

Science and Practice of Risk Communication

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<http://www.cmu.edu/epp/people/faculty/baruch-fischhoff.html>

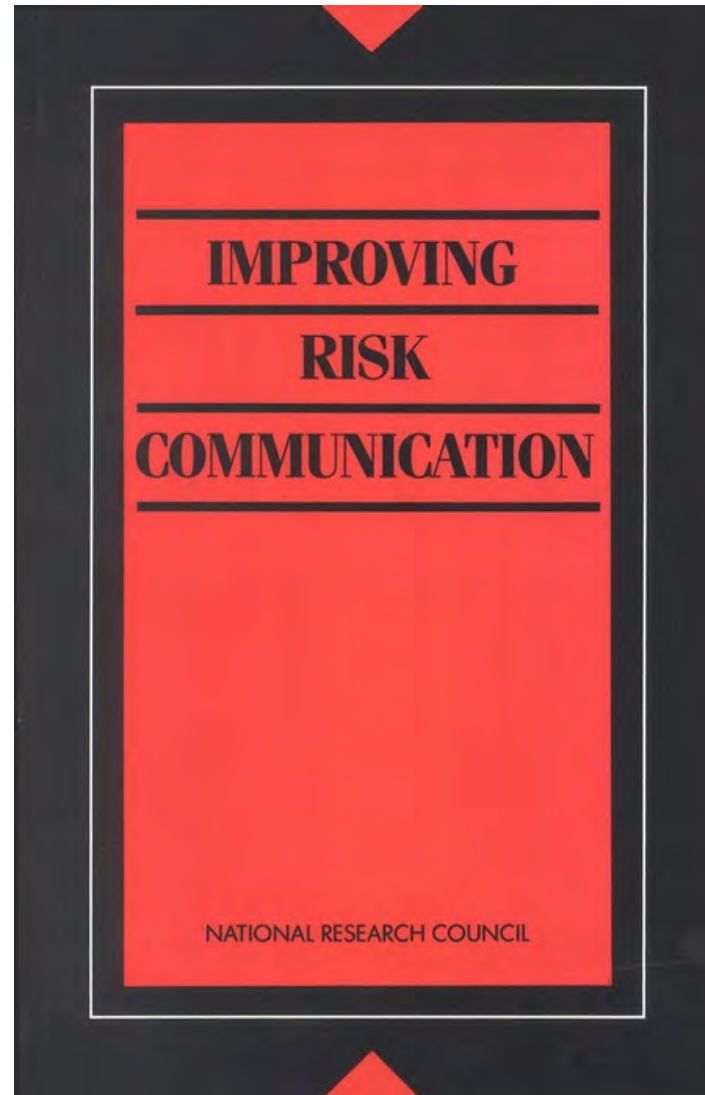
Risk Communication in the Age of COVID-19
MHDS

April 2, 2020

Risk Communication Is a Mature Research Area

The constituent cognitive, emotional, and social processes have been studied for many years, drawing on much older research traditions.

Risk Communication at NASEM



<http://www.nap.edu/catalog/1189.html> (1989)

