

Eyes Open, Ears On: Strategies for Improving Wear Time

Darcy L. Stowe, M.S., CCC-SLP, LSLS Cert AVT
Chief of Clinical Collaboration & Research



Darcy's background

- Masters of Science in Speech-Language Pathology (2003)
- Listening and Spoken Language Specialist since 2007
- Chief of Clinical Collaboration & Research at Hearts for Hearing.



Darcy's Disclosures

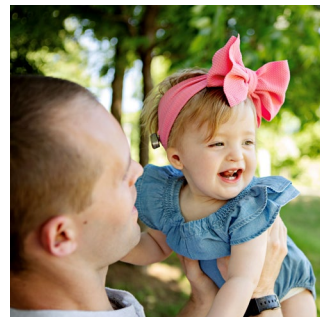
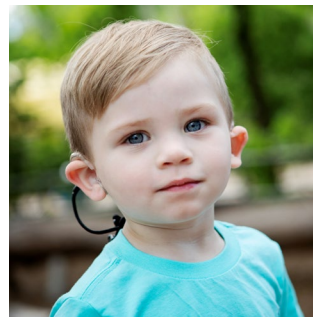
- Receives a salary as a full-time employee of Hearts for Hearing.
- Any opinions expressed are strictly of the speaker.



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HEARTS *for* HEARING
2003 - 2023



What's in the Research?



Hearing technology wear time is a global issue!

J Am Acad Audiol 25:380-387 (2014)

Pediatric Hearing Aid Use: How Can Audiologists Support Parents to Increase Consistency?

DOI: 10.3766/jaaa.25.4.9

Karen Muñoz*†
Elizabeth Preston*
Sydney Hicken*

Pediatric Hearing Aid Use: Parent-Reported Challenges

Karen Muñoz,^{1,2} Whitney A. Olson,¹ Michael P. Twohig,³ Elizabeth Preston,¹ Kristina Blaiser,¹ and Karl R. White,^{2,3}

Pediatric cochlear implant wear time and early language development

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The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

AJA

Research Article

Age at Full-Time Use Predicts Language Outcomes Better Than Age of Surgery in Children Who Use Cochlear Implants

Lisa R. Park,^a Erika B. Gagnon,^a Erin Thompson,^a and Kevin D. Brown^a

Trends and Predictors of Longitudinal Hearing Aid Use for Children Who Are Hard of Hearing

Elizabeth A. Walker,¹ Ryan W. McCreery,² Meredith Spratford,² Jacob J. Oleson,³ John Van Buren,³ Ruth Bentler,¹ Patricia Roush,⁴ and Mary Pat Moeller²

LSHSS

Research Article

Predictors of Hearing Aid Use Time in Children With Mild-to-Severe Hearing Loss

Elizabeth A. Walker,^a Meredith Spratford,^b Mary Pat Moeller,^b Jacob Oleson,^a Hua Ou,^a Patricia Roush,^c and Shana Jacobs^c

Longitudinal Changes in Hearing Aid Use and Hearing Aid Management Challenges in Infants

Anisa Sadru Visram,^{1,2} Amber Jemima Roughley,^{1,2} Caroline Louise Hudson,^{1,2} Suzanne Carolyn Purdy,³ and Kevin James Munro^{1,2}

Cochlear Implant Data Logs Predict Children's Receptive Vocabulary

Tobias Busch,^{1,2} Anneke Vermeulen,^{3,4} Margreet Langereis,^{3,4} Filiep Vanpoucke,² and Astrid van Wieringen¹

Child- and Environment-Related Factors Influencing Daily Cochlear Implant Use: A Datalog Study

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Children (0-4 years old) used hearing aids an average of **4.5 hours/day**.
(Jones & Feilner, 2013)

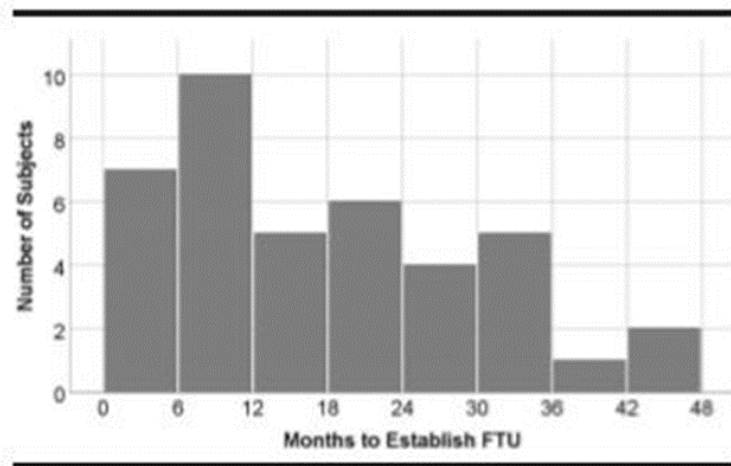
Children (6 months to 7.3 years old) used hearing technology an average of **8.3 hours/day**.
(Walter et al., 2013)

Children (7 months to 6 years) used hearing aids an average of **7.5 hours/day**.
(Munoz et al., 2014)

56% of children **under 5** years of age used hearing aids **6 hours or less** per day.
(Munoz et al., 2014)

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There is not a quick fix...

