

***Multidisciplinary and inter-agency
collaboration to develop advice on
encouraging safe consumption of
store-bought fish***

Josephine Archbold, Research Consultant, Toronto Public Health

Mark Payne, Environmental Research and Policy Analyst, York Region Public Health

Naomi Kasman, Senior Health Analyst, Ministry of Health and Long-term Care

Outline

- Issue
- The Working Group
- Approach
- Outcomes
- Conclusion

The issue

- Public Health Units (PHUs) had independently developed products on safe fish consumption
- Changes in food guide serving size and Canadian fish data
- PHUs were getting feedback from frontline staff about the public's level of frustration with inconsistent messaging and that people were, as a result of various advisories, cutting back on their fish consumption⁽¹⁻³⁾

1. Shimshack et al., 2007. Mercury advisories: information, education, and fish consumption. *Journal of Environmental Economics and Management*. 53(2):159-179.

2. Oken et al., 2003; Decline in fish consumption among pregnant women after a national mercury advisory. *Obstetrics and Gynecology*. 102(2)346-351.

3. Carrington, et al., 2004. An intervention analysis for the reduction of exposure to methylmercury from the consumption of seafood by women of child-bearing age. *Regulatory Toxicology and Pharmacology*. 40(3):272-280.

*Health Units and OPHA –
Fish Consumption Advice
Working Group*

How it started

- York Region contacted PHUs who had, or were working on, fish consumption documents in order to gauge interest in collaborating to develop a consistent message
 - **Initial participation of Peel, Toronto, Waterloo, and York Region**
- News of the project spread by word of mouth, and interested parties began to ask to participate
 - **Final group also included Brant, Peterborough, Simcoe Muskoka and OPHA NRC**

Mandate

- To work together to develop and disseminate a set of consistent key messages on fish consumption for the general population with a particular focus on high risk groups
- To share knowledge and resources and keep abreast of the latest research
- To identify gaps in knowledge and recommend tools to collect information
- To consult with external agencies

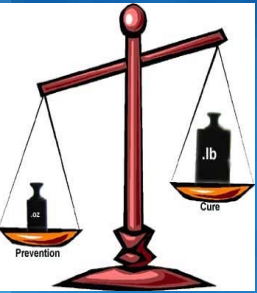
Collaboration process

- Work was conducted in person and via email and teleconferences
- Boundaries for in-scope work allowed for quick project completion and consensus
- 2 co-chairs from different PHUs
- Started from scratch
- Multidisciplinary group - experience in epidemiology, environmental health, maternal and child health, nutrition, toxicology

The Approach

Balancing risk and benefits

- Need to understand the real and perceived risk and benefits before being able to provide advice
 - **How strong was the evidence of harm and was there a safe level?**
 - **How strong was the evidence of benefit and was there a minimal level?**
 - **Data sets?**
- Expertise of toxicologists, epidemiologists and nutritionists to conduct and interpret thorough research



Risk/benefit decisions

- Determined that the U.S. EPA reference dose for mercury was most protective of neurological development in children¹
- Agreed that omega-3s are important at all life stages including during pregnancy and early childhood²
- Use of Canadian data on mercury and omega-3 content in a variety of fish species

1. U.S. EPA IRIS <http://www.epa.gov/ncea/iris/subst/0073.htm>

2. Mozaffarian, D. and Rimm, E.B. 2006. Fish intake, contaminants, and human health. The Journal of American Medical Association. 296(15): 885-1899

Populations of interest

- Experience and brief literature review showed that:
 - **Pregnancy and early childhood are the most important window for Hg impacts and omega-3 benefits**
 - **Many pregnant females and mothers concerned about fish consumption/serving**
 - **Many communities within a Health Unit eating many more fish meals than the average Canadian¹**
 - **Reported abnormal blood mercury cases were primarily due to fish consumption**
- These subpopulations became the primary targets of our messaging

"Bin" approach



- By incorporating average body weights, fish mercury concentration, a Canada Food Guide serving of 75g and the reference dose the working group determined safe consumption rates per age group for each fish species
- Then organized species of fish with similar mercury concentrations into three groupings based on how often they could be eaten: "often", "sometimes" and "avoid"
- The "Bins" allowed each Health Unit to easily and quickly disseminate risk information but also allowed identification of species that are high in omega-3 and other individualized accents

The Outcomes

Eat a Variety of Fish

For more fish information please visit: www.toronto.ca/health

* - A serving size may not be the same size as the portion you use in a meal. One Canada's Food Guide Serving is 75 grams or 2.5 ounces or about half a cup.

