HEARING IMPAIRMENTS AND TRANSPORT

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Aim
An internet based survey was conducted on road users with hearing impairments with the purpose to examine safety and mobility aspects of travelling compared to a group of road users with normal hearing.

Background
Relatively few studies have focused on the importance of auditory information for traffic safety and mobility. However, some studies performed in a wide range of countries concluded that hearing impairment or deafness should not be an exclusion criterion for driving license, as hearing impairment/deafness cannot be considered as an increased traffic safety risk. Still, recent research indicates that hearing loss is associated with an increased risk of accident. Beyond the legal regulation there can be self-regulation due to the experience that hearing impairments contribute to a degraded feeling of safety and reduced mobility. The impact on both safety and mobility needs to be considered.

There are approximately 1.6 million people in Sweden (14 %) with a hearing loss and this is a number that is increasing. The most common category of hearing impairment is related to age (presbycusis). Longer life, better general health, sustained travel habits and a wish for independency are possible causes for the increased number of older drivers and other road users with and without hearing impairments. Furthermore, there is a rapidly growing market of advanced driver support systems in cars; parking aid, navigation systems, lane keeping systems etc. Such systems can increase both safety and mobility. However, current design of driver support systems typically is based on auditory information and may exclude drivers with hearing impairments. Thus, there is a need to investigate other sense modalities, like visual or tactile, and how to design the systems in order to conform to the users’ needs and abilities. The need for improved driver support was further confirmed in a pilot interview with hearing impaired drivers.

Current study - method
A research project was initiated at VTI (Swedish National Road and Transport Research Institute) in collaboration with Linnaeus Centre HEAD at Linköping University to investigate how auditory information or lack of information affects road user mobility and safety. One of the first actions was to launch a survey with the aim to map and describe transport habits of people with hearing impairments in Sweden. Approximately 600 members of the local branch of HRF (the Swedish Hard-of-Hearing Association) were invited to answer a web-based questionnaire with 21 questions. Furthermore, a corresponding group of (age matched) approximately 300 persons, selected from a commercial database to form a hearing control group, were asked to answer the questionnaire. The following type of questions was included in the questionnaires:

- Background – demographical data
- Travel habits
- Criteria for choice of transportation mode
- Accidents/Incidents
- The importance of hearing as an information source
- Traffic situations that are avoided
- Need of support system and requirements
Expected results

The analysis will be carried out in the autumn 2011. Audiograms will be used to form sub-groups of respondents with respect to the level of their hearing-loss.