

1. Outcome measures

In order to assess the effectiveness of interventions for patients and their communication partners, appropriate and sensitive outcome measures are required. These are helpful both in measuring an individual's progress towards desired goals and in evaluating the overall effectiveness of audiology services. Careful consideration needs to be given to which outcome measure is most fit for purpose. A measure that enquires only about pre-determined situations, for example, may not be compatible with an individual, goal-setting approach to rehabilitation. A systematic review has shown an enormous range of outcome measures (objective and subjective) have been used in hearing-related studies, and currently there is no consensus on which outcome measures are most appropriate (Granberg et al. 2014). Even for a specific measure, such as hearing aid use, there is no consensus (Perez and Edmonds 2012). The majority of outcome measures are used in the short-term (<6 weeks) and there is a paucity of studies that have used outcome measures in the long-term (e.g. 1 year or longer; Barker et al. 2014). Measuring longer term outcomes routinely would help to fill in some important shortfalls in the current evidence base.

While measures pertaining to the outcome of hearing aid fitting are perhaps the most commonly used in the UK, alternative measures might be considered when the intervention is not confined to amplification. Similarly, the majority of measures address activity limitations, such as speech perception or communication, with relatively few measuring psychosocial aspects that include identity and emotion (Heffernan et al. 2016).

Assessment of health-related quality of life (HRQoL) measures may be useful when considering the effect of hearing-related interventions on patients' overall health and well-being. Assessment of HRQoL can be measured using generic and/or disease-specific health-related quality of life (HRQoL) outcome measures. The benefit of generic-HRQoL measures (e.g. EQ-5D, Short Form-36) is that they allow for comparison across different health conditions, populations and interventions, which can be used subsequently to assess relative cost-effectiveness across different health conditions and interventions. The disadvantage of generic-HRQoL measures is that they are generally not sensitive to hearing-related populations and interventions. Those measures that have a hearing or communication domain (WHO-Disability Assessment Schedule II, Health Utilities Index Mk-3) are more sensitive than those that do not mention hearing (e.g. EQ-5D, SF-36; Barton et al. 2005; Chisolm et al. 2007; Davis et al. 2007). Disease-specific outcome measures are designed to measure the effectiveness of both the specific intervention (e.g. hearing aid) in a specific population (e.g. adults with mild to moderate hearing loss). The advantage of hearing-specific measures is that they

are more sensitive and subsequently show greater effect sizes (see Chisolm et al. 2007). In terms of selecting outcome measures for use in clinic, it is important that outcome measures tap into individual needs, and are sensitive and appropriate to the intended mechanism of benefit (Ferguson and Henshaw. 2015). See Appendix B for examples of outcome measures.

There is an increasing need to demonstrate the clinical and cost-effectiveness of hearing services against a backdrop of cuts to audiological services. Commissioners are looking for outcomes that provide evidence of efficiency and value for money, thus there is an imperative to provide relevant evidence. The framework for clinical commissioning groups (NHS England 2016) includes standard clinical patient reported outcome measures (PROMS e.g. Glasgow Hearing Aid Benefit Profile) and patient reported experience outcomes (PREMS e.g. satisfaction with service), as well as measures of how hearing rehabilitation has an impact across the lifespan (e.g. reducing loneliness, increasing social function and reducing risks of dementia, frailty and falls). The use and analysis of PROMS needs to be robust to avoid providing a false picture of patient outcomes and value for money. Just as important as the type of PROM tool that is used is i) how the tool is used, and ii) how outcomes are analysed/reported for cohorts of patients. In order to judge comparative performance of service provision it is important that robust (objective) benchmarking is conducted to ensure like-for-like comparison. As a guide, such processes should be at least as well defined as use of outcome measurement tools reported in research studies. The BSA will be providing further guidance based on these important principles to help ensure optimum use of outcome measurement in clinical practice and their use to guide commissioning of effective Audiological Rehabilitation services.

A future Cochrane review will assess high-quality evidence for the clinical effectiveness of hearing aids for mild-moderate hearing loss in adults (see Ferguson et al. 2015b, for protocol). Both clinical and cost-effectiveness of management of hearing loss will be considered in the future recommendations of the National Institute for Health and Care Excellence (NICE) guidelines for hearing loss (adult presentation) (NICE 2016).