

Impact Summary: LEND Pediatric Audiology Supplement

1. Current Participating LEND Programs

Connecticut: University of Connecticut Health Center, Farmington

Colorado: University of Colorado, Denver

Maryland: Kennedy Krieger Institute, Baltimore

Massachusetts: Children's Hospital, Boston

Michigan: Wayne State University, Detroit

New York: Albert Einstein College of Medicine, Bronx

North Carolina: University of North Carolina at Chapel Hill

Oregon: Oregon Health and Science University, Portland

South Dakota: University of South Dakota, Sioux Falls

Utah: University of Utah Health Science Center, Salt Lake City

Washington: University of Washington, Seattle

Wisconsin: University of Wisconsin, Madison

2. Data Snapshot: Current Trainees

The table below indicates the number of LEND pediatric audiology trainees (n=46, all 12 programs reporting) receiving stipends, tuition reimbursement, or other financial support as a result of the supplement during the 2018-2019 training year* by type (i.e. anticipated hours) and progress toward Au.D. degree completion.

	Medium-term	Long-term	Total
1 st year	0	6	6
2 nd year	6	11	17
3 rd year	2	9	11
4 th year / extern	0	12	12
Total	8	38	46

* Source: Program self-report to AUCD (data collected May 2018).

3. Data Snapshot: National Network Impact

The table below indicates, for the two most recent training years with complete data, the degree to which the supplement has impacted the long-term trainee cohort composition of participating programs and how that compares to the presence of pediatric audiology as a discipline within the broader LEND network*.

	Supplemented programs only (n=12)			All LEND programs (n=52)		
	Trainees from all disciplines	Pediatric audiology trainees	% pediatric audiology	Trainees from all disciplines	Pediatric audiology trainees	% pediatric audiology
2016-2017	668	50	7.5%	2,016	76	3.8%
2017-2018	660	51	7.7%	2,020	89	4.4%

Note that long-term pediatric audiology trainees from the 12 supplemented programs (only 23.1% of the national network) accounted for 57.3% and 65.5% of all long-term pediatric audiology trainees in the 2017-2018 and 2017-2016 training years, respectively.

* Source: National Information Reporting System (NIRS).

4. Longitudinal Trainee Demographic Data

The table below presents key demographic data* for pediatric audiology trainees from all participating LEND programs during the years (FY2009 to FY2018) in which they received supplemental funding.

Total Pediatric Audiology trainees supported	738
Long-term (>300 hours) pediatric audiology trainees supported	370
Medium-term (40-299 hours) pediatric audiology trainees supported	192
Short-term (<40 hours) pediatric audiology trainees supported	176
Pediatric Audiology trainees from minority or underrepresented racial and ethnic groups	106 (14.3%)

* Source: National Information Reporting System (NIRS).

5. Follow-up Survey Data

The table below presents aggregate responses* of former long-term (>300 hours) pediatric audiology trainees from supplemented LEND programs that completed training between FY2009 and FY2016, submitted either a five-year (FY2013 or earlier) or one-year (FY2014 or later) [follow-up survey](#), and indicated primary employment other than “Student” (n=347).

Survey Question	“Yes” Responses
Q3: Does your current work relate to individuals with disabilities?	300 (86.5%)
Q4: Do you currently work in a public health organization or agency (including Title V)?	117 (33.7%)
Q5: Does your current work related to underserved or vulnerable populations?	263 (76.0%)
Q9: Have you demonstrated leadership since completing your training program?	258 (74.4%)
Q11: Have you worked in an interdisciplinary manner since completing your training program? **	274 (79.0%)

* Source: National Information Reporting System (NIRS).

** Previously Q7 (“Do you regularly work with other disciplines that work with an MCH population?”).

6. Individual Program Profiles

Connecticut: University of Connecticut Health Center, Farmington

LEND Director: Mary Beth Bruder (bruder@uchc.edu)

Pediatric Audiology Core Faculty: Kathy Cienkowski (cienkowski@uconn.edu)

Programmatic activities that have been / are supported by the supplement:

- **Clinical** – Trainees participate in clinical practica in pediatric settings. Long-term trainees are placed at either the New England Center for Hearing Rehabilitation (NECHEAR) or Lawrence and Memorial Pequot Medical Center two days per week for both semesters, and medium-term trainees are placed at the American School for the Deaf (ASD) one day per week for at least one semester with the option to continue during their second semester.
- **Training** – Trainees are enrolled in the newly developed weekly pediatric audiology LEND seminar, which is run by Dr. Jill Raney and allows students to discuss in depth topics related to: maternal and child health, D/HH, and neurodevelopmental and related disabilities.
- **Collaboration** – In conjunction with the clinical training sites, LEND trainees participate in state EDHI meetings and IEP meetings as dictated by clinical service provision. This past year (2017-2018) two LEND trainees along with the discipline coordinator for audiology collaborated with CT Hands and Voices to complete a research study on the knowledge of childcare providers regarding (c)CMV and hearing loss.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- Dewald, O. et al. (2018). *National Child Care Provider's Awareness of Congenital Cytomegalovirus (cCMV)*. Manuscript in preparation.

