Knowledge and Implementation in Pediatric Audiology

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Learning Objectives

• After this course learners will be able to describe the importance of evidence-based practice in pediatric audiology.
• After this course learners will be able to list barriers to implementing protocols and/or guidelines in pediatric audiology practice.
• After this course learners will be able to describe strategies that facilitate the implementation of protocols/guidelines in pediatric audiology practice.
Starting at the Desired End Product

Knowing & Doing

WHAT WE KNOW (Knowledge)  WHAT WE DO (Implementation)

This course is presented in partnership with
The KNOW – DO Gap

“There is a current trend to develop test protocols that are ‘evidence based.’ . . . But, before we develop any new fitting guidelines, maybe we should first try to understand why there is so little adherence to the ones we already have” (Mueller, 2003, p.26).
KiPA Purpose

Issue driven research developed through partnership with clinicians as experts, with an expectation that this collaboration will improve the flow of knowledge, and reduce the KNOW-DO gaps so that implementable solutions will be achieved.
• KiPA was developed by Oticon A/S;

• The KiPA group meets twice a year and collectively work on issue-driven projects of interest to and clearly defined by pediatric audiologists working in varying clinical contexts;

• Currently, there are KiPA groups in North America and in Europe.
This course is presented in partnership with KiPA Europe Members.

**KiPA**

Knowledge and Implementation in Pediatric Audiology

**KNOWLEDGE Creation in Pediatric Audiology**
An aim of the KiPA network is to foster worldwide interaction to facilitate learning and information sharing so that implementation of important knowledge occurs;

The KiPA network provides access to experts and clinicians with shared interests and complementary knowledge;

We have **over 200 members** of the network from North America, Europe, Asia and South America.

Pediatric hearing health care professionals can join the network by going to the KiPA website.
Why is Evidence-Based Practice in Pediatric Audiology Important?

“... the recommendation for each patient should be based on the clinician’s insightful appreciation of the goals, needs, and preferences of the individual patient in combination with the best available data about the potential treatment.” (Cox, 2005 p. 421)

- Issue 1: Many children with hearing loss are born to hearing parents, who may not have a good initial understanding of the goals of amplification and their child’s needs.
- Issue 2: Infants and young children cannot articulate preferences

Therefore, taking an evidence-based approach to paediatric audiology is of paramount importance.
1. Survey of current practice in pediatric audiology in North America. Developing our understanding of the process of real-ear-to-coupler difference implementation variations on clinical practice.

Objective: Gather information on:

1. The clinical measures that are currently being implemented in paediatric audiology practices in North America;
2. The barriers to implementing protocols and/or guidelines in paediatric audiology practice; and
3. What might facilitate implementation of protocols/guidelines in paediatric audiology practice.
E-Survey

1. Protocol for assessment/amplification in your practice;
2. Hearing Assessment Protocols;
3. Hearing Aid Selection and Fitting Protocols;
4. Verification Protocols;
5. Evaluation / Validation Protocols

When measuring a child’s hearing threshold levels who is between 6 and 36 months of age, I use the following audiometric transducer most of the time:

- 57.9% use insert earphones
- 23.1% use soundfield (speakers at 45)
Insert Earphones

Why use insert earphones?
- Ear-specific information
- Reduce external noise
- Ease of mobility of head
- Avoids ear canal collapse
- Allows for the accurate calculation of HL to SPL

Knowledge Implementation

Agents of Change

**Tips and Tricks**

- Have child sit in a high chair so assistant (caregiver/staff) can help keep child’s hands busy
- Give the child something to hold
- Clip insert earphones behind the child
- Trim down the foam for tiny ears
- Use child’s earmolds coupled to the insert earphones
- What are your “tips and tricks”?
## Tips and Tricks

- **RECD at assessment**
- **Sound field as primary verification**
- **Validation (Outcome measures)**

## North America Pediatric Practice Survey Summary

### Largest Knowledge Gaps
- RECD at assessment
- Sound field as primary verification
- Validation (Outcome measures)

### Implementation Facilitators
- Current evidence for RECD at assessment and hearing aid fitting
- Training and comfort obtaining probe mic measures
- Understanding limitations of the aided audiogram.
- Specific validation/outcome measures guidelines
Summary

This sample clearly shows that pediatric audiologists are attempting to follow audiology guidelines for the assessment of children’s hearing and for the provision of appropriate amplification to children with hearing loss.

