Assessment of Occupational Noise Exposure Among Groundskeepers in North Carolina Public Universities

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Background

- North Carolina (NC) ranked 8th among the states with the highest employment in groundskeeping/landscaping sector (i.e., 28,900 workers) in 2014
- Groundskeepers may have increased risk to noise-induced hearing loss (NIHL) due to the performance of noisy tasks.
- Noise exposures of groundskeepers have not been studied previously.

Purpose of the Study

- To assess the occupational exposure of groundskeepers to noise 3 public universities in North Carolina (NC)
- To determine the association between noise exposure and certain variables (i.e., university, month, tool used)
- Goal: To understand the risk factors influencing the noise exposures of groundskeepers to effectively develop and implement hearing conservation programs for this work group

Methodology

- Groundskeepers were monitored for personal noise exposure during the entire work shift (8-10 hr) by wearing a noise dosimeter with 2 noise metrics (OSHA HC and NIOSH) (Fig. 1).
- Maximum sound pressure levels (SPLs) from various groundskeeping equipment were measured using a sound level meter (Fig. 2)

Results

- Overall mean OSHA TWA noise exposure = 83.0 ± 9.6 dBA (highest TWA among riding mower users)
- Overall mean NIOSH TWA noise exposure = 88.0 ± 6.7 dBA

Conclusions

- Groundskeepers working in university settings had noise exposures exceeding the OSHA action level and NIOSH REL of 85 dBA.
- The use of certain equipment (i.e., riding mower) was shown to be associated with high noise exposure levels.

Recommendations

- Participation of universities in the NIOSH Buy Quiet Program when purchasing/upgrading equipment
- Careful scheduling of the use of noisy equipment to limit exposure time and
- Consulting employees on the selection of acceptable hearing protection devices (HPDs)

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