



OUTCOME OF THE 2nd COCHLEAR IMPLANT IN SEQUENTIALLY IMPLANTED BILATERAL COCHELAR IMPLANT USERS

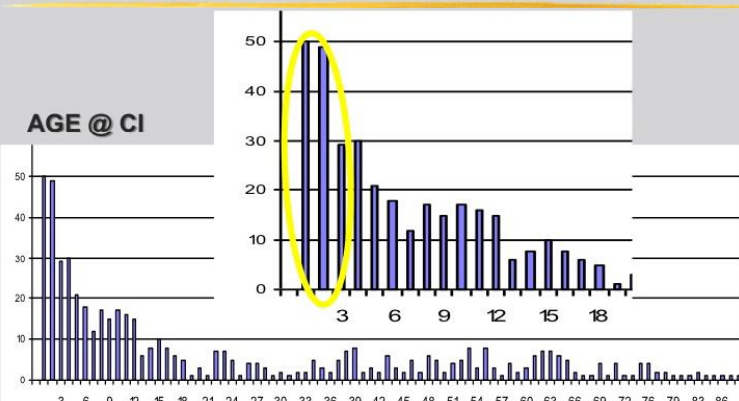
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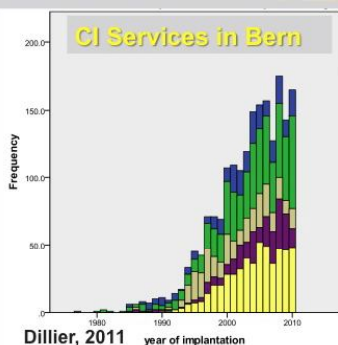
STEN HARRIS SYMPOSIUM
 Oslo, August 24th 2012



AGE @ CI: MAJORITY <4 YEARS



CI SERVICES BERN 1991 - 2012



551 Cochlear Implants
 148 Bilateral implanted CI users
 62 adults and adolescents
 86 children



DEDICATION

STEN HARRIS
 1942 – 2008

great colleague
 dear friend
 fine surgeon
 excellent leader



BILATERAL CI APPROVED INDICATIONS 1

- The board of Audiology and Experts for hearing aids → Swiss Federal Office of Social security, **Nov 2003**
- bilateral profound congenital deafness
 - prelingually acquired deafness
 - no adequate reaction on auditory stimulation in best aided condition
 - suitable anatomical and surgical conditions in both ears
 - physical & psychological condition to benefit from two CI
 - likelihood to develop open speech perception



BILATERAL CI: APPROVED INDICATIONS 2

Comment

- Surgery is suitable as a one stage procedure, especially in meningitic deafness
- second implantation should be within one year, no later than 10 years after 1st CI
- Bilateral CI in **postlingually** deafened children and adults may be indicated, if subjects with only one CI cannot make use of spoken language **sufficiently** and therefore integration in their professional life is jeopardized.



METHODS: OUTCOME OF THE 2nd CI IN BILATERAL CI LISTENERS

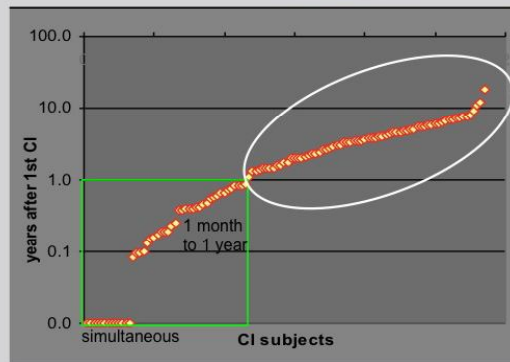
- Retrospective study: bilateral CI users implanted sequentially with 2nd CI between 2000 and 2010
- Included are 16 children (age <11), 17 adolescents (age 11-19) and 20 adults with at least 2 data sets on speech audiometry.
- speech perception scores were measured in German or French with multisyllabic numbers and monosyllabic words @ 60 and 80 dB.



This study is focused on speech perception scores obtained with the 2nd CI alone



Δ (years) @ 2nd CI



- Large sample of late implantees with 2nd CI
- Many subjects received their 2nd CI simultaneously or in between 12 months
- A closer look at the late recipients of the 2nd CI is an important aspect for counseling in programs where the option of a 2nd CI will become available.