There are still gaps that can be addressed by paying attention to implementation issues that arise at the level of the guideline; the individual practitioner; the context in which they work and the broader healthcare system.


Knowledge Creation

KiPA Research Projects

1. Survey of current practice in pediatric audiology in North America. Developing our understanding of the process of real-ear-to-coupler difference implementation variations on clinical practice.

2. Bimodal Devices and Children: A North American Survey
Study Objective

Anecdotal evidence and published research suggests that clinicians feel the fitting and management process of bimodal devices to children is “uncertain.”

A survey was developed to gather information regarding clinical management of bimodal devices for pediatric patients seen at clinics within North America.

We were interested in what procedures and protocols were used to fit/program and verify the HA and the CI for bimodal devices.

Knowledge Gap

Bimodal Fitting Issues

Studies have supported the coordinated fitting of a hearing aid (HA) and cochlear implant (CI) for bimodal use (CI + HA at non-implanted ear) that emphasizes audibility and balanced loudness across the two ears/devices (Blamey et al., 2000; Ching et al., 2001; Ching et al., 2007)

No widely established fitting protocols for bimodal devices

Obstacles to bimodal fitting related to current commercial CI and HA systems (For a review see Francart & McDermott, 2013)

Best frequency response for HA fitting? Best frequency allocation for CI?
KiPA Bimodal Survey (2016)

A web-based survey was sent out to approximately 300 clinicians, and 85 responded.

The survey was posted on the ACI blog; and distributed to pediatric clinics and hospitals identified from cochlear implant manufacturer websites and hearing aid manufacturers in the United States and Canada.

Survey questions requested information about clinical practices when fitting cochlear implants, hearing aids and bimodal devices in children.

Bimodal Fitting: Verification

Are you using a verification protocol for bimodal fittings?

- 0.0% I do not use a verification protocol for bimodal fittings
- 3.8% I use a verification protocol specific to my work setting
- 41.5% I use a manufacturer specific verification protocol
- 54.7% I use a published evidence-based research protocol

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Which best describes your role in a bimodal fitting?

- **Fit/Manage CI's only**: 17.6%
- **Fit/Manage HA's only**: 27.9%
- **Fit/Manage both CI's and HA's**: 54.4%

Bimodal Fitting & Verification Summary

There is considerable uncertainty regarding verification of bimodal fittings. This reflects the lack of standardized verification procedures for bimodal fittings.

Participants reported using speech perception testing for older children as their primary method of verification and as an outcome measure.

For those who manage CI only or HA only, some participants commented that they were reluctant to make or recommend adjustments to the device they did not fit.
Agents of Change

Bimodal Whitepaper

Outlines a new fitting flow for loudness balancing with a cochlear implant

Cochlear Implant Fitting, Verification and Evaluation:
A Proposed Guidance Document

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1. Survey of current practice in pediatric audiology in North America. Developing our understanding of the process of real-ear-to-coupler difference implementation variations on clinical practice.

2. Bimodal Devices and Children: A North American Survey

3. A Survey of Pediatric Audiology Assessment Practice: Exploring the Use of Evidence-Based Practice in the EU

N=252
The results from our survey indicated that:

1. Pediatric audiologists are following guidelines for the assessment of children’s hearing.

2. There are different models of service provision in Europe. These models may reflect differences in country or regional infrastructure. Public health systems may prioritize managing the needs of the population, where individual needs may be the focus of the private sector.

3. Pediatric assessment practices are more aligned with one another, than are different.
Limitations of Study
Considerations for Implementation

• Our study was written in English. This was a barrier for participants for whom this was not their native language and this prevented them from completing the survey.

• We recognize that across Europe, different sets of terminology exist within pediatric audiology and this was not reflected in our survey.

• We were not able to determine the barriers and/or rationale for current pediatric assessment practices. For example, are these related to personal or professional choices, internal clinical guidelines or external, region/national guidelines?

Adapting Knowledge for Contexts

Strategies used in North America were not relevant to the project in Europe.

It is important to administer the survey in the native languages of each country. We believe this will increase the response rate and provide a more representative sample of paediatric assessment practice.

To investigate how individual country guidelines are developed.
Current Project Work

KiPA North America
Children with Mild Hearing Loss and Amplification

KiPA Europe
Exploring Self-efficacy of Tweens and Teens with Hearing Loss

Want to be an agent of change? Or, do you just like cool, pediatric research?

Join the KiPA Network!
www.kipagroup.org
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