57.5% took more than 1 year to reach FTU

30% took more than 2 years to reach FTU

Only 53% reached FTU by 3 years of age

Several Factors Influence Wear Time

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Factors Affecting Daily Cochlear Implant Use in Children: Datalogging Evidence

DOI: 10.3766/jaaa.15138

Vijayalakshmi Easwar*†
Joseph Sanfilippo*
Blake Papsin‡§
Karen Gordon*‡

LSHSS

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Predictors of Hearing Aid Use Time in Children With Mild-to-Severe Hearing Loss

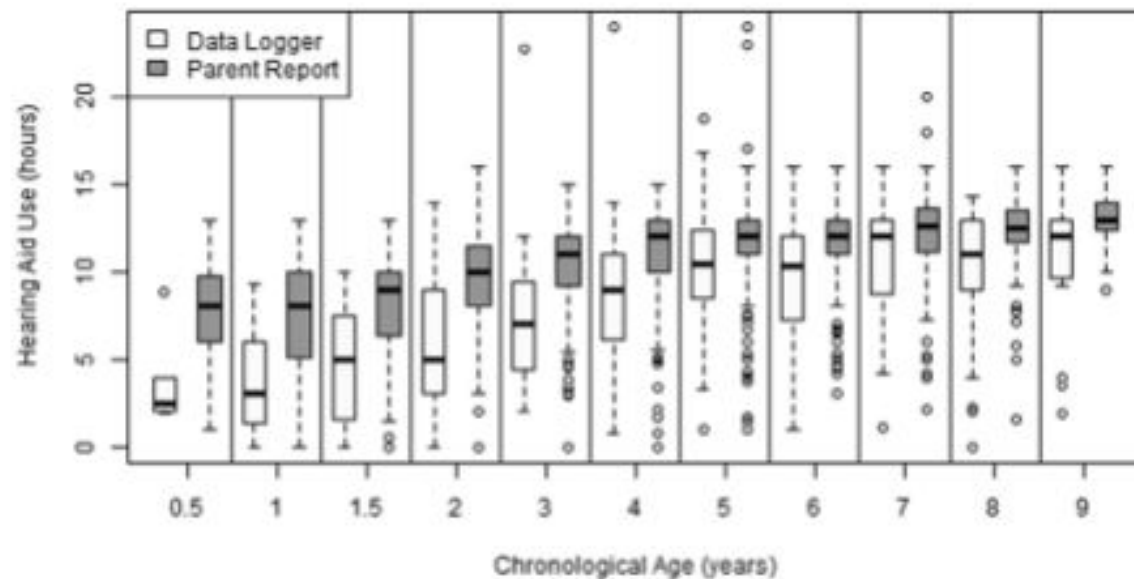
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Consistency of Hearing Aid Use in Infants With Early-Identified Hearing Loss

Mary Pat Moeller
Brenda Hoover
Barbara Peterson
Pat Stelmachowicz
Boys Town National Research Hospital, Omaha, NE

Trends and Predictors of Longitudinal Hearing Aid Use for Children Who Are Hard of Hearing

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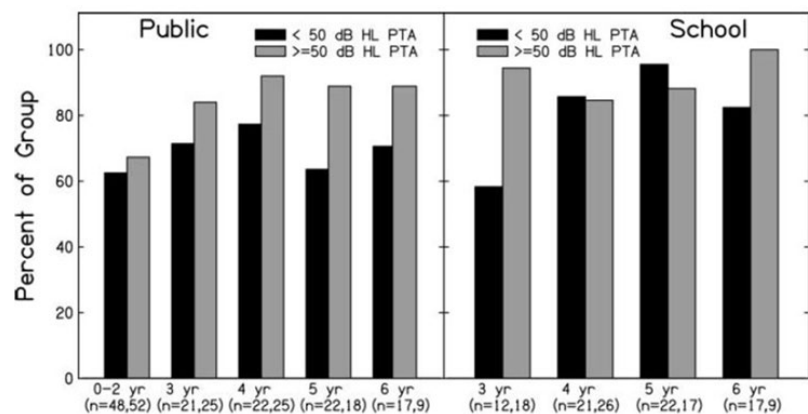
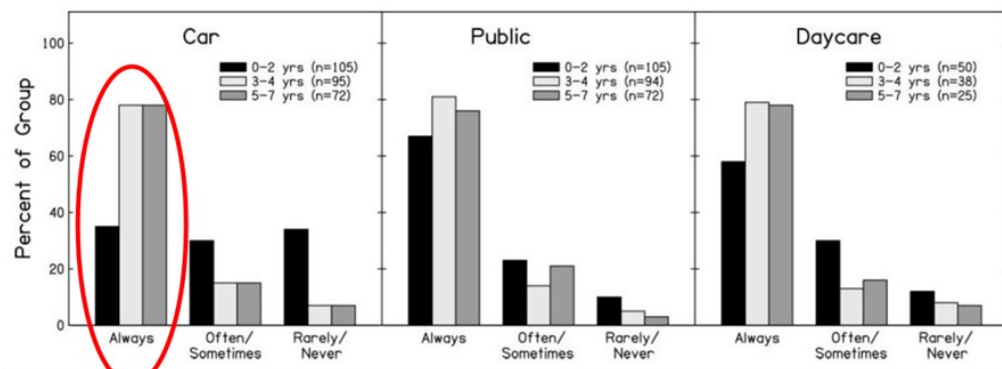
Caregiver estimation of wear time exceeds data logging by more than 2 hours on average.

