BOYS TOWN

Center for Perception and Communication in Children

2024 | ANNUAL NEWSLETTER

NOV 2023 – NOV 2024

boystownresearch.org

BOYS TOWN National Research Hospital®

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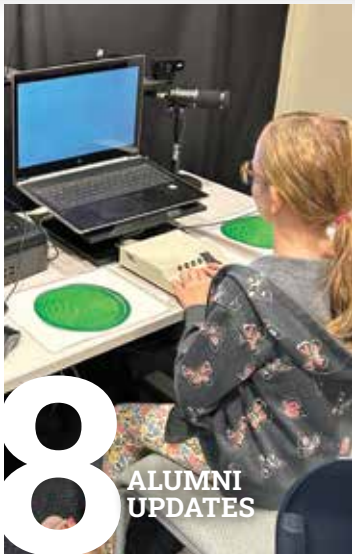


Boys Town National Research Hospital established the **Center for Perception and Communication in Children (CPCC)** in 2014 with support from a Centers of Biomedical Research Excellence (COBRE) grant from the National Institute of General Medical Sciences (NIGMS) under Award Number P20GM109023.

We're proud to share our research team's progress and highlights from this last year!

From the Program Director

Greetings from the Center for Perception and Communication in Children (CPCC)! It is hard to believe that it has been over 10 years since the CPCC was established. This newsletter highlights accomplishments of the wonderful scientists, clinicians, engineers, core staff, and laboratory teams that make up the present-day CPCC, but I'd like to take some time to summarize how far we've come in the last decade. The CPCC was one of the first COBRE-funded centers focused on clinical-translational research and has evolved into one of the nation's largest groups of researchers with expertise in childhood communication disorders. The CPCC has grown from 15 faculty and the equivalent of six full-time staff in the Technology and Participant Cores in 2014 to 24 scientists and 15 core staff at the end of 2024. We have learned that collaborations across laboratories, between scientists and clinical practitioners, and between researchers and the community lead to scientific discovery and pave the way for innovation. I hope you enjoy reading about our progress over the last year and how the CPCC has supported the overall mission of Boys Town National Research Hospital to ***change the way America cares for children and families.***

Sincerely,

Lori Leibold

Lori Leibold, Ph.D.
Program Director
Center for Perception and Communication in Children

RESEARCH Core Updates

ADMINISTRATIVE CORE

The Administrative Core (Admin Core) is led by Dr. Lori Leibold and facilitated by an experienced project management team. The Admin Core provides the project management, resource allocation, evaluation framework, and scientific oversight required to successfully run the CPCC.

The Admin Core also runs the Pilot Projects Program. This program is designed to give early career investigators the opportunity to expand their area(s) of research, increase research participation among all CPCC scientists, and develop new technologies.

Over the past decade, the CPCC recruited many new and established researchers. This recruitment effort has been supported by the Admin Core and Boys Town National Research Hospital. The research being performed in the CPCC is nationally recognized for improving the lives of children with communication disorders.

PARTICIPANT CORE

The Research Participant Services Core (Participant Core) is led by Dr. Krystal Werfel; Dr. Sophia Ambrose, clinical measurement program manager; and Trinity Williams, community engagement manager. One of the primary goals of the Participant Core is to support Boys Town research labs in conducting research that is robust and unbiased. The Participant Core staff includes recruitment coordinators, community engagement specialists, research audiologists, and speech-language pathologists who provide support services directly to the labs. Additionally, in the past year, the Participant Core developed two new research employee groups with the goal of increasing communication and collaboration between labs.

The first is the Research Assistant and Lab Staff (RALS) Connections Group. This group meets regularly and has a Microsoft Teams page that allows for communication between meetings. Both of these components allow group members to learn from one another on topics ranging from recruitment to participant satisfaction. These meetings also allow Boys Town Research to invest in the careers of their lab staff by providing the group with professional development content. The second group is the Research Speech-Language Pathologist and Audiologist Alliance (The Alliance). There are currently 19 audiologists and speech-language pathologists working in research labs at Boys Town Hospital, which represents over a two-fold increase in the past year and a half. As with the RALS Connections Group, the Alliance meetings allow for increased collaboration and communication between group members,

Research participants are vital partners in the research process. Our goal is to shift thinking to a community-engaged research framework to ensure our research findings are relevant to and representative of our community.

