off the mine property.
- The site has since been identified as a hazardous place where recreation can be dangerous to people’s health.

Asbestos Mine Message Map

1. Key Message Being exposed to asbestos does not mean you will develop health problems	**2. Key Message** Health status can exacerbate and accelerate exposure risk	**3. Key Message** You can minimize your own exposure
Supporting information 1.1 Asbestos-related illness depends on duration and frequency of exposure	Supporting information 2.1 Other pre-existing lung conditions can exacerbate or accelerate exposure risk	Supporting information 3.1 Stay off mine property
Supporting information 1.2 Asbestos-related illness depends on how much you were exposed to	Supporting information 2.2 Cigarette smoking with asbestos exposure increases your chances of getting lung cancer	Supporting information 3.2 Do not use wetlands up to a mile downstream for camping or other activities
Supporting information 1.3 Harm depends on size and type of asbestos you were exposed to	Supporting information 2.3	Supporting information 3.3

Case Study 2: My School Daycare 1 Sinco Place, East Hampton, CT

The former plastic safety net manufacturing facility, Sinco, Inc., had been redeveloped into a daycare center. The site soil historically contained elevated levels of arsenic as well as other contaminants. Much of it had been cleaned up. However, the soil in the playground was never sampled. In February 2008, the Connecticut State Department of Public Health worked with the property owner to get the soil tested in the playground. Our program was able to work with the property owner and the daycare operator to take soil samples of the playground and evaluate the results. We found that the playground soil had elevated levels of arsenic in surface and subsurface soil. Subsequently, we worked with the property owner to develop a remedial plan to prevent exposure to the contaminated soil.

Kenny Foscue, a Health Educator with the Connecticut State Department of Public Health shares this case study as an example of risk communication activities he routinely performs.

Community Concerns

Parents of children in the daycare and the daycare operator and staff initially expressed some concern about the soil results and plans for remediation.

They were concerned about whether children had been exposed in the past, and if there could there be health effects.

Risk Communication Activities

Playground area. Photo credit: CT Department of Public Health.

We prepared a fact sheet and held a public meeting to provide information and answer questions. Daycare staff and parents were reassured and were satisfied with the remediation. Our message to parents was that children from the daycare will not have direct contact with the contaminated soil in the playground and thus, will not be exposed to the arsenic in the soil. We used these messages:

1. Connecticut Department of Public Health has worked with the owner and operator to ensure arsenic in the soil will be covered with wood chips to prevent exposures

Continued...

2. Children attending the daycare will not have direct contact with the residual arsenic contamination in the soil
3. Children were not likely exposed as the daycare center has been open less than a year and during winter children were not using the playground
4. The lack of contact with the soil means children will not be exposed to the arsenic in the soil

Day Care Center Message Map

1. Key Message Connecticut Department of Public Health has worked with the owner and operator to ensure arsenic in the soil will be covered with wood chips to prevent exposures	**2. Key Message** Children attending the daycare will not have direct contact with the residual arsenic contamination in the soil	**3. Key Message** Children were not likely exposed as the daycare center has been open less than a year and during winter children were not using the playground	**4. Key Message** The lack of contact with the soil means children will not be exposed to the arsenic in the soil
Supporting information 1.1 Limited soil removal will take place in areas with highest arsenic levels	Supporting information 2.1 The playground has a layer of woodchips covering the soil	Supporting information 3.1 A child would need to play directly in the soil on a daily basis, for several years to be harmed by arsenic	Supporting information 4.1
Supporting information 1.2 Cleanup plan will likely include placing additional layers across the entire playground	Supporting information 2.2 Owner plans to add additional layers of covering such as heavy landscaping fabric, crushed limestone, and woodchips	Supporting information 3.2	Supporting information 4.2
Supporting information 1.3 After additional layers added, children will not be able to come into contact with the soil	Supporting information 2.3 One would need to play directly in the soil on a daily basis, for several years to be harmed by arsenic	Supporting information 3.3	Supporting information 4.3

Things that Can Go Wrong

If you are in the middle of a crisis situation, addressing an angry community, or have to work with the media, you may want to contact your state health or environmental agency for assistance. These agencies typically have professionals trained in Risk Communication, such as public affairs specialists or public information officers who may be able to assist you.

End of summary overview.