Greater discrepancies from 0 to 3 years old.

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Three factors influenced hearing aid use:

- Age
- Better-ear PTA
- Maternal Education Level

Situations affect hearing technology use: Concerns exist in situations where child cannot be monitored closely (i.e. car, playground, daycare, etc.) – especially for children under 2 years of age.

Children with greater degree of hearing loss tend to wear their hearing technology more, especially in public settings.

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Factors	Examples
Retention/Fit	Falls off/child pulls off Acoustic feedback Situation-specific (car, water play, outside, etc.) Middle ear infection
Awareness	Lack of awareness of HA usage time (data logging helps) Lack of awareness of optimal wear schedule Lack of awareness of association between wear time and development
Benefit	Does my child need HAs? Will HAs make a difference?
Loss/Damage/Hazard	Playground, swimming pool, car seat, choking, etc.

Wear time influences the listening and spoken language outcomes children with hearing loss achieve.

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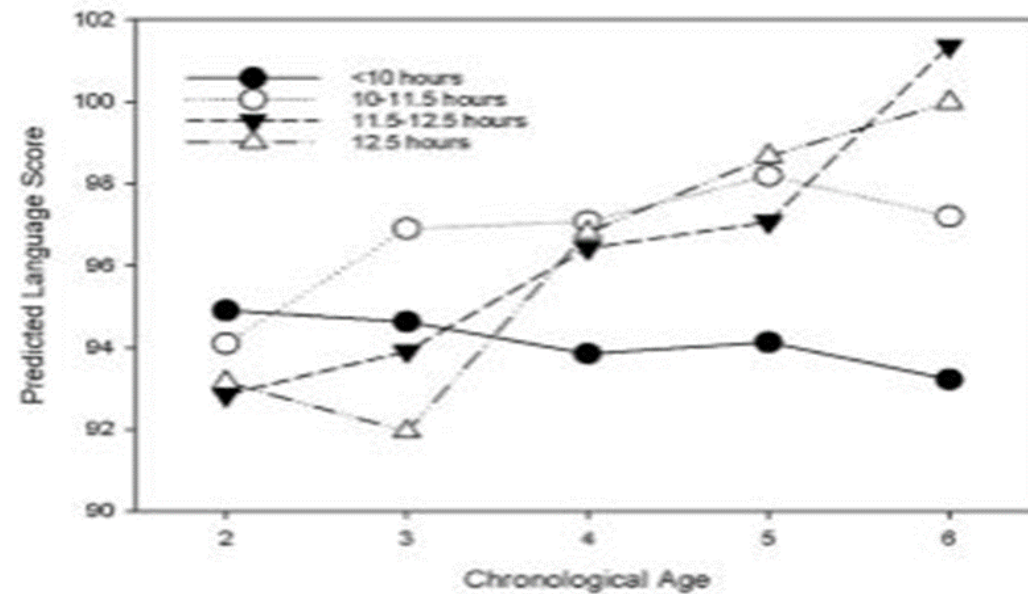


Fig. 7. Average predicted language scores based on mixed model across ages of 2 to 6 years for children who are hard of hearing grouped into four levels of daily hearing aid use.

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All children who achieved FTU by 24 months of age had language WNL by 36 months.

Age at FTU was a better predictor of outcomes than age of cochlear implantation.

On average, it took 17 months for children to achieve FTU.

Only 21 out of 40 children achieved FTU by 24 months.

