

Summary of Potential High Impact Communication Strategies

This document describes potentially high-impact strategies to promote healthy fish consumption behavior, particularly among populations at risk for unhealthy consumption patterns including urban anglers and women of childbearing age. This document reviews the communication, risk, health, and natural resource literatures to offer guidance on fish advisory messages development. Strategies listed below that are of interest to the Consortium could be incorporated into some versions of the brochures Cornell develops for this project to test whether these strategies increase the persuasiveness of fish consumption messages.

NARRATIVES (PERSONAL STORIES)

- **Summary:** Narrative is one of the most basic and universal modes of expression. Research suggests a thoughtfully crafted narrative, or message in the form of a story, can immerse the reader in the plot line so that they are less likely to counter-argue a message, and more likely to experience the emotion a character is experiencing.
- **Evidence:** Narrative messages have been found to be persuasive in a variety of behavioral contexts, including skin cancer prevention and smoking cessation.
- **Message design considerations:** Use of narrative involves communication of a message in the form of a story. For example, a narrative message might describe the situation of a particular woman of childbearing age and incorporate direct quotations from her describing how her state's fish consumption guidelines reassured her that eating fish was good for her baby. Successful approaches to narrative research typically draw on authentic stories from real people, with only minor edits to improve comprehension.

ACKNOWLEDGING UNCERTAINTY

- **Summary:** Risk information is often uncertain. Medical decision-making research has found providing individuals in the patient/doctor context with information about the uncertainty of the effects of treatment options can induce anxiety in these individuals. Research suggests attempting to overcome this anxiety by providing individuals with full information about the variety of treatment options available (including levels of uncertainty associated with each option) to create trust and increase the likelihood of persuasive outcomes.
- **Evidence:** No systematic reviews available.
- **Message design considerations:** A large portion of fish advisory information is based on measurements of harmful chemicals in samples of fish from specific waterbodies, leading to recommendations about which fish to eat and which to avoid. With the uncertain nature of this information, one fruitful avenue for message design is to explore effects of disclosing uncertainty about fish advisory guidelines versus *not* disclosing the uncertain nature of guidelines. There are many examples of such disclosures in existing advisories. Examples include:

- “Sometimes we discover new problem sites, though. These sites are different because they are so new; we sometimes just don't know what is exactly wrong. We have data that show the fish are contaminated, but until we find out the source of the chemicals or how far the problem reaches, we often recommend that no one eat the fish until we have more information.” – [Michigan Department of Community Health](#)
- “The waters that have been tested are not necessarily more contaminated than those not tested. Waters are selected for sampling where angling is popular, where there is a known or suspected pollution source, or where fish contaminant trends are being tracked. Mercury is found in most fish tested from Minnesota lakes. PCBs are found mainly in Lake Superior and major rivers such as the Mississippi River. Perfluorochemicals (PFCs) have been found in some fish in Minnesota. MPCA is investigating the sources of PFCs in fish. These guidelines are based on the contaminant level measured in fillets.” – [Minnesota Department of Health](#)
- “Not all waters in Minnesota have been tested for contaminants in fish.” – [Minnesota Department of Health](#)
- “Wisconsin’s fish collection and testing program is frequently adjusted to meet changing needs. New sites are tested each year, along with some previously tested waters to determine trends in contaminant levels.” – [Wisconsin Department of Natural Resources](#)
- In New York State, these advisories are primarily based on information that NYS DEC gathers on contaminant levels in fish and game. NYS DEC collects fish samples each year from different water bodies. In recent years, NYS DEC has annually collected approximately 2,000 fish from more than 50 locations/waters and analyzed these fish for various contaminants. Sampling focuses on water bodies with known or suspected contamination, water bodies susceptible to mercury contamination, popular fishing waters and waters where trends in fish contamination are being monitored. Also, testing focuses on those species that are most likely to be caught and eaten by sport anglers. NYS DEC also tests some game species (e.g., waterfowl, snapping turtles) that accumulate chemical contaminants.” [NY State Department of Health](#)

