Emerging Drinking Water Contaminants

Utility Opportunities Using Strategic Risk Communication Approaches:

Recommendations from AwwaRF Research

Lisa Ragain, MAT
Center for Risk Science and Public Health
The George Washington University
Washington, DC

What Are the Challenges?

- Rules
  - LCR
  - DBP
  - TCR
- Monitoring Precision and Accuracy
  - Perchlorate
  - Pharmaceuticals
  - Endocrine Disruptors
  - Microbes
- Simultaneous Compliance -
  - complex and technical
- Public Awareness and Concern
- Undefined Health Effects
- Limited Resources

But Opportunities?

To understand the opportunities, some background…

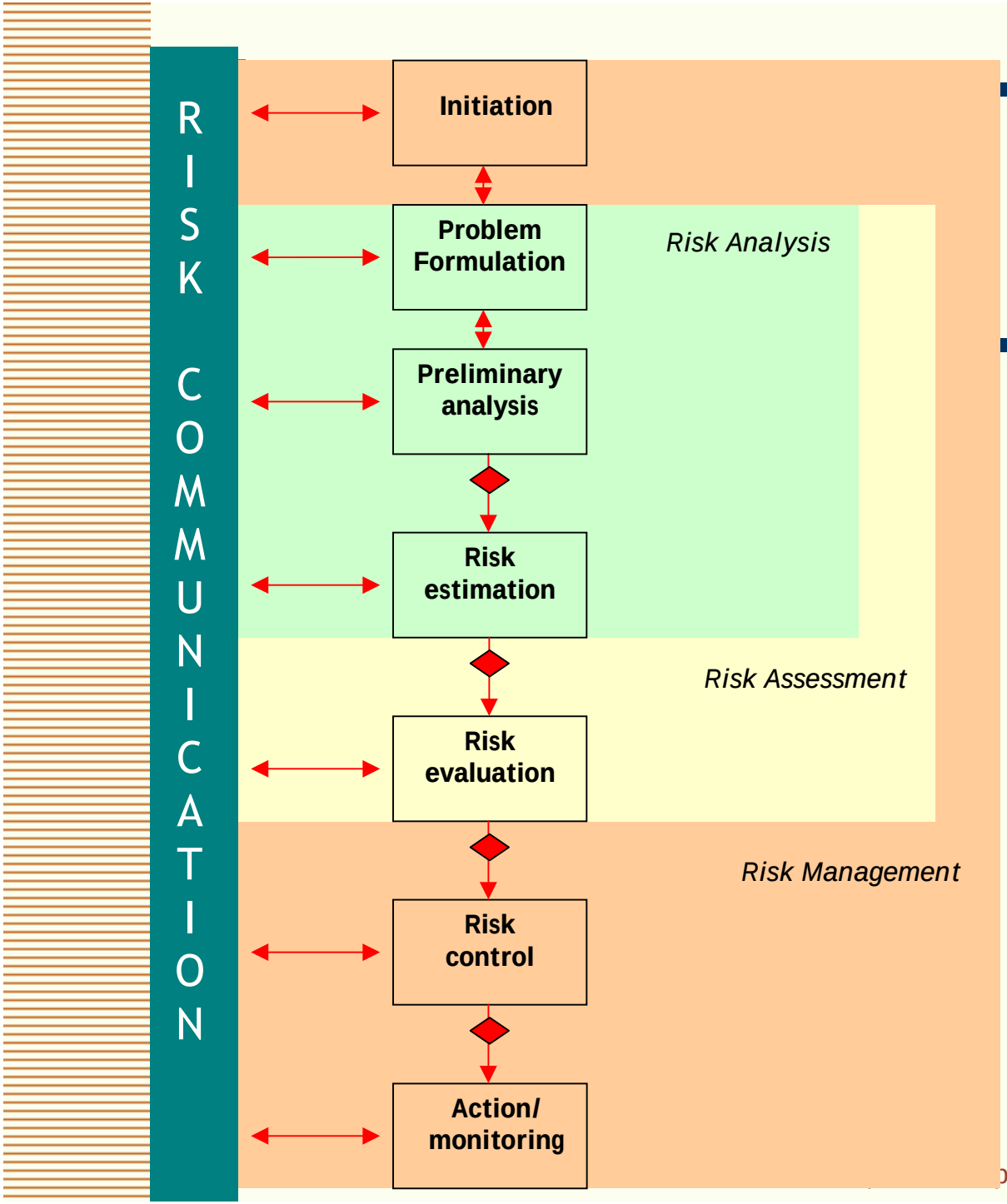
What is risk?