Relevant conferences

- Presented a poster (“Support Service Preferences of Caregivers of Children who are D/deaf or Hard of Hearing”) at the American Speech Language and Hearing (ASHA) Conference.
- Co-presented a poster (“Preparation of LEND Audiology Trainees to Serve to Children with Autism and Other Neurodevelopmental Disorders”) at the Association of University Centers on Disabilities (AUCD) annual meeting.
- Presented two posters (“National Child Care Providers’ Awareness of Congenital Cytomegalovirus” and Social Support Preferences of Caregivers of Children who are D/deaf or Hard of Hearing”) at the Early Hearing Detection and Intervention (EHDI) annual meeting; the latter, which described survey results and parent interview data, won an outstanding poster award.

Other leadership roles

- LEND faculty member Kathy Cienkowski is a member of national/international peer review committees, groups on both age-related hearing loss measurement development and the scope of practice in audiology, and a subject matter on Aural Rehabilitation for the ASHA Practice Portal.

Trainee involvement

- Trainees have been involved in the research noted above. In addition, Olivia Dewald (2016-2017 long-term trainee) has taken on a leadership role in the Student Academy of Audiology.

Colorado: University of Colorado, Denver

LEND Director: Sandra Friedman (sandra.friedman@childrenscolorado.org)

Pediatric Audiology Core Faculty: Sandra Gabbard (Sandra.Gabbard@mariondowns.org)

Programmatic activities that have been / are supported by the supplement:

- Clinical – Each year, long-term trainees see about 500 families and medium-term trainees see about 200 families.
- Training – Trainees complete coursework in Leadership, Policy and Advocacy, and Key Concepts in Neurodevelopmental Disabilities, Multicultural Issues, Screening and Assessment in Children and Youth with ASD/ND; a workshop on Early Home Intervention Training from the Colorado Home Intervention Program (CHIP) helped them better understand how to be in interactive part of the team monitoring children and identifying when they may need other assessments.
- Collaboration – Trainees select newborn hearing legislation to follow and prepare a policy brief, attend statewide Audiology Advisory Committee meetings to learn more about the issues being raised, and have assisted with a parent panel at the Early Hearing Detection and Intervention (EHDI) annual meeting.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- One trainee presented a poster (“Parent Report of Amplification Use of Children with Hearing Loss Only and Those with Multiple Diagnoses”) at the 2018 EHDI Annual Meeting.
- Trainees and faculty members presented a poster (“Identifying Challenges in the Identification of ASD in Children with Hearing Loss”) at the 2018 American Academy of Audiology Conference.
- LEND faculty member Sandra Gabbard co-authored a poster (“Preparation of pediatric audiologists to serve children with ASD/ND”) for the 2017 Association of University Centers on Disabilities (AUCD) Annual Meeting.

Relevant conferences

- Hosted the “Frontiers in Hearing” symposium that included presentations by four LEND faculty.
- Trainees and faculty presented four posters at the EHDI annual meeting; two won awards for their respective categories.
- Trainees and faculty participate in the American Academy of Audiology (AAA) conference.

Other leadership roles

- Sandra Gabbard and Christie Yoshinaga-Itano serve on the state EHDI advisory board which meets quarterly and advises the Colorado Department of Health on issues related to early hearing detection, identification, and intervention.
- Christie Yoshinaga-Itano serves on the board of directors for Hands and Voices, a national parent advocacy organization.
- Sandra Gabbard is the President of the Marion Downs Center, a non-profit organization with a mission to provide culturally sensitive services, resources, education and research to support the needs of individuals who are deaf or hard of hearing or who have communication challenges, their families and the professionals who served them.

Trainee involvement

- All trainees present during Audiology Grand Rounds; cases are discussed during these sessions.
- Participate in “Story of Friendship,” a small group therapy environment for students with autism
- Medium-term trainees were invited to provide in-service training about auditory processing disorders and autism at the Temple Grandin School.

Maryland: Kennedy Krieger Institute, Baltimore

LEND Director: Bruce Shapiro (shapiro@kennedykrieger.org)

Pediatric Audiology Core Faculty: Dorothy Shiffler (shiffler@kennedykrieger.org)

Programmatic activities that have been / are supported by the supplement:

- Clinical – The audiology department evaluates, diagnoses, and treats hearing loss for more than 1,100 children annually. Faculty and trainees conduct a majority of evaluations in the outpatient clinic and provide services to the institute's inpatient and school populations.
- Training – Weekly core course lecture series for all disciplines with topics ranging from specific disabilities (e.g. ASD) to Special Education Law and Cultural Competency. Seminar series for trainees in the Communication Sciences Department focusing on topics/techniques more specific to improving the evaluation experience and interaction with families, such as challenging family situations and working with interpreters.
- Collaboration – In Fall 2018, a trainee and faculty member provided approximately 300 hearing screenings for children enrolled in the Baltimore County Head Start Program. Trainees and faculty also serve on the Maryland EDHI Screening and Beyond Advisory Committee, whose purpose is to develop a comprehensive statewide EDHI system of care to ensure that newborns and infants are receiving appropriate and timely services.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- Sherry, L., Levey, E., Gillen, C., & Pillion, J. (2017). Use of dexmedetomidine for sedation in auditory brainstem response testing. *Journal of Early Hearing Detection and Intervention*, 2(2):10-15.
- Trainees and faculty presented a poster ("Feasibility and Outcomes of Performing Head Start Hearing Screening Programs") at the 2018 EHDI Annual Meeting.

Relevant conferences

- Multiple faculty and trainees have attended the Association of University Centers on Disabilities (AUCD) and Early Hearing Detection and Intervention (EHDI) annual meeting in each year since the supplement was awarded.

Other leadership roles

- Faculty serve on a state working group to revise the manual for school hearing screenings, as well as the Health Advisory Board for Baltimore County Head Start.

Trainee involvement

- Trainees presented content at Kennedy Krieger Institute training seminars regarding Assessment and Management of Children with Hearing Disorders, as well as Evaluation and Recommendations for Central Auditory Processing Disorder (CAPD).

Massachusetts: Children's Hospital, Boston

LEND Director: David Helm (david.helm@childrens.harvard.edu)

Pediatric Audiology Core Faculty: Derek Stiles (derek.stiles@childrens.harvard.edu)

Programmatic activities that have been / are supported by the supplement:

- Clinical – Boston Children's audiology department sees a total of 20,000 patients per year; LEND externs each see about 1,000 of these during the course of their experience.
- Training – Teaching research methods and data collection in a hospital environment, plus advocacy skill development to support the rights of D/HH children.
- Collaboration – Each LEND fellow visits a Title V program and attends a class run by a state Title V Director. The program also works with the state DD Network, and engage presenters from the Departments of Disability Services, Public Health, and other agencies.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- Loyola N., et al. (2017). Are audiologists directly referring children with hearing loss to early intervention? *Journal of Early Hearing Detection and Intervention*, 2(2): 17-23.
- Bostic K., et al. Enlarged Vestibular Aqueduct and Cochlear Implants: The effect of early counseling on the length of time between candidacy and implantation. (2018). *Otology & Neurotology*, 39(2): e90-e95.
- Stiles, D.J. (2017). Audiometric evaluation of pediatric hearing loss. In S. Anne, Lieu J., & Kenna M. (Eds.), *Pediatric Sensorineural hearing loss: Clinical diagnosis and management*. San Diego, CA: Plural Publishing.
- Szarkowski, A. & Johnston, J. (2018). Dually Diagnosed: Autism and Hearing Loss. *The ASHA Leader*, 23(4), 20-21.

Relevant conferences

- Early Hearing Detection and Intervention (EHDI) Annual Meeting. Externs presented a poster on their research ("What is the current practice of audiologists in the early detection, screening, and referral of children with ASD?") and LEND pediatric audiology faculty presented three sessions.
- Revolutions in Pediatric Audiology Conference. This inaugural conference (to be an annual one) focused on diagnostic hearing testing of children with neurodevelopmental differences, treating children with unilateral hearing loss, and best practices in hearing aid fitting and management. This was co-sponsored by LEND and the program included three current and three former pediatric audiology externs from our program.
- American Academy of Audiology Conference. An extern presented their research ("What is the current practice of audiologists in the early detection, screening and referral of children with ASD?") and core faculty Derek Stiles presented his ("Implementing Evidence-Based Practice in Pediatric Diagnostic ABR Testing").
- Association of University Centers on Disabilities (AUCD) annual meeting. Presented a poster in collaboration with other supplemented programs ("Preparation of LEND Audiology Trainees to Serve Children with Autism and Other Neurodevelopmental Disabilities").

Other leadership roles

- David Helm (LEND Director) served on the Board of American Association on Intellectual and Developmental Disabilities (AAIDD).
- Amanda Griffin (Director of Audiology at Boston Children's Hospital) is a LEND alumna.

Trainee involvement

- Engagement in research on enlarged vestibular aqueduct syndrome, cochlear implantation, and audiological practice. Regular presentations of case studies.