Admin Core, L to R: Christine Hammans, Randi Knox, Angela Collins, Sara Hansen, Lori Leibold, Nina Hjermstad

Participant Core, L to R: Trinity Williams, Krystal Werfel, Sophie Ambrose

which positively impacts the quality of the research conducted in labs. Additionally, these meetings provide an opportunity for the Participant Core to discuss topics that are relevant to each group's unique expertise and skillset, with the groups providing input on a variety of topics ranging from selection of clinical test batteries for research protocols to procedures for hearing, speech, and language screenings. Both groups are a win-win for all involved, with research staff members building stronger relationships with one another, while developing professionally and providing the department with valuable input based on their experiences.

Members of RALS and the Alliance

Members of RALS and the Alliance

TECHNOLOGY CORE

The Research Technology Services Core (Tech Core) team consists of core lead Dr. Chris Stecker, research engineering supervisors Dr. Denis Fitzpatrick and Raj Persaud, research technology engineers Seth Bashford and Won Jang, and technology project manager Christine Hammans. Our team consists of engineers, programmers, scientists, and staff with experience in software applications development, signal processing, digital media design, research hardware, and data acquisition and analysis.

We have developed research technology for laboratory, web-based, and at-home testing with human research participants, machine learning, database integration, and virtual reality. Currently, the team continues to develop and maintain access to a wide array of shared facilities for spatially interactive research that combines hearing, vision, balance, and action for high-performance computing and for delivery of web-based experiments to remote participants.

Our long-term goals include:

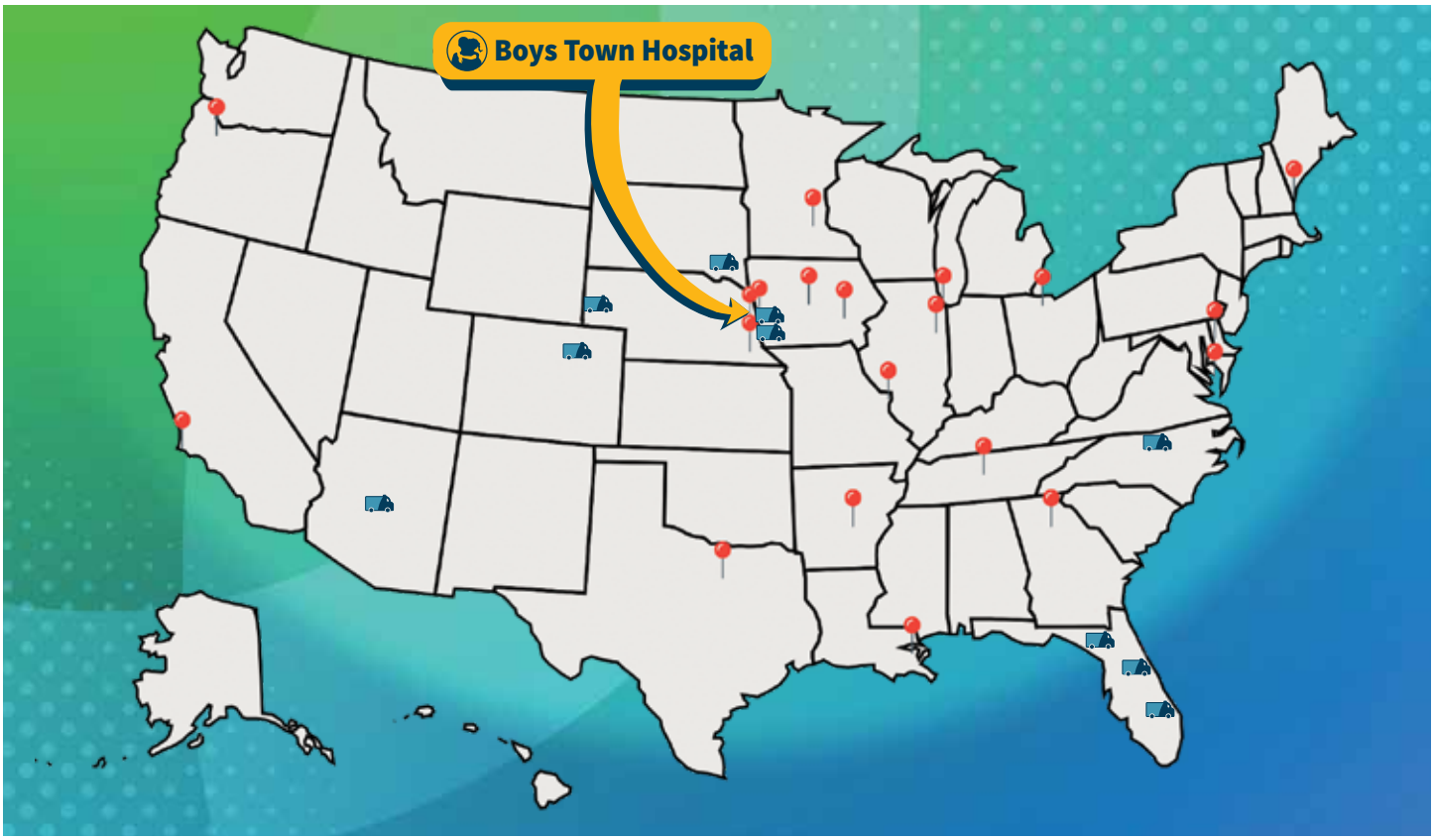
1. Providing state-of-the-art support for laboratory computing, engineering, and data acquisition to aid research.
2. Developing and deploying technology in emerging areas like high-performance computing, remote testing, open science, and multisensory/virtual reality paradigms.
3. Distributing and commercializing research technology by identifying and protecting intellectual property, cataloging research tools, and exploring opportunities for open sharing or commercial licensing.

