

**Introduction:** A preliminary study that attempts to separate the effects of ethnicity from deprivation using the surgical intervention rates for some otological conditions, particularly cholesteatoma. Indigenous populations have a greater incidence of chronic ear conditions, however it is difficult to separate deprivation and ethnicity as factors. New Zealand's official bicultural society gives an opportunity to study this. An identification of either ethnicity or deprivation as a major factor is important as it enables more effective targeting of health resources.

**Methods:** Surgical intervention data from the six Central North Island District Health Boards (DHB) was examined for the interventions of myringotomy with or without grommets; myringoplasty; cholesteatoma related surgery, also the patient demographic profile, including ethnicity and addresses. NZDep2013 is a deprivation index of 1–10 (1-least deprived), assigned to small local areas. Cross tabulation of the data enables preliminary analysis of four ethnic groups and 10 levels of deprivation within the three surgical interventions.

**Results:** Preliminary data extract: Myringotomy/grommet interventions increase substantially with deprivation score (9.2 to 17.7 per 1000 population; decile 1–10 respectively) although Maori have more than double the intervention rate per deprivation decile. Maori and Pacific Islanders have similar cholesteatoma intervention rates (12–16 per 10,000) which is again more than double that of New Zealand Europeans. This pattern is consistent across the parameters described.

**Conclusions:** Consistent results have been obtained suggesting that ethnicity and deprivation are separate factors that increase the surgical intervention rates for grommet insertion, myringoplasty and cholesteatoma surgery.

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## Free Papers (F664)

**ID: 664.3**

### Bone Conduction Implants in Pediatric Cholesteatoma Management

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*Learning Objectives:*

**Introduction:** The use of bone conduction hearing implants (BCI) to management hearing loss in children with cholesteatoma/CSOM has not been well studied. In particular, can the use of a BCI alter the surgical approach to cholesteatoma and result in better disease management? Are BCI-related complications in patients with cholesteatoma different than patients without cholesteatoma?

**Methods:** Following IRB approval, a 12 year retrospective chart review of our BCI population at a tertiary academic children's hospital was performed.

**Results:** 45 subjects were identified with mean age at implantation of 8.2 years (range 1.7 to 19.1 years). All subjects had a device implanted with a percutaneous abutment. In 8 subjects, a BCI was placed in conjunction with surgery for cholesteatoma or chronic suppurative OM.

In total, 58 BCI-related complications occurred in 29 subjects. The majority of the complications were related to skin infection or overgrowth: 18 events required oral antibiotic and/or office-based cauterization and 17 events required revision surgery (43% percent of patients). In the subjects with cholesteatoma, the mean age at implantation was 9 years (range 5–19 years). All 8 subjects with cholesteatoma were also syndromic (Down and Crouzon Syndrome). There was no difference in the complication rate found in subjects with or without cholesteatoma. The use of a BCI permitted alteration of the ear procedure (EAC closure or thick cartilage grafting) that resulted in dry/stable ears in all 8 subjects.

**Conclusions:** Children with recurrent cholesteatoma/CSOM and unfavorable clinical factors (syndromic) can benefit use of a BCI which then permits use of surgical procedures to better control their underlying ear disease. No postoperative complications occurred related to their ear disease and the rate of BCI-related complications was no different then in children without cholesteatoma.

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## Free Papers (F664)

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### The Vibrant Soundbridge middle ear implant in radical cavities

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*Learning Objectives:*

**Introduction:** Hearing results obtained after tympanoplasty surgeries in patients after radical operations are not always satisfactory. In these patients with chronic otitis media after radical operations and lack of the ossicles, hearing improvement may be achieved with stimulation of the round or oval windows using Vibrant Soundbridge MEI.

**Aim:** The objective of the study was to analyze hearing results obtained after surgical application of Vibrant Soundbridge in treatment of hearing impaired patients with chronic inflammation of the middle ear, especially after radical modified operations.