METHODS: SEQUENTIAL BILATERAL CI 1

SHORT TIME INTERVALL between 1st and 2nd CI

- Congenital profound deafness, LIMITED benefit of amplification where the hearing aid will be continuously used at first – 2nd CI as soon as fitting is accomplished and „hearing“ with the 1st CI exceeds amplified hearing with hearing aid
- Congenital profound deafness in patients where simultaneous bilateral surgery was not suitable for reasons as time limit in infants, OM with effusion, ossified basal turn



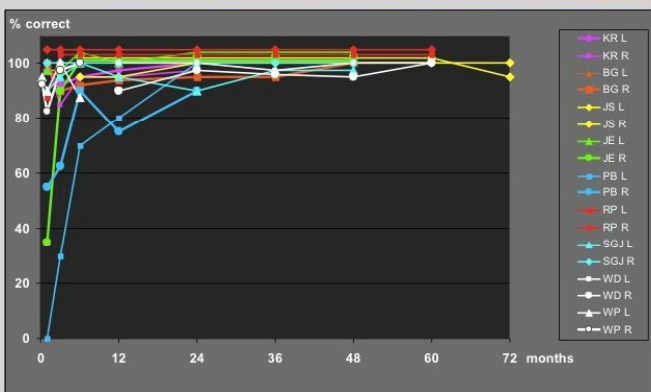
METHODS: SEQUENTIAL BILATERAL CI 2

LONG TIME INTERVALL between 1st and 2nd CI

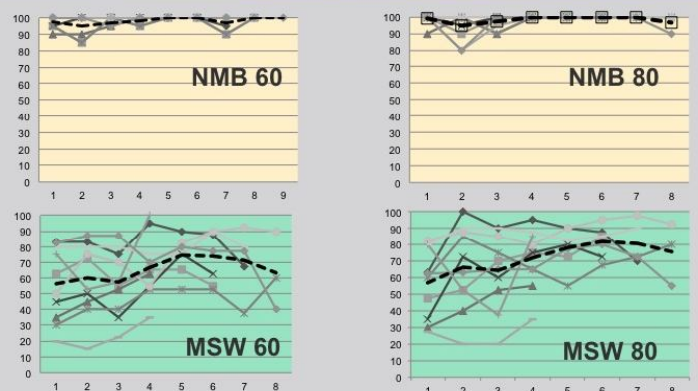
- Children, adolescents, adults: where 2nd CI was earlier not available, high motivation to follow rigorous rehabilitation.
- Congenital profound deafness, USEFULL LIMITED BENEFIT of amplification where hearing aid was continuously used → 2nd CI when hearing aid ear drops below useful hearing ... individual decision in every case



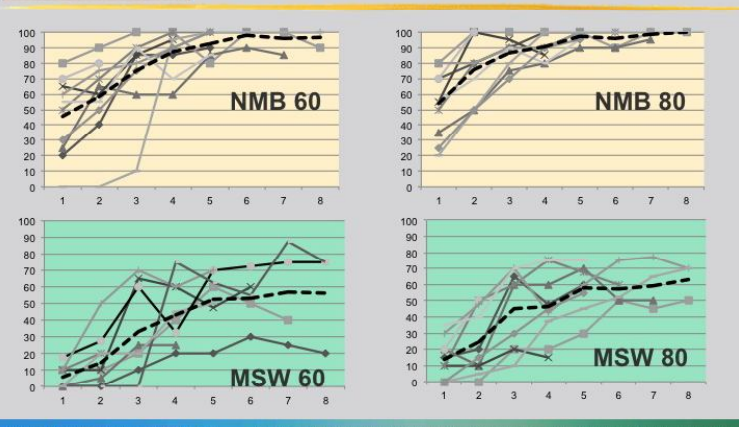
RESULTS: MULTISYLLAB NUMBERS, ADULTS, 1ST AND 2ND CI



