Risk Communication with Tribal Communities

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NIEHS R21: "A Fish Consumption Advisory to Promote Anishinaabe Environmental Health Literacy"

  - Inter-Tribal Council of Michigan (ITCM)
  - Chippewa Ottawa Resource Authority (CORA)/Inter-Tribal Fisheries and Assessment Program
Culture, Subsistence, and Recreation

Ojibwe Fisherman, Roland W. Reed, 1908

Me and my little brother circa 1989
Anishinaabe (Chippewa, Ottawa, and Potawatomi)
Benefits Associated with Fish

1. Fish contain beneficial Omega-3 Polyunsaturated Fatty Acids
2. Lean protein, other nutrients
3. Culture, traditions, physical activity, & recreation
4. Environmental stakeholders
Harms Associated with Fish

1. Chemical exposures (MeHg, PCBs, Dioxins)
2. Poor nutrition
3. Loss of: culture, tradition, physical activity & recreation
4. Sociopolitical tension: considered protected treaty right
• EPA/FDA Recommend: 240g/week of fish$^{1,2}$
• Reported Anishinaabe consumption: 420g/week of fish$^{3}$
• Measured Anishinaabe consumption: 78.4g/week$^{3}$

Anishinaabe Advisory Covering Subsistence Species

2003 ATSDR funding to the Inter-Tribal Council of Michigan (ITCM)
1. Advisories were effective at communicating risks. But, not likely to increase fish consumption.

2. New opportunities using mobile technology

3. Need for PUFA-3 assessments in tribal fish
Risk Assessment Advances Since ITCM Advisory (Ginsberg et al 2009, 2015)

**Adult Heart Disease Estimate**
- Benefit = 14.6% lowered risk per 100mg PUFA-3
- Risk = 23% higher risk per 0.51ppm Hg change in hair

**Infant Neural Development**
- Benefit = 3.04 VRM points per 100 mg PUFA-3
- Risk = 3.05 VRM points 1ppm change in hair Hg
Great Lakes Fish
1: Environmental conditions interact with culture to influence exposure, nutrition, and health.
Health Outcomes (Holistic):
1. Varying Risks of Disease
   • Exposure
   • Nutrition

2. Wellbeing
   • Stress
   • Tradition
   • Happiness

2. Agency
   • Health Literacy
   • Self-determination
2: Improved access to knowledge, via culturally-tailored computationally powerful outreach, will help to optimize benefits/harms of fish consumption.
R21: Mobile App

AIMS:

1. Quantify risk and benefits/support tribal fish monitoring
2. Construct culturally-tailored advisory
3. Test behavior changes that are directly linked to exposure (harms) and nutrition (benefits)
Anishinaabe Art (Woodland Style)

Original request from ITCM Partners

Choosing which fish are safe to eat is no simple task. This video was produced in collaboration with the Anishnaabe People and the National Institute of Environmental Health Sciences UWM Marine and Freshwater Biomedical Sciences center to help clarify and explain the issues involved with fish consumption today.
Anishinaabe Art (Woodland Style)

Norval Morrisseau: revitalized Anishnaabe iconography, traditionally incised on rocks and Midewiwin birchbark scrolls
“Woodland” Style

Representational (Details Page)
Lake Superior Trout:
1. High PUFA-3 Benefits
2. If female, 2 meals/week
3. If male or >50, no restriction
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Focus Groups at ITCM

• Held on-site at ITCM (Sault Tribe)
• Three groups of 8 people (N =24)
• Age ≥18 years, Tribal Member in 1836 Treaty Ceded Territories, Makes dietary decisions
• Facilitated by Sault Tribe Environmental Specialist at ITCM
• Data collection: Facilitator notes and Auditory Response System (Clicker)
• “It’s good info if you’re looking for it, but it wouldn’t make a difference for me. I grew up eating wild caught fish and will keep on eating it.”

• “We eat a lot of fish – my family probably eats it at least four times a week and the recommendation might be around one, but that would be really hard. I go by the saying ‘ignorance is bliss’ and we just don’t know enough information to make an informed decision.”
Three Types of Environmental Health Literacy for Fish Consumers

I: Disengaged (ignore advisory for cultural reasons)

II: Discouraged (won’t eat fish)

III: Informed (want to consume low-risk fish)
• “It’s not the fish – they make it seem like the fish are bad, but it’s not the fish, it’s the environment”

• “I’m less concerned about me – to enter age and weight is more important to me so that I can look out for the kids. It’s also a motivator to use the app.”
Thank you

Acknowledgments
• Sault Ste. Marie Tribe of Chippewa Indians
• Great Lakes Inter-Tribal Council
• Chippewa Ottawa Resource Authority
• UW-Milwaukee, Mobile App Innovation Lab
• Inter-Tribal Council of Michigan
• Agency for Toxic Substances and Disease Registry
• National Institutes for Health and National Institute for Environmental Health Sciences
• Indian Health Service
Collaborators: Laura Cassidy, Jared Olson, Michael Ripley, Noel Pingatore, Robin Clark, Renee Hill, John Dellinger, Rick Haverkate, David H. Petering, Beth Tornes, and Michael Moths