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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

Presenting Author: **David Strachan**

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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

the diagnosis and treatment of ear disease as well as the longer term aim to identify and train a Malawian otologist. The project has also raised awareness of deafness in Malawi and has highlighted the significant public health issues relating to the aetiology of ear disease and deafness in 3<sup>rd</sup> world countries.

As well as addressing the practical and ethical issues relating to the project the presentation will outline future plans in developing both implant and otological surgery in Malawi and southern Africa.

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## Chronic Ear Diseases in developing world (R744)

**ID: 744.2**

### What do we know about the burden of cholesteatoma in the developing world and what strategies could help

Presenting Author: **Michael Smith**

Michael Smith

*International Nepal Fellowship*

*Learning Objectives:* Understanding the burden of cholesteatoma in the developing world. Consideration of optimum management strategies in resource poor settings.

Chronic Otitis Media and its effects include hearing loss, reduced Quality of Life (QoL) and life threatening complications. These are major public health problems in developing countries. Many reviews include data from small or old studies and make generalisations that may now be inaccurate. The prevalence of cholesteatoma in most developing countries is unclear. It appears to be less frequent in some populations such as parts of Africa and S America, but much commoner in others such as SE Asia. Understanding of Otitis Media and COM has taken major steps forward in recent years. Risk factors and causes are generally agreed, but those specifically for cholesteatoma are less clear, in a developing country context. Some factors are amenable to targeted public health and primary care interventions and some countries have seen reducing incidence of COM and its complications. Prevalence studies of COM rarely distinguish between types of COM such as mucosal central perforations and cholesteatoma. Often the skills and materials required for diagnosis are lacking in under resourced health systems. Most agree that the treatment of cholesteatoma requires surgery. The complications of cholesteatomatous COM are usually considered more severe than mucosal COM. Both can be life threatening and many cases of 'safe' COM can also benefit from surgery. In poor resource settings with few specialists, how can patients be identified and surgery delivered? Do out reach camps play a useful part? Extensive disease is common and late stage, often worse than commonly seen by specialists from developed centres. What forms of surgery are most cost effective and safe to teach? Can developed nations partner in the development and training of local specialists?

After over 30 years experience in such settings, principally in Nepal I hope to open up some of these questions.

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## Chronic Ear Diseases in developing world (R744)

**ID: 744.3**

### The impact of chronic otitis media on quality of life

Presenting Author: **Robin Youngs**

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*Learning Objectives:* To present quality of life issues in chronic otitis media, including the impact of corrective surgery. This study focuses in chronic otitis media in a developing world setting.

Hearing impairment is a significant burden in the developing world. However, no suitable quality of life (QoL) measures exist for use in Nepal. We aimed to amend and translate the Glasgow Health Status Inventory (GHSI), assessing QoL at any given time, and the Glasgow Benefit Inventory (GBI), assessing change in QoL following intervention, into Nepali and to assess the impact of ear disease and effect of surgery on QoL.

The GHSI and GBI were translated into Nepali and independently verified. The GHSI was administered by interview to patients before surgery, and the GBI was administered 6 months after surgery. The Mann–Whitney U-test was used for hypothesis testing.

The GHSI was administered to 242 patients. In total, 205 had chronic suppurative otitis media (CSOM) without cholesteatoma and 37 had cholesteatoma. The mean GHSI score was 47.9.

There was no significant difference in GHSI scores between patients with CSOM without cholesteatoma and those with cholesteatoma. The GBI was administered to 161 patients, 73 of whom had also been in the GHSI group. In total, 130 had CSOM without cholesteatoma, 31 had cholesteatoma. The mean GBI score was + 38.4 with no significant difference between disease groups.

*Conclusions:* Ear disease in Nepal is associated with reduced QoL, and surgical intervention is associated with improved QoL. There is no difference in QoL or benefit following surgery for CSOM between patients with or without cholesteatoma. There are few QoL measures suitable for the developing world. It is essential to invest in these measures to guide health interventions.

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## Chronic Ear Diseases in developing world (R744)

**ID: 744.4**

### Chronic Ear Diseases in The Developing World

Presenting Author: **Mohan Kameswaran**