HearWell: Using the CPH-NEW Intervention Design and Analysis Scorecard (IDEAS) Tool to Develop Interventions for Hearing Health in Transportation Workers

Jenn Cavallari, ScD, CIH
Assistant Professor
University of Connecticut School of Medicine

CPH-NEW is a NIOSH Center for Excellence in Total Worker Health®
Presentation Outline

- Hearing conservation among transportation maintenance workers
- CPH-NEW Healthy Workplace Participatory Program (HWPP) and Intervention Design and Analysis Scorecard (IDEAS) tool
- HearWell: Application of the IDEAS tool for hearing conservation among maintainers
  - Process of using the IDEAS tool
  - Solutions generated to protect and promote hearing health
Transportation Maintenance Workers
Variable Noise Exposures, Rely on HPD

NOISE LEVELS BY DECIBELS

- Pneumatic Precision Drill: 119
- Hammer Drill: 114
- Chain Saw: 110
- Spray Painter: 105
- Hand Drill: 98

NIOSH Recommended Exposure Limit: 85
- Normal Conversation: 60
- Whisper: 30

Sources:
- NIOSH Noise Meter: http://www.cdc.gov/niosh/topics/noise/noisemeter.html
- NIOSH Power Tools Data Base: http://www.cdc.gov/niosh-sound-vibration/

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HearWell for Total Hearing Health

- Training: Hearing and Noise
- Perform Audiometric Testing
- Control Noise Exposure Levels
- Hearing Protectors
- Monitor Noise Exposure Levels
- Record Keeping

Designed and implemented using the CPH-NEW Healthy Workplace Participatory Program (HWPP)
CORE ELEMENTS

• Two committees – manager, non-manager
  Engages all levels of the workforce

• Trained facilitator – subject matter expert
  Guides, coordinates committees

• IDEAS intervention design process
  Builds solutions one intervention at a time
Generating solutions using the IDEAS Tool

This program structure supports continuous engagement from all levels of the organization.
<table>
<thead>
<tr>
<th>Event</th>
<th>Description</th>
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<tbody>
<tr>
<td>From Grant</td>
<td>Identification of health and safety priority (hearing)</td>
</tr>
<tr>
<td>Spring 2015</td>
<td>Training on HWPP</td>
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<tr>
<td>Fall 2016</td>
<td>Noise monitoring during brush cutting</td>
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<tr>
<td>Winter 2017</td>
<td>Training of Steering Committee</td>
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<tr>
<td>March 2017</td>
<td>Identification of Design Team members</td>
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| March 2017 – Present | Generate solutions using IDEAS tools  
Bi-weekly* DT meetings |
| Pending | Implementation and evaluation of the program |

*Outside of winter season
Step 1: Identify Contributing Factors
       H&S Problem

Step 2: Set Measureable Objectives & Brainstorm Solution Activities

Step 3: Set Selection Criteria for Evaluating Solution Activities

Step 4: Apply Selection Criteria & Create 3 Intervention Alternatives

Step 5A: Rate Intervention(s)

Generate solutions using the IDEAS Tool
Step 1: Identify Contributing Factors

Design Team

Outcomes (May 26 meeting)

DT attributed hearing loss to:

Noise exposures: loud equipment, long shifts, specialization of tasks

Hearing protection (HPD): hot, uncomfortable, not sure proper use (when/how) or replacement, limited options

Knowledge gap: not certain when/how to use HPD, lack knowledge of noise level of tasks and equipment

Safety climate: lack of supervisor and coworker support for wearing HPD, reducing noise exposures
Step 2: Set Measurable Objectives, Brainstorm Solution Activities

