Innovative Approaches to Worker Health Protection
Vietnamese Shrimp Fishermen of the Gulf Coast

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Session: Occupational Health Practice that Makes a Difference
by Jeffrey Levin, M.D, M.S.P.H.
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Collaborators:
Karen Gilmore, M.P.H.
Amanda Wickman, B.S.
Sara Shepherd, M.A.M.S.
Ann Carruth, D.N.S., R.N.
Matthew Nonnenmann, Ph.D., C.I.H.

Other Partners:
U.S. Coast Guard
Marine Safety Unit, 8th District
Area Health Education Centers
Cooperative Extension Service
Sea Grant
Other stakeholders/volunteers

CDC/NIOSH Cooperative Agreement U50 OH07541
www.swagcenter.org
Risk Factors

- Machinery and work hazards
- Human factors
- Environment at sea
<table>
<thead>
<tr>
<th>Fishery</th>
<th>Fatalities</th>
<th>FTEs</th>
<th>Annual rate per 100,000 FTEs</th>
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</thead>
<tbody>
<tr>
<td>Groundfish</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast multispecies groundfish</td>
<td>26</td>
<td>4,340</td>
<td>600</td>
</tr>
<tr>
<td>Atlantic snapper/grouper</td>
<td>6</td>
<td>3,622</td>
<td>170</td>
</tr>
<tr>
<td>Alaska halibut</td>
<td>10</td>
<td>7,519</td>
<td>130</td>
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<tr>
<td>Alaska cod</td>
<td>26</td>
<td>21,327</td>
<td>120</td>
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<tr>
<td>Alaska sole</td>
<td>21</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Gulf of Mexico snapper/grouper</td>
<td>10</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Shellfish</td>
<td></td>
<td></td>
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<tr>
<td>Atlantic scallop</td>
<td>44</td>
<td>10,384</td>
<td>425</td>
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<tr>
<td>West Coast Dungeness crab</td>
<td>25</td>
<td>8,092</td>
<td>310</td>
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<tr>
<td>Bering Sea and Aleutian Islands crab</td>
<td>12</td>
<td>4,658</td>
<td>260</td>
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<tr>
<td>Gulf of Mexico shrimp</td>
<td>55</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Northeast lobster</td>
<td>18</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Gulf of Mexico oyster</td>
<td>11</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Pelagic fish</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Alaska salmon</td>
<td>39</td>
<td>34,287</td>
<td>115</td>
</tr>
<tr>
<td>West Coast tribal salmon</td>
<td>10</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Other fisheries**</td>
<td>165</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Unspecified</td>
<td>26</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

* Rates were calculated by dividing the total number of fatalities for the 10-year period by total annual FTEs.
† Unknown.
§ Includes the Northeast and Mid-Atlantic regions.
¶ Excludes the Washington tribal crab fatalities, which are not included in the FTE count.
** Fisheries with <10 fatalities each.

46% of fatalities due to falls overboard

Background

• Less is known about non-fatal injuries and illnesses
• Behavioral factors may contribute to fatal and non-fatal outcomes
Phase I Methods

- Develop community based collaborations
- Characterize the population through survey
- Conduct focus groups to identify factors that may deter participation in training; propose solutions
- Adapt currently available educational methods and tools to design culturally responsive safety training program
- Provide community feedback
Phase I
Cultural Considerations and Training “Best Practices”

- Important cultural considerations – language, views of compulsory requirements/authority figures
- Didactic and “hands-on” exercises
  - experienced mariners as trainers
  - bi-lingual tip cards produced, may-day
  - instruction delivered in Vietnamese
Summary

• Barriers are reduced when training addresses cultural considerations (particularly language) and the expressed needs of the audience.

• Hands on training by experienced individuals appears to be effective in adult populations in cross-cultural settings.
Liên lạc bằng máy truyền tin (Radio)

- Luật truyền tin bắt buộc tại cảng phải lắng nghe radio khi tàu tách bến:
  - Bạn phải lắng nghe VHF radio trên dài 13 và dài 16.
  - Nếu không liên lạc được bằng radio thì phải dùng còi (kèn). Bạn bật buộc phải biết nghe còi của còi, đặc biệt là còi báo cáo nguy hiểm.
Factors Influencing Safety Among a Group of Commercial Fishermen Along the Texas Gulf Coast

Jeffrey L. Levin, MD, MSPH
Karen Gilmore, MPH
Sara Shepherd, MAMS
Amanda Wickman, BS
Ann Carruth, DNS, RN
J. Torey Nalbone, PhD, CIH
Gilbert Gallardo, AA
Matthew Nonnenmann, PhD, CIH

ABSTRACT. The commercial fishing trades are among the most dangerous jobs in the world. Little published information exists regarding some populations of commercial fishermen such as along the United States Gulf Coast. Studying these unique and often vulnerable groups is important to characterize potential influences on or barriers to safety in anticipation of designing interventions that can change safety behaviors. Working closely with the United States Coast Guard (USCG), a cross-
Long-term Objectives
for 5 year study (Phase II)

• to characterize selective workplace factors and lifestyle behaviors which may contribute to morbidity and mortality among Gulf Coast shrimp fishermen (shrimpers) and

• to utilize a community-based approach to planning, implementing, and evaluating prevention and education measures directed at priority workplace factors and lifestyle behaviors as identified by stakeholders.
Methods

