

Testing the Dissemination of Fish Consumption Information

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Introduction

This report describes work performed under a subgrant from the Minnesota Department of Health with funding by the Environmental Protection Agency (EPA) (GL00E01283). The ultimate purpose of this project is consistent with the parent EPA grant: to improve messaging to women of child bearing age to assist them in decision making about safe fish consumption for them and their families. This work builds on previous work done earlier in partnership with MDH, also through EPA grant GL00E01283, designed to identify which messages about safe fish consumption resonated most with the target audience and inform the design of the brochure that was used in the Cornell diary study. Our current work is distinct in its focus on both barriers and facilitators to eating safe fish and was designed to explicitly solicit and manifest additional strategies to empower women with the information and tools needed to achieve optimal fish consumption.

The research described herein was conducted within the HealthPartners Institute and engaged the participation of HealthPartners patients and members. HealthPartners is the largest consumer-governed nonprofit health care organization in the country, providing care, coverage, research and education to improve health and well-being in partnership with its members, patients and community. HealthPartners Institute is a nonprofit organization dedicated to conducting public-domain health research. In developing the deliverables for this grant, it was important to build upon the existing knowledge base regarding safe fish consumption, while being responsive to the unique messaging environment that we have as a part of HealthPartners' integrated health system.

All work described herein was approved by the HealthPartners Institute Institutional Review Board and the EPA's Human Subjects Research Review Office.

A series of focus groups were conducted with HealthPartners members to understand barriers and facilitators to safe fish consumption as well as where and how women want to receive this information. Results from the focus groups were used to develop and strengthen existing key messages about eating clean fish for women of childbearing age. Focus groups also revealed mode preferences for communication of these messages, which included QR codes, posters in clinic waiting rooms, exam rooms, or grocery stores, and links in MyChart or MyHealth. Because of demand for easily accessible, portable information that women could reference at home while planning meals and in the grocery store or elsewhere while selecting foods, we chose to develop a mobile-responsive website (Appendix D) in addition to a paper brochure (Appendix C). Although the brochure and website were developed through a sub-grant from MDH (EPA grant GL00E01161), they have been included in this report to illustrate the key messages we developed for this grant, GL00E01283.

Findings from the focus groups were central to the design of our brochure and website. Initially, a literature review was completed to inform the topics and questions for the focus groups, included as a separate attachment. The complete focus group findings are detailed in Appendix B. This report is organized to highlight how these findings informed design and content decisions for the brochure and website and is based on the results tables from that focus group report. The following is a narrative describing these new tables (Tables 1-3) and the explicit links between the focus group findings and the brochure and website design decisions.

Literature review

A literature search was conducted prior to the focus groups to help frame the focus group discussions as well as to serve as a backstop for the findings.

To complement earlier work done by the Great Lakes Restoration Initiative, this literature was limited specifically to work that focused on barriers to consumption. As such, barriers and consumption were key elements in the literature search, which included terms “fish, fishes” and “consumption” or “eating” or “eat” or “consum*”. The search was conducted June 23, 2015 for English language peer-reviewed literature for the previous 10 years. Retrieval was high (1,259 citations). The search was narrowed by selecting review articles, general information, and systematic review, as well as these terms: and “behavior,” or “barrier,” or “factors” or “accept*” or “encourage” or “health knowledge, attitudes, practice,” or “nutrition policy,” or “choice behavior” or “attitude” or “consumer behavior,” or “advice*” or “advis*.”

The articles found through that search are included in Appendix A.

Project staff reviewed the literature findings both to build on previously conducted research rather than duplicating it, and to be informed of past findings. The literature review was used in combination with the focus group findings to help us identify things that had been previously reported and to elicit additional perspectives on those topics. In some cases, the literature review was referenced to ensure that barriers to fish consumption that were not uncovered in the focus group findings were addressed in the web content.

Focus group findings

The following segments of this report are based on the focus group findings; for a more detailed account of focus group respondents and results, see the report in Appendix B. From these findings, the results tables were excerpted, and additional columns were added describing how each piece of information gleaned from the focus group was incorporated into the brochure and the website. Only results which were used to inform brochure or web design and content were kept in the following revised tables; the comprehensive results tables are found in Appendix B.

Table 1: Behaviors and preferences when buying and consuming fish

This segment of the focus group results focuses on general behaviors and preferences of women regarding fish consumption. Women listed a variety of fish they prefer to consume, and the website includes recipes for a majority of these types of fish. The most frequently-preferred fish for women was salmon, so a salmon recipe was chosen for the back cover of the brochure. Taste and flavor were the most important factors when women chose which fish to buy, so our website has an interactive flavor and texture profile table, which allows women to identify the taste/texture they prefer and choose their fish accordingly.