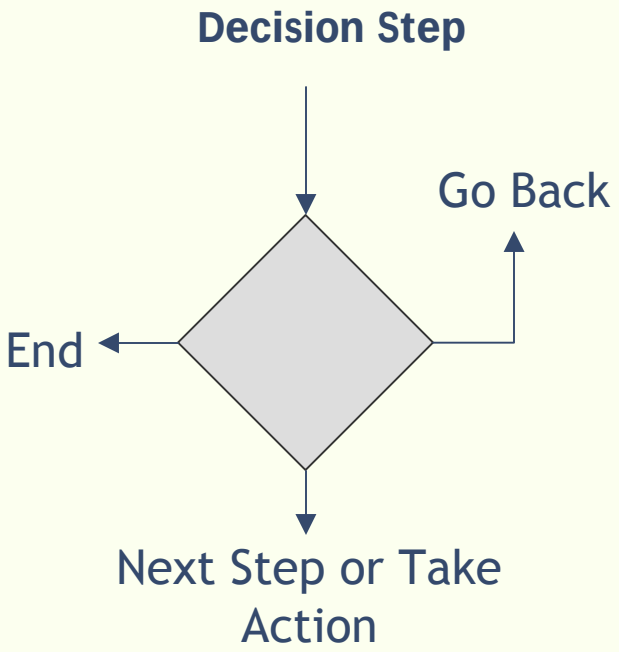
The concept is universally negative

Risk = Hazard + Outrage

Risk Management Paradigm

Adapted from CSA (1997)





Risk Communication is

The set of strategies & approaches used to develop

An *interactive* process of exchange of information and opinion among various interested individuals, groups, and institutions about risk

Risk management decisions & actions flow from that exchange.

Adapted by Dr. Rebecca Parkin from NRC, 1989

Risk Communication is Not

- Crisis Communication
- Media Strategies
- Public Relations
- Brochures and other written products

Risk Perception Drives Risk Communication

Central Questions

- How do people *think and feel* about the risk?
- *Why* do they view the risk that way?

Risk Perception

- Shapes judgments, preferences, & decisions
- Is influenced by personal, social and cultural factors

Risk Perception

- Extent to which the hazard is feared
  DREAD
- Extent to which the hazard is unknown
  KNOWLEDGE
- Number of people exposed
  Public Health Significance

