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[Intervention Review]

# Interventions to promote the wearing of hearing protection

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## ABSTRACT

### Background

This is an update of a Cochrane Review first published in *The Cochrane Library* in Issue 2, 2006. The original review was republished in Issue 2, 2009 with feedback incorporated.

Noise induced hearing loss can be prevented by eliminating or lowering noise exposure levels. Where the source of the noise cannot be eliminated, workers have to rely on hearing protection equipment. Several trials have been conducted to study the effectiveness of interventions to influence the wearing of hearing protection.

### Objectives

To evaluate the effectiveness of interventions to enhance the wearing of hearing protection among persons regularly exposed to high noise levels.

### Search methods

We searched the Cochrane Ear, Nose and Throat Disorders Group Trials Register; the Cochrane Central Register of Controlled Trials (CENTRAL); PubMed; EMBASE; CINAHL; Web of Science; BIOSIS Previews; Cambridge Scientific Abstracts; mRCT and additional sources for published and unpublished trials. The date of the most recent search was 4 February 2009.

### Selection criteria

We included studies if they had a randomised design, if they were among noise exposed (> 80 dB(A)) persons, if they included an intervention to promote the wearing of hearing protection (compared to another intervention or no intervention), and if the outcome measured was the amount of use of hearing protection or a proxy measure thereof.

### Data collection and analysis

Two authors selected relevant trials, assessed methodological quality and extracted data.

### Main results

Six studies, involving 3917 participants, were included.

A computer-based intervention lasting 30 minutes, tailored to the risk of an individual worker, was not found to be more effective than a video providing general information among workers, around 80% of whom already used hearing protection.

A four year school-based hearing loss prevention programme found that the intervention group was twice as likely to wear some kind of hearing protection as the control group that received baseline hearing test and two additional tests at years two and three.

We conducted two meta-analyses for the comparisons 'tailored strategy (the use of communication or other types of interventions that are specific to an individual or a group and aim to change behaviour) versus non-tailored strategy' and 'tailored strategy versus a commercial video on the use of hearing protection' to look at mean percentage use of hearing protective devices (HPDs), that showed improvement in the mean use of HPDs for the tailored group.

Tailored education showed an improvement in HPD use of 8.3% versus targeted education (6.1%).

### **Authors' conclusions**

The evidence found in this review shows that some interventions improve the mean use of hearing protection devices compared to non-intervention. Future trials should have standard outcomes and interventions to allow the combining of results in meta-analysis.

## **PLAIN LANGUAGE SUMMARY**

### **The effectiveness of interventions to promote the wearing of hearing protection to reduce exposure to noise among workers**

Hearing loss due to noise exposure in the workplace is one of the most common occupational diseases. The condition is permanent and there is no effective treatment. Where the source of the noise cannot be eliminated, however, hearing loss can be minimised by the use of hearing protection devices (e.g. earplugs or earmuffs). The effectiveness of these devices depends on the fit and quality as well as regular use by workers. This systematic review aimed to evaluate the effectiveness of interventions to influence workers to wear hearing protection to decrease their exposure to noise.

Six studies were included in the review including a total of 3917 participants. The evidence shows that tailored interventions (the use of communication or other types of interventions that are specific to an individual or a group and aim to change behaviour) improve the mean use of hearing protective devices versus non-intervention. Individually tailored education was more effective in improving HPD use compared with target education programmes which address shared worker characteristics. Long-lasting school based interventions may increase the use of hearing protection substantially, however more research is needed.