Tech Core, L to R: Chris Stecker, Won Jang, Seth Bashford, Denis Fitzpatrick, Raj Persaud

Data Collection, Collaborations and Presentations

Boys Town Research Partner List

Throughout 2024, our researchers traveled across the country for data collection and presentations. Below is a map of the places we traveled to with a few key locations and partners highlighted.



FEATURED BOYS TOWN RESEARCH PARTNERS

BC Early Hearing Program
Victoria, BC, Canada

Canadian Hearing Services
Toronto, ON, Canada

The House Institute Hearing Health Centers
Los Angeles, CA

M.I.N.D. Mentorship Program at the Emory School of Medicine
Atlanta, Georgia

Shriners Hospital
Minneapolis-Saint Paul, MN

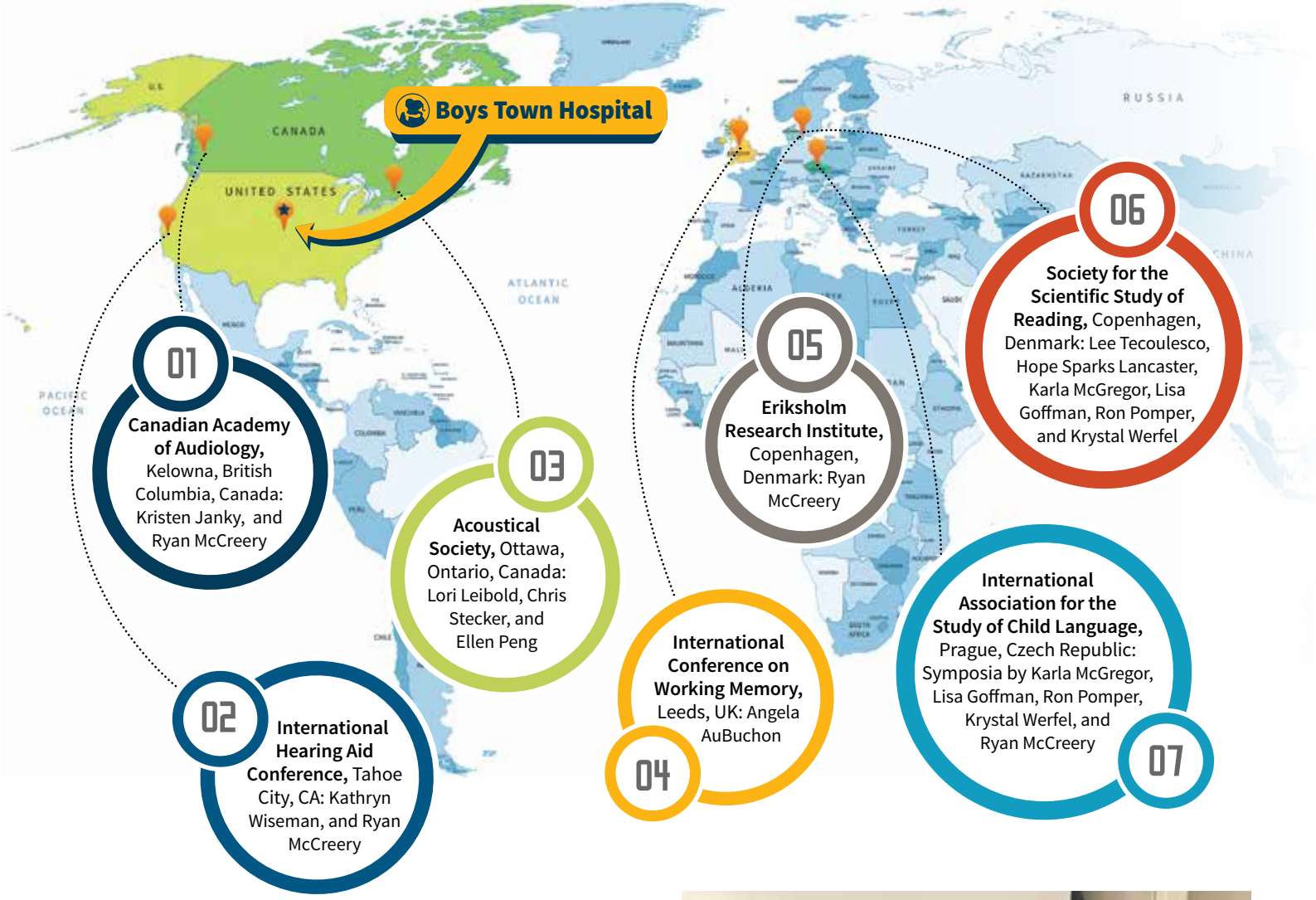
2024 BOYS TOWN RESEARCH VEHICLE SITES

Tallahassee, Florida
Orlando, Florida
West Palm Beach, Florida
Phoenix, Arizona
Denver, Colorado
Charlotte, North Carolina
Sioux Falls, South Dakota
Omaha, Nebraska
Scottsbluff, Nebraska
Glenwood, Iowa

International Presentations Year in Review

Our research is making an international impact.

Boys Town Researchers have traveled far and wide throughout the year to present their findings at conferences around the world.



> “Our effort to present our research findings internationally has led to new collaborations, provided CPCC scientists with diverse perspectives on ways to address children’s communication challenges, and promoted technological innovation.”
>
> – Lori Leibold, Ph.D.

International Association for the Study of Child Language, Prague, Czech Republic, L to R: Drs. Elizabeth Heinrichs-Graham, Krystal Werfel, Ryan McCreery, Lee Evans, Karla McGregor, and Lisa Goffman

Heather Porter, Ph.D.

HUMAN AUDITORY DEVELOPMENT LAB