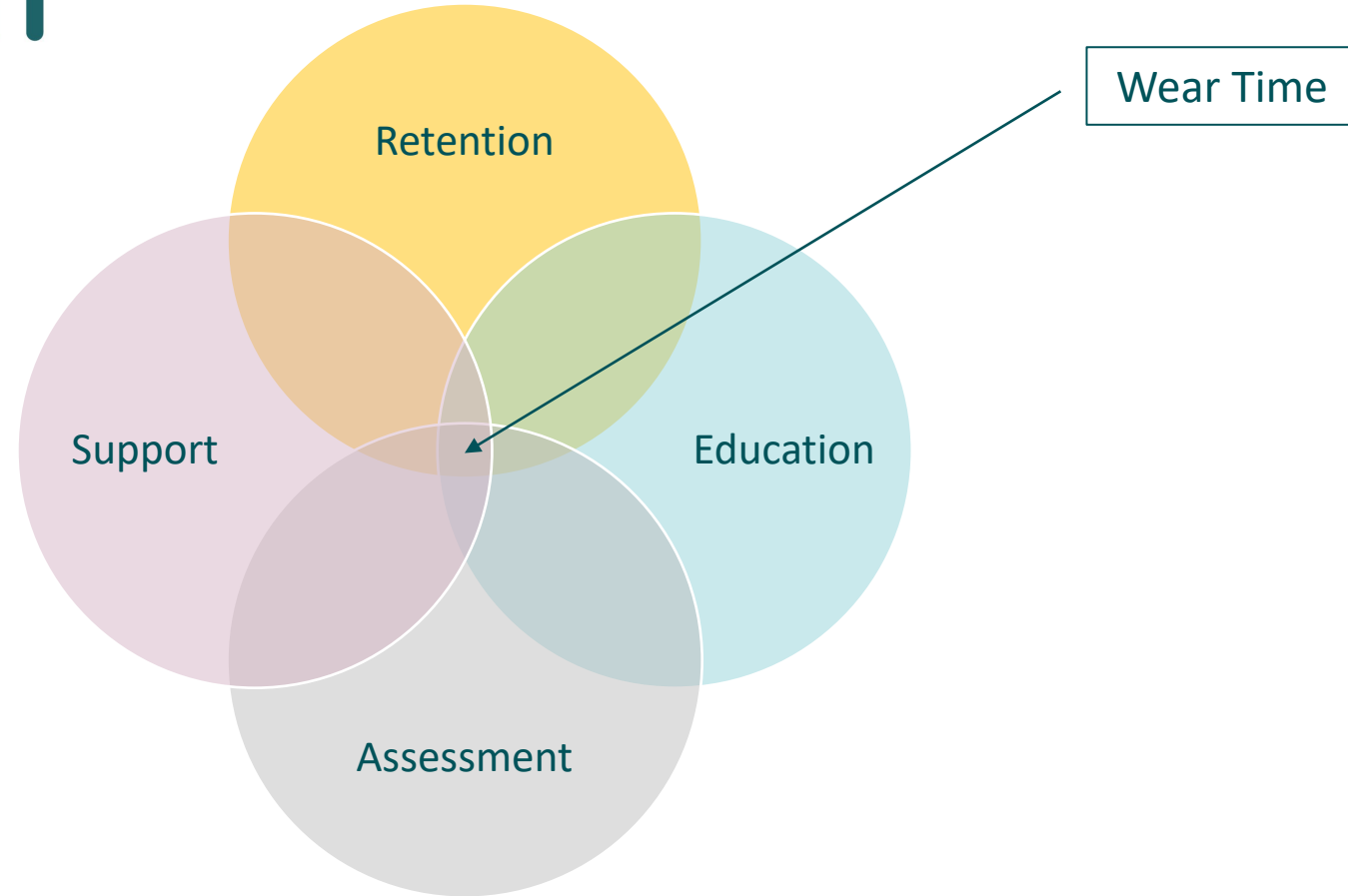


eyes open ears on

Eyes Open, Ears On (EOEO) is an inter-disciplinary program created to support families of children with hearing loss in the goal of achieving hearing technology use during all waking hours.



eyes open ears on





eyes open
ears on

Retention



Retention

- Every family receives a pilot cap at fitting appointment in hopes to support wear time right away.
- Trouble shooting with families regarding what does/does not work during therapy.
- Several retention options are available in the clinic to try.