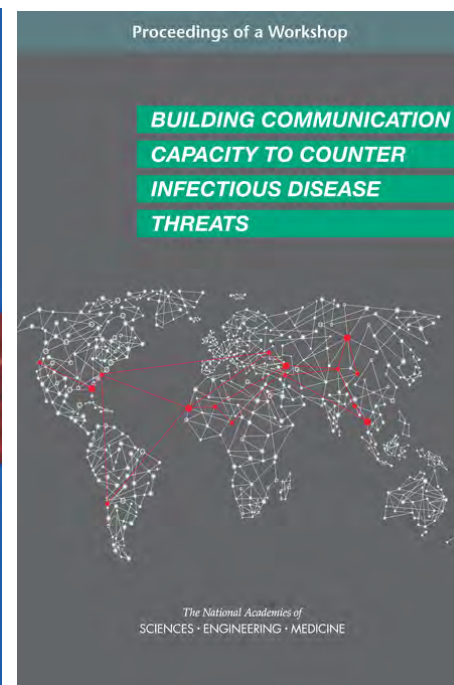
Risk Communication at NASEM



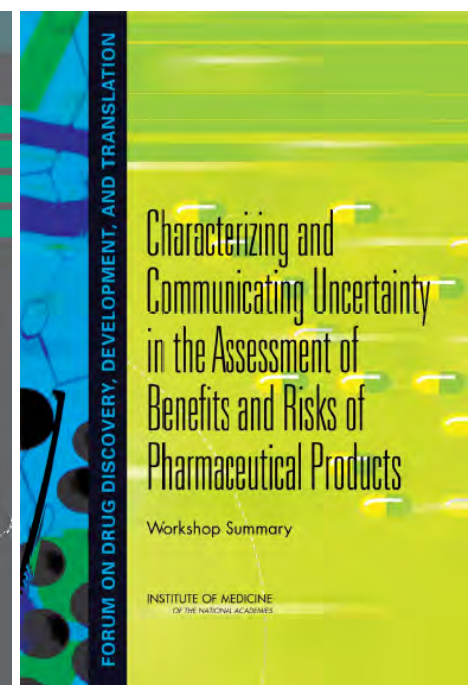
<http://www.nap.edu/catalog/6034/>



<http://www.nap.edu/catalog/21666/>



<https://www.nap.edu/catalog/24738>



<http://www.nap.edu/catalog/18870/>

Science of Science Communication



http://www.pnas.org/content/110/Supplement_3



http://www.pnas.org/content/111/Supplement_4

Information

Summary

Directions

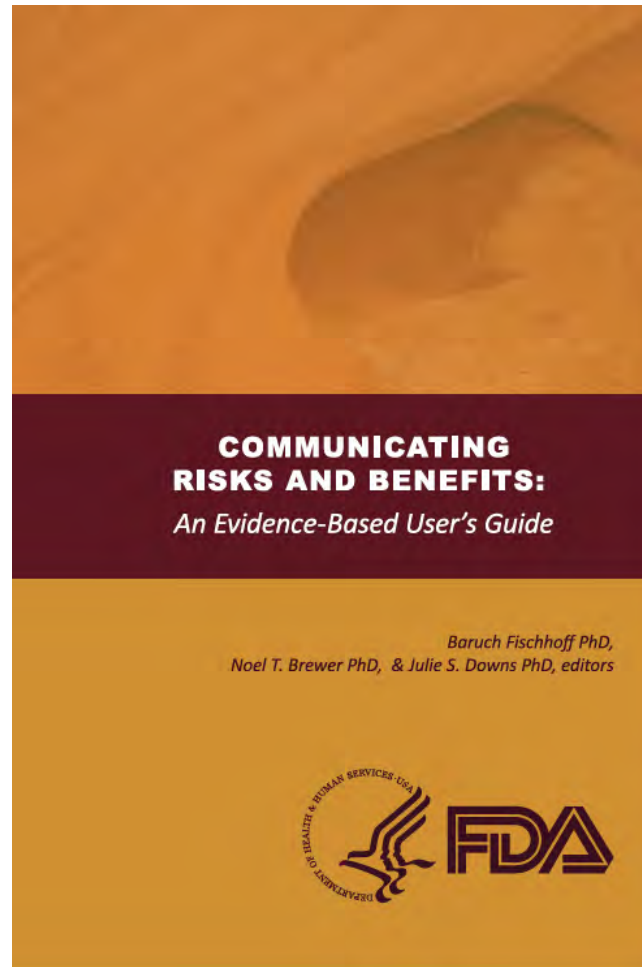
Partnership Awards

f t in +1

The Science of Science Communication III: Inspiring Novel Collaborations and Building Capacity

PNAS, 116(16), 7670-7675. www.pnas.org/cgi/doi/10.1073/pnas.1805863115

A Guide to Timely, Inexpensive, Scientifically Grounded Communication



<http://www.fda.gov/AboutFDA/ReportsManualsForms/Reports/ucm268078.htm>

Each Chapter

(<3000 words)

Summarizes the science

Provides practical implications

Shows how to evaluate draft communications

for no resources at all

for minimal resources

for resources commensurate with the stakes riding
on the communication

Pandemic Disease

Bruine de Bruin, W., Fischhoff, B., Brilliant, L., & Caruso, D. (2006). Expert judgments of pandemic influenza. *Global Public Health* 1(2), 178-193.

