Integrating CI Sound Processor Data Logging into Auditory-Verbal Practice: An Examination of its Usefulness for Practitioners and Families

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Disclaimer:
I have no financial interests to disclose.
Rationale for Study

• Consistent access to sound
  – *is essential for spoken language development.*
• Consistent CI use
  – *after initial activation is not guaranteed.*
• Data logging (DL) has potential
  – *to improve device use.*
• Preliminary study
  – *To look at DL.*
Study Components

- Part A: Retrospective Chart
  Review of data logging numbers

- Part B: Focus Group Interview with AVTs and audiologists
Retrospective Chart Review

PURPOSE:
• To investigate:
  – Full time, fair and poor device use.
  – Did poor and fair users improve use with DL and AVT?
  – Did parents accurately estimate time device used?
Retrospective chart review

PARTICIPANTS:

– 20 CI users post activation.
– CIs had DL enabled.
– Age at activation <6 years.
– AVT from weekly to occasionally.
Retrospective chart review

INFORMATION COLLECTED:

– Average # of hours of access to sound per day (“on air”/ “locked”).

– Parent estimate of average # of hours of use.
Child 05- Number of daily hours use

Time Locked/On Air (hours)

Time Since Activation (months)

- R ear
- L ear
RESULTS: DEVICE USE

- Full time from activation: 12
- Improved or improving: 5
- Chronic poor or fair: 5

Legend:
- Green: Full time from activation
- Yellow: Improved or improving
- Red: Chronic poor or fair
RESULTS

Factors associated with sub-optimal use:
• Infection or injury.
• Retention issues,
• Equipment problems.
• Infrequent clinic visits.
• Socio-economic, family stressors.
• Multiple other special needs, e.g. child with CP needing headrest.
RESULTS:

DL versus PARENT ESTIMATE

– Obtained 7 parent estimates on same day as DL.
  • 2 parents estimated correctly.
  • 5 parents over-estimated.
  • NO parents under-estimated.
Part B
Focus Group:
AVT's and CI audiologists

PURPOSE:
– Determine:
  • whether we find DL to be useful.
  • whether we’re using DL effectively.
Focus Group

**METHOD:**
- Conducted by CI team psychologist.
- One focus group and one individual interview.
- 2 CI audiologists and 5 AVTs from CHEO Audiology.
- Qualitative research methodology used and themes extracted.
Focus Group

RESULTS:

• Theme 1: Counselling
  • DL provides accurate information on device use.
  • Prompts follow-up AVT counselling.
  • Parents need non-judgmental support.
  • Knowing exact number can motivate parent.
Focus Group

RESULTS:

• Theme 2: Enhancing device use:
  – DL helped clarify barriers to CI use,
  – Checking time “coil off/unlock” and # of “coil off/unlock events” can prompt CI audiologist, AVT to probe:
    • Device off head but turned on during naps?
    • Child removing often?
    • Magnet too weak?
    • Different wearing option needed?
Focus Group

RESULTS:

• Theme 3: Collaboration:
  – Audiologists may enlist AVT help as AVTs see families more often.
  – AVTs may request DL if suspect poor device use.
  – Value of collaboration around DL recognized.
  – Through focus group, AVTs now better informed about potential of DL.
Focus Group

RESULTS:

• Theme 4: Changes to practice:
  – Challenges were identified
  – Resulted in changes to our practice.
Challenge in logging

• DL not always enabled on sound processors.

Change to practice

• DL to be enabled in all CIs post activation.
  – AB Naida Q 70’s will now be programmed separately.
  – Audiologist will record NU6 average # daily hours “use”, time coil offs and # of coil offs at each programming visit.
Challenge in sharing

- AVTs lack timely access to DL info.
- DL not done systematically, so poor device use not always flagged immediately.
- DL info not reported systematically.

Change to practice

- AVTs can access CI programming equipment to check DL.
- DL to be done at every scheduled CI visit until full time use at 3 successive visits.
- Change to CI report template to include basic DL info.
Conclusion

• DL a very useful tool.
• Strongly suggest systematic obtaining and sharing of DL information.

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