Michigan: Wayne State University, Detroit

LEND Director: Sharon Milberger (smilberger@wayne.edu)

Pediatric Audiology Core Faculty: Jaynee Handelsman (jaynee@med.umich.edu)

Programmatic activities that have been / are supported by the supplement:

- Clinical – Since 2016, eight former LEND trainees have either provided services and/or observed 754 patients across three clinical sites.
- Training – Trainees are involved in panel presentations during conferences; faculty have presented at local (Children’s Hospital of Philadelphia Grand Rounds), state (Michigan Disability Conference), and national (American Academy of Audiology Conference) events.
- Collaboration – LEND Co-Director Dr. Jane Turner gave a presentation to the Michigan EHDI Advisory Committee in 2018 regarding the MI-LEND Program, community and clinical experiences, and the impact of the program on future audiology trainees. Members of Michigan’s Title V Program have co-presented with LEND long-term trainees in addition to leading didactic sessions for trainees on the roles of family members in clinical situations and family-centered care.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- Video learning modules on Newborn Hearing Screening and Follow-up (<https://youtu.be/CoJZFUUvRyY>) and Hearing, Hearing Loss, and Treatment (<https://youtu.be/yIOzzfW2Qkc>).
- E-newsletter on “Preparing Parents and Children for Audiologic Testing.”
- Pamphlet guide on “Hearing Aid and Cochlear Implant Retention Solutions.”

Relevant conferences

- Trainees and faculty attended both the EHDI and American Academy of Audiology (AAA) annual meetings in 2018.
- Trainees and faculty attended and presented at two statewide annual meetings: the Michigan Audiology Coalition and the Developmental Disabilities Conference. Trainees served as volunteers for the Family Matters event in 2017 and 2018.

Other leadership roles

- LEND faculty member Jaynee Handelsman served as President of the American Speech-Language-Hearing Association (ASHA) in 2016.

Trainee involvement

- Claire Miller, a 2017-2018 Fellow, was involved in providing hearing testing, treatment services, advanced electrophysiological testing, vestibular testing, and documentation at the Michigan Ear Institute.
- Sarah Kourtjian, a 2017-2018 Fellow: served as a graduate research assistant in the lab of Dr. Bharti Katbamna at Western Michigan University, examining the effects of prenatal smoke exposure on auditory systems.

New York: Albert Einstein College of Medicine, Bronx

LEND Director: Ted Kastner (ted.kastner@einstein.yu.edu)

Pediatric Audiology Core Faculty: Sarah Ellis (swebster@montefiore.org)

Programmatic activities that have been / are supported by the supplement:

- Clinical – Approximately 1,400 patients are seen annually at the Children's Evaluation and Rehabilitation Center (CERC); this is a significant increase from prior to the supplement when there was only one part-time audiologist on staff. The supplement has also led to an increase in the number of children fit with hearing aids, updated equipment, the ability to implement two-person testing for young or especially difficult patients, the implementation of best practice fitting methods for pediatric amplification, and elimination of what was a long wait list for patients referred by other providers in the center's multidisciplinary clinic. Trainees are involved in all of these efforts.
- Training – Two 3rd year Au.D. trainees and three 4th year Au.D. trainees rotate through CERC and two Montefiore sites, where they work with a very diverse and socially/economically disadvantaged patient population. They also participate in and lead training for Montefiore pediatric residents on topics related to childhood hearing loss.
- Collaboration – In contact with New York Early Hearing Detection and Intervention (EHDI) program regarding a project with the state's two other LEND programs with the goal of improving rates of loss to follow up after newborn hearing screening for children identified as Deaf/Hard of Hearing (D/HH).

Leadership activities that have been / are supported by the supplement:

Relevant published works

- The audiologists and trainees at CERC are currently involved in an investigative chart review to determine our center's hearing aid population's adherence to the EHDI 1-3-6 guidelines and whether or not parental preferred language (English or non-English) effects this adherence. We hope to publish our results once the study is complete.
- The three LEND 4th year trainees presented their research study ("Caregiver perspective on pediatric hearing loss and amplification") as a poster at the EHDI Annual Meeting.

Relevant conferences

- All 4th year trainees and a faculty member attended and presented at the EHDI Annual Meeting; one trainee and a faculty member attended the Disability Policy Seminar.
- A faculty member presented at (and trainee attended) the CERC-sponsored Early Intervention Training Institute.

Trainee involvement

- Trainees participate in a group research project that is presented at the EHDI national conference
- Trainees help present an overview of childhood hearing loss and pediatric audiology for Montefiore Pediatrics residents (monthly) and during one of the weekly core LEND lectures.
- Outside of typical clinic time, trainees are able to perform newborn hearing screenings at one of the Montefiore birthing hospitals.

North Carolina: University of North Carolina at Chapel Hill

LEND Director and Pediatric Audiology Core Faculty: Jackson Roush (jroush@med.unc.edu)

Programmatic activities that have been / are supported by the supplement:

