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**Free Papers (F672)****ID: 672.5****Rehabilitation of unilateral hearing loss in children**Presenting Author: **Rainer Beck**Rainer Beck, Antje Aschendorff, Roland Laszig,  
Susan Arndt*University Freiburg Medical Center*

*Learning Objectives:* - Understanding the importance of binaural hearing – Balancing risk and chances of hearing aids/ other supportive technology vs. hearing prosthesis - Involvement of the family and non-medical professions for optimal results

*Introduction:* Unilateral hearing impairment in children may be the result of several different etiologies including cochlear nerve aplasia, loss of cochlear function and dysplasia of the middle ear or the outer ear canal. All children usually exhibit regular speech development patterns and show unremarkable clinical symptoms or none at all during early development. Nevertheless, the question of hearing rehabilitation needs to be answered in the face of the clinical complex.

*Methods:* Different strategies of hearing rehabilitation ranging from cochlear implant, conventional hearing aids, implantable hearing aids and supportive measures like FM-transceivers or CROS will be discussed case by case.

*Results:* As the major factor in child development is signal-to-noise-ratio (SNR), emphasis must be put on true binaural rehabilitation. Addressability out of the direction of the hearing impairment is a secondary problem and has to be weighed carefully against a decrease of SNR resulting from unwanted transmission of noise. This may be one of the reasons why children usually don't go for CROS-systems in the first place. Trans- and epidermal BAHs as well as active implants provide solutions with diverse invasivity and handling – all surpassing a soft-band approach. CI may yield benefits for children with sensorineural hearing loss. Low SNR can be ameliorated in defined circumstances (i.e. educational) by using FM-transceivers.

*Conclusions:* Binaural rehabilitation is preferred to unilateral or pseudo-binaural hearing - mostly as a consequence of the increase in SNR. Family and the surrounding infrastructure have to be counseled extensively, as the benefit of the hearing system may not be apparent in a young child.

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**Free Papers (F672)****ID: 672.6****Imaging of children with unilateral sensorineural hearing loss**Presenting Author: **Eveline Ban Beeck Calkoen**  
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*Learning Objectives:* CT and MR imaging are complementary imaging options. Simultaneous dual modality imaging has no additional diagnostic value over sequential diagnostics. We therefore propose a stepwise radiological workup.

*Introduction:* To evaluate the clinically relevant abnormalities as visualized on CT and MR imaging in children with unilateral sensorineural hearing loss (USNHL), and the association with age and severity of hearing loss.

*Methods:* From January 2006 until January 2016, a total of 102 children diagnosed with USNHL were included in this study. They underwent CT and/or MR imaging for the evaluation of the etiology of their hearing loss.

*Results:* Causative abnormalities were identified in 49% of the children with USNHL. Overall, deformities of the labyrinth were the most prevalent abnormality (30%), predominantly identified by CT (20%). MR imaging outperformed CT regarding abnormalities of the cochlear nerve (7 vs. 2 %) and the brain (7 vs. 0 %). In cases where both imaging modalities were performed, concordant CT and MR imaging findings were found in 75 %. No differences in the number and type of abnormalities were found in the different grades of hearing loss or age categories.

*Conclusion:* Imaging is essential in the etiologic diagnosis of USNHL because of the high prevalence of causative abnormalities that can be identified, irrespective of the patients' age or degree of hearing loss.

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**Free Papers (F672)****ID: 672.7****Combined behavioural and soundball therapy outcomes in the management of hyperacusis in children**Presenting Author: **Ida Amir**Ida Amir<sup>1</sup>, Dawn Lamerton<sup>2</sup>, Mary-Louise Montague<sup>2</sup>  
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*Learning Objectives:* To understand the factors associated with hyperacusis in children and to identify current management strategies and their outcomes.

*Introduction:* The current evidence on the benefit from counselling and sound therapy approaches in the management of children with hyperacusis remains poor.

*Methods:* Retrospective cohort study conducted by case note review over a 5 year period (March 2010-March 2015) in a Paediatric ENT/Audiology service.

*Results:* 412 children were referred with hyperacusis during the study period. All children were assessed and managed within a dedicated Paediatric hyperacusis clinic by a senior Paediatric Audiologist. Median age at referral was 7 years. 76% were boys. Hearing was normal in the majority of children (n = 407, 98.8%). Of the 5 children with hearing