

Science Vs. Perception

Risk Communication Pitfalls

Risk Benefit

- Starr developed model in 1969
 - voluntary risks are 1000 x greater than the involuntary risks at the same level of benefit

Risk Communication

- need to consider
 - the message (information)
 - the source (origination point of message)
 - the channel (path)
 - receiver (termination point)

Communication Problems

- occur when the message;
 - is not what the audience wants to hear
 - is poorly presented
 - is improper
 - comes from the wrong source
 - is sent via the wrong channel

Source of the Message

- needs to involve credibility and trust
 - difference in reception depending on the communicator
 - e.g. public health official vs. industry representative
- scientific data should come from unbiased scientist

Channel

- must be appropriate
 - for the message
 - for the audience
- e.g. TV news, letters, small meetings, public forums, newsletters, technical reports, talk shows

Mass Media

- wants newsworthy story and excitement
- will exaggerate risk and impact
- what happened?
- how did it happen?
- who is responsible?
- what is being done?

Mass Media

- will turn to government for answers
- want to turn it into black and white
- want opposing views heard
- oversimplifies the risk
- want controversy (make scientists look subjective)
- will try and personalize issue for the public

The Public

- people pay more to protect against low probability loss than to pursue low probability gain
- data presented will be interpreted (half full vs half empty)
- people want to make their own decisions

Three Rules for Risk Communication

- tell people that you have determined they need to know
- tell them what they must know so that they can understand and feel that they understand the info
- add qualifiers to prepare them for what you are not telling them (until more info becomes available)

EPA Risk Communication Guidelines

- Accept and involve public as a legitimate partner
- Plan carefully and evaluate performance
- listen to your audience
- be honest, frank and open
- coordinate and collaborate with other credible sources
- meet the needs of the media
- speak clearly and with compassion

Areas of Confusion

- safety vs. zero risk
- one in a million
- “probable” vs. “probability”
- “positive” vs. “negative” results
- significance
- careful estimates (don’t be overly cautious)
- population vs. individual risk
- relative vs. absolute risk
- association vs. causation

Why Aren't the Experts Trusted?

- expert group may have financial interest in proving the risk is small
 - remediation technology spokesperson wanting to use the technology
 - local mayor wanting to get re-elected
 - company spokesperson not wanting plant shut down
- historical examples exist of where experts were wrong
 - and handful of dissenters and activists were right

Why aren't the experts trusted? (cont'd)

- scientists tell us that risk assessment is a rough science and subject to error
 - need to better explain how risk assessment is done
 - need to better explain the use of safety factors
- some environmental risks are gradual, delayed, geometrical (made worse by other risks)
 - better act now
 - even though no evidence yet exists

What is Risk? (Sandman 1997)

– risk = hazard + outrage

- public cares too little about hazard
- expert cares too little about outrage

– experts need to realize

- outrage is as real as hazard
- outrage is as measurable as hazard
- outrage is as manageable as hazard
- outrage is as much a part of risk as hazard
- outrage is as much a part of your job as hazard

Other Facts on Risk

- people overestimate hazard and are outraged
 - which comes first?
 - misunderstand hazard and get outraged?
 - get outraged and misunderstand hazard?
- who is right?
 - usually experts are right about hazard
 - usually public is right about outrage

How to Solve Risk Dilemma?

- solution
 - experts must
 - take public outrage seriously
 - keep outrage separate from hazard
 - respect people's outrage

Techniques to Reduce Concern

- make the unfamiliar familiar
- acknowledge the memorable
- you must legitimate the dread
- Admit accidents can happen.
- Remove expert disagreement
- Make hazard more detectable
- share control
- share the benefits
- proper goal has to be zero
- don't ask to be trusted
- Make it a responsive process

Reducing the Outrage

- how to do it?
 - don't try to persuade the public to ignore outrage
 - for low hazard, high outrage - you must reduce outrage
 - explain hazard
 - sometimes works
 - reduce hazard and explain how you are reducing it

How to Communicate Risk to Public?

– all we have to do is:

- get the numbers right
- tell them the numbers
- explain what we mean by the numbers
- show them that they have accepted similar risks in the past
- show them that it is a good idea for them
- treat them nicely
- make them partners
- All of the above

– by Baruch Fischhoff

Public vs. Scientific Assessment of Risk

– “Public”

- intuitive
- yes/no
- safety
- is it or isn't it?
- discrete events
- personal consequences
- it matters how we die

– “Expert”

- scientific
- probabilistic
- acceptable risk
- changing knowledge
- comparative risk
- population averages
- a death is a death

Function of Good Risk Communication

- seeks to break down the barriers that language presents
 - difference in language presents barriers to dialogue and cooperative understanding
- facilitates the productive exchanges between the 2 spheres
 - scientific assessment of risk
 - public perception of risk

Good Risk Communication..

