HearWell: A Participatory Total Worker Health® Hearing Conservation Program

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Presentation Outline

- CPH-NEW Healthy Workplace Participatory Program (HWPP) and Intervention Design and Analysis Scorecard (IDEAS) tool
- Hearing conservation among transportation maintenance workers
- HearWell: Application of the IDEAS tool for hearing conservation among maintainers
  - Solutions generated to protect and promote hearing health

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WHAT IS TOTAL WORKER HEALTH® AND THE CPH-NEW APPROACH?
Total Worker Health

• ...policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.

NIOSH, 2015
www.cdc.gov/niosh/twh
Total Worker Health

• ...policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.

NIOSH, 2015
www.cdc.gov/niosh/twh

The workplace is a place to prevent work-related injury and illness and support well-being
The Center for the Promotion of health in the New England Workplace (CPH-NEW): Who We Are

UMass Lowell
- Occ. Health & Safety
- Epidemiology
- Biostatistics
- Economics
- Nursing

UConn Health
- Ergonomics
- Medicine
- Health Policy
- Industrial Hygiene

UConn
- Psychology
- Health Promotion

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Healthy Workplace Participatory Program
www.uml.edu/cphnewtoolkit

The CPH-NEW Healthy Workplace Participatory Program (HWPP) Toolkit is designed specifically to help employer organizations adopt and implement a Total Worker Health (TWH) program approach. The HWPP Toolkit was developed to engage employees in designing integrated solutions that address a wide range of work environment, work organization, safety, and employee health issues.

The Toolkit is organized according to the links below to help you initiate, implement, and evaluate your program. The materials are appropriate whether you are starting a new program or enhancing an existing program. Review the Toolkit at a Glance to see the core program materials.

**HOW HWPP WORKS**

<table>
<thead>
<tr>
<th>THE OVERALL PROCESS</th>
<th>TRAINING &amp; SUPPORT</th>
<th>WHAT'S NEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Get Ready for Program Start Up</td>
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<tr>
<td>2. Form Steering Committee</td>
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<tr>
<td>3. Identify and Train Facilitator</td>
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<td>4. Identify Health and Safety Priorities</td>
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<tr>
<td>5. Form Design Team</td>
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</table>
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
This program structure supports continuous engagement from all levels of the organization.
HearWell – Protecting and Promoting Hearing at DOT
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)
HearWell: Achieve Total Hearing Health using CPH-NEW Healthy Workplace Participatory Program

- From Grant
  - Identification of health and safety priority (hearing)

- Spring 2015
  - Training on HWPP

- Fall 2016
  - Noise monitoring during brush cutting

- Winter 2017
  - Training of Steering Committee

- March 2017
  - Design Team (DT) begins, survey

- March 2017 - Present
  - Generate solutions using IDEAS tools
  - Bi-weekly* DT meetings

- Pending
  - Implementation and evaluation of the program

*Outside of winter season

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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: https://www.cdc.gov/niosh/topics/noise/noise_meter.html
NIOSH Power Tools Data Base: https://www.cdc.gov/niosh-sound-vibration/

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How often are maintainers wearing HPD?

If you use noisy tools or are in noisy areas, do you (or coworkers) use hearing protectors?

HPD Use CoWorkers

HPD Use

- Always
- Almost Always
- Usually
- Often
- Sometimes
- Rarely or Never

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HPD Barriers - I don't wear earmuffs or earplugs at work because:

- Noisy without warning
- Safety
- Used to noise
- Co-workers don't
- Can't do my work
- Can't communicate
- Uncomfortable
- Get in way
- Not clear when to wear
- Co-workers find funny

[Bar Chart showing responses to each barrier, with categories marked for strongly disagree, disagree, neutral, agree, and strongly agree.]
HPD Motivators - I wear earmuffs or earplugs at work because:

- For good life
- To protect my hearing
- Doing a noisy job
- Annoyed by noise
- Other noise
- Company rules
- Trained to
- Co-workers remind
- Boss