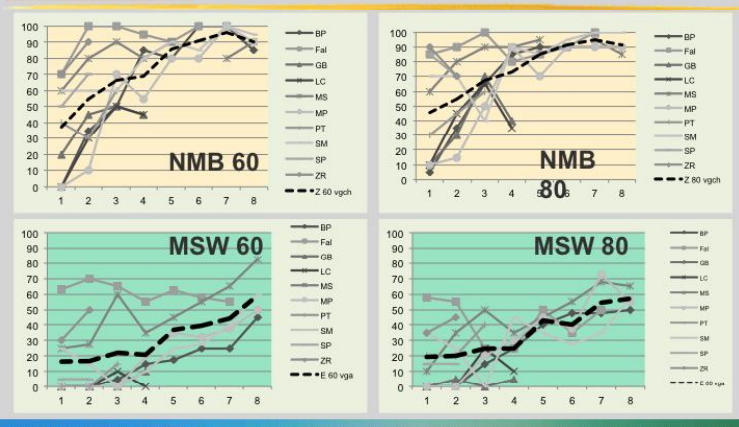
RESULTS: NUMBERS AND WORDS 10 ADULTS, 2ND CI: VERY GOOD



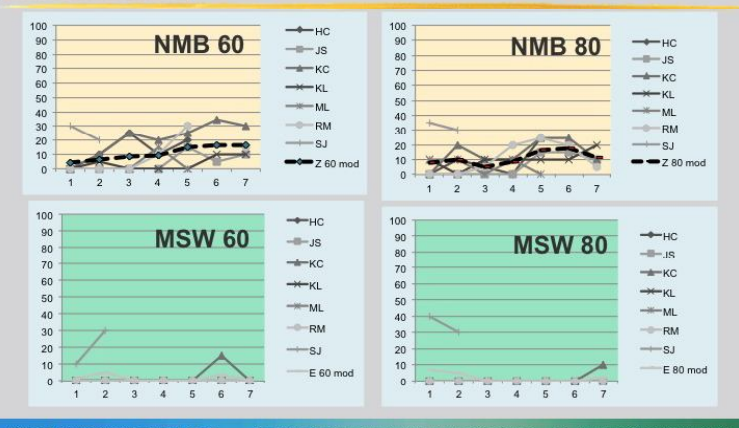
RESULTS: NUMBERS AND WORDS, 10 ADULTS, 2ND CI: GOOD BENEFIT



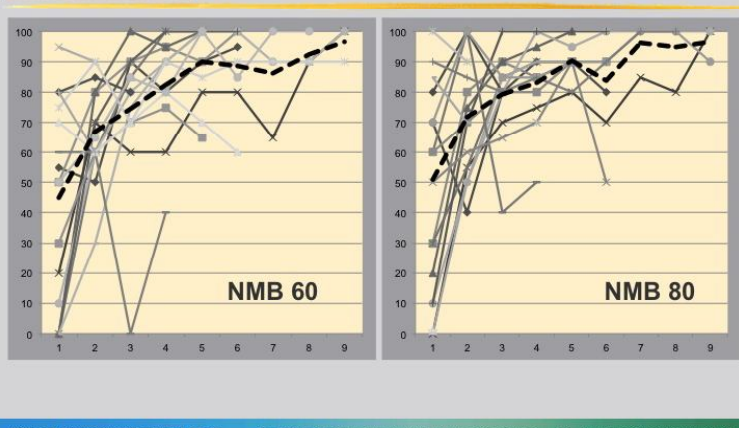
RESULTS: NUMBERS AND WORDS 10 ADOLESCENTS → GOOD BENEFIT



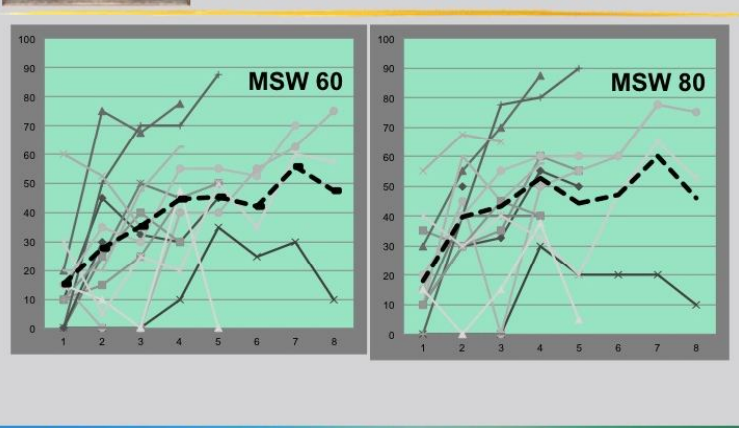
RESULTS: NUMBERS, WORDS 7 ADOLESCENTS, POOR BENEFIT