Fischhoff, B., Bruine de Bruin, W., Guvenc, U., Caruso, D., & Brilliant, L. (2006). Analyzing disaster risks and plans: An avian flu example. *Journal of Risk and Uncertainty*. 33, 133-151.

Fischhoff, B., Wong-Parodi, G., Garfin, D., Holman, E.A., & Silver, R. (2018). Public understanding of Ebola risks: Mastering an unfamiliar threat. *Risk Analysis*, 38, 71-83. doi: 10.1111/risa.12794

Communication Design

Analysis

What specific decisions do people face?

Description

How do they make them intuitively?

Intervention

How can we help them to do better?

Evaluation

Are our current efforts good enough?

Repeat, as necessary.

Some Applications

radon
pre-term birth
pharmaceuticals
climate change
phishing
breast cancer
nuclear incidents
tornadoes
xenotransplantation
smart meters
HIV/AIDS
...

sexual assault
intelligence analysis
EMF
avian flu
palliative care
breast implants
nuclear energy in space
Plan B (morning after pill)
small modular reactors
vaccines (anthrax, MMR)
critical care medicine
...

Risk Communication Requires

Subject matter specialists for accuracy

Decision scientists for relevance

Social and behavioral scientists for mutual
understanding

Practitioners for execution and local knowledge

Content Design Process

Analysis

What specific decisions do people face?

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How do they make them intuitively?

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People Face Stressful Decisions

Making ends meet

Doing their jobs safely

Taking care of loved ones at home

Taking care of loved ones remotely

Finding food, supplies, and medications

Supporting the vulnerable in their community

Interpreting health states

Navigating healthcare

...

Their Information Sources Are Imperfect

The evidence that people see may not be representative, or recognized as such.

Generally useful mental models may lead people astray.

Experts may use jargon, vague terms (“soon,” “likely”), not revealing the limits to their knowledge.

Public officials may ignore people’s problems, misunderstand or spin the facts, contradict one another, contradict themselves

Content Design Process

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Behavior Follows Simple Principles

Some Simple Principles of Judgment

People are good at tracking what they see,
but not at detecting sample bias.

People have limited ability to evaluate the
extent of their own knowledge.

People have difficulty imagining themselves
in other visceral states.

People have difficulty projecting non-
linear trends.

People confuse ignorance and stupidity.

Some Simple Principles of Choice

People consider the return on their investment in making decisions.

People dislike uncertainty, but can live with it.

People are insensitive to opportunity costs.

People are prisoners to sunk costs, hating to recognize losses.

People may not know what they want, especially with novel questions.

Behavior Follows Simple Principles

However,

the set of principles is large,
the contextual triggers are subtle, and
the interactions are complex

As a result, broad knowledge and detailed
analysis are needed.

Cognitive Processes Interact with Social and Emotional Ones

Emotions can both cloud and focus thinking.
Poor communications can needlessly increase anxiety.

Ignoring people's problems can undermine their trust in experts and public officials.

People may strengthen social ties, when institutions fail them.

Content Design Process

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Applying the Science Requires

