



A longitudinal study of language outcomes for early implanted children with bilateral versus unilateral cochlear implants

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5-year longitudinal study (2009-2014):

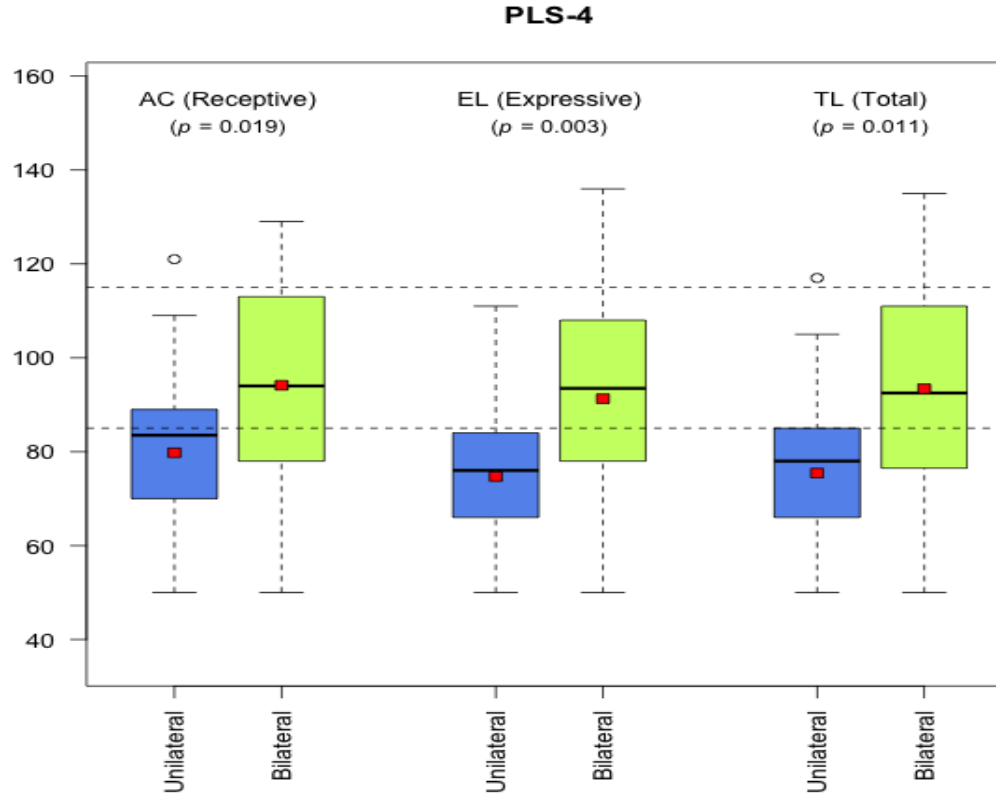
- To investigate whether bilateral CIs at a young age give children a greater ability to learn compared to children with unilateral CIs.
- To provide some of the first data worldwide comparing the effects of bilateral CIs with unilateral CIs on language, social & academic outcomes.
- Do children with two implants have
 - better language outcomes?
 - better social outcomes?
 - better academic outcomes?
 - less disability, in terms of functional listening skills in daily life?



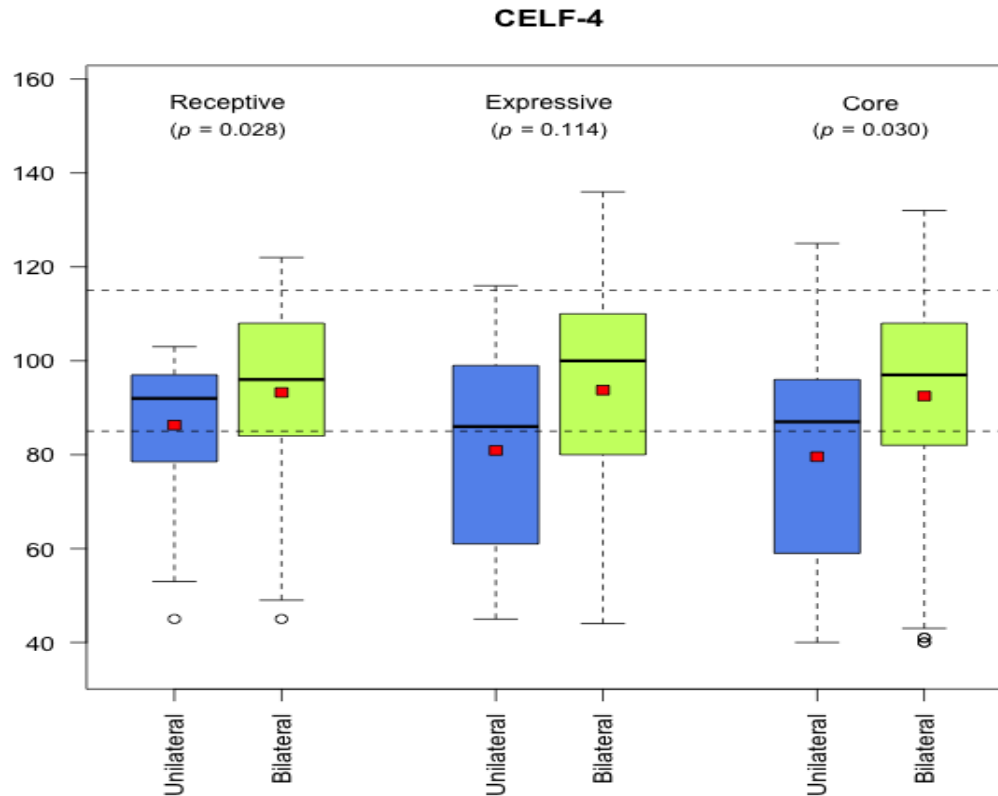
- How do results for these early-implanted children compare with the normative outcomes?
- Is there a significant difference in language outcomes between children with unilateral & bilateral CIs?
- What are the predictive factors for language outcomes?