(Bar chart showing responses from 0 to 100, with categories ordered from least to most agreed on.)
| HEARING CLIMATE                     
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker involvement</td>
</tr>
<tr>
<td>I feel free to report noise hazards where I work.</td>
</tr>
<tr>
<td>Management commitment 1</td>
</tr>
<tr>
<td>Workers and management work together to protect hearing.</td>
</tr>
<tr>
<td>Management commitment 2</td>
</tr>
<tr>
<td>There are no major shortcuts taken when workers hearing is at stake.</td>
</tr>
<tr>
<td>Management commitment 3</td>
</tr>
<tr>
<td>The hearing of workers is a high priority with management where I work.</td>
</tr>
<tr>
<td>Safety feedback</td>
</tr>
<tr>
<td>Employees are told when they do not wear hearing protection.</td>
</tr>
<tr>
<td>Coworker behavior norms</td>
</tr>
<tr>
<td>New employees learn quickly that they are expected to use hearing protection.</td>
</tr>
</tbody>
</table>

### Hearing Safety Climate

![Hearing Safety Climate Chart](image)

- **Worker Involvement**
  - Strongly Agree: 80-100
  - Agree: 60-79
  - Neutral: 40-59
  - Disagree: 20-39
  - Strongly Disagree: 0-19

- **Management Commitment 1**
  - Strongly Agree: 80-100
  - Agree: 60-79
  - Neutral: 40-59
  - Disagree: 20-39
  - Strongly Disagree: 0-19

- **Management Commitment 2**
  - Strongly Agree: 80-100
  - Agree: 60-79
  - Neutral: 40-59
  - Disagree: 20-39
  - Strongly Disagree: 0-19

- **Management Commitment 3**
  - Strongly Agree: 80-100
  - Agree: 60-79
  - Neutral: 40-59
  - Disagree: 20-39
  - Strongly Disagree: 0-19

- **Safety Feedback**
  - Strongly Agree: 80-100
  - Agree: 60-79
  - Neutral: 40-59
  - Disagree: 20-39
  - Strongly Disagree: 0-19

- **Coworker Behavior Norms**
  - Strongly Agree: 80-100
  - Agree: 60-79
  - Neutral: 40-59
  - Disagree: 20-39
  - Strongly Disagree: 0-19
Generate solutions using the IDEAS Tool

**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)
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>Design Team</th>
<th>Outcomes (May 31 meeting)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1:</strong> Identify Contributing Factors H&amp;S Problem</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2:</strong> Set Measurable Objectives &amp; Brainstorm Solution Activities</td>
<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>
</tr>
<tr>
<td><strong>Step 3:</strong> Set Selection Criteria for Evaluating Solution Activities</td>
<td><strong>Noise level stickers:</strong> on equipment</td>
</tr>
<tr>
<td><strong>Step 4:</strong> Apply Selection Criteria &amp; Create 3 Intervention Alternatives</td>
<td><strong>Hearing protection:</strong> HPD/buddy system; more HPD options; HPD that allows communication</td>
</tr>
<tr>
<td><strong>Step 5A:</strong> Rate Intervention(s)</td>
<td><strong>Noise reduction:</strong> purchase quiet equipment; cross train to rotate tasks</td>
</tr>
<tr>
<td></td>
<td><strong>Supervisor and co-worker support:</strong> HPD enforcement; co-worker reminders</td>
</tr>
<tr>
<td></td>
<td><strong>Emphasize good hearing health:</strong> hearing loss &amp; long-term effects</td>
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<tr>
<td></td>
<td><strong>New HPD policy:</strong> HPD enforcement; foreman/crew leader training</td>
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Training: Content: how and when to use HPD; safe noise levels; When: during yearly hazmat training; regular tailgates; How: hands-on PPE training, practice sessions with HPD, Noise level stickers: on equipment, Hearing protection: HPD/buddy system; more HPD options; HPD that allows communication, Noise reduction: purchase quiet equipment; cross train to rotate tasks, Supervisor and co-worker support: HPD enforcement; co-worker reminders, Emphasize good hearing health: hearing loss & long-term effects, New HPD policy: HPD enforcement; foreman/crew leader training
HearWell Design Team: Intervention Components

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

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Steering Committee and Design Teams working together to develop and implement interventions

- Design team intervention components were further refined
- On track for implementation in next few months
HearWell Design Team: Intervention Components

- **Policy**
- **Pre-work planning**
- **Audiometry**
- **Noise Hazard Scheme**
  - HearWell Training
    - Maintainers
    - Supervisors
  - Foundations for Safety Leadership
Foundations for Safety Leadership