♥ - High omega-3 fats (Good for your heart)
 ♣ - Fish that may be caught or farmed in a way that is harmful to the environment

Safe to Eat Every Day (Very Low Mercury)

- 1 serving* a day for children
- 2 servings* a day for women who are pregnant, breastfeeding or who could become pregnant, including teenage girls
- Unlimited serving* for men, teenage boys and women 50+

Basa	Pollock
Capelin	♥ Salmon, Canned
Kamaboko (Fish Cake, Processed White Fish)	♥ Salmon (Chum, Coho, Pink, Wild Pacific)
Milkfish	Sea Urchin
Octopus	Silver Pomfret
Oysters	Tilapia

Safe to Eat Often (Low Mercury)

- 2 servings* a week for children
- 4 servings* a week for women who are pregnant, breastfeeding or who could become pregnant, including teenage girls
- Unlimited servings* for men, teenage boys and women 50+

♥ Anchovies (Fresh/Frozen)	♥ Sardines
♥ Arctic Char	Sea Cucumber
♥ Atlantic Mackerel	Shiner
Grass Carp	Smelt (Atlantic, Lake)
♥ Herring	Sole (Dover, Petrale)
Mussels (Blue)	Squid
Porgie	♥ Trout, Rainbow
♥ Salmon (Unknown Species, Chinook, Sockeye, Steelhead)	Tuna, Canned Light (Skipjack, Tongol, Yellowfin)

♣ Eco Unfriendly

Atlantic Cod	♥ Salmon (Atlantic, Farmed)
Clams	Scallops
Flounder	Shrimp/Prawns
Haddock	

Safe to Eat Sometimes (Medium Mercury)

- 1-2 servings* a month for children
- 2-4 servings* a month for women who are pregnant, breastfeeding or who could become pregnant, including teenage girls
- 4 servings* a week for men, teenage boys and women 50+

Black Pomfret	Redfish
Carfish	Sablefish (Black Cod)
Halibut	Skate
Jackfish	Snapper (Various Species)
♥ Kingfish (Spanish Mackerel, King Mackerel)	♥ Trout (Lake, Various Species)
Lake Whitefish	Tuna steak (Skipjack, Southern Yellowfin)
Mahi Mahi (Dolphin Fish)	Tuna, Canned White (Albacore)
Perch	Whiting

♣ Eco Unfriendly

Atlantic Halibut	Grouper
Bluefin Tuna Steak	Red Snapper

Avoid or Eat Rarely (High Mercury)

- Less than 1 serving* a month for children
- Less than 1 serving* a month for women who are pregnant, breastfeeding or who could become pregnant, including teenage girls
- No more than 1 serving* a week for men, teenage boys and women 50+

Barracuda	Sea Bass
♣ Buffalo	Tilefish
♥ Escolar (Snake Mackerel)	Tuna steak (Unknown Species, Bigeye)
Marlin	
♣ Pickerel (Yellow Pickerel, Pike, Sauger, Walleye, Zander)	♣ - Not high in mercury but high in PCBs

♣ Eco Unfriendly

Orange Roughy	Shark (Spiny Dogfish, Northern Shark, Porbeagle)
Chilean Sea Bass	Swordfish

Research collaboration with U of T

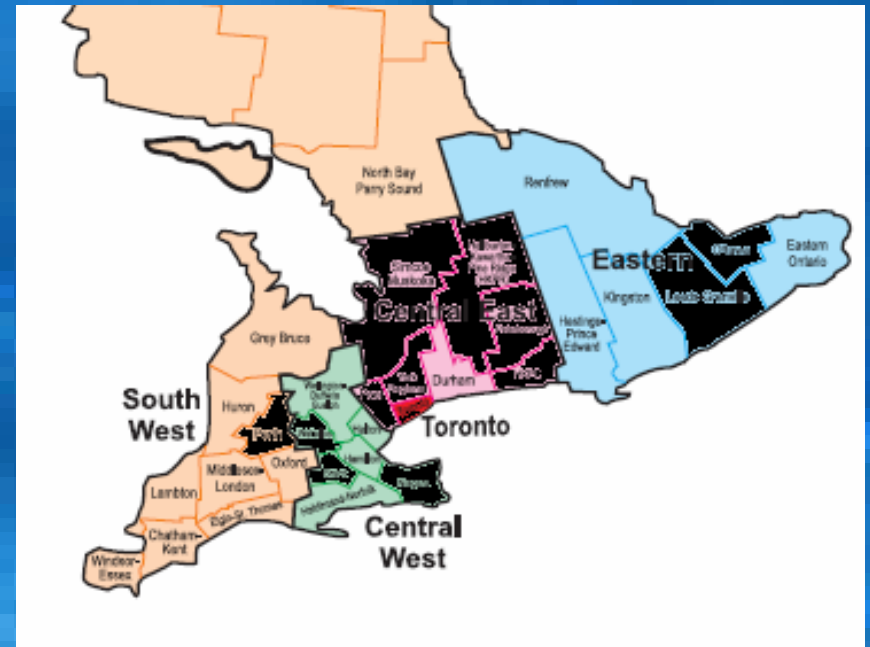
- Filled data gap on popular fish species (south east Asian and Caribbean communities)
- Identified 9 low mercury species
 - Bluefish, Grass carp, Shiner, Porgie, Skate, Smelt, Tilapia, Milkfish, Silver pomfret



The Conclusions

Benefits of collaboration

- Consistent message across regions
- Shared resources/ multidisciplinary
- Stronger impact - multi-agency



Lessons learned

- Keep the scope narrow - focus on getting agreement/compromise on only the most important decisions, rather than trying to force agreement on everything (leave flexibility)
- Keep the group small - regions with similarities (populations, priorities, principles of public health)

Summary

- The process described here for fish consumption can be easily transferred to other issues
- All you need are:
 - **Common issues/needs**
 - **Common risk/benefit approaches**
 - **Common target populations**
 - **A champion (or two!)**

Thank you!

- Brant: **Stephanie Pizale**
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- Toronto: **Loren Vanderlinden, Maria Sena-Balestra**
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