

## Module 3: Communicating Environmental and Health Risks

Estimated time: 1.5 hours

**Environmental Health and Land Reuse Certificate**

**Module 3: Communicating Environment and Health Risks**

Agency for Toxic Substances and Disease Registry  
(Created 2020)

Instructors: Laurel Berman, Leann Bing, Sue Casteel  
Guest Instructors:

Division of Community Health Investigations



**Step Three**

Communicating Environmental and Health Risks



No problem is insurmountable!

**Course Objectives**

- ❑ Describe at least two of Covello's rules to communicate technical findings in plain language.
- ❑ Describe message mapping/key messages.
- ❑ Explain how to create message maps from a template.
- ❑ Explain the role, responsibilities, and scope of practice of a development community team member

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## Course Details

- ❑ **Pre-test**
- ❑ **Post-test: 70% or higher to receive a certificate**
  - Create a 4-digit number to put on your pre- and post-tests
  - Memorize the number or keep a written copy
  - Use the same number on both the pre- and post-test



An ATSDR Regional Representative taking a test, ATSDR, 2019.

## Pre-test

- ❑ **Pre-test Module 3**
- ❑ **Put your 4-digit number on the top right-hand corner of your pre-test**

## Risk Communication Definition

- ❑ **How we talk to the public about:**
  - Substances or behaviors that can be harmful
  - Potential hazards
  - The nature and level of risks
  - A science-based approach for communicating effectively

## Risk Communication

- ❑ **Enhance understanding and knowledge**
- ❑ **Build trust and credibility**
  - Local health departments
  - Environmental professionals



Trusted information providers: local health departments, environmental professionals.

## Understand Your Audience

- ❑ **Demographics**
  - Education
  - Income level
  - Age
  - Languages spoken and read
  - Religious beliefs
- ❑ **Cultural background norms and values**

## Understand Your Audience continued...

- ❑ **Points to consider about your audience:**
  - Geographic location
  - Knowledge of environmental contamination
  - How close do they live to brownfields sites?
    - Are they concerned about these sites?
    - It is OK to ask!

## Communicating Environmental and Health Risks

### □ Seven Cardinal Rules of Risk Communication

- Developed by Dr. Vincent T. Covello for US Environmental Protection Agency
- Adapted and updated for current applicability

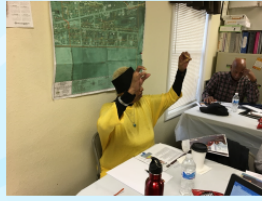


Image of community member discussing environmental concerns. ATSDR, 2017.

Walking in someone else's shoes may be one of your greatest community engagement and risk communication skills. Do they have children? What stresses may they have?

### Rule 1

#### □ Accept and involve the public as a legitimate partner.

- Involve the public early.
- Recognize that people hold you accountable.
- Recognize rights of people and communities to participate in decisions that affect their lives, property, and things they value.



### Rule 2

#### □ Listen to the audience.

- Don't assume you know what people know, think, or want.
- Ask people what they are thinking:
  - Interviews
  - Discussion groups
  - Surveys
  - Toll-free numbers

#### □ Identify with your audience and *try to put yourself in their place.*

### Rule 3

- ❑ **Be honest, frank and open.**
- ❑ **State your credentials.**
  - Don't ask or expect to be trusted by the public.
- ❑ **If you don't know the answer to a question, say so.**
  - Offer to find out.
- ❑ **Share more information, rather than less.**
  - Ensures people don't think you are hiding anything.



A community leader discussing contamination and exposure with community members. Lloyd DeGrane, 2018.

Remember: it is ok to say, "I don't know" and offer to get an answer.

### Rule 4

- ❑ **Coordinate and collaborate with other credible sources.**
- ❑ **Issue joint communications with trustworthy sources.**
  - Local universities
  - Citizen advisory groups
  - Local officials.



Environmental professionals, planners, and Chapter official coordinating to discuss site concerns. ATSDR, 2019.

### Rule 5

- ❑ **Meet the needs of the media.**
  - Be open with and accessible to reporters.
  - Respect deadlines.
  - Stay on topic.
  - Prepare a limited number of factual key messages.
    - Repeat these messages
    - Say only what you are willing to have repeated.

*Remember, everything you say in an interview is on the record!*

Sometimes we call the positive key messages "sound bytes." These are succinct, memorable messages, such as "arsenic levels were not at a harmful level".

