

Whitney U-test) compared with the previous generation implant.

**Conclusion:** Loading of the implant system 1 week after surgery has been successful for 25 patients with normal bone quality followed up for one year. No implants were lost. All individual ISQ were increasing throughout the study period, although some showed an initial ISQ dip. Soft tissue reactions around the hydroxyapatite coated abutment were generally mild and tolerable but elevated in the first month of follow-up compared with the previous generation implant.

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## Free Papers (F742)

### ID: 742.5

#### A Review of Paediatric Bone Anchored Hearing Aid (BAHA) use in Chronic Otitis Media (COM)

Presenting Author: **Nicholas Dawe**

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**Learning Objectives:** BAHA placement in paediatric cohorts with COM is a viable option following trial of soft band device. Medium and longer-term concordance with the device demonstrates tolerance and acceptability in carefully selected paediatric patients.

**Introduction:** Bone anchored hearing aids (BAHA) are an accepted treatment alternative for patients with hearing loss associated with chronic otitis media (COM). Reports of BAHA use and outcomes in paediatric cohorts, with conductive or mixed hearing loss, in the context of COM, are limited. We present long-term follow-up data for paediatric patients undergoing BAHA at a large tertiary referral centre.

**Methods:** Retrospective case series.

Cases identified from a prospectively maintained database of paediatric cases (under 18 years at first fitting), performed over a 10-year period (2003–2013).

**Results:** 180 consecutive paediatric surgical cases were reviewed. 16 patients were identified as having undergone BAHA placement for COM hearing rehabilitation. 69% were female, and one had associated Down's syndrome. Median age was 14 years (mean 12.7 years) and ranged from 4 to 17 years old at first fitting.

43.8% of placements were bilateral. Median duration of follow-up was 64 months (range 19–150 months). One patient requested removal of bilateral abutments at seventeen months follow-up. The remaining cases were continuing to use their implant regularly in

the medium to longer-term. There were no adverse surgical outcomes.

**Conclusions:** In this unselected case series, the use of BAHA in patients with COM has been demonstrated to be safe, well-tolerated and reliable method of hearing rehabilitation demonstrated by patient concordance at medium to longer-term follow-up.

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## Free Papers (F742)

### ID: 742.6

#### Management of Chronic Otitis Media for Cochlear Implantation and Other Implantable Devices.

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**Learning Objectives:**

The presence of Chronic Otitis media presents a significant management challenge in patients who are candidates for, or who have, a Cochlear Implant or other Implantable Hearing device. Permanent eradication of middle ear disease, including cholesteatoma and infection, is required together with reconstruction to provide robust cover of the implanted device or secure separation from the external environment. This can be achieved with either staged or primary surgery depending on the nature and extent of the chronic otitis media. Procedures include: routine Tympanoplasty with or without Intact Canal Wall Mastoidectomy; Blind Sac Closure of the external auditory canal with removal of all squamous epithelium from the canal, tympanic membrane and middle ear cleft, with or without obliteration of the mastoid or plugging of the Eustachian tube.

This paper presents an algorithm for the management of such cases based on the Melbourne Cochlear Implant Clinic experience and provides an overview of the aims and surgical techniques utilized in patients with Chronic Otitis Media for the eradication disease and creation of safe stable ears with Cochlear Implants and various other implantable devices.

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## Classification of Cholesteatoma (N743)

### ID: 743.1

#### The ChOLE-Classification. A proposal from the Swiss Otology Committee

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**Learning Objectives:** Competing surgical techniques and new modes of ossiculoplasties necessitate the uniform classification of cholesteatomas worldwide. We present a ChOLE staging system based on the extension, ossicular chain involvement, complications and pneumatization & ventilation of the temporal bone.

Competing surgical techniques and new modes of ossiculoplasties necessitate the uniform classification of cholesteatomas worldwide. Whereas the pathogenesis remains a topic of debate, the extent of middle ear & temporal bone cholesteatomas should be determined and the involvement of the ossicular chain verified. Intra- and extracranial complications are rare in well-developed countries, but challenge surgeons in more remote areas. The extent of pneumatization and ventilation of the temporal bone implicating the function of the Eustachian tube are frequently discussed, but have never been thoroughly addressed. Our ChOLE-Classification condenses Ch for cholesteatoma extension, O for ossicular chain status, L for Life threatening complications and E for Eustachian tube function. We present our experience with a retrospective review of 100 consecutive patients and a 9.5 years follow-up.

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### Classification of Cholesteatoma (N743)

**ID: 743.2**

#### First Experience with the ChOLE Classification in Combination with a QoL questionnaire

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**Learning Objectives:** A questionnaire to assess HRQoL concerning the ear was developed and compared to the score of a new classification system for cholesteatoma.

**Introduction:** In otology, surgical outcome is most often assessed by reporting postoperative hearing thresholds. Subjective complaints are not always and systematically reported, although several patient-reported outcome measure exist for chronic otitis media. However they lack certain relevant symptoms concerning the ear a health-related quality of life (HRQoL).

**Methods:** A new questionnaire for comprehensively measuring HRQoL was developed and an electronic application was chosen to facilitate and accelerate data analysis. In a first step, it was tested in a cohort (n = 85) and the number of questions was reduced from 33 to 21 using sequential statistical analysis. Then the adjusted questionnaire was validated in a second cohort (n = 76). Finally, the validated questionnaire was tested in a cohort of patients with Otitis media cholesteatomatosa preoperatively and up to 3 months postoperatively

to compare HRQoL to characteristics of the cholesteatoma defined by a newly developed classification of cholesteatoma (ChOLE).

**Results:** Statistical analysis allowed a reduction of questions from 33 to 21. Validation revealed a Cronbach's  $\alpha$  of 0.91, indicating excellent internal consistency. Moreover, the questionnaire was able to discriminate between patients with chronic otitis media and healthy participants ( $p < 0.0001$ ), thus possessing good discrimination validity. Finally, first experience comparing HRQoL assessed by the questionnaire with stage of disease defined by the ChOLE classification showed good correlation.

**Conclusions:** Sufficient information on reliability and validity of the questionnaire was obtained. It can be applied to quantify HRQoL in patients with cholesteatoma and shows good correlations to the ChOLE classification.

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### Chronic Ear Diseases in developing world (R744)

**ID: 744.1**

#### Developing Complex Ear Surgery in Malawi

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**Learning Objectives:** To understand the challenges and difficulties in developing an otology service in one of the world's poorest countries. To reflect on the help that can be provided from more developed countries.

Malawi is one of the world's poorest and least developed countries. It has a population of 16 million, with over half living below the poverty line. Life expectancy is little over 50 years with 1 in 8 children dying before the age of five. The main health burden in Malawi is HIV (10% of the population are HIV positive) along with tuberculosis and malaria, which together account for 40% of hospital deaths.

The rate of chronic ear disease is unknown due to lack of trained clinicians and difficulties in diagnosis however the population is twice as likely as those in Europe to be born with, or develop, hearing loss. Untreated ear disease is one of the causes of such loss.

The co-author is one of only two ENT surgeons in the whole country and the presenting author visited Malawi as part of a sabbatical in 2013. It was evident during this visit that whilst the infrastructure was being slowly developed there was a complete lack of expertise and equipment to carry out any complex otological surgery. With the support of various charitable organisations and associated industry the visit subsequently led to four cochlear implants being successfully implanted on 2 separate visits to Malawi.

Due to these developments the facilities are now such that future plans are in place to carry out regular weeks of otological surgery alongside developing a CI programme. These weeks will facilitate the short term aim of training Malawian (non-medical) clinical officers in