



Title	Current Practice, Accuracy, Effectiveness and Cost Effectiveness of the School Entry Hearing Screen
Agency	NCCHTA, National Coordinating Centre for Health Technology Assessment Mailpoint 728, Boldrewood, University of Southampton, Southampton SO16 7PX, United Kingdom; Tel: +44 2380 595586, Fax: +44 2380 595639
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Aim

1) What is current practice for the school entry hearing screen (SES) in the UK? 2) What is known about the accuracy of alternative screening tests and the effectiveness of interventions? 3) What is known about costs, and what is the likely cost effectiveness of the SES?

Conclusions and results

1. a) SES is in place in most areas of the UK, b) coverage varies, but is often >90% for children in state schools, c) referral rates vary, with a median of 8%, d) the test used for the screen is the pure tone sweep test but with wide variation in implementation, e) there is no national approach to data collection, audit, and quality assurance, f) screening takes place in non-ideal conditions.

2. a) the prevalence of permanent hearing loss continues to increase through infancy, b) of the 3.47/1000 children with a permanent hearing impairment at school screen age, 1.89/1000 required identification after the newborn screen, c) introducing newborn hearing screening is likely to reduce significantly the yield of SES for permanent bilateral and unilateral hearing impairments, d) just under 20% of permanent moderate or greater bilateral, mild bilateral, and unilateral impairments, remained to be identified at school entry.

3. a) no good-quality, published, comparative trials of alternative screens or tests for school entry hearing screening were identified, b) studies of the relative accuracy of alternative tests are difficult to compare and flawed by differing referral criteria and case definitions; the pure tone sweep test appears to have high sensitivity and specificity for minimal, mild, and greater hearing impairments, better than alternative tests for which evidence was identified, c) evidence is insufficient to draw conclusions on possible harm of the screen, d) no published studies were identified on the possible effects of SES on longer term outcomes.

4. a) no good-quality, published, economic evaluations of school entry screening were identified, b) a screen based on pure tone sweep tests was associated with

higher costs and slightly higher QALYs when compared to no screen and to other screen alternatives; the incremental cost-effectiveness ratio (ICER) is around GBP 2500 per QALY gained; the range of expected costs, QALYs and net benefits indicated a considerable degree of uncertainty, c) targeted screening could be more cost effective than universal screening, d) lack of primary data and the wide limits for variables in the modeling mean that any conclusions must be considered indicative and exploratory only.

A national screening program for permanent hearing impairment at school entry meets all but 3 of the criteria for a screening program, but at least 6 criteria are not met for screening for temporary hearing impairment.

Recommendations

The lack of a good quality evidence base to drive change in this area remains a serious problem.

Methods

See Executive Summary link above.

Further research/reviews required

Evaluate an agreed national protocol to enable future comparisons; develop systems to monitor data and QA; confirm prevalence of permanent mild and unilateral hearing impairment in preschoolers; compare options to the screen; conduct prospective controlled studies of effect of the screen on longer term outcomes; characterize the distribution of detection thresholds in the school entry population.