least important of the three

Dread Characteristics

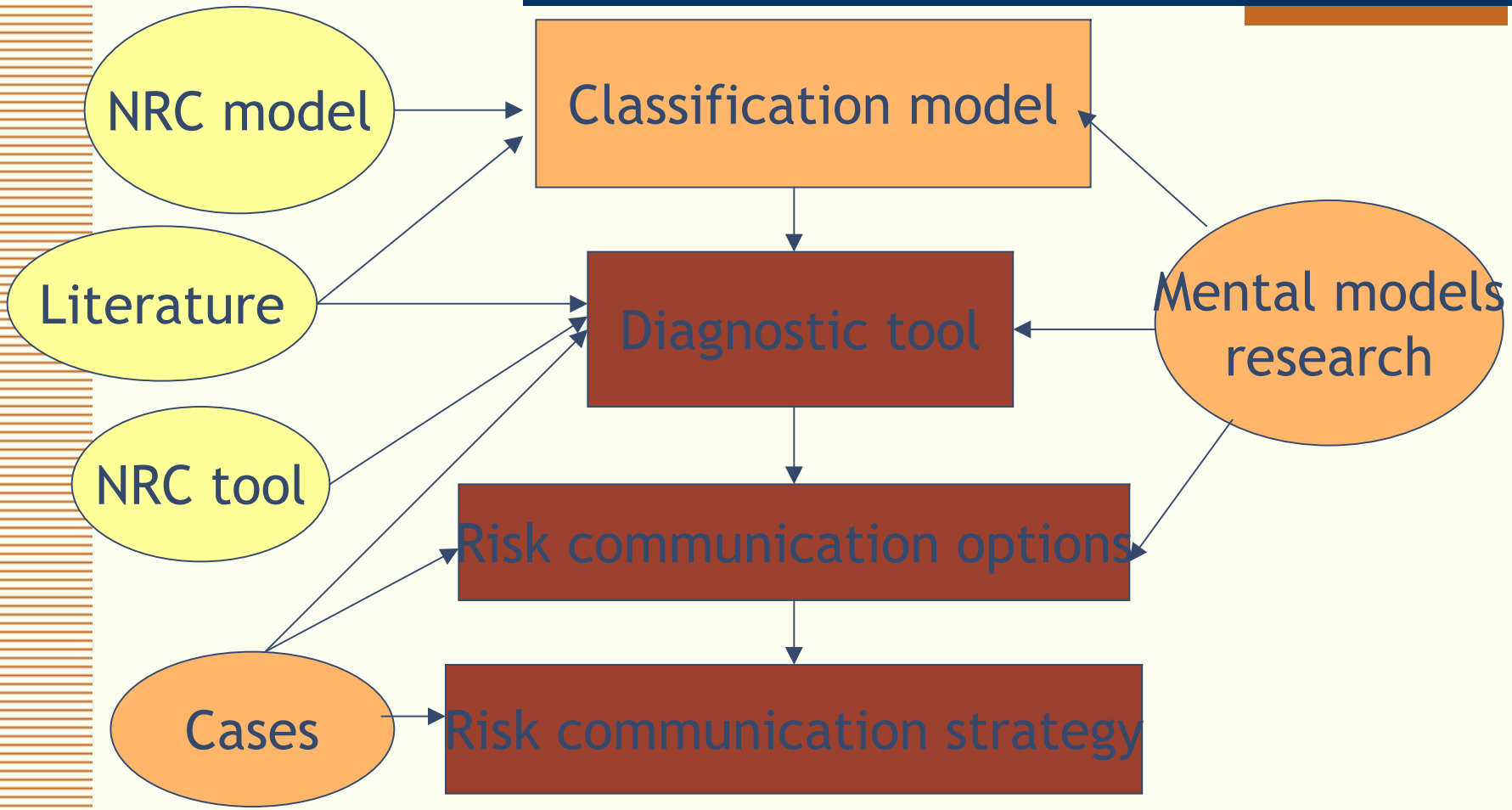
- Not controllable
- High dread
- Catastrophic globally
- Fatal consequences
- Not equitable
- Population affected
- High risk to future generations
- Not easily reduced
- Risk is increasing
- Involuntary exposure

Drinking Water and Risk Communication Research

AwwaRF 2776 Goal

Develop a systematic, science-based set of methods to anticipate and communicate about health risks and emerging contaminants in drinking water