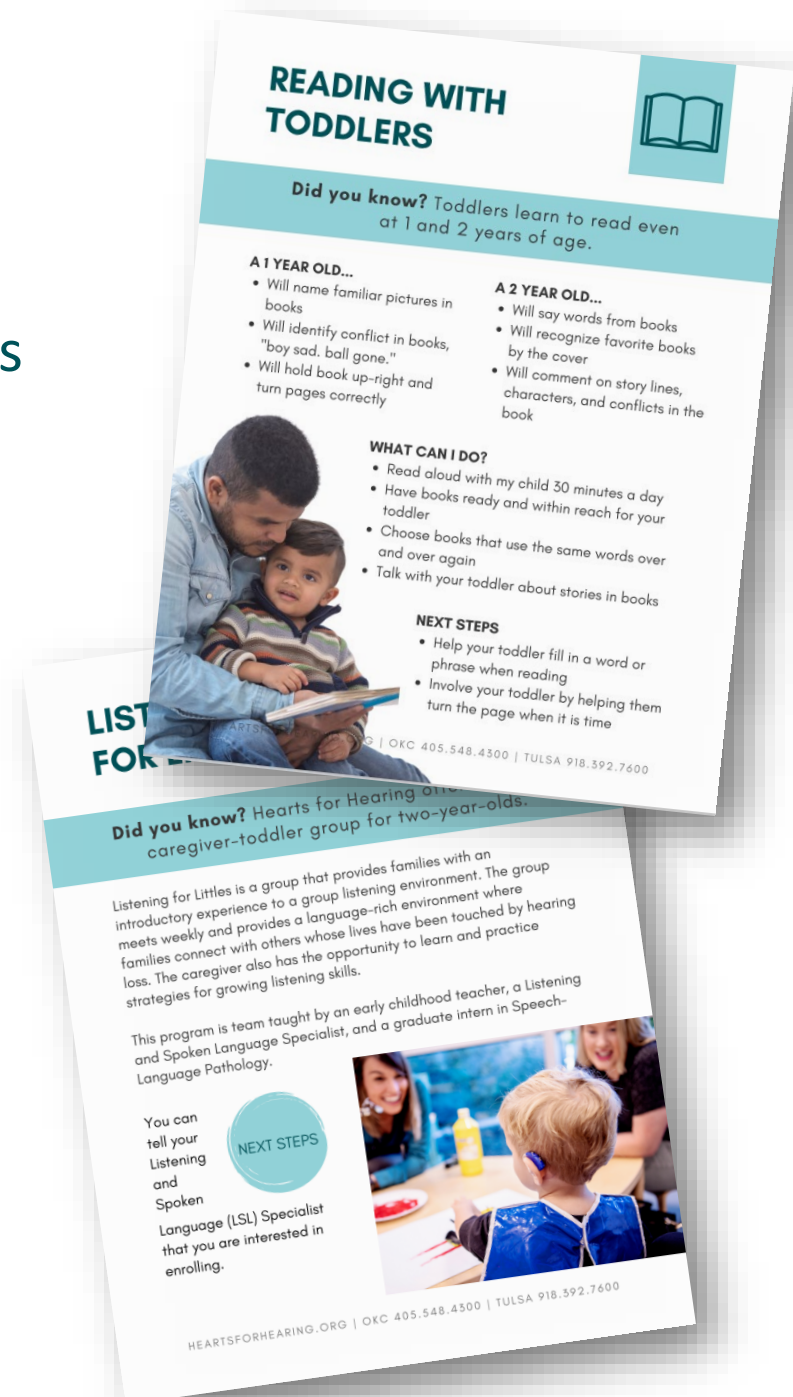
eyes open
ears on

Education



Education

- Wear time is emphasized in every session, and research is provided to families to support recommendations.
- EOEO Handbook, YouTube videos, hearing loss simulations and hands-on learning allows caregivers to receive knowledge in their heart language and learning style.





eyes open
ears on

Assessment



Protocol Development & Goal Setting

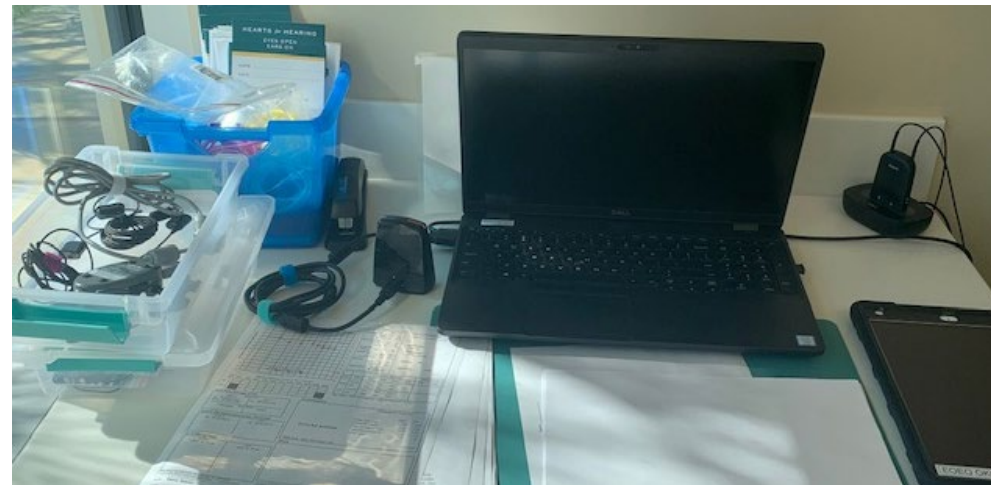
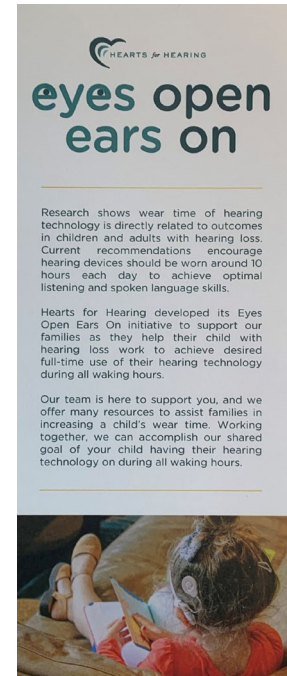


