

Hearing Conservation

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Introduction

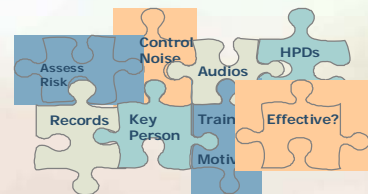
- Regulatory activity (or lack thereof)
- What's new in hearing conservation
- Your relevant backgrounds or interests?

Agenda

- Regulatory History
- Current Issues
 - STS Criteria
 - NRR
 - Recordability
- Summary

Overview

- Components of an Effective HCP
- Issues in each area continue to evolve



HC Regulatory History (military)

- Post WWII
 - Army Tech. Bulletin, Medical 195, "The Army's Audiology and Speech Correction Program for the Deafened." (1947)
 - "war deafness"
 - ©Air Force Regulation 160-3, "Precautionary Measures Against Noise Hazards" (10/21/48)

Military History

- Navy's first HC regulation (1955)
- Army's first hearing conservation document (1956)
- DoD Instruction 6055.3 (06/08/78)



US HC History

- Walsh-Healy 1969
- OSHA 1983
- NIOSH Practical Guide 1996
- MSHA 1996
- OSHA Recordable Hearing Loss 2002 (1/1/04)
- FRA (currently in rule-making)

Current Federal Noise Rules

- 29 CFR 1910.95, The Hearing Conservation Amendment
 - www.osha-slc.gov/SLTC/noisehearingconservation/index.html
- 30 CFR Parts 56 and 57, MSHA
 - www.msha.gov/1999noise/noise.htm
- 29 CFR 1926, Construction
 - www.access.gpo.gov/nara.cfr/
- 29 CFR 1904.10, The Recordkeeping Rule
 - www.osha-slc.gov/recordkeeping/index.html

However, all is not well...

- STS misses early NIHL
- HPDs used instead of controls
- NRRs
- Recordability rule's unintended consequences

OSHA STS

- 10 dB Avg. change at 2k, 3k, and 4k Hz
- Average dilutes effect of single frequency
- Can miss early NIHL

Even without age correction:

No STS !!

	.5k	1k	2k	3k	4k	6k
Annual	0	5	-5	10	20	15
Reference	0	0	0	0	0	0
Shift			-5	+10	+20	

HPDs require some attention

- Fit
- Train
- Motivate
- Monitor
- Test

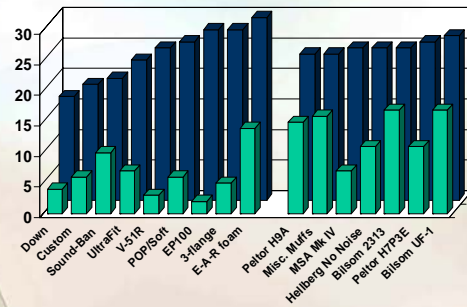


HPDs used instead of controls

- Too much dependence on HPDs is risky



Lab vs. Real World Attenuation



*Source: EarLog 20 by Elliott H. Berger, Senior Scientist, Aearo Corporation

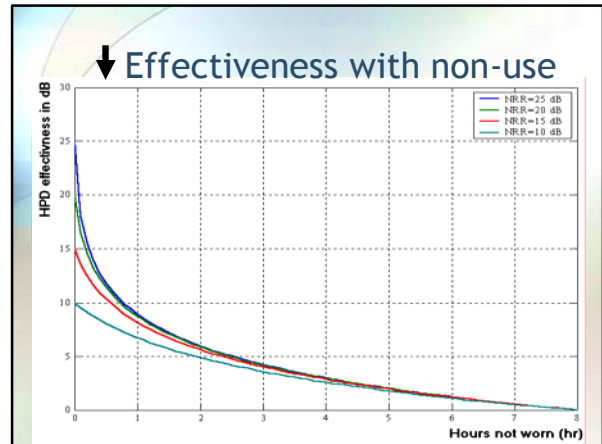
Factors of HPD selection

- COMFORT!!
- Noise Reduction
- Wearer's noise exposure and variations in noise
- User preference
- User's hearing ability and communication needs

REMEMBER...

The best hearing protector is one that is used consistently.

Even a short unprotected period increases the employees' exposure.



- ### SELECTING HPDs
- COMFORT!
 - Provide a variety of HPDs
 - Needs/requirements
 - Employee willingness to use
 - Avoid over-protection

The “right” amount of protection

Sound level resulting from the use of a protector (dBA/8hrs)	Protection outcome
85 +	Insufficient
80–85	Acceptable
75–80	Optimal or Ideal
70–75	Acceptable
Less than 70	Overprotection

Applying NRR to A-weighted SPL

NRR - 7 dB = Protection

NRR = 29 Noise level = 98 dB(A)
 29 - 7 = 22 98 - 22 = 77

Derate by 1/2 for real world values.
 29 - 7 = 22 22/2 = 11 98 - 11 = 87

- ### Recordability
- Effective Jan 1, 2004.
 - OSHA Recordable has become performance metric
 - Remove workers from HCP to avoid recordable shift

If at any step a “no”, the process ends, do not record on Form 300 as a recordable event

- Step 1: Compared to the original baseline audiogram or last audiogram showing a recordable shift in hearing, is there an STS in either ear (age adjustments allowed)? If yes, continue to step 2.
- Step 2: Is the average hearing level on the current hearing test at 2000, 3000, and 4000 Hz in the same ear greater than or equal to 25 dB HL (no age adjustments allowed)? If yes, continue to step 3.
- Step 3: Is the STS confirmed upon 30-day retest (or was a retest not conducted)? If yes, continue to step 4.
- Step 4: Has a qualified health care professional determined that the shift in hearing is work-related? If yes, continue to step 5.
- Step 5: Record the case on Form 300 within 7 days of retest (or within 37 days of test if retest not conducted).

OSHA 29 CFR 1904.10 Recordability

- Criteria STS relative to original or revised baseline IF STS results in threshold \geq 25 dB average at same frequencies/same ear
- Considerations: STS, age correction, 30-day retest, work-relatedness
- Record in 37 days of test / 7 days of retest
- Check “Hearing Loss” column (M)(5) on OSHA Form 300
- May erase/lineout if STS found not to persist
- State plans must adopt federal criteria
- www.osha.gov/recordkeeping/RKforms.html

Summary

- Challenges and Changes
- Questions
- Feedback

Web References

- www.caohc.org (Council for Accreditation in Occupational Hearing Conservation)
- www.hearingconservation.org (National Hearing conservation Association)
- www.aearo.com (E-A-R)
- www.militaryaudiology.org (Military Audiology Association)

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