Cochlear Implantation in Children with Borderline Hearing Loss

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Background

1. What percentage of children who received CIs in eastern Ontario, Canada, from 1993-2016 had better hearing than typical CI candidates (PTA ≤ 90 dB HL, SPT ≥ 30%)?

2. What factors affected CI decision-making and late age at implantation?

Objectives
• **Study Design**
  - Analysis of clinical data (364 children)
    - Prospective baseline data
    - Updated audiological information from medical chart

• **Participants**
  - Chronological age between *0 months to 17 years*
  - Pre-operative PTA was better than 90dB HL at least one ear

• **Procedures**
  - Medical and audiological information extracted
  - Clinical profiles
  - Factors affecting CI decision
### Results

#### Audiometric Criteria

- **Not meet the audiometric criteria**: 38.2%
- **Sloping HL**: 46.1%
- **Asymmetric HL**: 34.2%
- **Fluctuating HL**: 14.5%

#### Hearing Loss Type

- **Progressive HL**: 72.4% (Yes) 27.6% (No)
- **Sloping HL**: 46.1% (Yes) 53.9% (No)
- **Asymmetric HL**: 34.2% (Yes) 65.8% (No)
- **Fluctuating HL**: 14.5% (Yes) 85.5% (No)

#### Other Conditions

- **Progressive**: 53.9%
- **Limited HAs benefit**: 9.2%
- **Speech/Language Delay**: 18.4%
- **Unknown**: 18.4%

#### Decision Status

- **Parents declined**: 10.5%
- **Unknown**: 11.8%
• 20.9% implanted children had usable residual hearing
• Gap to CI decision -> Not meeting audiometric criteria
• Final decision to proceed CI -> progressive HL (53.9%)