Hearing Hours
Percentage (HHP)
of 80% or greater!

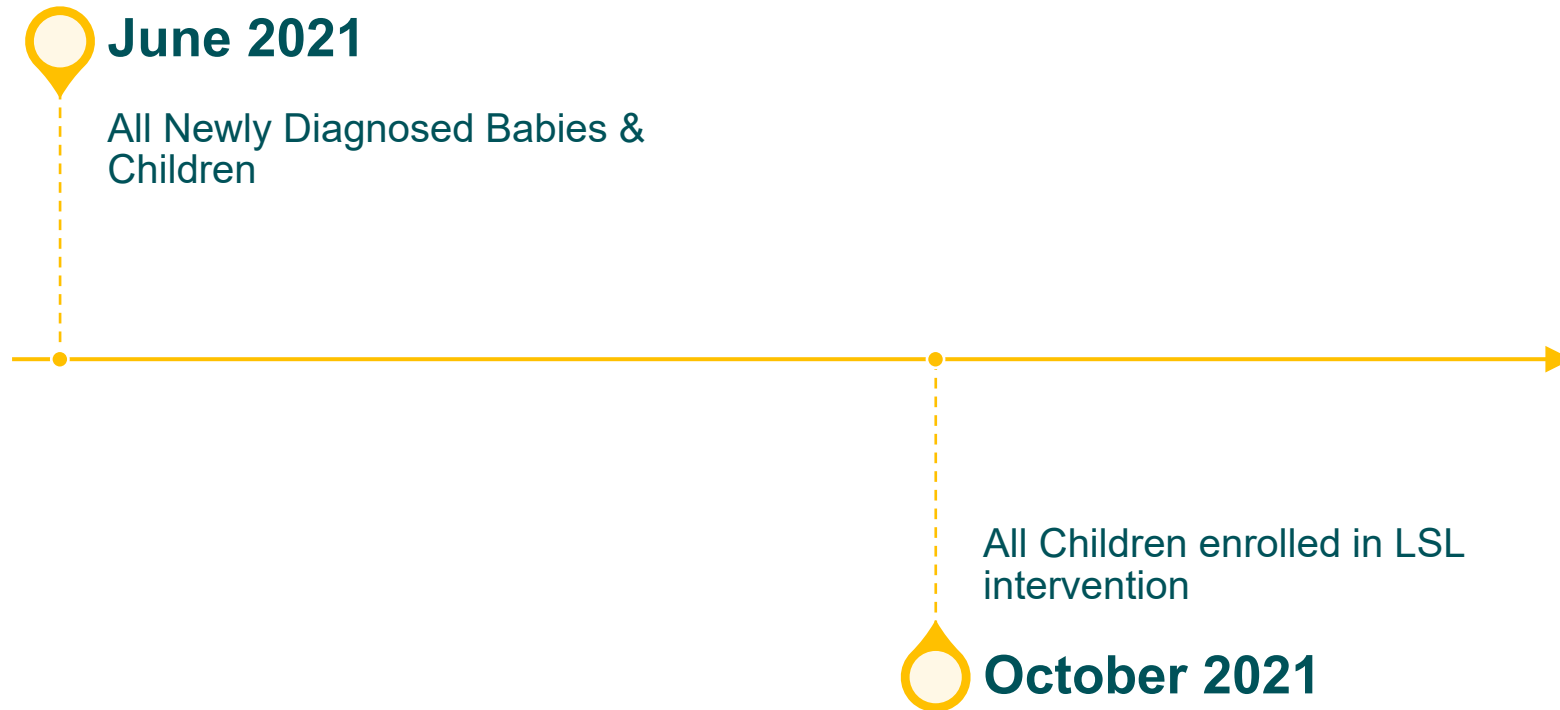
Park et al., 2019
Gagnon et al, 2020
Galland et al, 2012

