Is Zero Risk Actually Possible When Communicating Risk to Consumers: A Public Health Perspective

Christine Prue, MSPH, Ph.D.
Associate Director for Behavioral Science, NCEZID

JIFSAN conference
Beltsville, MD
April 25, 2014
Outline

- Public health perspective on risk & foodborne illnesses
  - Public health definitions of risk
  - Risk in the context of food and foodborne illnesses

- Public health perspective on communicating risk clearly
  - Risk communication best practices
  - Evidence-based criteria for clear communication

- Putting them together with public (consumer) perspectives on the risks and benefits of raw fruits and vegetables (an example)
Pursue risk elimination, but communicate about risks in ways that people can understand, trust, and act on

- Applying risk communication and clear communication principles are practical ways to do this.

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

http://www.cdc.gov/healthcommunication/ClearCommunicationIndex/
Public health perspective on

RISK AND FOODBORNE ILLNESSES
Many different meanings of “risk”

Risk can refer to the:

• Threat or harm to an individual or a group of people
  – example: Drinking contaminated food is a risk to human health

• Outcome of a threat or harm
  – example: Many people think foodborne illness just involves a few days of discomfort with diarrhea and cramping but what they don’t know is that sometimes there can be life-threatening complications like acute kidney failure.

• Factors that make threat or harm more likely, that is risk factors
  – example: Eating raw meat, milk, or seafood is a risk factor for foodborne illnesses

• Likelihood that a threat or harm will happen
  – example: Pregnant women who eat soft cheeses made with raw milk have an increased risk of getting listeriosis (an infection caused by Listeria)
In Food, risk is characterized…

- **People** affected (who, how severe, how many)
  - Foodborne “burden” of disease
  - [http://www.cdc.gov/foodborneburden/](http://www.cdc.gov/foodborneburden/)

Foodborne illness affects everyone, but some more than others

Each year…

- **1 in 6** Americans gets sick (48 million illnesses)
- **128,000** hospitalizations
- **3,000** die

20% of the U.S. population is more susceptible

- Risk varies with age, health status
- Infections may be more severe
<table>
<thead>
<tr>
<th>Risk Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant women and their newborns</td>
</tr>
<tr>
<td>Young children</td>
</tr>
<tr>
<td>Older adults</td>
</tr>
<tr>
<td>People with impaired immune systems</td>
</tr>
<tr>
<td>People with certain diseases, e.g., liver disease</td>
</tr>
</tbody>
</table>
Range of illness caused by contaminated foods

- Most will recover without any long lasting effects
- Many types of foodborne infection can lead to health complications and chronic disease

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shiga toxin-producing <em>E. coli</em></td>
<td>Kidney failure</td>
</tr>
<tr>
<td><em>Campylobacter</em></td>
<td>Guillain-Barré syndrome</td>
</tr>
<tr>
<td><em>Toxoplasma</em></td>
<td>Encephalitis</td>
</tr>
<tr>
<td><em>Salmonella</em></td>
<td>Arthritis</td>
</tr>
</tbody>
</table>

- Some people will die from a foodborne infection
In Food, risk is characterized...

- **Pathogens** (culprits causing illness)
  - Most illnesses caused by “unknown” agents
  - 31 pathogens known to cause disease
  - Eight known pathogens account for the vast majority of illnesses, hospitalizations, and deaths

  - Norovirus
  - *Salmonella*, nontyphoidal
  - *Clostridium perfringens*
  - *Campylobacter spp.*
  - *Staphylococcus aureus*
  - *Toxoplasma gondii*
  - *E. coli* (STEC) O157
  - *Listeria monocytogenes*
In Food, risk is characterized...

- Source **attribution** (foods associated with illness)
  - [http://www.cdc.gov/foodborneburden/attribution/overview.html](http://www.cdc.gov/foodborneburden/attribution/overview.html)
In Food, risk is characterized...

- **Places and settings** (where contamination occurs)
In Food, risk is characterized...

