



Title	Acceptability, Benefit, and Costs of Early Screening for Hearing Disability: A Study of Potential Screening Tests and Models
Agency	NETSCC, HTA, NIHR Evaluation and Trials Coordinating Centre Alpha House, University of Southampton Science Park, Southampton, SO16 7NS; Tel: +44 2380 595 586, Fax: +44 2380 595 639; hta@soton.ac.uk, www.hta.ac.uk
Reference	Volume 11.42. ISSN 1366-5278. www.hta.ac.uk/project/1025.asp

Aim

To assess the acceptability, benefit, and cost of early detection for adult hearing impairment.

Conclusions and results

The four main objectives were to: 1) find the prevalence of reported hearing problems in the United Kingdom (UK) population, to compare with other reported ear, nose, and throat (ENT) problems, and to assess attitudes toward screening, particularly hearing screening; to examine the extent to which the population might benefit from amplification and the factors that influence this benefit and to examine what screening techniques might be best to identify those who would benefit from amplification; to examine the extent to which benefit might be realized in the real world by providing a hearing aid; 2) examine the acceptability, benefits, and performance of differently organized screening programs; 3) examine the compliance of patients in long-term use of hearing aids after early identification and to determine the extent to which people with early identified hearing impairments have better outcomes; and 4) examine the costs and cost effectiveness of different potential screening programs.

About 12% of people aged 55 through 74 years have a hearing problem that causes moderate or severe worry, annoyance, or upset. Although 14% have a bilateral hearing impairment of at least 35 dB hearing level (HL), only 3% currently receive intervention (through use of hearing aids). The mean reported duration of hearing problems, which mainly affect the ability to hear speech in noise, is about 10 years. Over 90% of people interviewed felt that hearing screening was acceptable, especially if associated with the GP practice. Good amplification was shown to benefit about 1 in 4 of the population. In a population intervention trial, less benefit was measured with a single hearing aid than in the laboratory-based, speech-in-noise test, but a strong correlation was found between benefit from amplification and from using hearing aids. Questionnaires and audiometric screens yielded good

performance relative operating characteristic (ROC) curves with otoacoustic emissions, but speech-in-noise tests were not as good. One- and two-stage screening programs were examined in systematic and opportunistic forms. The systematic screening program was more acceptable and yielded a better response.

Recommendations

See Executive Summary link at www.hta.ac.uk/project/1025.asp.

Methods

See Executive Summary link at www.hta.ac.uk/project/1025.asp.

Further research/reviews required

1) Prospective pilot study of 2-stage hearing screen to identify bilateral 35+ dB HL hearing impairment in people aged 60 to 70 years in a primary care trust (PCT) setting using current NHS hearing aids; 2) development and trial of simple audiometric screening device (target price LOW); 3) trial of a *Hearing Direct* telemedicine alternative to a questionnaire and low-cost audiometric screen device; 4) workforce review modeling of different screening programs and their cost and financial impact.