Training LSL providers

- Hands-on training from AuD to LSL team at both branches. Recorded training
- 3 data logging stations available to LSL team that include:
 - All attachments
 - Updated software
 - Cards for goal setting



Routine Data Logging in LSL appointments



Let's
Celebrate

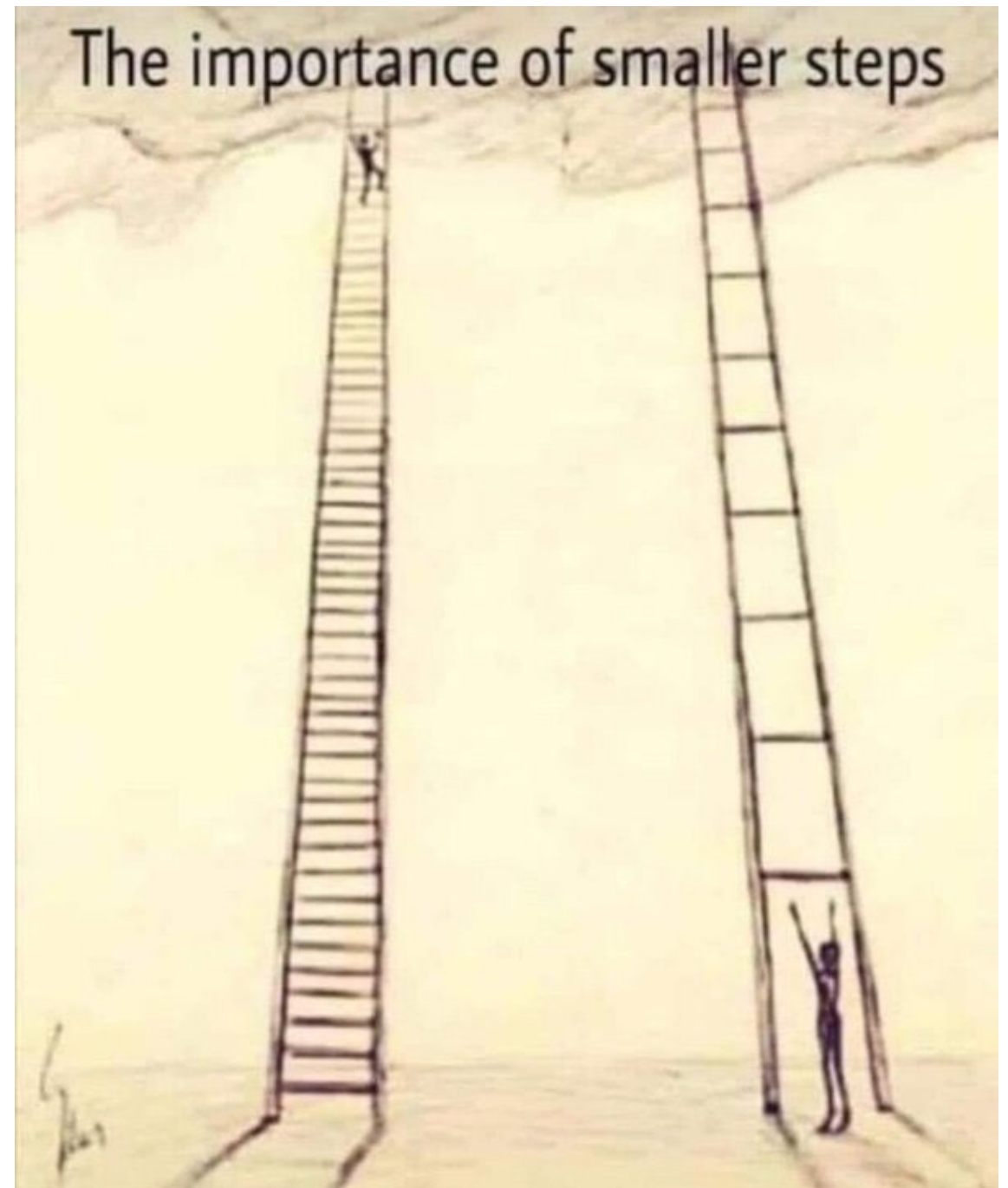


DEAFinitelyBold
cochlear implant skins for kids of all ages
Idaho, United States

★ [Star Seller](#) | 8,582 Sales | ★★★★★



For children birth to three with cochlear implants, 70% showed at least doubled wear time after implementation of Eyes Open, Ears On.





eyes open
ears on

Support



Support

- Community Resources
- Tech station for families
- PCT connecting with all families of children diagnosed with hearing loss