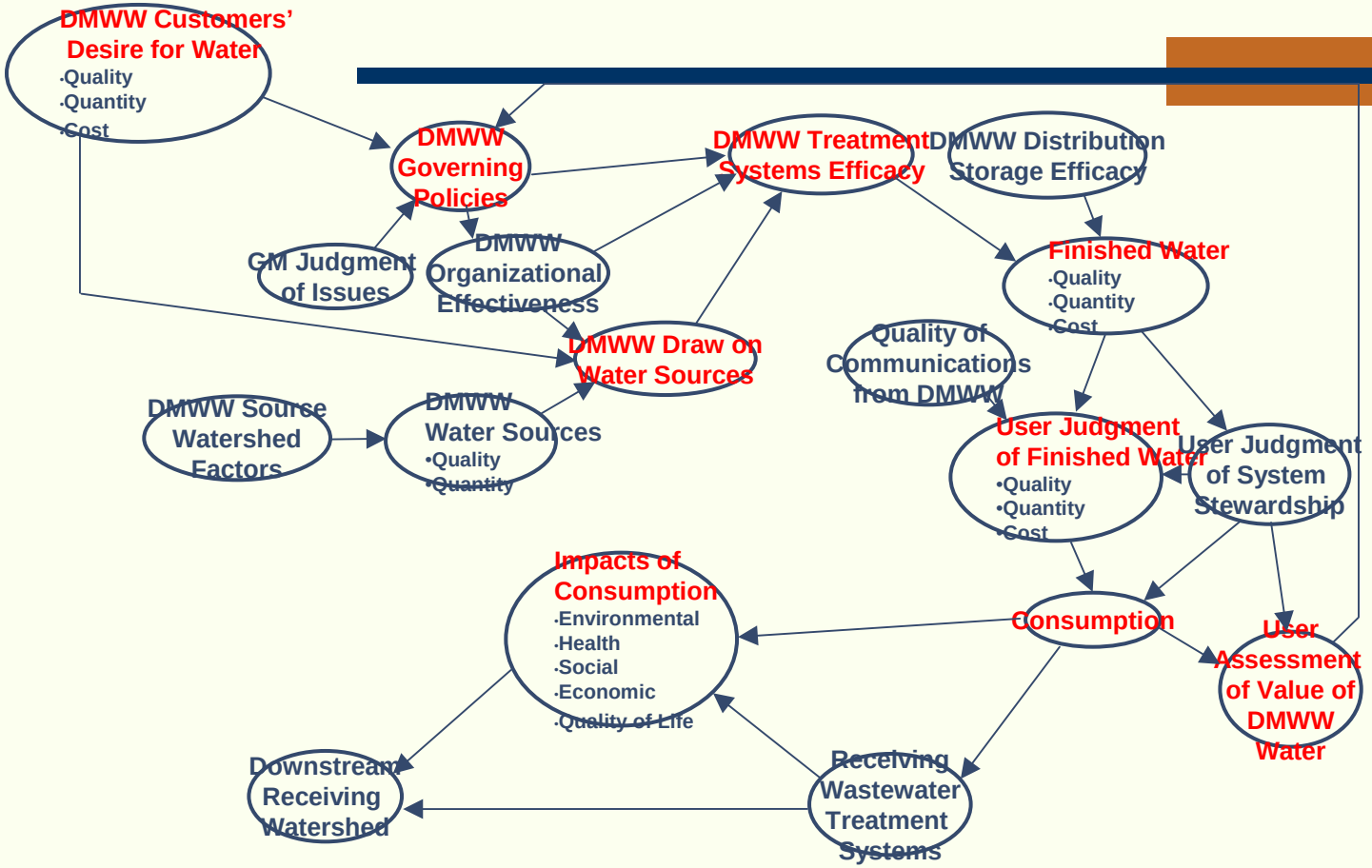
2776 Project Components



Case Study Lessons

- Strategies must be based on science
- A visible, positive presence must be in place before a crisis
- Utilities need clear support of senior management and Board
- Activities must fit communities' interests and preferences

Simple Expert Model of Current Des Moines Water Works System (DMWW)



Mental Modeling Results

- Customers
  - Were favorable about DMWW
  - BUT linked “emerging” and “emergency”
  - In crisis, customers want
    - A trusted, local source of information
    - To know what they can do, what utility will do
- Trust of utility affected (+/-) by website experience

Neural Network Model Conclusions

- Two key attributes for public concern
  - Frequency (media mentions)
  - Population (susceptibility)

- Model needs to be validated in other service areas

Lessons Learned

- Monitoring of public perceptions
  - Limited experience
  - Use of mass media
    - Practical issues
    - Tailor to service area
- Internet searches
  - Selection of influential online media
  - Timely retrieval
  - Storage for analysis

Lessons Learned

- Use the simplest approach that will capture crucial information

Diagnostic Tool

- Categories of questions
  - Contaminants
  - Concern
  - Population
  - Society
  - Utility
- Outcome
  - Probability of the need for risk communication action
  - Related to the number of “yeses”

Tool Lessons

- A systems-oriented approach will improve probability of success
- Basics matter
  - *Updated knowledge* of population and subgroup characteristics
  - *Standard documentation* of risk communication decisions
  - Ability to extract key lessons from the records
- “Tipping point” is context dependent

Recommendations: Drinking Water Industry

- State risk communication duties publicly in values and professional code of conduct
- Create a supportive environment innovations
- Require vision - beyond tactics - to create and implement strategies
- Study understanding of “emerging”
- Validate the classification model
- Test our diagnostic tool

Recommendations Management Level

- Base strategies on facts, not guesses
- Support plant managers; ultimately responsible
  - Be visibly present in communities
  - Proactively initiate dialogues
- Begin building professional, strategic risk communication capacity now

2851 Recommendations

- Establish Dialogue
- Comprehensive planning
- Know your community
  - Susceptible populations
  - Decision makers
  - Local government
- Communicate regularly
- Be innovative
- Collaborate

Utilities should consider

- Developing and enhancing relationships with health departments
- Creating a comprehensive risk communication plan
- Getting out in the community
- Resources needed
- Costs and benefits of using risk communication vs. standard communication
- Trust, transparency, honesty and democracy in risk management

Real World Risk Communication for Utilities

Utilities need to understand in risk perception and communication…

Public Concern Scientific Concern

But, Public concern is valid, real and must be addressed - risk communication

Why Adopt a Risk Communication Strategy?