- Adapted from 30-hr OSHA elective module
- Includes slides, videos and exercise
- Added a hearing protection scenario specific to transportation workers

https://www.cpwr.com/foundations-safety-leadership-fsl
Foundations for Safety Leadership

https://www.cpwr.com(foundations-safety-leadership-fsl)

5 Safety LEADERship Skills

**LEAD BY EXAMPLE:** ‘Walk the Talk.’ Make safety a core value and make sure everyone owns safety.

**ENGAGE TEAM MEMBERS:** Encourage and empower your team to identify, report, and remove hazards.

**ACTIVELY LISTEN AND PRACTICE 3-WAY COMMUNICATION:** Listen to hear what team members say. Ask them to repeat any instructions you give.

**DEVELOP TEAM MEMBERS THROUGH TEACHING, COACHING, AND FEEDBACK:** Act as a teacher and coach. Use the FIST principle: Facts, Impact, Suggestions, Timely.

**RECOGNIZE TEAM MEMBERS FOR A JOB WELL DONE:** Acknowledge your team members for going above and beyond for safety.
# Noise Hazard Scheme

<table>
<thead>
<tr>
<th>DANGER</th>
<th>EQUIPMENT</th>
<th>HPD NEEDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>Jackhammer</td>
<td>Muffs + Plugs</td>
</tr>
<tr>
<td></td>
<td>Chipper</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chainsaw</td>
<td>(At least 27 NRR)</td>
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<tr>
<td></td>
<td>Needle Scaling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Over 105 dBA)</td>
<td></td>
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<tr>
<td>ORANGE</td>
<td>Mower</td>
<td>Muffs or Plugs</td>
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<tr>
<td></td>
<td>Weedwacking Saw</td>
<td>(12 - 27 NRR)</td>
</tr>
<tr>
<td></td>
<td>(concrete, cut-off)</td>
<td></td>
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<tr>
<td></td>
<td>(90-105 dBA)</td>
<td></td>
</tr>
<tr>
<td>YELLOW</td>
<td>Lawn Mower</td>
<td>Muffs or Plugs</td>
</tr>
<tr>
<td></td>
<td>Backhoe</td>
<td>(7-12 NRR)</td>
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<tr>
<td></td>
<td>(85-90 dBA)</td>
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</table>
HearWell Training

- Noise Hazard Scheme
- Topics Required by OSHA (CFR 1910.95)
  - Effects of noise on hearing
  - The purpose, advantage, disadvantage of hearing protectors,
  - The purpose and explanation of audiometric testing
- Design Team Topics
  - Dangers of noise/dangerous decibels
  - Co-worker support for HPD use

A 30 minute, narrated video, including slides and clips from the Oregon OSHA video for at-risk construction and trade workers.

[Created Fall 2018]
HearWell Training – Learning Objectives

Hearing
- Identify the effects of noise exposure on hearing
- Recognize the benefits of good hearing
- Identify the purpose and procedures used in audiometric testing

Noise
- Recognize the levels of noise that are dangerous to hearing
- Familiarity with the noise levels of the equipment which they work with
- Identify and be willing to use methods for reducing noise exposure

Hearing Protection Devices (HPD)
- Identify the purpose of HPD and how it helps protect hearing
- Understand the NRR
- Recognize the advantages, disadvantages to different HPD
- Feel empowered to insert and care for HPD properly
- Feel confident about when to wear HPD

Hearing Safety Climate
- Recognize facts and myths of hearing and noise
- Feel empowered to have other workers wear their hearing protection (co-worker support for HPD)
HearWell Timeline

- Implement and evaluate HearWell at DOT
- Foundations for Safety Leadership training next week
- HearWell training and hazard scheme roll-out next few months
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
Refine and evaluate HearWell in other worker populations

Please let me know if you are interested in HearWell for your workplace!

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Research Projects

- Hearing Conservation and Noise
- Healthy Workplace Participatory Program
- Work Hours
- Perfluoroalkyl Substances (PFAS)
- Aging Workers (manufacturing)
- Health and Safety Committees
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Healthy Workplace Participatory Program Website:
www.uml.edu/cphnewtoolkit

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

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PLEASE COMPLETE AN EVALUATION!

Thank-you

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