Preparation was frequently described as a barrier to eating fish in the focus group discussions, so our website has videos, step-by-step instructions, and recipes that describe how to choose, thaw, prepare, and cook fish. A major perceived risk of eating fish was mercury and other contaminants, so the consumption guidelines in both the brochure and website group fish species by mercury content and recommended frequency of consumption. Additional information about mercury and why it is a concern is also discussed in the brochure and website.

Table 1. Highlights on key topics from focus groups: fish preferences, barriers, influences, and perceived benefits and risks (descending order of frequency; N=24; some participants provided more than 1 answer within a key topic)		
Fish preferences		
Results	Brochure incorporation	Website incorporation
Salmon (18)	Salmon recipe and photo on back cover	Included in recipes
Tilapia (9)	Suggested tilapia substitution for recipe on back cover	Included in recipes
Tuna, canned (6)	Photo on first inside page; brochure discusses canned fish	Included in recipes
Shrimp (6)		Included in recipes
Crappie (4)		Included in recipes
Cod (2)		Included in recipes
Trout (2)		Included in recipes
Whitefish (2)		Included in recipes
Factors in choice		
Results	Brochure incorporation	Website incorporation
Taste and flavor (8)	Recipe on back cover describes taste and texture of salmon and tilapia	Interactive texture and flavor profiles table allows sorting fish by flavor and texture
How prepared, time, knowledge, ease, pre-seasoned, frozen (7)	Recipe on back cover is simple and requires minimal preparation and cooking time	"Cook Fish" tab
Sustainability (4)	Addresses sustainability	Addresses sustainability
Texture (2)	Recipe on back cover describes taste and texture of salmon and tilapia	Interactive texture and flavor profiles table allows sorting fish by flavor and texture
Benefits (1)	"Benefits of Fish" panel	"What Makes Fish a Great Catch?" page
Avoid mercury (1)	"Fresh, Frozen or Canned" panels	"Contaminants" page
Barriers to eating		
Results	Brochure incorporation	Website incorporation
Cost (9)	"Bought or Caught" section mentions cost differences for canned tuna varieties; Low cost tuna casserole dish is pictured in "Fresh, Frozen or Canned" section	Low-cost recipes such as tuna casserole are included in "Recipes" page
Hard to prepare (5)	Recipe includes preparation instructions	"How to Cook Fish" page includes videos and step-by-step instructions from buying fish to thawing to cooking.
Taste (4)	Recipe describes taste of salmon and tilapia	Flavor profiles table helps people identify the taste they're looking for and choose their fish accordingly

Lack of knowledge re how to prepare (4)	Recipe is easy to follow and requires minimal preparation and cooking time	"How to Cook Fish" page includes videos and step-by-step instructions, from buying fish to thawing to cooking.
Lack of knowledge re what each fish tastes like (2)		Flavor profiles table helps people identify the taste they're looking for and choose their fish accordingly
What sides to serve with fish (1)	Suggestions of sides to serve with recipe are included	"Recipes" page includes some recipes with suggested sides
Slimy/texture (1)		"Fish Flavors and Textures" page describes texture of each fish so people can choose accordingly
Influences for eating more		
Results	Brochure incorporation	Website incorporation
Knowing how often to eat when not pregnant (2)	Guidelines panels describe consumption recommendations for pregnant women and other populations	"Fish to Eat" page describes consumption recommendations for pregnant women and other populations
More recipes (2)	Recipe on the back of brochure	"Recipes" section of website includes 43 recipes whose ingredients can be populated to a personalized shopping list
Emphasizing omega 3s (1)	"Fresh, Frozen or Canned" panels describe omega3's and their benefits	"What Makes Fish a Great Catch" page describes omega 3's and their benefits
Perceived risks		
Results	Brochure incorporation	Website incorporation
Mercury (12)	Guidelines panels describe safe consumption and mercury levels in different fish species; "Fish to Avoid" panel highlights high-mercury fish	"Fish to Eat" page describes mercury levels and consumption guidelines; Fish to avoid section describe which fish contain high levels of mercury; Contaminants section describes what mercury is
Contaminants, pollution (2)	"Fresh, Frozen, or Canned" panels describe mercury and other contaminants	"Contaminants" page describes mercury and PCB's
Sustainability, how raised, caught (1)	Addresses sustainability	Addresses sustainability

Table 2: Preferences for type and format of fish consumption information

This subset of results highlights where, what, and how women would like to receive information about safe fish consumption. Women listed venues such as stores, restaurants, home, and Pinterest as places where they make decisions about fish consumption. To provide information in all of these venues, we developed our website to be mobile-responsive, and included an icon in the brochure designed to prompt women to take a photo of the guidelines to share or save for later. Additionally, the website is Pinterest-friendly; the guidelines and recipes all include buttons which link that page directly to Pinterest.