• Survey of work and related behavioral factors
• Noise level monitoring and audiometry
• Spirometry (and blood pressure)
• Focus groups to prioritize and select intervention strategies
Survey Question Development
Linked to Possible Intervention Strategies
(using existent tools/Theory of Planned Behavior)

- Traumatic injury (many of these questions exist from prior survey)
- Eye injuries and UV exposure
- Hearing loss
- Respiratory complaints (including smoking history and other exposures)
- Extended work/fatigue
- Use of PPE/safety equipment
- Other influences (e.g., alcohol use, fatalism, leadership)
Important Considerations

• Content validity
• Literacy level
• Translation
• Administered by trained individuals – answer questions in the primary language as necessary
• Length (number of questions, duration)
• Participation
• Consent
Southwest Center for Agricultural Health, Injury Prevention, and Education
## Preliminary Findings
Survey (n=227) and Noise Level Monitoring

<table>
<thead>
<tr>
<th>Variable</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnamese as primary language</td>
<td>&gt;95%</td>
</tr>
<tr>
<td>Work perceived as somewhat to very risky</td>
<td>&gt;70%</td>
</tr>
<tr>
<td>Working &gt; 22 days/mo</td>
<td>61%</td>
</tr>
<tr>
<td>Working &gt; 12 hrs/day</td>
<td>64%</td>
</tr>
<tr>
<td>Estimated exposures in engine range</td>
<td>95-105 dBA</td>
</tr>
<tr>
<td>Moderate or more severe speech frequency hearing loss</td>
<td>32%</td>
</tr>
<tr>
<td>Elevated single BP measurement</td>
<td>59%</td>
</tr>
<tr>
<td>Mild obstruction on spirometry</td>
<td>11%</td>
</tr>
</tbody>
</table>
Observations from Survey and Testing

- Noise exposure is real, hearing loss is present in speech range
- Work is considered risky
- Long hours/days, inadequate sleep
- >50% with Stage 1 or greater hypertension
Work Performance Related to Sleep

During the active fishing season, have symptoms:

- Forgetful: 30%
- Distracted: 40%
- Sore muscles: 60%
- Less motivated: 25%
- Desire to sit: 45%
- Sleepy during work: 30%
- Difficulty staying alert: 20%
- Difficulty operating equipment: 10%
Elevated Perception of Risk

- Machinery equipment hazard
- Eye injury
- Fatigue
- Noise/hearing loss
- Breathing hazard
- Skin cancer
Focus Group Selected Intervention Areas

- Houston/Palacios – noise/hearing
- Belle Chase – winch safety awareness
- Abbeville – fatigue
Advisory Group Input

• Focus group summaries and selected interventions
• Hierarchy of safety controls – engineering, administrative/work practice, PPE
• Discuss intervention materials for each location and strategies for dissemination/community promotion
• Methods – training, visual aids, checklists, messages
Training as a Recruitment Tool

• Encouraged by opinion leaders
• Recognized as necessary and perceived as important - desire to emphasize prevention of work-related injuries/fatalities
• Value added, low/no cost
• More effective (recruitment) if delivered to meet the “needs” of the community in the primary language of the audience
Community Training Meetings
Spring, 2010

• Focus on group specific intervention
• Ship-to-ship communication/MayDay simulation
• Damage control kit
• Blood pressure information
• First aid – choking, CPR, bleeding, fractures, etc.
Intervention Theory

• Diffusion of Innovations by Everett Rogers – innovative idea or concept is communicated through certain channels over time among the members of a social group and its penetration is dependent upon decisions of other members of the group, often in a leadership role
Definition*

Opinion leadership – “the degree to which an individual is able to influence other individual’s attitudes or overt behavior informally in a desired way with relative frequency.”

**WORK-RELATED HEARING LOSS**

1. Noise-induced hearing loss is 100% preventable.

2. Hearing loss can be permanent and irreversible.

3. It's important to protect the hearing that you have left.

4. Hearing protectors lower the noise level of your equipment & of verbal communication; it won't eliminate it.

5. If you have to raise your voice to talk to someone who is an arm's length away, the noise is likely hazardous.
Winch Safety Awareness

DECK WINCH SAFETY TIPS

1. Keep your eyes on the winch.
2. Operate with caution when alone.
3. Agree on a key word to shout out if in trouble.
4. Run regular safety drills.
5. Remove loose fitting clothing before operating winch.
6. Turn the winch off before untangling line.
Fatigue

TIPS TO FIGHT FATIGUE

1. Get moving.
2. Vary your routine.
3. Avoid simple carbohydrates. (soft drinks, chips, candy)
4. Eat complex carbohydrates. (healthy granola bars, bagels)
5. Check your iron levels. (Eat fish, eggs, chicken, fortified cereals, and beans)
6. Maintain a healthy weight.
7. Drink plenty of water.
8. Improve your sleeping conditions.
9. Check for other medical problems.
Year 5 Activities/Challenges

- Continued dissemination of messages – dockside, PSAs, community training meetings
- Community trust and key partnerships
- Continued language barriers/cultural factors
- Economic and other influences limiting participation – diesel costs, hurricanes, oil spills
- Repeat survey Year 5
Total Trained to Date
2004 – March 2010

n = 535
(including repeats,
not including Port Isabel)
Questions and Discussion