- Clinical –LEND Audiology trainees participate in a wide variety of pediatric experiences, including: the UNC Hospital Audiology Department (diagnostic assessments and tracking of children with hearing aids, plus newborn hearing screening rotations), Children’s Cochlear Implant Center (CCIC) at UNC which performs 100+ surgeries per year and follows 800+ children with CI, and the Carolina Institute on Developmental Disabilities (CIDD) Hearing and Development Clinic, and School-Age Team.
- Training – Trainees participate in two graduate seminars (“Autism and Other Developmental Disabilities in Children who are Deaf and Hard of Hearing”) created because of the LEND audiology supplement and a U.S. Department of Education training grant with a similar theme that includes both speech language pathology and pediatric audiology trainees. They also participate in a LEND-sponsored ASL course offered each summer.
- Collaboration – Many LEND projects have been conducted in collaboration with the North Carolina EHDI program and have included Title V employees as co-authors; a group LEND project accepted involving a collaboration with UNC’s Center for Literacy and Disability Studies won a blue ribbon in the student poster category at the Early Hearing Detection and Intervention (EHDI) annual meeting.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- Roush, J. & Kaufman, B. (2017). Developing future pediatric audiology leaders. *The ASHA Leader*, 22, 18-21.
- Roush, J. & Kamo, G. (in press). Parent Counseling, Education, and Collaboration. In Flexer, C. & Madell, J. (Eds.), *Pediatric Audiology – 3rd Edition*. New York: Thieme Medical Publishers.
- Mankowski, J.B. & Costner, A. (2018). Adaptive Behavior. In E. Braaten (Ed.), *The SAGE Encyclopedia of Intellectual and Developmental Disorders*. Thousand Oaks, CA: SAGE.
- Hiruma, L.C. & Mankowski, J.B. (2018). Behavior Modification. In E. Braaten (Ed.), *The SAGE Encyclopedia of Intellectual and Developmental Disorders*. Thousand Oaks, CA: SAGE.

Relevant conferences

- In April 2018, LEND sponsored a statewide conference (“Diagnosis of Autism in Deaf and Hard of Hearing Children”) attended by approximately 170 participants.
- Faculty and trainees attend and present at the EHDI annual meeting each year (see above related to trainee poster award).
- LEND Director Jackson Roush gave an invited presentation (“Interdisciplinary Assessment of Children with Hearing Loss and Developmental Disabilities”) at a conference on audiological management sponsored by Children’s Hospital Colorado and the National Center on Hearing Assessment and Management (NCHAM).

Other leadership roles

- Jackson Roush serves as a member of the state EHDI Advisory Board under the auspices of the North Carolina Division of Public Health; he is also Project Director of a U.S. Department of Education Personnel Preparation Grant (“Preparation of Pediatric Audiologists and Speech-Language Pathologists to Serve Children with High Intensity Needs Including Hearing Loss and Developmental Disabilities”).
- Jean Mankowski serves on the Board of Directors and Executive Committee for the Orange County Partnership for Young Children.

Trainee involvement

- Danielle Mitton, a professional ASL interpreter, is completing a LEND project based on a study of referral outcomes from Special Olympics Healthy Hearing screenings in North Carolina.

Oregon: Oregon Health and Science University, Portland

LEND Director: Amy Costanza-Smith (costanza@ohsu.edu)

Pediatric Audiology Core Faculty: Kristin Knight (gilmerk@ohsu.edu)

Programmatic activities that have been / are supported by the supplement:

- Clinical – Annually, the Child Development and Rehabilitation Center (CRDC) Pediatric Audiology Clinic, which has nine former LEND trainees on the faculty, provided over 4,000 visits to 3,157 individual infants, children and adolescents. Trainees participate in several CDRC (and community-based) interdisciplinary diagnostic and management clinics, including Hearing Loss, Autism, Cleft Palate/Craniofacial, Down syndrome, Neurodevelopment, Child Development, and NICU Follow-up. They also provide supervised audiologic services (e.g. assessments, hearing device counseling and fitting, programming, and verification) at no cost to children and families through the KEX Kids Fund. Externs are involved in providing coordination of care between the audiology clinic, the Oregon Early Hearing Detection and Intervention (EHDI) Program, community early intervention programs, and regional Deaf/Hard of Hearing (D/HH) programs.
- Training – The supplement has allowed the program to double the number of students that receive clinical training each year and expanded education and experiential opportunities. Externs, for example, receive specific education and experience in the coordination of the newborn hearing screening program within the Oregon Health and Sciences University (OHSU) mother-baby unit and NICU, and through evaluations for infants who refer the newborn hearing screen.
- Collaboration – Trainees attend Oregon EHDI Advisory Board Meetings and are involved in a work group tasked with reducing loss to follow-up. Externs share responsibility for coordinating all aspects (e.g. communication regarding discharge planning, equipment maintenance, training volunteer screeners) the OHSU newborn hearing screening program. One LEND trainee research projects involved the investigation and analysis of data matching errors in the transfer of newborn hearing screening results between the OHSU electronic health records system and the EHDI information system; findings led to recommendations to improve the extraction algorithm and reduce errors.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- A curriculum for pediatric audiology interns (i.e. medium-term trainees) was developed by supplemented long-term trainees as a leadership project. This curriculum is currently being implemented and was shared with the LEND network in 2017.