Language at 5 Years: PLS-4



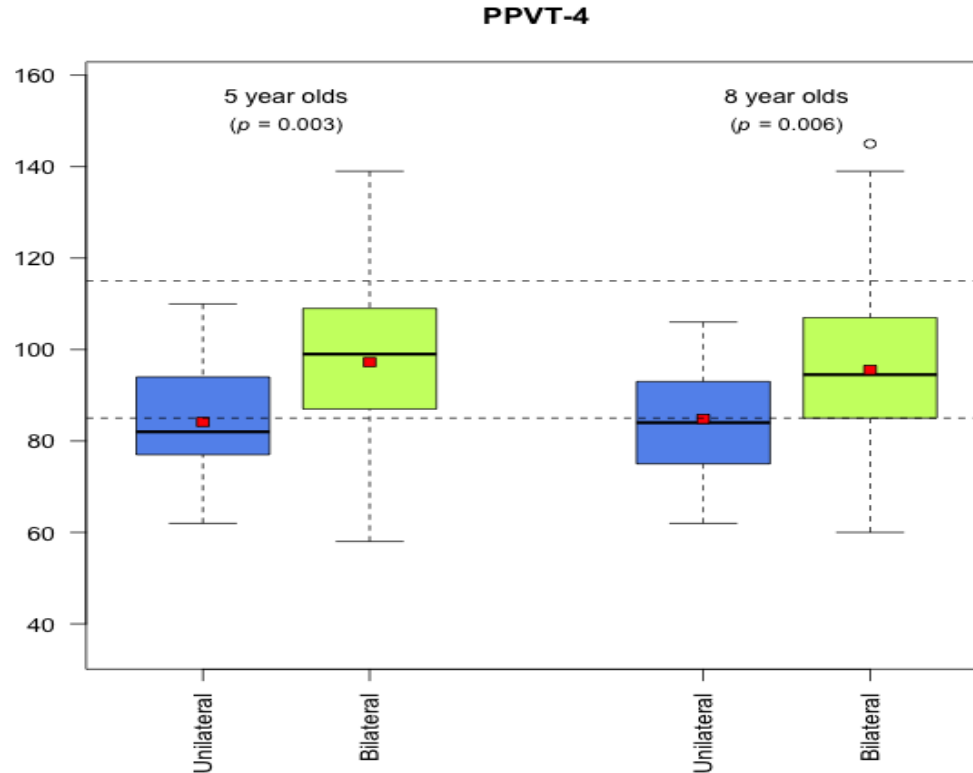
N = 122 (95 bilateral, 27 unilateral)



N = 112 (88 bilateral, 23 unilateral)



Vocabulary at 5 & 8 years: PPVT-4



N = 126 (100 bilateral, 26 unilateral) N = 111 (88 bilateral, 23 unilateral)

- Bilateral CIs
- Younger age at CI2
- Higher parent involvement
- Higher IQ
- Hearing aid use after CI1
- Reading habits
- Birth order
- PTA better ear

43-58% of variance accounted for



- Bilateral CIs had large effect sizes on language outcomes, particularly for the 8YO children (26% and 31%).
- Parent participation also had large effect sizes, even for the older children (12% and 10%).
- Earlier age at CI2 and birth order had smaller effect sizes.



Normal development?

- Group mean scores within 1SD of mean for bilateral children, but generally not for unilateral children
- The proportion of children scoring 1SD above mean similar to that for children with normal hearing

Bilateral vs Unilateral:

- Significantly better language outcomes for children with bilateral CIs
- Younger age at second CI predicted significantly better language outcomes

Predictive factors:

- Higher parent involvement, reading, HA use, higher IQ and birth order were also associated with significantly better language outcomes