

May 2015 Alive & Well Updates: Farmers and Safety II

Protocol of a randomized controlled trial of hearing protection interventions for farm operators. McCullagh MC, Ronis DL. 18 April 2015. *Environmental and Occupational Health* 15(1):article number 399.

Background: Hearing loss and tinnitus are prevalent in America, and noise-induced hearing loss is a leading cause of hearing loss. Noise-induced hearing loss has negative impact on quality of life, physical and emotional functioning, social life, and employment. In addition, noise-induced hearing loss results in heavy social and economic burdens on families and communities from all ethnic and socioeconomic groups. Farmers are a group that is particularly high risk for noise-induced hearing loss, and is underserved by programs designed to limit that risk. They are among the most noise-exposed group of workers, and experience the second highest prevalence of noise-induced hearing loss among all occupational categories. In agriculture, 1.5 million workers (43.3%) report exposure to hazardous noise. Although use of hearing protection devices (HPDs) would protect them from noise-induced hearing loss, use among farmers is low.

Methods/Design: The purpose of this project is to compare the effectiveness of several approaches to influencing hearing protector use. Approaches include: a) an interactive, predictors-based intervention delivered via the Internet; b) a static informational web site; and c) a mailed sampler of hearing protectors. The goals are to further develop an intervention to promote farmers' use of HPDs, and compare the effectiveness of the interventions delivered in various combinations. Participants will include 701 farmers. Sites will be affiliates of a major farmer organization. Data will be collected at baseline, 6, and 12 months. A random intercept mixed model will be used to explore the fixed effects of the three NIHL prevention interventions over time while adjusting for age and gender. This project will involve a partnership between the University of Michigan and a major farmer organization to accomplish project aims.

Discussion: Results of this study will be used to inform future research-to-practice studies to increase hearing protector use. Increased use of hearing protectors is expected to reduce rates of noise-induced hearing loss and other negative effects of high noise exposure, and improve quality of life in this high-risk and underserved group.

Farmers' Word-Day Noise Exposure. Warwick W, et al. April 2015. *Australian Journal of Rural Health* 23(2): 67-73.

Objective: This study aims to understand the extent of farmers' exposure to hazardous noise, and trial and test the ability of an on-farm noise audit report to improve awareness and preventative action towards farm based noise hazards.

Design: Visits were made to working farms where noise and dosimetry measurements undertaken. During return visits, the noise measurements were explained in a brief report. A follow-up questionnaire was implemented gathering feedback on the use or otherwise of the report.

Setting: Working farms in Western Victoria and SE Queensland including dairy, beef, wool, prime lamb and cropping.

Participants: Participants were 14 female and 37 male farm workers.

Interventions: Noise exposure assessment of daily activities through dosimetry; measurements of noisy tasks and machinery; supply and interpretation of a noise audit report.

Main outcome measures: Participants were supplied with a 'noise report' of their workplace together with an explanation of the report's meaning to farm workers.

Results: Men and women have similar at risk exposures. The average noise exposure was 1.09 Pa2h (LAeq,8h = 85.3 dB). This implies 163 000 Australian agricultural workers are at risk from hazardous noise. On-farm noise audit reports were a relevant and valuable feedback to farmers in relation to their potential noise hazards.

Conclusions: Of those measured 51%, and by extrapolation 163 000 Australian agricultural workers, have noise exposure levels greater than the recommended Australian Standard of 1.01 Pa2h (85 dB). Men and women are equally exposed. On-farm noise audit reports are an effective feedback to increase awareness and improve hearing health.

Farm and Rural Adolescents' Perspective on Hearing Conservation: Reports from a Focus Group Study. Rosemberg, MA, McCullagh MC, Nordstrom M. May-June 2015. *Noise & Health*. 17(76):134-140.

This study explored the attitudes, beliefs, and behaviors of rural and farm adolescents regarding hearing conservation strategies. This qualitative study took place at two high schools in rural Michigan. Twenty-five adolescents living and working on farms or living in rural areas participated in one of two focus groups. Interviews were audio-recorded and transcribed verbatim. Transcripts were coded and analyzed by two researchers and checked by an additional researcher to ensure reliability. Noise exposure was ubiquitous among participants, both in farm-related (e.g., equipment, livestock) and non-farm-related (e.g., music, firearms) activities. Perceived barriers to use of hearing protection devices outweighed perceived benefits, resulting in uncommon use of protection. When hearing protection was used, it was usually earmuffs or earplugs. Participants indicated a lack of training in noise hazards and protective strategies. Despite

their acknowledged risk of hearing loss, participants did not associate their use of hearing protection today with their hearing ability later in life. Categories emerging that relate to hearing protector use included: Barriers, benefits, self-efficacy, situational influences, impersonal influences, cues to action, susceptibility, and severity. Farm and rural adolescents are at risk for noise exposure and hearing loss. The findings stress the significance of work environment and adult modeling in facilitating hearing conservation behaviors. As indicated by the youths' recommendations, school-based interventions may be an effective approach to address this health concern. Intervention studies are needed to test various approaches that can effectively promote use of hearing conservation strategies among rural and farm adolescents.