Relevant conferences

- Trainees and faculty have attended and/or presented at the EHDI Annual Meeting, the Association for Research in Otolaryngology Meeting, the American Academy of Audiology's Audiology Now conference, the Society of Neuro-Oncology Annual Meeting, the Congress of the International Society of Pediatric Oncology's Hearing Loss Impact Symposium, and the International CNS Germ Cell Tumor Conference and Patient-Family Mini-Symposium.

Other leadership roles

- LEND faculty Kristin Knight is a member of the International Late Effects of Childhood Cancer Guideline Harmonization Group's Ototoxicity Surveillance Harmonization Workgroup; a Study Audiologist for multiple Children's Oncology Group studies and member of their Auditory Late Effects Committee; and part of the U.S. Department of Defense's Hearing Center of Excellence's Pharmaceutical Interventions for Hearing Loss Advisory Board (Ototoxicity Sub-Committee).

Oregon: Oregon Health and Science University, Portland (cont.)

Trainee involvement

- Trainees participate annually in the planning and administration of the CDRC Transition Fair, which provides an opportunity for special education students and families to learn about the local programs and services that are available to those no longer eligible for school-based services.
- Amanda Neve, a 2017-2018 trainee, worked with audiology graduate students from Pacific University to plan and implement a Noisy Toy Fair at Doernbecher Children's Hospital; the goal was to increase parent and caregiver knowledge about safe and dangerous levels of noise and provide a list of available toys with potentially dangerous sound levels. She also met with elementary school students to discuss hearing, hearing loss, and cochlear implants.
- Lauren Rynders, a 2017-2018 trainee, presented her LEND research project ("Hearing and Language Outcomes in Hispanic Cochlear Implant Recipients") at OHSU Otolaryngology Rounds.
- Christine Anderson and Cory Scott, 2017 trainees, prepared and presented a webinar for public health nurses and allied health professionals through the Oregon Center for Children and Youth with Special Health Needs; it provided information about newborn hearing screening, hearing loss, hearing assessment for infants and children, and hearing technology options. They also shared information about hearing loss and the field of audiology to high school students through the OHSU Discover Careers Program.

South Dakota: University of South Dakota LEND, Sioux Falls

Pediatric Audiology Core Faculty: Marni Johnson Martin (marni.johnson@usd.edu)

Programmatic activities that have been / are supported by the supplement:

- Clinical – All four audiology trainees are actively involved in comprehensive central auditory processing evaluations, management, and follow-up; these were sometimes performed in conjunction with ASD or FASD clinics in Sioux Falls at the Sanford and USD Center for Disabilities Audiology Suite, or in Vermillion at the USD Communication Sciences and Disorders and Scottish Rite Speech, Language, and Hearing Clinic. Trainees also conducted hearing screenings at the South Dakota Special Olympic State Summer Games in Spearfish as part of the Healthy Athletes initiative.
- Training – Trainees and discipline faculty had the opportunity to attend the Clinical Training for the Autism Diagnostic Observation Schedule, 2nd Edition (Toddler Module through Module 4); they also participated in a Legislative Day at the State Capital in Pierre.
- Collaboration – LEND is engaged in partnerships with Sanford Children’s Hospital and Sanford ENT; the South Dakota School for the Deaf; and the South Dakota Newborn Hearing Screening Program.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- Martin, M. J., Bellis, T., & Billiet, C. R. (2018). Audiologic Assessment of (C)APD. In D. Geffner & D. Ross-Swain (Eds.), *Auditory Processing Disorders Assessment, Management, and Treatment – Third Edition*. San Diego, CA: Plural Publishing.
- “Hearing Screenings in South Dakota Public Schools and a Comparison to Professional Guideline” was awarded best LEND poster at the 2018 South Dakota LEND Symposium, where “Survey of Audiologists’ Role on Interprofessional Teams” was also presented by a pair of trainees.

Relevant conferences

- Trainees attended the USD Center for Disabilities Annual Symposium; South Dakota Speech, Language, and Hearing Association (SDSLHA) Annual Convention; the American Academy of Audiology (AAA) National Convention; the Early Hearing Detection and Intervention (EHDI) Annual Meeting; and the Fragile X Conference. LEND faculty presented at state conferences.

Other leadership roles

- LEND faculty member Marni Johnson Martin serves on the USD Faculty Senate and is Director of Healthy Hearing for the South Dakota Special Olympics.

Trainee involvement

- Two trainees were involved in the USD Communication Sciences and Disorders’ Cochlear Implant (CI) Outreach Program in Rapid City, where they were the lead clinicians for 10 patients each; hearing evaluations, CI mapping, and speech and language progress are all addressed.
- Trainees had the opportunity to participate in an outreach trip to Eagle Butte with the American Indian Community Health group from Kansas. Trainees and faculty members performed hearing and variety of other health screenings (e.g. cholesterol, blood sugar) out of a mobile van unit and met with the local Head Start Director to better understand the resources needed on the reservation related to speech, language, and hearing services.
- One of the 1st year Au.D. student trainees secured funding from the USD Student Government Association, which appropriated \$4,500 to the Department of Communication Sciences and Disorders to fund the purchase of 300 musician earplugs to protect the hearing of its student musicians.
- A 2nd year Au.D. student trainee collected data about the telecommunications services in the state; they led a focus group of D/HH individuals and family members regarding their experiences.
- Another 2nd year Au.D. student trainee helped set up tele-audiology remote sites in two rural towns; they also trained nursing staff on tele-audiology service provision.