NUMBERS & STATISTICS

- **Summary:** Information about risk can be provided qualitatively with verbal statements or quantitatively with numbers or statistics.
- **Evidence (systematic reviews):** Risk information is often provided in terms of statistics, odds, or numbers. A broad distinction can be made between quantitative information that is probabilistic, like “1% of women will develop breast cancer,” or represented as a natural frequency, like “1 in 100 women will develop breast cancer.” Probabilities can be in absolute terms (applying to an entire target audience), like the percent of all women susceptible to breast cancer (1% of women will develop breast cancer), or relative terms, comparing that risk group to another population (e.g., women are thirty times more likely to die from breast cancer than men). Research suggests the use of relative probabilities should be avoided, as readers often draw incorrect conclusions when presented with information in this type. Research on information in the form of numbers or

statistics typically compares the same general information in quantitative form (numbers or statistics) with qualitative forms (such as “very much”). Of all quantitative forms, natural frequencies describing absolute risks (5 out of 100 people...) have been found to elicit the most accurate perceptions about risk. That said, there is also some evidence that qualitative representations (many; most; some; a few) can also effectively convey risk information.

- **Message design considerations:** Messages must be drafted with the target population’s level of numeracy (e.g., comfort in engaging with quantitative or numerical information) in mind. For some populations, qualitative statements may be more appropriate. An appropriate message comparison for the fish consumption advisory brochure may be to test persuasive outcomes from a version that uses qualitative information (“very high” or “more than”) with quantitative information (absolute risk probabilities or natural frequencies).

INCLUDING PICTURES OR FIGURES

- **Summary:** Charts and pictures are an easy way to visually depict risk information. Statistical graphs can convey quantitative information clearly and visually, while pictorial information (like traffic lights or speedometers) often uses colors to convey risk information (red = do not eat, yellow = eat with some restrictions, green = eat without restriction), and can represent relationships clearly and simply.
- **Evidence:** Meta-analysis of research on different statistical chart formats has found graphs are a preferred way to receive information over text and statistical information alone. In fact, graphs are also more persuasive (with the exception of pie charts). Material in the form of pictures or video are also more persuasive than text alone, and evidence suggests pictures plus text can enhance comprehension and memory. Finally, research suggests circular items that are familiar to individuals improve comprehension, such as a traffic light or speedometer.
- **Message design considerations:** Use of pictures, such as traffic lights or speedometers, may be a useful strategy for effective fish advisory brochures. For example, mercury levels in high-risk fish could be displayed with a red light whereas low mercury fish could have a ‘green’ light. In addition, information that lends itself to a graph may also be effective, although pie charts should be avoided.

EMPHASIZING DIFFERENT CONSEQUENCES

- **Summary:** An emphasis on different types of consequences in persuasive messages can yield different outcomes. For instance, messages could emphasize individual consequences (harm to oneself) and collective consequences (harms to one’s child, family, or friends).
- **Evidence:** One meta-analysis concluded that messages attributing responsibility for imposing addiction upon industry (or the consequences of secondhand smoke for a smoker’s loved ones) to be more efficacious at encouraging people to quit smoking than messages about the individual consequences of smoking. At the same time, many studies have found individual consequences messages to be effective as well.

- **Message design considerations:** Message strategies might build on this evidence to compare messages focused on consequences to oneself (mother's health, angler's health) versus consequences to others (child's health, angler's family's health) consequences.

QUOTING EXPERTS OR AUTHORITIES FOR SUPPORT

- **Summary:** Experts are a key source of information, particularly when issues of risk arise. Persuasion research often explores and compares how various characteristics of expert or authority figures (credibility, attractiveness, and power) influence message effectiveness.
- **Evidence:** The greatest effect in source manipulation studies has been observed in comparing messages from experts and non-experts. One systematic review points to the importance of trust of experts. Another systematic review points to significant persuasive effects of source expertise, but points to the need for more work exploring potential interactions among these variables.
- **Message design considerations:** Evidence suggests expert or authority figures may enhance the persuasiveness of messages. However, they but must be trustworthy. The fish consumption brochure could make use of experts by referencing "physicians" or "experts" or other trusted sources for particular types of information in articulating guidelines.