### Rule 6

- **Speak clearly and with compassion.**
  - Use plain language.
  - Be sensitive to local norms, such as speech and dress.
  - Use images to clarify messages.
  - Personalize risk data through stories, examples, and anecdotes.
  - Acknowledge and respond to emotions that people often express
    - Anxiety
    - Fear
    - Anger
    - Outrage
    - Helplessness
- **Tell people what you can and cannot do.**

Your clothing and appearance may have impact. Wear something that a member of the community might wear, such as a business casual outfit. Or, if you are meeting with a lot of officials, you may need to be respectful and wear a suit.

### Rule 7

- **Plan carefully and evaluate performance.**
  - Have clear objectives
    - Providing information
    - Providing reassurance
    - Involving stakeholders in joint problem solving
  - Evaluate your efforts and learn from mistakes
- **Train staff in communication skills**
- **Pre-test messages**
  - Different audiences may need different risk communication strategies.

Sometimes it is appropriate to wear a suit and other times it isn't. Wear something that a member of the community might wear, such as a business casual outfit. Or, if you are meeting with a lot of officials, you may need to be respectful and wear a suit.

### Knowledge Check #1

A basic tenet of risk communication in a democracy is that people and communities have a right to participate in decisions that affect their lives, property, and things they value.

- a) True
- b) False

KC1 Answer: **a) True**

### Knowledge Check #2

Which are true? Select all that apply.

- a) Train all staff in communication skills.
- b) Only talk to the subgroup that you feel will listen to the message.
- c) Avoid thinking of your audience as "the public" or using this term. Understand the concept of different "audiences," each with its own interests, needs, concerns, priorities, preferences, and organizations.
- d) Begin with clear, explicit risk communication objectives – such as providing information to the public, motivating individuals to act, stimulating response to emergencies, or contributing to the resolution of conflict.
- e) Recruit spokespersons who are very technical so they can get all the minute details correct.
- f) Pretest messages whenever possible.
- g) Evaluate efforts carefully and learn from mistakes.

KC #2 Answer: **All but b) and e) are true.** Why are these are incorrect?

### Knowledge Check #3

Select all that apply:

When listening your audience's concerns, remember to

- a) Let all parties with an interest or stake in the issue be heard.
- b) Let people know that what they say is understood, addressing their concerns as well as yours.
- c) Recognize the "hidden agendas," symbolic meanings, and broader economic or political considerations that often underlie and complicate the task of risk communication.

KC #3 Answer: **All of the above.**

#### Knowledge Check #4

Select all that apply:

What strategies will help build trust and credibility in the community?

- a) Be honest if an answer is unknown or uncertain.
- b) Disclose risk information as soon as possible (emphasizing any reservation about reliability).
- c) Never disclose data uncertainties.
- d) Get back to people with answers.
- e) Emphasize worst-case scenarios, just in case.
- f) Never admit mistakes.

KC #4 **Answer: a), b), and d) are true.** Disclose as much information as you can. If data is uncertain, you can say so. Emphasizing worst-case scenarios without looking at a realm of possibilities may alarm people. Admit your mistakes. You are human.

#### Knowledge Check #5

Conflicts or public disagreements with other credible sources have no effect on risk communication.

- a) True
- b) False

KC #5 **Answer: False.** Conflicts or public disagreements can confuse your audience and impact the way you communicate.

#### Knowledge Check #6

Select the best answer:

Meet the needs of the media by

- a) Telling them only what they need to know
- b) Telling them where to find their own background information
- c) Providing risk information tailored to the needs of each type of media (e.g., graphics and other visual aids for television).
- d) Ignoring their deadlines and only worrying about the project deliverables

KC #6 **Answer: Third bullet is correct.**



### Knowledge Check #7

Select all that apply:

**When communicating risk to the public, speak clearly and with compassion. Remember to**

- a) Avoid distant, abstract, unfeeling language about deaths, injuries, and illnesses
- b) Never include a discussion of actions that are under way or can be taken
- c) Use technical language and jargon
- d) Be sensitive to local norms, such as speech and dress
- e) Use risk comparisons to help put risks in perspective, but avoid comparisons that ignore distinctions people consider important
- f) Use vivid, concrete images that communicate on a personal level

KC #7 Answer: a), d), e), f) are correct. Answer b) is incorrect. You can include an update on what is happening or will happen to keep the community informed and build trust. Avoid technical language and jargon (answer c) so that your communication is clear and easy to understand.