Utah: University of Utah Health Science Center, Salt Lake City

LEND Director: Sarah Winter (sarah.winter@hsc.utah.edu)

Pediatric Audiology Core Faculty: Vicki Simonsmeier (vicki.simonsmeier@usu.edu)

Programmatic activities that have been / are supported by the supplement:

- Clinical – Experiences include the newborn hearing screening program at the University of Utah Health Sciences Center, which includes infants in the NICU; the Primary Children’s Hospital Hearing Assessment Clinic (a joint diagnostic venture with otolaryngology and genetics); the Sound Beginnings program for Deaf/Hard of Hearing (D/HH) children who are educated using a Listening and Spoken Language approach; and a hearing screening program at South Main Clinic, one of Salt Lake City’s community health centers serving mainly low-income Hispanic families. A new clinical experience initiated this past year was participation in tele-audiology services at the Utah Department of Health. Trainees conduct auditory brainstem response testing remotely on infants who need diagnostic audiological evaluation in rural areas where these services are not available. Thanks to the opening of the new interdisciplinary clinical building at Utah State University, trainees are participating in coordinated care across psychology, speech-language pathology, audiology, marriage and family therapy, and aquatic therapy; they seamlessly interact with early intervention (birth to three, IDEA part C programs) and a specialized program for children ages 3-5 diagnosed with autism. Trainees in Idaho had the opportunity to observe and evaluate students enrolled in the early intervention program through Idaho Education Services for the Deaf and Blind.
- Training – The Infant and Pediatric Audiology (IPA) program adds significant value to the LEND curriculum, with seminars that are open to trainees from all disciplines. Topics include: Development, Education, and Communication in Children with Hearing Loss (HL) and other Development Disabilities (DD); Parent Perspectives on Hearing Loss; The CMV Experience (i.e. Utah’s legislative experience in implementing CMV testing and the subsequent public awareness activities, as well as the family perspective/role in state and national advocacy); Behavioral Observations: Importance in Hearing Evaluations of Children with HL/ASD/DD; Medical and Genetic Aspects of HL; and Newborn Hearing Screening (Advocacy, Implementation, and Follow-up).
- Collaboration – The IPA program mirrors URLEND as a multi-state endeavor, adding Idaho State University’s audiology program in 2016. Trainees and faculty met with the state Early Hearing Detection and Intervention (EHDI) Coordinator to introduce the program and identify needs to be addressed by leadership projects; they also attend EHDI meetings. In addition, they met with the Title V Coordinator regarding mutual efforts to educate the public on CMV. Trainees conducted hearing screenings at the Pocatello Head Start and presented two training sessions for parents on the importance of hearing for speech and language development at the Fort Hall Head Start. They are also required to shadow Early Interventionists during home visits for the Parent Infant Program for the D/HH, which is the contracted Early Intervention Part C provider for D/HH infants and children 0-3 in both Utah and Idaho.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- Multiple resources in English and Spanish have been developed, in part, by LEND IPA faculty and trainees; they are available for free at: <https://health.utah.gov/cshcn/programs/cmvm.htm>.
- Caballero, A., et al. (2017). Pediatric hearing aid management: Challenges among Hispanic families. *Journal of the American Academy of Audiology*, 28(8), 718-730.
- Meibos, A., et al. (2017). Counseling users of hearing technology: A comprehensive literature review. *International Journal of Audiology*, 56(12): 903-908.

Relevant conferences

- Faculty and trainees have attended and presented at the EHDI Annual Meeting, American Speech Language Hearing Association (ASHA) Convention, and the Association of University Centers on

Impact Summary: LEND Pediatric Audiology Supplement

Disabilities (AUCD) Annual Meeting, and conference on working with families sponsored by the National Center for Hearing Assessment and Management (NCHAM) and Idaho Sound Beginnings.

Utah: University of Utah Health Science Center, Salt Lake City (cont.)

Other leadership roles

- LEND faculty member Mary Whitaker participated in the 2018 Idaho Exceptional Child Standards and Endorsement Review; she is also an American Academy of Audiology (AAA) Ethical Practices Committee member and serves on both the ASHA Educational Summit Committee and Audiology Advisory Council. She is involved in a collaborative project with other hearing education and health care professionals to review requirements for the Idaho Exceptional Child Endorsement certificate.
- LEND faculty member Vicki Simonsmeier spearheaded a peer mentoring initiative for pediatric audiology trainees at all LEND sites in collaboration with AUCD staff.
- LEND faculty member Stephanie McVicar serves on the Utah Department of Health Public Health Accreditation Board as a Subject Matter Expert Committee Member; she was also awarded “Outstanding Public Health Employee” in 2018 from the Utah Public Health Association.