Current issues

- Phoenix - Boil Water Alert

Emerging issues

- San Diego - Water Re-Reuse
- Washington, DC - Perchlorate

Risk Perception and Emerging Contaminants

- The public may perceive drinking water risk is increasing - news of DBS's, pharmaceuticals, "chemicals"
- Everyday Utility Challenges:
  - If water was safe yesterday, why isn't it safe today
  - Was water really safe yesterday?
  - How safe is safe enough?

Question to Ask

Can you say your water is *Safe?*

“Chemicals” in Drinking Water Dread Characteristics - Risk Perception in Practice

Not controllable

Involuntary exposure

- Public relies on utilities for water

- High dread
  - “poison”
  - “toxin”
- Fatal consequences
  - Difference between exposure and toxicity

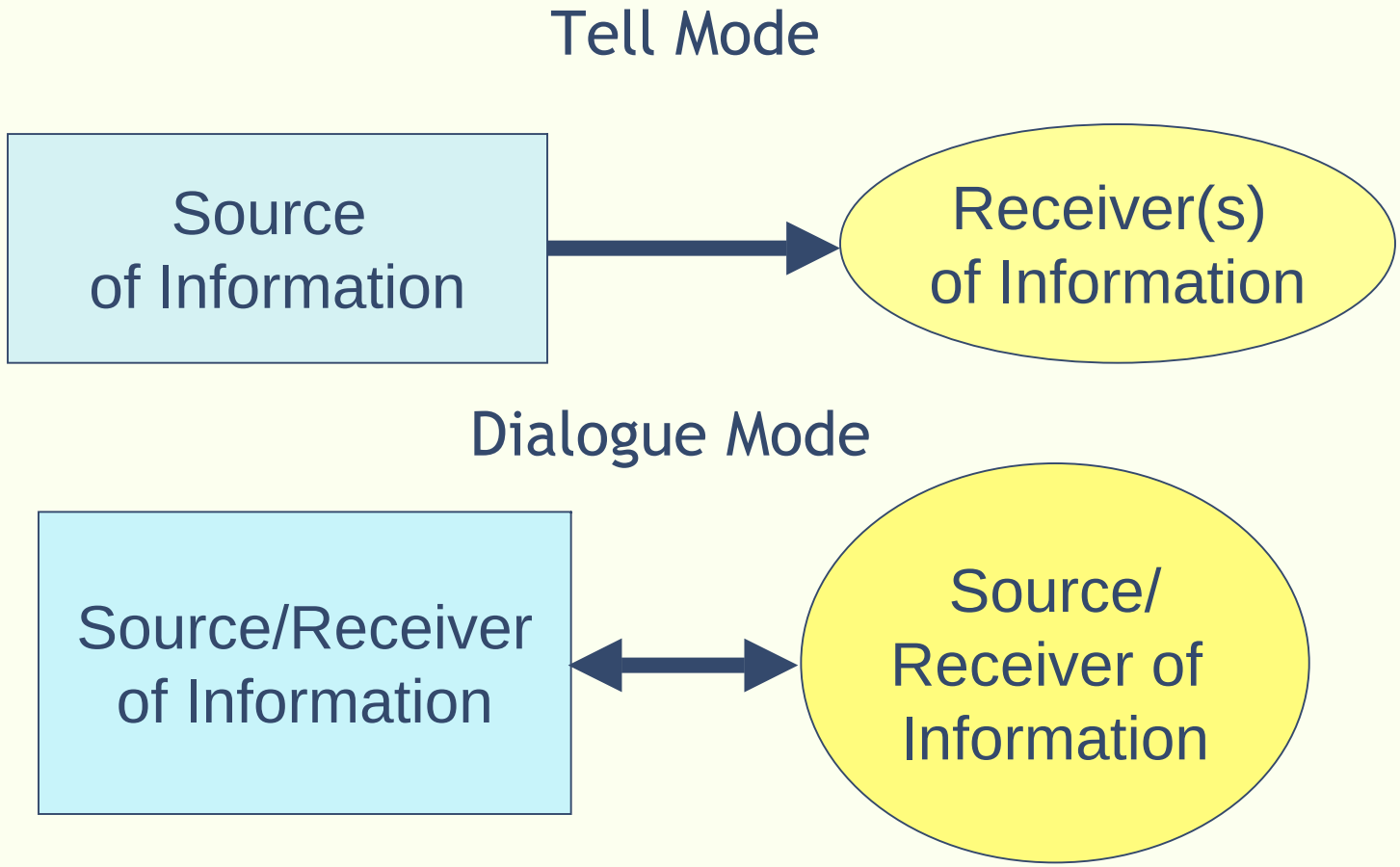
Population At Risk

- Children
- Pregnant women

Utility Actions to work toward

Building risk communication strategies….

For utilities, this means developing a dialogue…



How can utilities develop discourse?

- Listen to customers - keep and review customer phone logs
- Ask employees about what questions they get in the community
- Go to the community - meet them in their space, their time

Collaborative Partners
DBP Example

- Health Department
  - Maternal/Child Health
  - Environmental Health
  - Community Health
- Parent Groups
- Health Care Providers
  - OB/GYNs
  - Nurse Midwives
  - Dieticians - WIC
- Neighborhood Associations
- Churches
- Environmental Groups
- Local Government

Question ask in utilities

Do you want to meet these people, especially community decision leaders, for the first time during a press conference or community meeting because you have just had a DBP excursion??

But how does a utility…

- ASK
  - Surveys
  - Focus Groups
  - Customer Calls
  - Community Meetings
  - Local Media
  - Google
- Develop a systematic approach to reviewing data and making conclusions

Understanding audiences

Identify audiences

- Community - General
- Susceptible populations - contaminant specific
- Use Partners, demographics, community work

Questions to answer

- What do they know?
- What do they want to know?
- How do they want to know it?

Comprehensive drinking water and health information

- Start by addressing general drinking water issues
- Health benefits and regulation of drinking water
- New regulations work to further reduce health effects

We Know ...

- “Emerging” contaminant issues