<table>
<thead>
<tr>
<th>Outcomes (May 31 meeting)</th>
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<tbody>
<tr>
<td><strong>Training:</strong> Content: how and when to use HPD; safe noise levels; <strong>When:</strong> during yearly hazmat training; regular tailgates; <strong>How:</strong> hands-on PPE training, practice sessions with HPD,</td>
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<td><strong>Noise level stickers:</strong> on equipment</td>
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<td><strong>Hearing protection:</strong> HPD/buddy system; more HPD options; HPD that allows communication</td>
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<td><strong>Noise reduction:</strong> purchase quiet equipment; cross train to rotate tasks</td>
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<td><strong>Supervisor and co-worker support:</strong> HPD enforcement; co-worker reminders</td>
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<td><strong>Emphasize good hearing health:</strong> hearing loss &amp; long-term effects</td>
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<td><strong>New HPD policy:</strong> HPD enforcement; foreman/crew leader training</td>
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Step 3: Set Selection Criteria

Outcomes (June 28 meeting)

**Impact/Scope:** anyone mandated to be in a hearing conservation program at DOT

**Benefits/Effectiveness:** increase awareness of hearing risk; protect (improve) long term hearing health; benefit all workers (taking into worker variations); balance short term costs with long term benefits

**Resources/Costs:** include district trainers; weekly tailgates; HearWell

**Obstacles/Barriers:** state is in debt; often prioritize short-term costs over long-term benefits
### Design Team

#### Step 1: Identify Contributing Factors H&S Problem

#### Step 2: Set Measureable Objectives & Brainstorm Solution Activities

#### Step 3: Set Selection Criteria for Evaluating Solution Activities

#### Step 4: Apply Selection Criteria & Create 3 Intervention Alternatives

#### Step 5A: Rate Intervention(s)

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### Outcomes (July 19, 26 Meetings)

#### Intervention A: HPD. Includes:
- **Training:** tailgate talks; yearly on when to use, best practices, hands-on PPE training/demonstration yearly
- **More HPD options**

#### Intervention B: Policy. Includes:
- **HPD policy change:** amended for hearing – equipment specifics to allow non-supervisor crew leader to enforce on when to wear it
- **Enforcement:** by supervisor and crew leader
- **Training:** new worker and yearly training on when to wear/how to use, policy, hearing, noise; Supervisor awareness for enforcement
- **Pre-work:** improved info on trip tickets/daily assignments
- **Consistency between garage**

#### Intervention C: Hearing/Noise Awareness. Includes:
- **Awareness campaign** – HearWell month with posters
- **Stickers** on equipment/helmet (noise level & campaign)
- **Training:** Tailgate – HPD when to wear/how to use; yearly; coworker awareness
Step 5A: Rate Interventions

Outcomes (Sept 21)

1) Intervention B: Policy
High impact, high benefits, medium resources, medium obstacles

(2) Intervention C: Hearing/Noise Awareness
High impact, high benefits, high resources, high obstacles

(3) Intervention A: HPD
High impact, medium benefits, medium resources, medium obstacles
Step 5B: Rating and Selecting Interventions

- Steering Committee requested interventions be separated into components
- Steering Committee and Design Teams working together to develop and implement interventions
- On track for implementation in next few months
HearWell Design Team: Intervention Components

- Policy
- Equipment stickers: noise awareness
- Pre-work planning
- Training
  - Maintainers
  - Supervisors
- Change in hearing culture

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A hearing conservation program lends itself to a participatory TWH approach

Challenges

- Training line level employees on HWPP components
- Lack of hearing/noise knowledge
- DOT employee scheduling (winter) and turnover

Benefits

- Participatory approach and root causes analysis provide innovative solutions
- New skills gained by employees
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Contacts

University of Massachusetts Lowell
Sandy Sun, Center Administrator
Email: Sandy_Sun@uml.edu
Tel: 978-934-3268

CPH-NEW general email:
cphnew@uml.edu

CPH-NEW main website:
www.uml.edu/cph-new

Healthy Workplace
Participatory Program Website:
www.uml.edu/cphnewtoolkit

University of Connecticut
UConn Health, Farmington, CT
UConn Storrs, Mansfield, CT

University of Connecticut
CPH-NEW website:
http://h.uconn.edu/cph-new

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