**Material and Methods:** The selected group of patients were adults with chronic inflammation of the middle ear, after radical modified operations with destruction of the elements of the middle ear - tympanic membrane and ossicles. Patients presented conductive or mixed type of hearing impairment. In these patients Vibrant Soundbridge was used as the method of

hearing improvement. Surgical approach included FMT placement in the direct proximity of the round window membrane. We discussed the indications, contraindications and limitations of use of Vibrant Soundbridge in this group of patients.

*Results and conclusions:* Direct stimulation of the round window is an alternative method of treatment in selected group of patients with hearing impairment and mild to severe destruction of the middle ear elements. In all cases subjective hearing improvement was noticed and confirmed in audiological tests. The benefits of Vibrant Soundbridge use are significant.

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### Free Papers (F664)

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#### **Cholesteatoma and Retraction pockets in Cochlear Implantation and their Management**

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*Learning Objectives:* Management of cholesteatoma in auditory implants Management of retraction pocket disease in auditory implants.

*Introduction:* Cholesteatoma is a rare condition. In the presence of an auditory implant, the principal concern is damage to the internal device either through the disease process or through surgery to remove the disease.

*Methods:* A retrospective analysis was performed all implant recipients at the Richard Ramsden Centre for Auditory Implants and the management of patients with a retraction pocket or cholesteatoma was reviewed.

*Results:* Five patients with cochlear implants were identified with cholesteatoma – one adult and four paediatric patients. Four presented with otorrhoea and wound breakdown, one was an incidental finding of congenital cholesteatoma at time of implantation. Two patients required device replacement, one was removed without reimplantation. Cholesteatoma was managed by canal wall down mastoidectomy and blind sac closure.

Five patients were identified with retraction pockets – two adults, one adolescent, two paediatric patients. Two presented with recurrent otorrhoea and were managed with cartilage tympanoplasty to cover exposed electrodes. Two presented with imbalance and one was noted as an incidental finding. These three patients were managed conservatively with recurrent microsuction in the outpatient clinic. None of these patients required removal of reimplantation of their device.

*Conclusions:* Device failure or damage is common in cholesteatoma either as a result of disease itself or surgery. Reimplantation should occur at time of electrode explantation where possible to prevent obliteration of the cochlear duct. Cochlear implants in retraction pockets generally do not result in device failure and require surgical intervention only if symptoms dictate.

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### Free Papers (F664)

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#### **VORP 503 in mixed hearing loss and radical cavities**

Presenting Author: **Torsten Mewes**

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*Learning Objectives:* Vibrant Soundbridge VORP 503, Round Window Soft Coupler, radical cavities.

The Vibrant Soundbridge VORP 503 is an active middle implant, which could be coupled at the ossicle chain or directly onto the round window membrane. The Round Window Soft (RWS)-Coupler is a silicone coupler and connects the Floating mass transducer to the round window membrane without any interposition of artificial fascia. The VORP 503 is now simply fixed at the bone with two screws.

We present the results of patients with radical cavities, which had several tympanoplasties for hearing restoration in the past. All of them were implanted with a VORP 503 using a RWS-Coupler.

The postoperative audiological tests showed good results by aided pure tone audiogram, monosyllabic speech test and sentence test in noise. The VORP 503 and RWS-Coupler made coupling to round window membrane easier and more precise. The results are better comparable between different surgeons.

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### Mastoid reconstruction (R666)

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#### **Mastoid reconstruction using autologous materials**

Presenting Author: **Joe Kutz**

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*Learning Objectives:* Mastoid defects are commonly found during surgery for chronic otitis media, temporal bone tumors, or trauma. Without repairing defects of the external auditory canal or scutum, cholesteatoma or chronic infection may develop. Encephaloceles can occur if tegmen defects are not adequately repaired. Autologous materials can be used to repair these defects with the benefit of less tissue reaction, availability of tissue, and less cost. Cartilage with or