Promoting Healthy Seafood Choices In Asian Communities

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Project Overview

• Characterize exposure to Hg and PCBs from fish consumption among Asians in Chicago

• Develop public health messages to decrease exposure to contaminants while maintaining consumption of healthy nutrients in fish
## Epidemiology of Exposure to MeHg among Asians

<table>
<thead>
<tr>
<th>STUDY LOCATION</th>
<th>ETHNIC GROUP</th>
<th>AGE (yrs)</th>
<th>GENDER</th>
<th>N</th>
<th>HAIR Hg (µg/gm) Geo. Mean (95% CI)</th>
<th>BLOOD Hg (µg/L) Geo. Mean (95% CI)</th>
<th>% WITH ELEVATED Hg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago</td>
<td>Asian or PI</td>
<td>≥18</td>
<td>Both</td>
<td>71</td>
<td>0.58 (0.44, 0.76)</td>
<td></td>
<td>28%</td>
</tr>
<tr>
<td></td>
<td>Asian or PI</td>
<td>18-44</td>
<td>Female</td>
<td>14</td>
<td>0.65 (0.40, 1.06)</td>
<td></td>
<td>29%</td>
</tr>
<tr>
<td>Seattle (Tsuchiya)</td>
<td>Japanese/Korean</td>
<td>18-45</td>
<td>Female</td>
<td>214</td>
<td>0.86 (0.72, 1.00)</td>
<td></td>
<td>33%</td>
</tr>
<tr>
<td>New York City (McKelvey)</td>
<td>Asian</td>
<td>≥20</td>
<td>Both</td>
<td>231</td>
<td>4.11 (3.24, 5.21)</td>
<td>4.11 (3.24, 5.21)</td>
<td>46%</td>
</tr>
<tr>
<td>NHANES 2011-2012</td>
<td>Asian</td>
<td>18-44</td>
<td>Female</td>
<td>191</td>
<td>1.69 (1.32, 2.16)</td>
<td>1.69 (1.32, 2.16)</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>≥18</td>
<td>Both</td>
<td>729</td>
<td>2.20 (1.84, 2.65)</td>
<td>2.20 (1.84, 2.65)</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>Non-Asian</td>
<td>18-44</td>
<td>Female</td>
<td>1049</td>
<td>0.65 (0.56, 0.75)</td>
<td>0.65 (0.56, 0.75)</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Non-Asian</td>
<td>≥18</td>
<td>Both</td>
<td>4582</td>
<td>0.81 (0.71, 0.92)</td>
<td>0.81 (0.71, 0.92)</td>
<td>3%</td>
</tr>
</tbody>
</table>
Cultural aspects of fish consumption

• Frequency
• Species

• Where fish is obtained
• Parts of fish consumed

• Types of preparation
• Special occasions/holidays when fish consumption frequency or species of fish consumed is increased
Aim 1: Community Assessment

- Focus Groups
  - Cultural specific dietary practices, fish purchasing, preparation

- Survey
  - Diet, acculturation, self-efficacy
  - Hair for Hg levels
  - Participant weight

- Fish Samples for Hg, PCBs
  - Chicago market fish
  - Scientific literature
Focus Group Themes

• Frequency of seafood consumption varies
  – 2-3 times/month to 2/day

• Eat many species of fish and shellfish

• Eat many fish parts: head, eye, maw, roe, skin, whole fish, bones

• Diverse cooking methods, may differ by region of birth

• Obtain seafood from Asian markets, supermarkets and by sport fishing

• Decisions about types of seafood purchased are made by self, spouses, parents and children
“Cantonese believe crab is not good for (baby’s) skin. However, when I got pregnant with my daughter, I liked eating the crab the best. My father-in-law steamed a plate (of crab) for me every week. And my daughter looks so beautiful.”

“I think pregnant women could have lobster and crab, but not too much. I did the research and it suggested to avoid tuna during pregnancy. Eating tuna will affect baby’s nervous system.”

“I suggest don’t eat raw fish (during pregnancy) for the concerns of parasitic infections that will pass on to the baby, and also heavy metals. It (is) reported that there is a high level of uranium in the Great Lakes, Lake Michigan.”
Aim 1: Community Survey

Target population
- adults ≥18 yr, predominantly reproductive age women
- Chinese, Korean, Vietnamese

Survey Domains
- Demographics and cultural/dietary acculturation
- Attitudes/knowledge of risks and benefits
- Fish consumption
# Fish Directory

**Promoting Health Seafood Choices in Asian Communities Fish Consumption**

在亚裔社区中推进健康的海产品选择河海鲜类的食用

<table>
<thead>
<tr>
<th>English Name</th>
<th>Chinese Name</th>
<th>Picture of the fish</th>
<th>Picture of the fish dish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchovies</td>
<td>鳳尾魚</td>
<td><img src="image1" alt="Fish Image" /></td>
<td><img src="image2" alt="Fish Dish Image" /></td>
</tr>
<tr>
<td>Bass</td>
<td>鮪魚</td>
<td><img src="image3" alt="Fish Image" /></td>
<td><img src="image4" alt="Fish Dish Image" /></td>
</tr>
</tbody>
</table>

## 110 types of fish and shellfish
Aim 1: Exposure Characterization

– Hair Mercury Testing
– Fish Contaminant Assessment

• Hg, PCB, and omega-3 levels from lit and IL DNR

• Hg and PCB measurements in unusual fish species, fish tissues and fish preparations
  – Hg: 200 tests
  – PCBs: 100 tests
Aim 2: Intervention

5 Ways to Limit Mercury

1. Choose fish that are lower in mercury.
2. Don’t eat fish that have the most mercury.
3. Eat fewer – or smaller – servings of fish.
4. Choose smaller fish.
5. Eat a variety of fish.