Traditional hearing tests measure the softest sounds a person can hear from a range of low to high pitches. An alternative hearing test is needed for those unable to provide reliable responses to sound, such as infants or people with significant disabilities. For these vulnerable populations, auditory brainstem response testing is used to estimate hearing sensitivity by monitoring the brain's response to sound.

However, clinical protocols for auditory brainstem response testing include fewer pitches than traditional hearing tests despite evidence that the full range of pitches is important for speech perception and listening in background noise. A goal of our CPCC pilot grant, Clinical Normative Data for High-Frequency Auditory Brainstem Response Testing, was to expand the range of pitches that are included in clinical auditory brainstem response protocols.

The research supported by the CPCC grant 1) addressed defined normative auditory brainstem response data for infants and 2) delineated the relationship between results from auditory brainstem response testing and traditional hearing tests. This means clinicians have information showing what normal responses look like and how abnormal responses relate to degree of hearing loss. We were afforded the opportunity to share our results through two publications in peer-reviewed journals widely read by clinical audiologists and at a recent conference highlighting translational research in pediatric audiology.

Angela AuBuchon, Ph.D.

WORKING MEMORY AND LANGUAGE LAB

This past year, the Working Memory and Language Lab has continued to explore the strategies people use to process and remember information. In particular, we described how children talk to themselves to process and remember information. We have identified how the development of different language skills support this self-talk across childhood. We have recently teamed up with Dr. Karla McGregor here at Boys Town. We are helping her identify which stage of information processing is disrupted in children who have developmental language disorder.