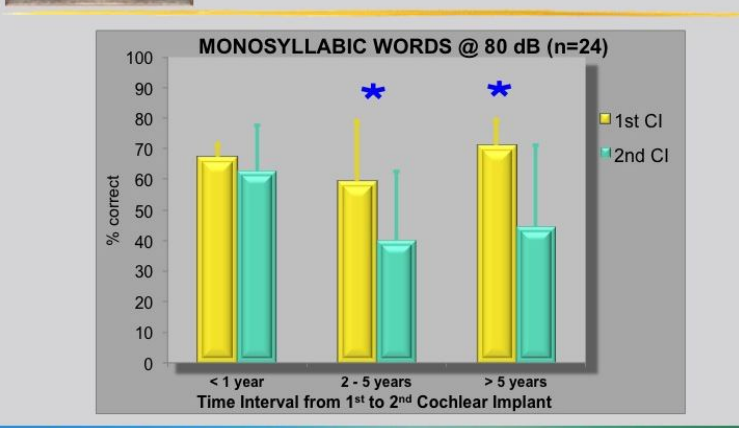
RESULTS: MUTISYLLABIC NUMBERS 16 CHILDREN → GOOD BENEFIT



RESULTS: MONOSYLLABIC WORDS 16 CHILDREN, GOOD BENEFIT

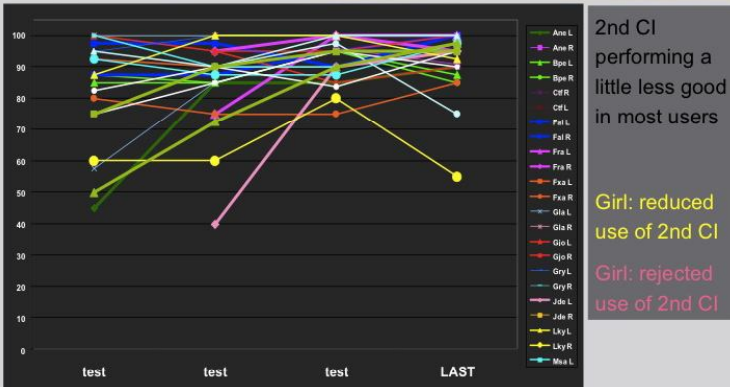


WORDS: 2ND CI COMPARED to 1ST CI

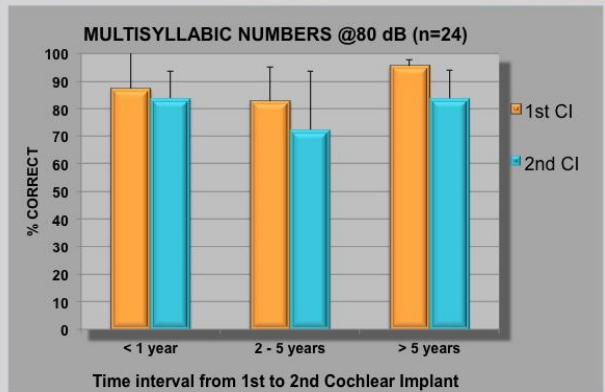




NUMBERS: INDIVIDUAL SCORES CHILDREN AND ADOLESCENTS



NUMBERS 2nd CI COMPARED to 1st CI



CONCLUSIONS

- Very convincing benefit in speech perception from 2nd CI in sequentially implanted children, adolescent and adult cochlear implant users even after > 10 years.
- Postlingual hearing loss - either progressive or acute - is a very favorable condition for 2nd cochlear implantation no matter how long after the 1st CI.
- Benefit in speech perception from the 2nd cochlear implant will in general not exceed benefit from the 1st CI.



PREDICTIVE FACTORS

- For the benefit of the sequentially implanted children, adolescents and adults:
- expect good benefit from 2nd CI if high performance in the 1st CI, high motivation to train 2nd ear, no concomitant disease
 - expect good benefit from 2nd CI in hearing aid user subjects – no matter how low their HA discrimination was
 - Expect low or very moderate benefit in CI users with low performance with their 1st CI.
 - ... and there are exceptions



thank you for listening