- **Behaviors** that can reduce risk
  - [www.foodsafety.gov](http://www.foodsafety.gov)

<table>
<thead>
<tr>
<th>Food purchasers and preparers</th>
<th>Food Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEAN</td>
<td>Hazard Analysis &amp; Critical Control Points (HACCP)</td>
</tr>
<tr>
<td>SEPARATE</td>
<td>HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product.</td>
</tr>
<tr>
<td>COOK</td>
<td>CHILL</td>
</tr>
</tbody>
</table>
Let’s remember with food…

Risk is characterized
• People affected
• Places/Settings
• Behaviors that can reduce risk

Benefits are
• Pleasure/enjoyment
• Health and nutrition
• Connection/Experiences
  – People bond over food
  – Traditions
  – Culture
  – Celebrations
• Geography (location)
• Seasons & Lifestages
• …and so much more!
Public health perspective on

COMMUNICATING RISK CLEARLY
Success = Risk communication + Clear communication

Catching the ball with two hands

Applying

RISK COMMUNICATION PRINCIPLES
Theoretical considerations for risk communication

- Meaning (consensus and negotiations of meaning)
- Processes (uncertainty, heuristics, framing)
- Communication of risk is linked to behavior (mandates, choices, control, feasibility)
- Occurs at multiple levels of society—individuals, institutions, and whole societies.

- Many different theories, theorists, frameworks—“more idiosyncratic than systematic*”

Essential elements of Risk Communication...

- Process
- Exchange of information and opinions
- Involvement
- Decision making
- Multi-level (individuals, groups, institutions)
- Risk of loss of something valued
  - Health, property, reputation, trust
- Emotional aspects/psychological impacts
  - Addresses uncertainties
  - Restores control
  - Builds and maintains trust
  - Matches cognitive capacities
- Sometimes, under emergency circumstances
NEW: A measure that tracks whether risk communication best practices are being applied to public health communications

• Objective (HC/HIT-12): Increase the proportion of crisis and emergency risk messages intended to protect the public’s health that demonstrate the use of best practices

• Best practice means that messages:
  – Explain what is known about the threat to human health
  – Explain what is NOT known about the threat to human health
  – Explain how or why a crisis or emergency event happened
  – Promote steps that a reader or viewer can take to reduce their personal health threat
  – Express empathy about the threat to human health
  – Express commitment from the responsible or responding entity
Foodborne outbreak communications were included in the baseline measure for this objective

Comparison of Proportions of Best Practices in Print and T.V. Foodborne Outbreak and Natural Disaster Stories from January 2010-December 2011

<table>
<thead>
<tr>
<th></th>
<th>Foodborne (n=186)</th>
<th>Natural Disaster (n=184)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain what is known (about injury, illness, fatalities, or specific health threat):</td>
<td>94.6%</td>
<td>72.3%</td>
</tr>
<tr>
<td>Explain what is not known:</td>
<td>28.8%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Explain how or why event happened</td>
<td>12.0%</td>
<td>19.4%</td>
</tr>
<tr>
<td>Promote action</td>
<td>35.3%</td>
<td>14.6%</td>
</tr>
<tr>
<td>Express empathy</td>
<td>2.2%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Express commitment</td>
<td>11.5%</td>
<td>20.4%</td>
</tr>
</tbody>
</table>
Essential elements of Trust

- **Concern and respect**
  - Listening, caring, empathy, compassion
- **Confidence**
  - shared values, ethical conduct
- **Competence/Expertise**
- **Commitment/Accountability/Dedication**
- **Honesty/Openness/Transparency**
- **Character/History/Reputation**
- **Power**
  - Equity, fairness
Elements of Trust-building Transparency*

- **Motivations** – do you take stakeholder interests into consideration?
- **Disclosure** – do you share both positive and negative information as you are able?
- **Stakeholder participation** – do you engage with followers and answer questions?
- **Relevance** – do you determine and share what is relevant to stakeholders?
- **Clarity** – do you make what is shared easy to access and understand?
- **Credibility** – are you truthful? Do you accept accountability?
- **Accuracy** – do you share reliable, objective and complete information?

*Presentation by Charlie Arnot, Center for Food Integrity, given at the Global Food Safety Conference 2014
**Trust is relational, not transactional**

**Trust building actions**

<table>
<thead>
<tr>
<th>Be open</th>
<th>Delegate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclose information in an accurate and timely fashion</td>
<td>Make yourself dependent on the other person’s action</td>
</tr>
<tr>
<td>Give both positive and negative feedback</td>
<td>Delegate tasks</td>
</tr>
<tr>
<td>Be open and direct about task problems</td>
<td>Give responsibility to other people</td>
</tr>
<tr>
<td>Be honest and open about your motives</td>
<td>Take responsibility rather than make excuses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Share influence</th>
<th>Manage mutual expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiate and accept changes to your decisions</td>
<td>Clarify general expectations early on and explore specific expectations</td>
</tr>
<tr>
<td>Seek and accept the counsel of other people</td>
<td>Surface and negotiate differences in expectations</td>
</tr>
<tr>
<td>Give and receive help and assistance</td>
<td>Process and evaluate how effectively you are working together</td>
</tr>
<tr>
<td>Recognize the legitimacy of each other’s interests</td>
<td>Show a bias to see the other’s actions as benevolently intended</td>
</tr>
<tr>
<td>Show care and concern for the other</td>
<td>Show care and concern for the other</td>
</tr>
</tbody>
</table>