### Summary Risk Communication Pointers

- Include 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

### The Role of an Environmental or Health Professional in Risk Communication

- Engage community members to understand their needs for redevelopment**
  - You may be seen as a reliable source of accurate information about contaminants, risks, exposures, and site development techniques
- Conduct environmental cleanup of site**
- Conduct community health analysis**
  - You can assess exposure pathways and who is exposed

## Messaging

- ❑ How we get the message to our community about environmental risks.
- ❑ Messages can be:
  - Written
  - Spoken
  - Visual
- ❑ Messages are generally simple, one-sentence statements.
  - Reduce, reuse, recycle
  - Three tests before age three (for blood lead screening)
  - Boil water
  - Think Green
  - Shop local

## Message Map Template

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

There is a hard copy of this template at your tables.

## Message Map

- ❑ **Key Message #1:**
  - What is most important for people to know?
- ❑ **Key Message #2:**
  - How can this impact people's health?
- ❑ **Key Message #3:**
  - What conclusions can be drawn related to risk and exposure?



### Message Map Exercise My Daycare, Shiprock, Navajo Nation (mock)

- Sinco, Inc. redeveloped into a daycare
  - Plastic safety net manufacturer
  - Soil contaminated with arsenic and other contaminants
  - Most of site was cleaned up.
- Playground soil never sampled
- Chapter Officials and Tribal Environmental Professional worked with owner and daycare operator to test playground soil
  - Soil contaminated with elevated levels of arsenic in surface and subsurface soil.
  - Worked with property owner to develop plan to prevent exposure to contaminated soil
- Community Concerns
  - Parents and daycare staff expressed concern about soil contamination and remediation plans.
  - Concerned children had been exposed in the past, and their health might be harmed.

The hard copy of this case study is at your table. Let's review it.

### Message Map Exercise Risk Communication Activities

- Chapter Officials and Tribal Environmental Professional
  - Prepared a fact sheet
  - Held a public meeting to provide information
  - Answered questions

During the meeting, daycare staff and parents were reassured and were satisfied with the remediation. The 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.

### Overview of Case Study

- ❑ **Arsenic in soil at the daycare center**
- ❑ **Risk: Much of the site has been cleaned up by soil was never sampled**
- ❑ **Outcome: Chapter Officials and Tribal Environmental Professional helped get the soil tested**
  - Soil was contaminated with arsenic
  - Remediation plan put in place to prevent exposure
- ❑ **Results: Chapter worked with property owner to cover the soil with wood chips to prevent exposure**

### Message Map Template

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

What key messages do you think are important to include?

### Message Map Template

Stakeholder question or concern: Are the children going to be sick from exposure to arsenic?		
Chapter has worked with operator to ensure arsenic in the soil will be covered with wood chips to prevent exposures	Children attending the daycare will not have direct contact with the residual arsenic contamination in the soil.	Children were not likely exposed, as the daycare center has been open less than a year and children were not using the playground during winter.
Limited soil removal will take place in areas with highest arsenic levels.	A layer of woodchips covers the soil on the playground.	A child would need to play directly in the soil on a daily basis for several years to be harmed by arsenic
Cleanup plan may include additional layers across the entire playground.	Operator will add additional soil covering such as heavy landscaping fabric, crushed limestone, and woodchips.	
After additional layers are added, children will not be able to come into contact with the soil.		

This is what the actual Message Map looked like. THIS SLIDE IS ALSO A HARD COPY FOR USE IN THE EXERCISE. Please note that there are more than 9 words per message to illustrate the use of the message map.

### Case Study: Asbestos Mine

- ❑ **The ABC site in Keweenaw Peninsula (mock)**
  - Active asbestos mine from early 1900s to 1993
  - Chrysotile mined
  - Tons of waste rock and mine tailings
- ❑ **Contaminated runoff from the mine tailings**
  - Surface water, stream and sediment contamination
  - Downstream wetland areas contaminated
    - Source of airborne asbestos
    - Recreational area for such as hiking on tailings piles.

Now let's look at the Asbestos Mine case study. Case study is at the table.