More Information

Environmental Protection Agency:
www.epa.gov/ost/fish

Food and Drug Administration:
www.cfsan.fda.gov or call the FDA’s Food Information Hotline toll-free at: 1-888-SAFEFOOD (1-888-723-3366)

New York State Fish Advisories:
www.health.state.ny.us/environmental/outdoors/fish/fish.htm

Call 311 or visit nyc.gov/health for more copies of this brochure.

Eat Fish, Choose Wisely
Protect Against Mercury

A Guide for Pregnant and Breastfeeding Women and Young Children
Aim 2: Intervention

- Text messages to promote healthy fish consumption
- Women of reproductive age
- Tailored to the individuals’ dietary patterns and culturally-specific dietary practices
Intervention Based on Theory of Planned Behavior

Text messages will include:

– Reminders
– Tips
– Positive reinforcement
– Queries regarding satisfaction with the program
Aim 2: Intervention Design

Target Population
Women ages 18-45; Chinese, Korean or Vietnamese
Eat >2 fish meals/week

Intervention Group
N=150 from 10 randomized clusters

- Receive general information on healthy fish consumption
- Hair sample for Hg
- Survey on fish consumption, etc

Control Group
N=150 from 10 randomized clusters

- Receive 1 text/month re: non-fish related dietary advice

0 months

Receive 3 texts/week

6-9 months

- Hair sample for Hg
- Survey
## Hypothetical Community Profile for Hg and EPA/ DHA Intake from Fish

<table>
<thead>
<tr>
<th>Species</th>
<th>% of community’s total fish consumption</th>
<th>Hg (μg/kg)</th>
<th>% of community’s total Hg intake</th>
<th>Allowable servings* (per EPA RfD)</th>
<th>% of community exceeding allowable servings</th>
<th>EPA &amp; DHA (g/kg)*</th>
<th>% of total EPA &amp; DHA intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crabs</td>
<td>25%</td>
<td>17</td>
<td>2%</td>
<td>≤5/wk</td>
<td>0%</td>
<td>3.6</td>
<td>5%</td>
</tr>
<tr>
<td>Salmon</td>
<td>20%</td>
<td>35</td>
<td>15%</td>
<td>≤5/wk</td>
<td>0%</td>
<td>15.9</td>
<td>68%</td>
</tr>
<tr>
<td>Bass</td>
<td>15%</td>
<td>105</td>
<td>29%</td>
<td>≤2/wk</td>
<td>3%</td>
<td>6.4</td>
<td>18%</td>
</tr>
<tr>
<td>Flatfish</td>
<td>40%</td>
<td>95</td>
<td>53%</td>
<td>≤2/wk</td>
<td>25%</td>
<td>1.5</td>
<td>9%</td>
</tr>
</tbody>
</table>

*Data from McKelvey 2010 and Mahaffey 2008
Community Partners

Midwest Asian Health Association (MAHA)

- Located in Chinatown neighborhood of Chicago
- Mission: to reduce health disparities for AAPIs in the Midwest
- Community outreach education, health screening and immunization
- Research and policy advocacy
- ED: Dr. Hong Liu, co-Investigator
Hanul Family Alliance (Hanul)

- Founded in 1987 as a Korean American senior center
- Now serves over 7,000 from multiple ethnicities
- The main office is located in Albany Park, Chicago
  - Suburban satellites in Mt. Prospect and Mundelein
Vietnamese Association of Illinois (VAI)

- Facilitates resettlement and citizenship
- Builds community, helps those seeking employment, healthcare issues
- Raises political awareness, strengthens cultural heritage
Chinese Mutual Aid Association (CMAA)

- Originally formed by ethnic Chinese immigrants from Vietnam
- Now also serves Filipino, Burmese, Ethiopians, and Russians

- After-school youth programs
- Adult education programs
  - ESL
  - Financial literacy
  - Computer skills
Bilingual Staff (Project coordinator, focus group facilitators, translators, field workers, CAB)

- Two RAs – Chinese grad students in public health
- Focus group facilitators - UIC graduate students (2 Mandarin Chinese speaking, 2 Korean speaking, and 2 Vietnamese speaking)

- Field Workers (MAHA, VAI, and Hanul)
Community Outreach Education

- Public health campaign led by MAHA to reach WORA and older adults.
- Design outreach tools including calendar, magnets, and posters.
- Media spots in Asian newspapers of fish consumption health messages.

*Educational messages will be created for each ethnic community based on our findings in the community assessment*