Regarding type of information, women want to know about both the risks and the benefits of fish consumption. Our website and brochure highlight the benefits and acknowledge the risks, while maintaining a positive, encouraging tone to alleviate concerns. For example, the brochure encourages women to “Dish up some fish” and the website helps people “Choose your fish.” In nearly every instance, we opted to use affirmative language geared toward positive action, rather than trying to frighten women or tell them what not to do. Additionally, women requested fish consumption recommendations for non-sensitive populations such as men, older boys, and women who are not and will not become pregnant. Serving recommendations for these populations are called out in the guidelines both in the brochure and on the website.

Women overwhelmingly requested fish recipes, and many requested pictures as well, mentioning Pinterest as an example. For these reasons, we carefully selected the photos for the brochure and website, making sure they were realistic and appealing without showcasing parts of the fish that may be off-putting such as eyes and tails, similar to the photos on Pinterest. A recipe was included on the back of the brochure, and a recipe section was designed for the website. Careful consideration went into the recipe section of the website: fish recipes are presented with large photos in a layout similar to Pinterest; a shopping basket was designed for women to populate with their chosen recipes; an editable shopping list is created based on the chosen recipes; and women can print the recipes or share via social media or email.

An important element of communicating effectively was to use appropriate language for the audience. Park Nicolle’s patient education team, expert in literacy considerations both in writing and in design, were a welcome addition to the team. They helped turn “incorporate” into “include,” as just one of many examples, and the quality of the materials was far better for it.

Table 2. Highlights on key topics from focus groups: decision venue, information and format preferences, and access in health care (descending order of frequency; N=24; some participants provided more than 1 answer within a key topic)		
Decision-making venue		
Results	Brochure incorporation	Website incorporation
Stores (11)	Brochure suggests taking a picture of the guidelines for access from mobile phone	Mobile-responsive website can be used anywhere they have their phone
Restaurant (6)	Brochure suggests taking a picture of the guidelines for access from mobile phone	Mobile-responsive website can be used anywhere they have their phone
Home (4)	Brochure can be taken home	Mobile-responsive website can be used anywhere they have their phone
Pinterest (3)	Brochure suggests taking a picture of the guidelines to pin on Pinterest	Website is Pinterest-friendly; each recipe has a button for easy pinning
Traveling (1)	Brochure suggests taking a picture of the guidelines for access from mobile phone	Mobile-responsive website can be used anywhere they have their phone
Information wanted		
Results	Brochure incorporation	Website incorporation

Source, where fish comes from (6)	"Fresh, Frozen or Canned" section mentions a variety of fish types; "Bought or Caught" section describes light and white canned tuna	Mention of farm-raised or sustainably sourced differences
Benefits (6)	"Fresh, Frozen or Canned" section describes benefits of fish	"What Makes Fish a Great Catch" page describes fish relationship to heart disease risk, omega 3's and brain development
Risks (5)	"Fresh, Frozen or Canned" section describes mercury and contaminants; "Fish to Avoid" panel describes about mercury and raw fish	"Fish to Avoid," "Contaminants," "How to Reduce your Risk" pages
Careful language (safe vs unsafe, emphasize positive over negative) (2)	Language carefully chosen to highlight the positives of eating fish. Guidelines page called "ChooseYourFish"	Website titled "Choose YourFish" and uses a positive tone, e.g. "preparing a dish with fish can be simple"
Taste, texture (2)	Recipe describes taste and texture for salmon and tilapia	Interactive texture and flavor profiles table allows sorting fish by flavor and texture
Freshness, when caught (2)		Videos show what characteristics to look for when buying fresh fish
Brands high in omegas, low in mercury (1)	Guidelines panels describe mercury levels and omega 3 levels	Guidelines describe mercury levels and omega 3 levels
Fish type and level of mercury by lake (1)	"Bought or Caught" section describes general mercury information for different lakes throughout MN	Website links to MN DNR lake finder for mercury levels by lake
How long take to prepare (1)		"Recipes" section makes this very clear
Format for information wanted		
Results	Brochure incorporation	Website incorporation
Recipes (with pic, in email, on package, mini recipe book, with health benefits noted) (9)	Recipe on back of brochure	Recipe page with 43 recipes and a shopping cart; incorporates pictures and is printer-, email-, and Pinterest-friendly
Pictures (of prepared fish, on Pinterest, in a chart) (4)	Photos in brochure carefully chosen to be realistic and appealing	Photos on website carefully chosen to be realistic and appealing; recipes all have pictures
Website (3)	Website mentioned in brochure	ChooseYourFish.org
App (3)		Mobile-responsive website
Something that has pics of kids in it (1)		Sawtooth videos include children
Access to information in health care setting		
Results	Brochure incorporation	Website incorporation
Info, brochure in waiting room (9)	Brochure in waiting room	
Doctor, annual exam (7)	Included in prenatal packet	
At the front desk (1)	In waiting room?	
"Able to pull up on phone" (1)		Mobile responsive website
Doctor (2)	Included in prenatal packet	

