



# Challenges in Risk Communication: Microbial Pathogens

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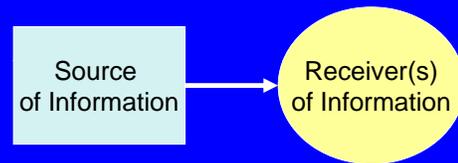
# Introduction

- Risk Communication
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  - What's changed?
- Issue Paper for EPA
- Case Studies
  - Themes
  - Frameworks/Approaches
  - Lessons Learned
- Strategic Risk Communication
  - What it means
- Challenges
  - Microbial pathogen issues
- Recommendations

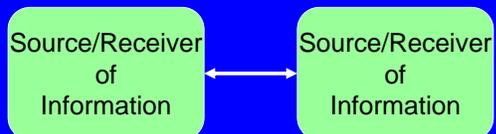
# Approaches

- Risk communication (RC)
  - Began as an add-on
  - Evolved into a broader concept
    - Interactive exchange of information and opinions among individuals, groups and organizations (NRC, 1989)
    - Analytic-deliberative process (NRC, 1996)
  - Infused throughout the risk management paradigm

# "Tell" (One-way) Method



# "Dialogue" (Two-Way) Method



# Analytic-Deliberative Process

(NRC, 1996)

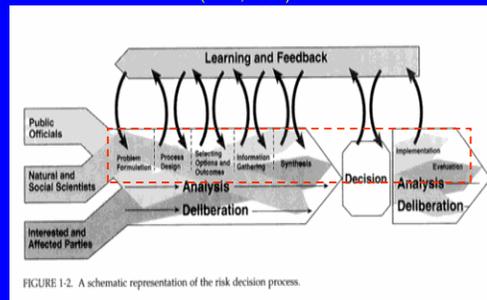
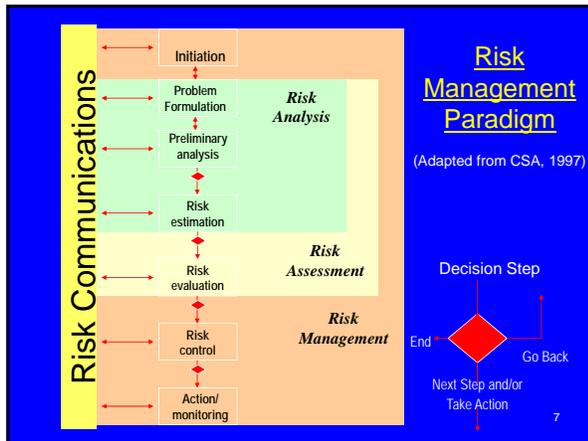


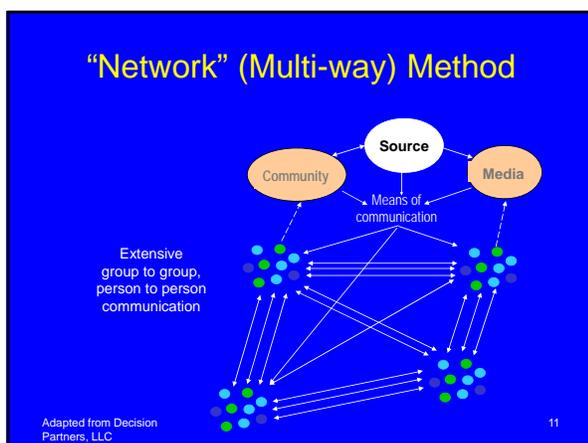
FIGURE 1-2. A schematic representation of the risk decision process.



- ## Microbial Risk Communication Goals
- Increase awareness and understanding
  - Provide meaningful, relevant, accurate, clear information
  - Meet stakeholders' needs for information, sharing and inclusion
  - Foster meaningful interactions
- Embrey and Parkin, 2002 8

- ## Types and Examples
- | <u>Types of Risk Communication</u>          | <u>Microbial RC Examples</u>     |
|---|----------------------------------|
| Information & education                     | 1. Bill inserts                  |
| Behavior change & protective action         | 2. Boil water notices            |
| Disaster warning & emergency notification   | 3. Evacuation alerts             |
| Joint problem-solving & conflict resolution | 4. Regulatory decision processes |
- Types from Covello et al, 1986 9

- ## What has Changed?
- 1993 Milwaukee outbreak
    - Increased public awareness
    - Raised stakeholders' expectations for more participation in decision-making
  - More microbial pathogens of concern identified
    - CCL and ICR processes (SDWA, 1996)
  - Internet access to information and communications
    - Increased complexity & rapid, dynamic nature of communication pathways
    - Increased expectations of finding "the answer" out there somewhere; e.g., somebody knows
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- ## Issue Paper Methods
- Examined 6 microbial pathogen risk cases
  - Selected diverse set of conditions
    - Acute and chronic risks
    - Different sources and exposure pathways
      - Drinking, recreational, and waste water
      - Airborne pathogens
      - Point source and non-point source
    - Short and long-term scenarios
    - Various geographic scales and at-risk populations
  - Co authors: Covello and Hunter
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## Cases Studied

1. Milwaukee – 1993 *Cryptosporidium* outbreak
2. Delmarva Peninsula – 1997 *Pfiesteria* outbreak
3. Glasgow – 2002 *Cryptosporidium* incident
4. Hong Kong – 2003 SARS epidemic
5. Stockton, California – Decades of pathogens in recreational water
6. Wastewater treatment plants – Compilation of several sites

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## Analyzed for...

