

Guidelines for diagnosis of noise-induced hearing loss and their specificity

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Abstract

Objectives: A recent paper [Moore, B.C.J., Lowe, D.A., Cox, G. (2022). Guidelines for diagnosing and quantifying noise-induced hearing loss. *Trends in Hearing*, 26, 1-21] has proposed guidelines for diagnosing noise-induced hearing loss (NIHL). It is referred to here as the MLC guidelines. Our aim was to evaluate the specificity of those guidelines (i.e., freedom from false positive outcomes). **Design:** We applied the MLC guidelines to three data sets composed of adults who do not have a history of material noise exposure and therefore cannot have NIHL. **Setting:** National Health Service (NHS) ENT clinic. **Participants:** 536 patients with hearing difficulty and/or tinnitus who denied material noise exposure. Two large archival population studies of hearing were also assessed, which included 3250 participants without material noise exposure. **Main outcome measure:** False positive outcome from guidelines. **Results:** The MLC guidelines demonstrated high false positive rates overall, the magnitude depending on the noise exposure scenario and whether clinical or population samples were considered. For the procedure applicable to steady broadband noise exposure, the false positive rate averaged 56% in the population samples, compared to 31% for previous guidelines. For exposure to intense impulse sounds, the MLC guidelines take a different approach and the false positive rate was 70% in the population samples and even higher in the clinic sample. For exposure to intense tones, the MLC guidelines take yet another approach and the false positive rate reached 80%. **Conclusions:** The MLC guidelines demonstrate poorer specificity than previous guidelines. Medical experts should be aware of their poor specificity and consequential likelihood of false positive diagnoses of NIHL.

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