  - Are complex
  - Involve serious consequences for utilities
  - Trigger public interest
- Knowing and responding transparently to public concerns is very important
  - Builds trust

Opportunities

- Building Trust
  - Know and respond transparently to public concerns is very important
- Build Water Assets
- Build Collaborative Support to address emerging and current drinking water and health issues.

Finally…

- Effective risk communication is integral to the entire risk management process
  - Focus on strategy, not tactics
  - Attend to more than messages and audiences
- Respect that “emerging” may imply “emergency”
  - Start from where they are

2776 Partners

- Research team
  - The George Washington University - Rebecca Parkin, Martha Embrey and Lisa Ragain
  - Princeton University - Catherine Peters
  - Decision Partners, LLC. - Sarah Thorne and Gordon Butte
- Collaborating utility
  - Des Moines Water Works - Ted Corrigan, L.D. McMullen
- Sponsor
  - American Water Works Association Research Foundation

2851 Partners

- Research team
  - The George Washington University - Rebecca Parkin and Lisa Ragain
  - Association of Occupational and Environmental Clinics - Paula Davis
  - National Assoc. of City and County Health Officials - Heidi Deutsch
- Collaborating utility

  Glendive, MT
  New York City
  Tuscon, AZ
  Lansing, Michigan
  Redmond, Washington
- Sponsor
  - American Water Works Association Research Foundation

Acknowledgments

The George Washington University gratefully acknowledges that the Awwa Research Foundation is the joint owner of the technical information upon which this presentation is based. The George Washington University thanks the foundation for its financial, technical, and administrative assistance in funding and managing the project through which this information was discovered.

Dr. Rebecca Parkin

Dr. Tee Guidotti

Resources and References
Risk Communication and Drinking Water Utilities

Canadian Standards Association. (1997) Risk Management: Guideline for Decision Makers.

National Research Council. (1989) Improving Risk Communications.

Fischhoff B. (1995) "Risk Perception and Communication Unplugged." *Risk Analysis.*15: 137-145.

Slovic P. 2000. The Perception of Risk.

Risk Communication on Emerging Contaminants - 2776

Risk Communication Strategies for *Cryptosporidium*

Building Communications and Collaborations - 2851