If you need assistance in understanding concepts in this resource, please contact your State Health Department, your ATSDR Regional Office, or send an email to atsdr.landreuse@cdc.gov.

For a hard copy of the Risk Communication summary overview, print pages 5–25.

For further risk communication learning and training materials please explore the resources in the SELF STUDY Module, Part Two: Self Study Risk Communication Materials.

Proceed to the **self-study module** on Risk Communication.

Risk Communication

Part Two: Self-study Materials

Self-study Module

ATSDR provides links to Risk Communication publications on this website: http://www.atsdr.cdc.gov/publications_risk_comm.html. While A Primer on Health Risk Communication is no longer maintained by ATSDR, much of the basic information may still be useful for communicating with the public.

Resources

CDC provides an online training in Crisis and Emergency Risk Communication (CERC) Training, available at: http://emergency.cdc.gov/cerc/cerconline/training/index.html (CDC, 2014). This comprehensive training is focused on how to communicate in a crisis or emergency. The principles covered, however, may be useful for general risk communication practice. The CERC training will take about 2.5 hours. The participant will gain a thorough understanding of risk communication in a crisis, including several of the key concepts of risk communication.

CDC Crisis and Emergency Risk Communication, available at: https://emergency.cdc.gov/cerc/resources/pdf/cerc_2014edition.pdf

EPA has several Risk Communication resources, including:

Risk Communication in Action: The Risk Communication Workbook (EPA/625/R-05/003). August 2007. (Authors: Christine Reckelhoff- Dangel, M.S.,ASPH/EPA Fellow and Dan Petersen, Ph.D., DABT)

This workbook describes risk communication based on perceptions, value differences, persuasion, and presenting data in new ways. It includes communication tools and techniques, case studies, and exercises.

Risk Communication in Action: Message Mapping (EPA/625/R-06/012). August 2007. (Authors: Ivy Lin, M.S., ASPH/EPA Fellow and Dan D. Petersen, Ph.D., DABT, USEPA)

This workbook provides information on preparing risk communication messages, step-by-step instruction on message mapping, and case study examples

Links to Peter Sandman's materials, website, and videos:

http://www.psandman.com/index-CC.htm

http://www.psandman.com/media.htm

Video: Risk = Hazard + Outrage

Peter Sandman has been a leader in risk communication for over 35 years. His work, provided in the website, includes risk communication on Ebola, terrorism, disease outbreaks, to name just a few. Also included are tutorials on special issues in risk communication.

Vincent Covello's Presentation on Risk Communication:

www.centre4riskman.com/downloads/covello_slides_may07.ppt

This presentation includes rules of risk communication, how to prepare and respond to journalists and the public, and how to create effective and memorable messages.

Additional Resources

A Primer on Health Risk Communication, available at http://www.atsdr.cdc.gov/risk/riskprimer/index.html#preface.

EPA 2007. *Risk Communication in Action: The Risk Communication Workbook* (EPA/625/R-05/003). August 2007. (Authors: Christine Reckelhoff-Dangel, M.S.,ASPH/EPA Fellow and Dan Petersen, Ph.D., DABT)

EPA 2007. *Risk Communication in Action: Message Mapping* (EPA/625/R-06/012). August 2007. (Authors: Ivy Lin, M.S., ASPH/EPA Fellow and Dan D. Petersen, Ph.D., DABT, USEPA)

The U.S. Department of Health and Human Services 2002. *Communicating in a Crisis: Risk Communication Guidelines for Public Officials* (U.S. Department of Health and Human Services. Washington D.C., Department of Health and Human Services, 2002), which is also available at https://www.orau.gov/cdcynergy/erc/content/activeinformation/resources/HHSRiskCommPrimer.pdf.

Websites:

Crisis and Emergency Risk Communication
https://emergency.cdc.gov/cerc/training/basic/

CDC Training Materials
https://emergency.cdc.gov/cerc/training/index.asp

CDC Risk Communication Gateway:
http://www.cdc.gov/healthcommunication/risks/index.html

The Canadian Network for Environmental Risk Assessment and Management (at University of Waterloo, Canada, http://www.irr-neram.ca/), Environmental Health Risk Management: A Primer for Canadians, available at http://citeseerx.ist. psu.edu/viewdoc/download?doi=10.1.1.466.7060&rep=rep1&type=pdf

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