### Case Study: Asbestos Exposure

- ❑ **Asbestos exposure is not a problem if asbestos is left alone and not disturbed**
- ❑ **Asbestos exposure results from breathing in asbestos fibers.**
  - Rocks, soil or products containing asbestos are disturbed, asbestos fibers released into the air
  - Fibers breathed into the lungs and could remain there for a lifetime.

### Case Study: Exposure Factors

- ❑ **Exposure to asbestos doesn't mean you will develop health problems**
- ❑ **Factors that affect whether your health will be harmed**
  - How long and how frequently exposed
  - How long it has been since exposure started
  - How much exposed to
  - Smoking – cigarette smoking increases chances of getting lung cancer from asbestos exposure
  - The size and type of asbestos exposed to
  - Other pre-existing lung conditions can exacerbate or accelerate exposure risk

### Case Study: Recommendations and Messages for Regulatory and Health Agencies

- ❑ **Restrict access to the ABC mine property**
  - Prohibit and discourage recreational use of site to minimize exposure
- ❑ **Prevent the reuse of tailings and all other material beyond the ABC property**
- ❑ **Don't use wetlands located downstream for camping or other recreational activities.**

### Message Map Template: Write Down Some Key Messages

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

Use your blank Message Map Template and information from the case study. What key message do you think should be included? Take a few minutes to fill in part of your template, and we will review it together.

### Message Map Template

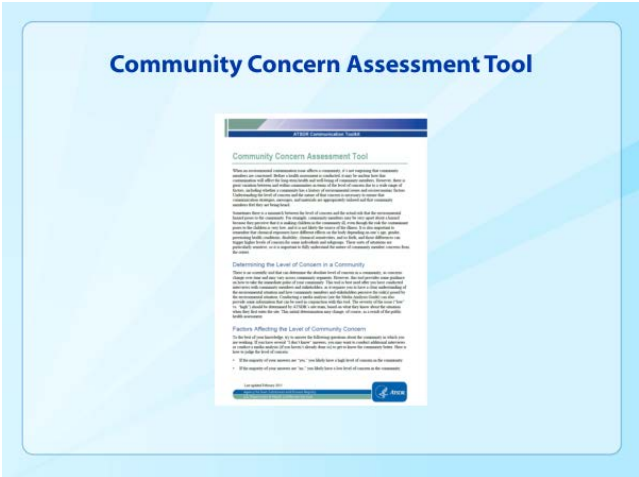
Stakeholder question or concern: I hiked on the mine tailings and camped there. Will I get sick?		
Being exposed to asbestos does not mean you will develop health problems.	People with some existing health conditions are more likely to develop health problems, and they may develop them more quickly.	Lower your exposure to asbestos.
Several factors affect whether you will develop health.	Other pre-existing lung conditions can exacerbate or accelerate exposure risk	Stay off mine property.
Factors include how long, how often and how much you were exposed to	Cigarette smoking with asbestos exposure increases your chances of getting lung cancer	Do not camp or participate in other recreational activities in wetlands within one mile of the facility.
The size and type of asbestos fibers you were exposed to is another factor.		

Is your message map similar to this?

- ### Case Study: Asbestos Mine - Outcome
- ❑ **Education and awareness campaign developed**
    - Federal, state, environmental and health agencies
  - ❑ **Campaign informed residents about asbestos exposures and encouraged residents to minimize exposure by staying off the mine property**
  - ❑ **Site identified as a hazardous place where recreation can be dangerous to people's health.**

- ### Additional Resources
- ❑ **ATSDR Communication Toolkit**
    - Community Concern Assessment Tool
  - ❑ **CDC/federal plain language guidelines**
  - ❑ **Risk Communication resources**

There is a handout highlighting the above resources at your table. Feel free to look through these on your own time.



Gather as much information as possible about the exposure, e.g. accident vs. workplace vs. spill/dumping, who is exposed (children, adults), deaths or illnesses? There are hard copies of this tool at each table. Let's review together.

