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# **Indications for Bone Anchored Hearing Aid: Position Paper ENT UK 2010**

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## **Indications for Bone Anchored hearing Aids: Position Paper ENT UK 2010**

Conventional Hearing Aids fit into the ear canal and deliver amplified sound to the ear drum. For most causes of deafness, such as old age, this method works well. However, it may be impossible to use a traditional aid. Until fairly recently, the only alternative was the Bone Conducting Hearing Aid. These deliver vibrations to the skull by a box held against the side of the head by a tight and highly visible head band. Patients hate the headache and embarrassment of bone conductors. They slip off easily, and are poor amplifiers with considerable sound distortion.

The problems of the traditional bone conductor were overcome with the development of the Bone Anchored Hearing Aids (BAHA), developed in the 1980s. Based on the observation that titanium implanted into bone will form a rigid union, a titanium screw is fitted to the skull under local anaesthesia and six weeks later a small detachable vibrator is clicked onto the head of the stud. There is no headband, no slipping and good evidence of superior sound transmission, with less discomfort. 800 BAHAs a year are fitted in the UK in 45 centers (HES data 2008/2009).

### **Traditional Indications for Bone Conducting Hearing Aids.**

1. Chronically discharging middle ears. plus or minus a mastoid cavity because
  - Discharge may block the hearing aid and render it ineffective.
  - Occlusion of the ear canal by the hearing aid may itself cause discharge.It may also be impossible to fit a hearing aid properly where there is a mastoid cavity
2. Otitis externa (dermatitis of the ear canal). The mould of a conventional aid exacerbates the skin irritation, with pain and weeping discharge. Additionally, there may be contact allergy to the mould itself.
2. Atresia (incomplete development) of the external ear. A small number of children are born with failure of development of the ear canal but with normal inner ear hearing capability. This deformity is associated with a severe conductive hearing loss and serious educational handicap. Surgery to correct the deformity is difficult and frequently unsuccessful. Conventional hearing aids cannot be fitted to a child with no proper ear canal. Children refuse to wear a bone conductor box tied to the head with a plastic headband, for obvious reasons. The BAHA has transformed the life and educational prospects for these children.

**Because of the benefits of Bone Anchored Hearing Aids over conventional Bone Conduction Hearing aids, the BAHA has replaced the conventional Bone Conduction Aid in clinical practice.**

Use of Bone Anchored Hearing Aids to restore binaural hearing (i.e. hearing in both ears).

1. Single sided deafness. The assumption that one good ear is enough is no longer acceptable. Binaural hearing is necessary for speech discrimination in background noise and for accurate localization of sound. There is now good evidence that a BAHA mounted on the side of a profound or total hearing loss (for example after removal of inner ear tumours) will stimulate the opposite, normal inner ear, with considerable improvement in speech discrimination in noise and in sound localization. Studies in children demonstrate significant improvement both the Hearing in Noise Test (HINT) and the Children's Home Inventory for Listening Difficulties (CHILD). Comparable benefits have been demonstrated in adults fitted with a BAHA following cerebellopontine angle tumour surgery using the Abbreviated Profile of Hearing Aid Benefit.
2. Bilateral BAHA. There is now increasing evidence of additional benefit from BAHAs to both ears rather than just one ear, for people both of whose ears are affected by conductive or mixed deafness. It has been shown in children that this results in bilateral signal processing which enhances language development. When bilateral BAHAs are compared with single side BAHA, using the Glasgow Benefit Inventory patient report measure, there are improvements in "overall benefit," "general health benefit," "physical health benefit," and "social benefit".

**BAHA under threat**

Despite the excellent patient experience of the technology, some purchasing authorities have attempted to label BAHAs as being of 'limited clinical value'. ENTUK accepts that funds are limited, but wishes to remind commissioners and purchasers that the 800 BAHA procedures carried out in the UK annually are all in individuals who have undergone rigorous audiological pre-selection process. In such carefully selected patients, the BAHA is a very valuable intervention with demonstrable physical, social and educational benefits

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