One-on-one conversation with provider (2)	Included in prenatal packet	
Pediatrician (1)	Included in prenatal packet	

Table 3: Discussion of current MDH guidelines table

This final subset of focus group results includes information about the current MDH consumption guidelines table and how it could be improved. Women liked how colorful it was, so appealing color schemes were incorporated into the new brochure and website. Women wanted the “why”: why fish is important, why mercury is of concern, etc. Our brochure includes some of that information, and points to the website, which goes much more in-depth about these topics. In the focus groups, women said they were likely to take a picture of the fish guidelines and keep it on their phone for reference, so our brochure was designed with an icon prompting women to do just that.

Table 3. Highlights on key topics from focus groups: MDH guidelines table (descending order of frequency; N=24; participants provided more than 1 answer within a key topic)		
Clarity of information		
Results	Brochure incorporation	Website incorporation
Colorful (5)	Colorful; photos carefully chosen	Colorful; photos carefully chosen
Like MDH label (2)	MDH logo	MDH logo
Likes bullet points (1)	More bullets and less paragraphs in brochure	Used bullets
How to make more useful		
Results	Brochure incorporation	Website incorporation
Include the “why” (11)	"Fresh, Frozen or Canned" panels describe why fish is beneficial and why mercury is a concern	"What Makes Fish a Great Catch" page
Include guidelines for non-sensitive populations (8)	Guidelines describe that other populations can consume 3 times more	
More info on mercury levels (6)	"Fish to Avoid" panel	"What about Contaminants" page
Explain what a serving size is (4)		At bottom of guidelines
Explain “white” vs “light” tuna (4)	On "Bought or Caught" panel	"How to Reduce Your Risk" page
Explain what happens if you eat the fish on the not-eat list (3)	"Fresh, Frozen or Canned" section mentions why mercury is bad and why pregnant women are more at-risk	"What About Contaminants" page
What are the benefits of eating fish in the top 2 lists (2)	Benefits discussed	Benefits discussed
Define farm raised (1)	"Bought or Caught" section discusses source	"Fish to Avoid" page discusses source
Put info online (1)	ChooseYourFish.org	ChooseYourFish.org
Put info as mobile app (1)	Mobile responsive website	Mobile responsive website
How likely to use		

Results	Brochure incorporation	Website incorporation
Would take a pic of handout and put on phone (6)	Brochure prompts to do this	Mobile-responsive website
Would put on Pinterest (2)	Brochure prompts to do this	Pin button on recipes and guidelines page
Would share it on Facebook (1)	Brochure prompts to do this	Share button on recipes and guidelines page
Title recommendations		
Results	Brochure incorporation	Website incorporation
Take out sensitive populations in title (4)	Done	
Use "recommendations" instead of "guidelines" (3)	"These recommendations are for women..."	
Make less scientific (1)	Target reading level was 6 th -8 th grade	
Play up that fish is safe (1)	Positive framing that extended to subtitles and content	
Put fish in the title (1)	"Dish Up Some Fish"	"ChooseYourFish"

Additional website considerations

The website design timeline was fortuitous in that we could incorporate findings from the Cornell diary study finding that women preferred narratives that showcased women like them over declarative lists or instructions about what to do. Specifically, we partnered with the Sawtooth Mountain Clinic, Grand Portage Health Service to showcase two women in narrative videos titled, *"I learned I could be eating a lot more fish than I had been,"* and *"There are a lot of nutrients and beneficial things in fish you can't get in other places."*

Next Steps

Through a sub-grant from MDH (EPA grant GL00E01161), the key messages developed from this work have been incorporated into a brochure (Appendix C) and website (Appendix D), which will be pilot tested with HealthPartners patients and members. The brochures are being distributed through pilot HealthPartners clinics as well as the materials being mailed directly to a subset of HealthPartners members that are part of the target audience. An evaluation survey is in the field that asks about the reach and effectiveness of the materials. It will be used to further refine the materials for submission by January 2017.