“The Trouble with Trust” by Frédérique Six
Applying CLEAR COMMUNICATION PRINCIPLES
Is it clear yet?
Clear writing = clear thinking

Good writing is clear thinking made visible.

*Bill Wheeler*
CDC’s Clear Communication Index

• A research-based tool for developing and assessing the clarity of public communications

• Focuses on the most important research-based items that enhance clarity and aid understanding

• Provides a numerical score so you can objectively assess and improve materials based on the best available science

• Fosters discussion and collaboration between writers and reviewers before or during the development process as you work to attain scientific accuracy and clarity of content
4 introductory questions + 20 items

Introductory questions

1. **Who** is your **primary audience**?
2. What do you know about the **health literacy skills** of your audience?
3. What is your primary **communication objective**?
4. What is the **main message** of the material?

The index contains 20 items, each with a numerical score of zero or one. The individual scores are converted to an overall score on a scale of 100. Although 100 is an ideal score, 90 or higher is passing.

The index assesses materials in 7 areas.
7 areas assessed

1. **Main message and Call to Action**
   - One main message; at beginning; emphasized; supported with visual

2. **Language**
   - Uses language audience uses

3. **Information Design**
   - Uses bullets or numbered lists; chunks with headings; most important information summarized first

4. **State of the Science**
   - Explains what is known and unknown

5. **Behavioral Recommendations**
   - Includes behavioral recommendation, explains why and how of behavioral recommendation

6. **Numbers**
   - Uses numbers audience uses; explains what numbers mean; doesn’t make user perform mathematical calculations

7. **Risk**
   - Explains nature of the risk; addresses risks and benefits of recommended behavior; if numeric probability is used to describe risk, also explained with visual

---

**Part A:** Core items (required)

**Part B:** (optional)

**Part C:** (optional)

**Part D:** (optional)
For more information about the Clear Communication Index

- **Go to:**

  http://www.cdc.gov/healthcommunication/ClearCommunicationIndex/

1. **User Guide**
   - Specific examples
   - References that support the index

2. **Score Sheet** (fillable online form that does the math for you!)
Apply best practices from risk communication and research-based criteria in clear communication so you can communicate in ways that people can understand, trust, and act on.
Communication 101: Know Your Audience!

Applying risk communication and clear communication practices cannot take the place of audience research or message/materials pretesting with your intended audience.
Public (consumer) perspectives on

RISKS AND BENEFITS OF RAW FRUITS AND VEGETABLES
The decade's 10 biggest food-borne illness outbreaks

By Jacque Wilson, CNN
updated 11:04 AM EST, Fri September 30, 2011
Explain the “process” from farm to table
Explain how outbreaks are detected and investigated....and when an outbreak is over

Steps in a Foodborne Outbreak Investigation

1. Detecting a possible outbreak
2. Defining and finding cases
3. Generating hypotheses
   - Hypothesis-generating interviews

If cases continue

4. Testing the hypotheses
   - Analytic studies
   - Laboratory testing of samples

Not finding associations between food & illness

Finding associations between food & illness

5. Finding the point of contamination and source of the food
6. Controlling an outbreak
   - Recall product(s)
   - Remove source of contamination
   - Revise production process

If cases stop

7. Unsolved mystery
Cases stop

Deciding an outbreak is over
What consumers want from the food industry when something goes wrong

- Express **concern** for those who have been harmed
- Express **commitment** to finding out **what happened** (how did this happen)
- Express **commitment** to **fixing** the problem at hand and **preventing** it from happening in the future
Tell people what they can do to protect themselves and their families.

**CHECK YOUR STEPS: FOUR SIMPLE STEPS TO FOOD SAFETY**

**Step 1**
- **CLEAN**

**Step 2**
- **SEPARATE**

**Step 3**
- **COOK**

**Step 4**
- **CHILL**
Thanks!

Christine E. Prue
cprue@cdc.gov
404-639-2273

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA  30333
Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
E-mail: cdcinfo@cdc.gov    Web: http://www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.