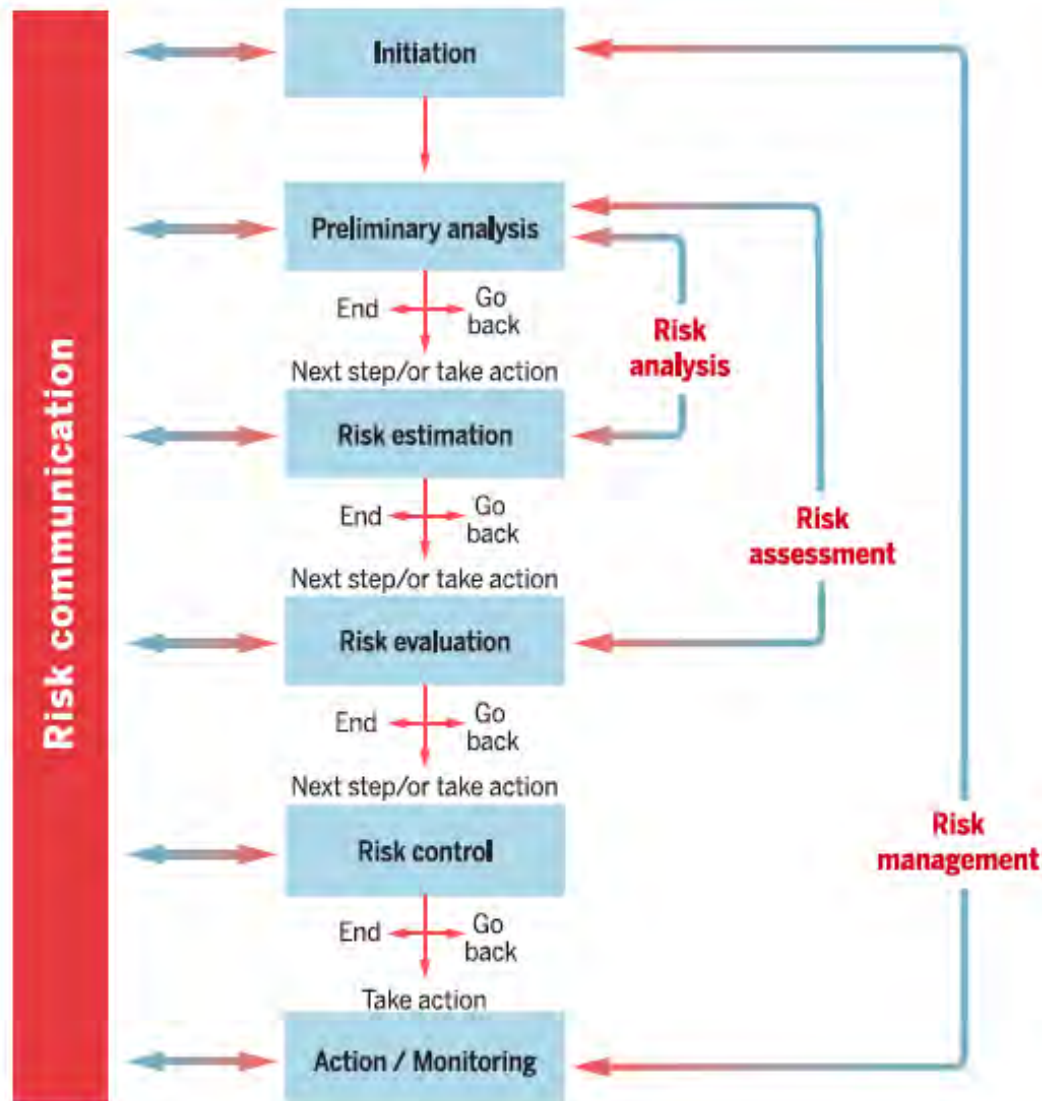
A network with needed substantive expertise, to
get the facts right

Ties with community leaders to identify needs,
and get the right facts

A process for rapid message testing

A strategic commitment to risk communication

A Strategic Communication Process



Fischhoff, B. (2015). The realities of risk-cost-benefit analysis. *Science*, 350(6260), 527.
<http://dx.doi.org/10.1126/science.aaa6516>

A Planning Document



<https://www.nap.edu/catalog/24738>

Information Sources

Trustworthy science reporters

Familiar professional websites

Local health department

<https://nam.edu/coronavirus-resources/>

Standing Committee on Emerging Infectious Diseases and 21st Century Health Threats

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MEMBER

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Standing Committee Reports (to 4/2/20)

Illness severity severity in young adults

Social distancing

Data elements and system design in modeling

Surface stability and incubation (2)

Crisis standards of care

Bioaerosol spread

Earlier NASEM Consensus Reports

Reusability of facemasks during an influenza pandemic

Crisis standards of care

Reusable elastomeric respirators

Airport public health preparedness

Public transit emergency preparedness

Infectious disease crises and global security

Questions from Press and Family

Go to UK?

Go to Disneyworld?

Panic?

Toilet paper?

Beach parties?

Trust the public?

Managing anxiety?

100,000-250,000 deaths?