**Community Concern Assessment Tool**

**Table 2: Communication Strategies for Different Levels of Community Concern**

Segment	High Concern, High Risk	High Concern, Low Risk	Low Concern, High Risk
Description	In this case, you will likely need to guide people through serious hazards when they are appropriately upset. Acknowledge people's level of concern and provide clear information and expectations.	The high level of concern may originate from any number of factors. But the concern is real and needs to be addressed, even if the risk is low.	In this case, you will need to alert people to serious hazards when they are seemingly unconcerned.
Tone	<ul style="list-style-type: none"> <li>Express empathy and compassion.</li> <li>Express your understanding that the community feels threatened.</li> <li>Messages that might evoke fear should describe the situation in a moderate way. They should also provide the community with ideas and methods for how to control or remove the risk or danger.</li> <li>Express the following qualities in person and in messages: listening, caring, empathy, honesty, openness, competence, and expertise.</li> <li>Move quickly to a dialogue instead of a one-way communication strategy. Dialogue gives communities a chance to be and feel heard.</li> </ul>	<ul style="list-style-type: none"> <li>Be patient, listen, and be attentive to people's concerns.</li> <li>Messages that might evoke fear should describe the situation in a moderate way. They should also provide the community with ideas and methods for how to control or remove the risk or danger.</li> <li>Express the following qualities in person and in messages: listening, caring, empathy, honesty, openness, competence, and expertise.</li> <li>Move quickly to a dialogue instead of a one-way communication strategy. Dialogue gives communities a chance to be and feel heard.</li> </ul>	<ul style="list-style-type: none"> <li>Messages that might evoke fear should describe the situation in a moderate way. They should provide the community with ideas and methods for how to control or remove the risk or danger.</li> <li>A slightly more concerned tone than with the other two segments may help to increase involvement and interest.</li> </ul>

Review: high concern, high risk; high concern, low risk; and low concern, high risk. You will see many of Covello's Risk Communication Rules here. For example, with high concern and high risk: empathy, understanding of community, caring, honesty, openness, expertise. In a situation with high concern but low risk: be patient, listen, use message in a moderate tone to not evoke fear, caring, empathy, listening.



### **CDC/Federal Plain Language Guidelines**

- ❑ **Plain Writing Act of 2010**
- ❑ An act to enhance citizen access to Government information and services (as well as for other purposes) by establishing that Government documents issued to the public must be written clearly.
- ❑ <https://www.plainlanguage.gov/guidelines/>

What is Plain Language/Plain Writing? Basically, you are writing or speaking to the level of your audience. For general communications, this is typically an 8<sup>th</sup>-grade level. The Plain Writing Act of 2010 was passed to enhance citizen access to government information and services by establishing that gov't documents issued to the public must be written clearly, and for other purposes

### **Federal Plain Language Guidelines**

- ❑ **"Plain Language Action and Information Network (PLAIN) is a community of federal employees dedicated to the idea that citizens deserve clear communications from government."**

<https://www.plainlanguage.gov/media/FederalPLGuidelines.pdf>

In addition, using plain language helps to build trust.

## Plain Language Guidelines

- ❑ **Download the manual for free**
  - <https://www.plainlanguage.gov/media/FederalPLGuidelines.pdf>

## Risk Communication Resources

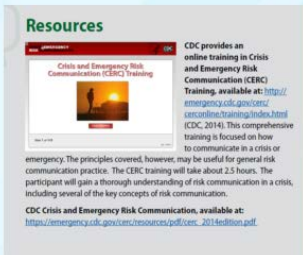
- ❑ ATSDR provides links to Risk Communication publications on this website: [https://www.atsdr.cdc.gov/publications\\_risk\\_comm.html](https://www.atsdr.cdc.gov/publications_risk_comm.html).
- ❑ **A Primer on Health Risk Communication** (<https://www.atsdr.cdc.gov/risk/riskprimer/index.html>) is no longer maintained by ATSDR, but much of the basic information may still be useful for communicating with the public.

## Risk Communication Resources

- ❑ *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)
- ❑ *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)



## Risk Communication Resources



**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](https://emergency.cdc.gov/cerc/resources/pdf/cerc_2014edition.pdf)

## Post-test

- ❑ Place your **4-digit number on the top** of your test
- ❑ You can **retake** the test **multiple times**
- ❑ Test is **open book**
- ❑ Passing **score of 70%** is **required**
- ❑ Bring your test in **tomorrow** for grading

**Thank you!**

**Laurel Berman, [laberman@cdc.gov](mailto:laberman@cdc.gov)**

**Leann Bing, [kbing@cdc.gov](mailto:kbing@cdc.gov)**

**Sue Casteel, [scasteel@cdc.gov](mailto:scasteel@cdc.gov)**

Division of Community Health Investigations