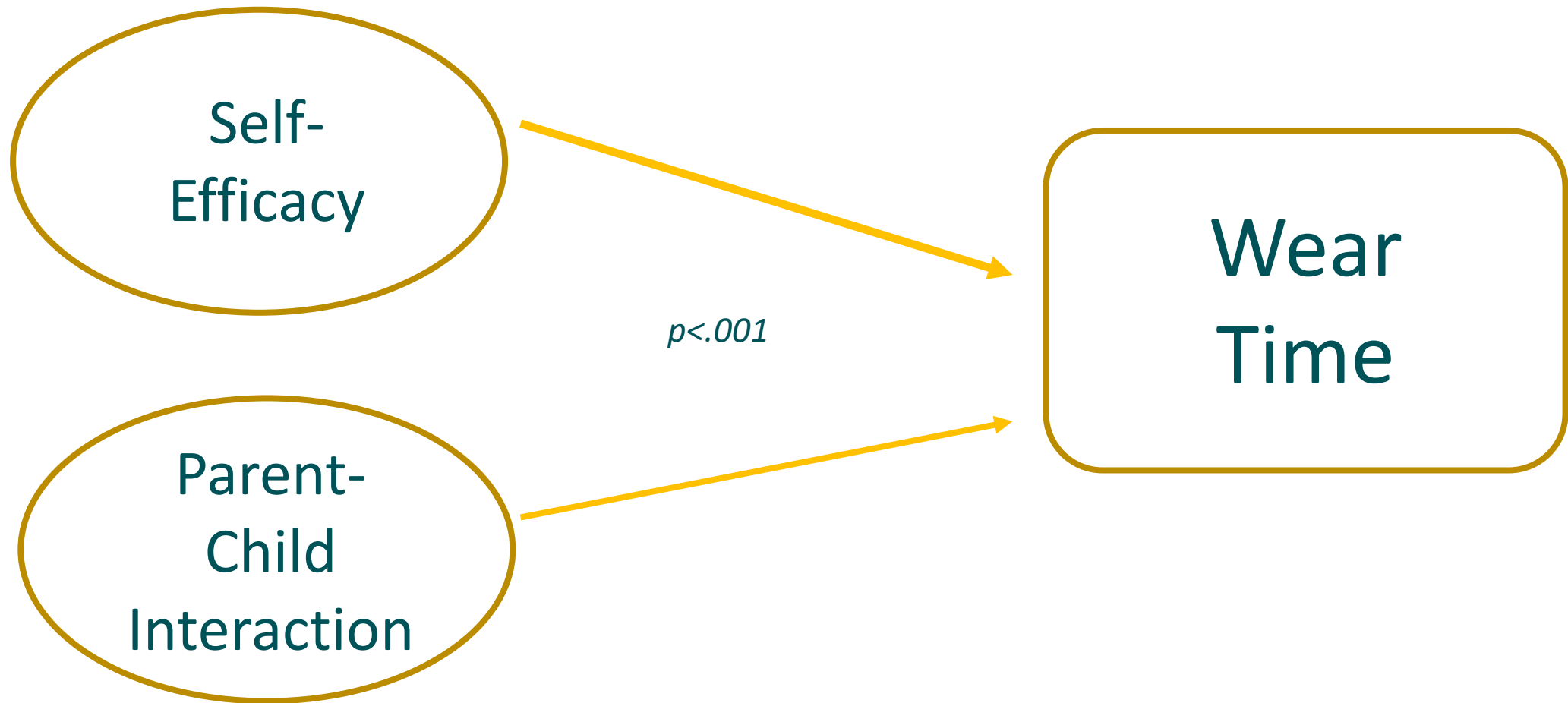
Infant Mental Health



-
- A white rectangular box with a thin teal border contains a bulleted list of assessment tools. Two teal arrows point downwards from the 'Promotion' and 'Prevention' boxes above to the top-left and top-center of the box, respectively.
- Parent Stress Index™- 4th Edition - short form (PSI™-4-SF)
 - Scale of Parental Involvement and Self-Efficacy- Revised (SPISE-R)
 - Center for Epidemiologic Studies Depression Scale (CES-D)
 - Semi-structured interviews

- Three out of the first 10 caregivers in EOEO were in need of mental health supports (as indicated by the depression and stress screeners).
- *Without the emphasis on promotion & prevention, we would not have known.*





Conclusions and Implications

We are seeing consistent trends of improvement in average wear time as families progress in the EOEO program.

Improving parent stress and self-efficacy contributes to better wear time.

Family-centered care is needed to improve wear time.

LSL providers can data log.

Next Steps in EOEO

Continue

Continue increasing our sample size.
Continue intensive data collection.
Continue improving self-efficacy and knowledge.
Provide educational materials and training to enhance parent-child interactions.



GOAL

Reach optimal wear time for children before the age of 4.

We're all in this together!

What can YOU do now to begin the emphasis on wear time?

1. Start data logging!
2. Get creative!
3. Collaborate!



Hearts for Hearing creates life-changing opportunities for children and adults with hearing loss to listen for a lifetime.

heartsforhearing.org