- Traditional communication components
  - Source, message, channel, receiver
- Contexts
  - Organizational features
  - History of the problem, relationships
  - Legal mandates, authorities
- Results
  - Public health impacts (including subpopulations)
  - Lessons learned

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## Themes: Similarities

### Factors which adversely affected RC success

- Complex contexts, not fully known or understood
- Limited or no advance knowledge of stakeholders' needs
- No standardized RC strategies or methods in place
- Lack of clarity about RC lead
- Unclear & conflicting RC messages
- Reliance on limited set of familiar relationships & channels
  - e.g., 1-way, mass media in all cases
- Insufficient, not timely attention to subgroups' needs

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## Themes: Differences (1 of 2)

- Only 1 case (Glasgow) had
  - A clear RC lead
  - Planned in advance for a microbial pathogen scenario
  - Systematic approach with interagency team & formal agreement
- 3 cases revealed reluctance to share information and cooperate among agencies
  - Hong Kong, Delmarva, and Milwaukee
- Wide variety of RC methods were used
  - 2-way or combined methods in 3 cases (key in Hong Kong)
  - Scope and reach varied (subgroups)
  - Legal authority limited RC methods (Stockton)

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## Themes: Differences (2 of 2)

- At-risk group needs met differently
  - Conflicts between proscribed methods & needs (Stockton)
  - Conflicts between methods & expectations (Delmarva)
- Results
  - Great public concern as deaths occurred (Hong Kong, Milwaukee)
  - Public distress increased due to linked economic and other concerns (Delmarva, wastewater treatment plants)
  - Loss of trust in government due to slow, non-credible RC (Delmarva, Milwaukee, Stockton)
  - Apathy for problems extended over time (Stockton)

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## Public Health Impacts

- Raised awareness
  - Reduced exposures (Delmarva)
  - Prevented potential illnesses (Glasgow)
    - Importance of lab results
  - Increased symptom & clinical reporting (Delmarva)
  - Declined over time and exposures returned (Stockton)
- Reduced deaths (Milwaukee, Hong Kong)

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## Other Impacts

- Lost school and work time (Milwaukee, Hong Kong)
- Damaged community relationships (wastewater treatment plants, Delmarva, others)
- Legal actions, lawsuits (Milwaukee)
- Corrective actions – including improved RC strategies – by authorities (Milwaukee, Glasgow)
- Political fallout – e.g., questioning cost/value of boil water notices (Glasgow)

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## Lessons Learned

1. Planning
  - Plan in advance to maximize RC performance
  - Describe when, how a microbial “outbreak” will be declared
2. Roles and responsibilities
  - Define in advance to improve RC efforts
  - Address legal, cross-boundary limitations in advance
3. Existing communication networks
  - Engage community organizations proactively
  - Involve respected, public opinion formers

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## Lessons Learned

4. Risk perception
  - Anticipate and acknowledge perceived microbial pathogen and related risks
  - Provide information, not premature reassurance
5. Communicating with the media
  - Establish positive relationships in advance
6. Transparency
  - Share information openly, truthfully and in a timely manner among partners

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## Strategic Risk Communication

- Refers to the **strategic management of risk communications**
- It is an **integral part of risk management processes & organizational infrastructure**
- It is a purposeful process of skillful interaction with stakeholders supported by appropriate information
- It helps **both** stakeholders and decision makers make well-informed, effective decisions

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## Risk Managers Need to Know...

- Who is concerned about microbial pathogen risks
- How people think about microbial pathogen risks & the options to address them
- How stakeholders respond or accept these risks & tradeoffs
- The contexts in which people make risk-related decisions
- How people want to get relevant information

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## Challenges

- Infusing a strategic RC approach throughout an organization
- Developing the structure and support needed for effective RC
- Learning continuously who stakeholders are & what they need and want to make microbial pathogen risk-related decisions
- Sustaining a systems-oriented RC approach based on continuous improvement methods

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## Recommendations (1 of 2)

1. Plan
  - Identify key actors, roles, resources
2. Prepare, train, practice well in advance
  - Know microbial RC principles, best practices, & skills
3. Identify & assess real and perceived pathogen risks & mitigation options
  - Do this early, with stakeholders
4. Decide about communicating
  - Write protocols in advance
  - Address what, who & cross-jurisdiction issues

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## Recommendations (2 of 2)

5. Define & tier the RC objectives clearly
  - Assure agreement among key actors
6. Communicate
  - Consider context, content, clarity, timeliness, methods
  - Address different stakeholder needs
  - Acknowledge uncertainty (e.g., preliminary data)
  - State what know & how will find out and share more
7. Assess the RC effectiveness
  - Were objectives defined mutually? Achieved?
  - From whose perspective?
8. Apply lessons for better performance next time

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**Thank You!**

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