Trainee involvement

- Trainees will be developing a project to enhance the early intervention referrals and enrollment process (in line with the 1-3-6 newborn hearing screening goals established by EHDI and promoted by the American Academy of Pediatrics) in our partner states and identify barriers to timely milestone achievement.

Washington: University of Washington, Seattle

LEND Director: Jennifer Gerdtz (jvarley@uw.edu)

Pediatric Audiology Core Faculty: Lisa Mancl (lmancl@uw.edu)

Programmatic activities that have been / are supported by the supplement:

- Clinical – 1,000 patients seen annually by LEND faculty and trainees in the Pediatric Audiology Clinic and other interdisciplinary clinics at the Center for Human Development and Disability.
- Training – Trainees have the opportunity to enhance skills in interdisciplinary clinical communication with families and peers. Standardized patients act as a parent of a child that is Deaf/Hard of Hearing (D/HH) and are given specific “roles” to allow trainees to practice difficult conversations. Trainees have developed family resource handouts to specifically address unique challenges of raising a D/HH child; these are available to former, current, and future trainees for their practice.
- Collaboration – Trainees have collaborated with the Washington Early Hearing Detection, Diagnosis, and Intervention (EHDDI) program and Washington Hands and Voices to understand and improve systems of care for D/HH children with ASD/DD in underserved and diverse communities.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- One of the pediatric audiology trainees presented her LEND leadership project poster at the 2018 EHDI Annual Meeting.

Relevant conferences

- All six pediatric audiology trainees attended the 2018 EHDI Annual Meeting, including the pre-conference session for LEND trainees.

Other leadership roles

- LEND faculty member Lisa Mancl serves on the Washington State EHDDI Advisory Group and participates in quarterly meetings to focus on improving the outcome of early detection and intervention for children with hearing loss and their families.

Wisconsin: University of Wisconsin, Madison

LEND Director: Anne Harris (harris@waisman.wisc.edu)

Pediatric Audiology Core Faculty: Jon Douglas (jon.douglas@wisc.edu) and Amy Hartman (amy.hartman@wisc.edu)

Programmatic activities that have been / are supported by the supplement:

- Clinical – Out of hospital clinics provide newborn hearing screening follow-up, diagnostic ABR testing, and resources for families in underserved areas, including Amish and Mennonite communities. Two to three “clinic” days per year, each serving 5-10 families (often more than one child per family tested). While trainees cannot bill separately, having additional trainees allow LEND audiologists in Waisman Center clinics (Autism / DD, Down syndrome, Neuromotor development) to see more patients three different days a week and conduct audiological assessments for the Newborn follow-up and Genetics clinics. In total, these Waisman Center clinics serve over 2,000 individual patients per year, with approximately 10 audiological assessments completed per week.
- Training – A pediatric curriculum is being offered now for Au.D. students who decide they want to specialize in serving children. These potential trainees are identified and get involved in pediatric services during their first year of the Au.D. program, then are encouraged to apply to participate in LEND program during in their second year. The Au.D. counseling class now uses “standardized patients,” a part of their curriculum developed as a result of the supplement, to train audiologists to deliver results of pediatric hearing screening and diagnostic testing to families.
- Collaboration –The out of hospital clinics are run as a collaboration between LEND and the state Early Hearing Detection and Intervention (EHDI) program, and the “Assessment of Early Intervention Outcomes (AEIOu) Study for children who are deaf/hard of hearing” research project continues as a collaboration between the LEND Director and the state EHDI program.

Leadership activities that have been / are supported by the supplement:

Relevant published works

- Posters presented by trainees and faculty at Audiology NOW Convention, EHDI Annual Meeting, and WSHA Annual Convention.

Relevant conferences

- Faculty and students attend (and often present at) the EHDI Annual Meeting each year, including the pre-conference session for LEND trainees.

Other leadership roles

- Hanna Sawher (trainee) was on the National Student Academy of Audiology Board in 2017-2018; she chaired the outreach committee. She also co-chaired the student planning committee for the EHDI Annual Meeting in 2017 and was on the planning committee in 2018.
- Katie Hadsell (trainee) was on the National Student Academy of Audiology Board in 2017-2018; she chaired the development committee.
- Emily Wilson (trainee) was the Student Academy of Audiology state ambassador for Wisconsin in 2017-2018.
- LEND faculty members Amy Hartman and Jon Douglas are on the Wisconsin Newborn Hearing Subcommittee which works with stakeholders in the state on EHDI issues.
- LEND Director Anne Harris shared AEIOu research results in a poster presentation (2017) and a breakout session (2018) at the EHDI Annual Meeting.

Trainee involvement

- In both 2017 and 2018, LEND Au.D. trainees participated in data collection and analysis for the AEIOu study as part of their interdisciplinary research placement, resulting in posters shared at the LEND research symposium.