We have also formed a new collaboration with colleagues at Georgia Tech. We have designed better tests to measure children's attention. The tests feel like games you might play on a tablet, so kids are really having fun helping us with our research these days! Now, we want to find out if these attention tests predict children's language outcomes as well as which children are particularly affected by background noise.

Ellen Peng, Ph.D.

FUNCTIONAL HEARING LAB

In the Functional Hearing Laboratory, we are interested in understanding how children with typical hearing and those with hearing loss develop various functional hearing abilities in classroom-like environments. These abilities include speech perception and spatial hearing, which rely on using sounds from two ears (or two hearing devices!) to navigate the world. Unfortunately, classrooms have reverberation that often make it very hard for children to understand speech and tell where sounds are from.

This year, we welcomed more than 100 individuals to the lab, including adults and children with typical hearing and some with cochlear implants, to participate in various research studies. We started data collection on a big project funded by the NIH to understand how children with typical hearing develop spatial hearing in reverberant environments. We recorded each participant's head-related transfer functions – the acoustic signals that are used to create virtual reality sounds. It is now one of the biggest databases in the world to help us learn how children's physical growth can affect their ability to tell sound locations.

Hope Sparks Lancaster, Ph.D. ////

ETIOLOGIES OF LANGUAGE AND LITERACY LAB

The overall goal of the Etiologies of Language and Literacy Laboratory is to understand how our genes and environment influence language and literacy development so that we can develop identification methods for adults and children with language and literacy disorders. We focus on three skills: speech, language, and reading. Speech is the ability to produce meaningful sounds. Language helps us produce and understand words, sentences, and conversation. Reading is understanding written information, like this newsletter! We collaborate with researchers from a broad range of backgrounds and use interdisciplinary methods to develop tools and conduct research to understand communication development in children and adults with communication difficulties.

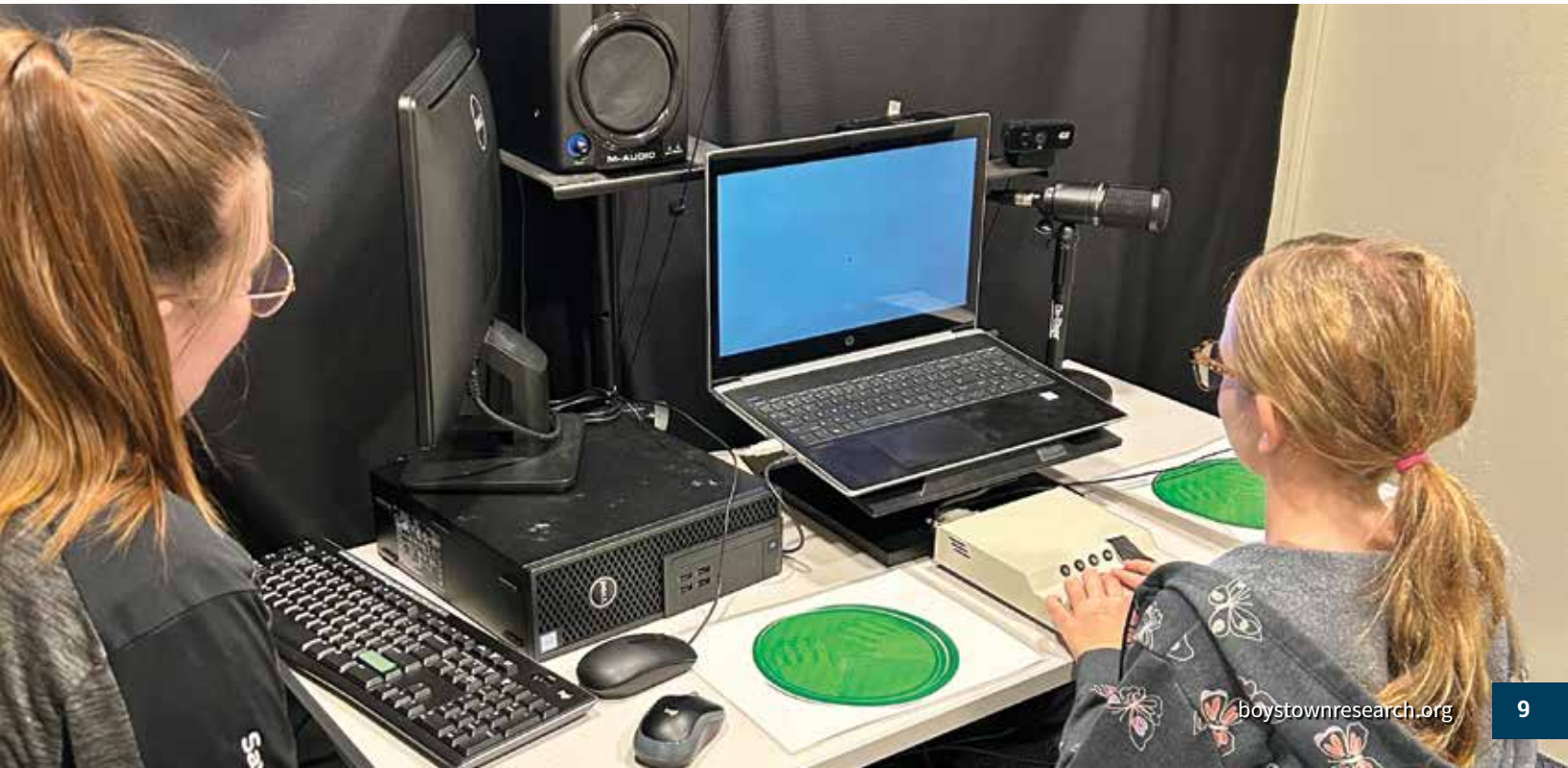
In the last year, our lab has completed beta testing of our remote language data collection tool for research studies examining adults with developmental communication disorders (ReAL-E), established new partnerships at several universities, and published two papers on children with cleft palate. We are welcoming two new research assistants and launching the next phase of data collection for our remote tool development.