– seeks to

- translate the scientific findings and probabilistic risk assessment into understandable terms
- explain the uncertainty ranges, knowledge gaps and ongoing research programs
- address the issue of building credibility and trust
- understand the public's framing of the risk issues, especially the qualitative dimensions

Good Risk Communication...

– seeks to

- acknowledge the specific questions that arise in this domain (public's perception)
- analyse the conditions needed for allowing the public to acquire needed information, skills and participatory opportunities

Governments and Businesses

- can judge how competent they are in good risk communication by:
 - examining extent to which they have earned the public's trust for their statements of risks for which they are responsible
 - learning to communicate effectively about the scientific basis of those risks
 - being able to understand easily the public's framing of risk issues
 - being completely transparent and at ease in communicating with the public about risk

What will good risk communication do?

– over time good risk communication practices will:

- nurture a facility for interpreting risk numbers
 - including the meaning of risk estimates and the uncertainty associated with them
- help people to put the whole assortment of risks affecting them into a broad framework
 - relative risk, comparative risk
- build institutional structures for arriving at a consensus on risk management options, and for allocating risk reduction resources effectively

Risk Information Vacuum

- work of risk communication is to fill the gap between public knowledge and scientific assessment of risk
 - gap will always exist
 - how to fill it is the question
- risk information vacuum arises when
 - over a long period of time, scientists make no special effort to communicate the results being obtained regularly and effectively to the public
 - instead, partial scientific info dribbles out here and there, being interpreted in apparently conflicting ways and increases the public's fear

Vacuum (cont'd)

- failure to implement good risk communication practices gives rise to a risk information vacuum
- this failure can have grave and expensive consequences for those regarded as being responsible for protecting the public's interest
- society abhors a vacuum, so it is filled from other sources

Vacuum (cont' d)

- the vacuum gets filled:
 - events reported in the media will become the basis for the public framing of these risks
 - an interest group takes up the challenge and fills the vacuum with its own information and perspectives
 - the intuitively based fears and concerns of individuals grow & spread until they become a substantial consensus in the arena of public opinion
 - vacuum is filled by soothing sentiments of politicians
 - » “there is no risk of danger from

Examples of Vacuums

– dioxins

- outrageous media headlines
- scientific research
- no communications on the issue until too late
- Greenpeace filled the vacuum

– mad cow disease

- panic ensued when government did not provide details on the suspicions around the spread of BSE
- vacuum was filled by media and individual suspicions that become consensus

Examples of Vacuums

- silicone breast implants
 - manufacturers did not disclose their information in a timely manner
 - failed to encourage a frank and open discussion of potential risks
 - vacuum was created by the lack of this discussion
 - panic and fear of autoimmune diseases filled the vacuum
 - lawsuits began and are still costing billions of dollars
 - no scientific information to support the claims

Examples (cont'd)

- genetically altered/engineered crops
 - people upset because the technology is unfamiliar
 - government doesn't want to talk about the issues with the public
 - vacuum will be filled, and it may be damaging to the industry

Powell's Lessons in Risk Communication

- ★ A risk information vacuum is a primary factor in the social amplification of risk
 - ensure the vacuum either does not exist, or fill it with useful risk messages
- ★ Regulators are responsible for effective risk communication
 - Health Canada has an established practice of not announcing the issuance of a regulatory decision
 - US FDA regularly makes brief statements in conjunction with regulatory actions

Lessons (cont'd)

- ✱ Industry is responsible for effective risk communication
 - primarily workplace hazards
 - population health hazards (foodborne, etc)
 - general environmental hazards (pesticides, etc)
 - workplace and general env. hazards (metals, etc)
 - incremental risks produced as a byproduct of beneficial industrial products (pharmaceuticals, modern transportation, etc)

Lessons (cont'd)

✳ If you are responsible, act early and often

- some upcoming risks in the next decade are
 - food safety
 - endocrine disrupters
 - greenhouse gases and global climate change
 - biotechnology, especially agricultural applications
 - health impacts of atmospheric pollutants

⊕ There is always more to a risk issue than what science says

- what about emotion, moral issues, etc.

Lessons (cont'd)

- ⊕ Always put the science in a policy context
 - whatever the risk controversy, the public will demand action by the politicians
 - ban the substance, control the exposure, etc
- ✧ Educating the public about science is no substitute for good risk communication practice
 - provide lots of information, how and why things are going to be done
- ✧ Banish “no risk” messages

Lessons (cont'd)

- ◆ Risk messages should address directly the “contest of opinion” in society
 - acknowledge the divergent opinions
 - explain the range of risk estimates
 - legitimate the people who disagree with your risk estimates
- ★ Communicating well has benefits for good risk management