Kathryn Wiseman, Ph.D. /////////

CHILD AUDITORY TECHNOLOGY LAB

The Child Auditory Technology Lab (CAT Lab) studies how children who use auditory technology, like hearing aids and/or cochlear implants, hear sound and develop communication skills. Children who are deaf/hard of hearing who use auditory technology often develop communication differently from one another, but we don't always understand why these differences occur. If research can better identify what makes some kids thrive and others face communication challenges, we can make better recommendations in our audiology and speech-language pathology clinics to support this population and their families. Research in the CAT Lab has two main goals: 1) understand differences in auditory and language development between hearing aid and cochlear implant users to better individualize device candidacy for children with hearing loss and 2) understand the effects of fitting and management of pediatric auditory technology on outcomes in children with hearing loss.

This year was a busy one for the CAT Lab! Currently, our main project looks at how children hear complex auditory stimuli with their hearing aids and how that relates to their language abilities. Our lab has been busy collecting data for this project. We collected data at spring break and summer break research camps here at Boys Town Hospital. We also collected data in the BTRV in Charlotte, NC, alongside the Oral and Written Language (OWL) Lab. CAT Lab members got to share our research in six different U.S. states and at one international conference over the past year. We also welcomed a postdoc, Dr. Steven Giakanas, to the lab.



Kaylah Lalonde, Ph.D.

AUDIOVISUAL SPEECH PROCESSING LAB

In face-to-face conversations, we can use lipreading to help understand what our conversation partner is saying. You may have noticed that you rely on lipreading when trying to understand someone in noisy backgrounds. In the Audiovisual Speech Processing Laboratory, we have found that children who are hard of hearing benefit more from lipreading than children with typical hearing. Our team is currently studying why this is the case and which children get the most benefit from lipreading. We believe children who have hearing loss at high frequencies or pitches may benefit more from visual cues than children with typical hearing or hearing loss at low frequencies. So far, we have found that when they can see lipreading cues, children don't need high frequency sounds as much to understand words. We are still recruiting children with hearing aids for this study. In the end, results of the study will help clinicians choose the best type of spoken language intervention for individual children with hearing loss.

Adam Bosen, Ph.D.

AUDITORY PERCEPTUAL ENCODING LAB

In the Auditory Perceptual Encoding Lab, we study the auditory and cognitive factors that affect individual differences in speech recognition outcomes in patients with hearing loss. Our recent work has found that people with hearing loss vary in their ability to hear speech cues in frequencies in the 1 – 2 kHz range – frequencies which we know are really important for speech recognition.

In conjunction with our collaborators, we have developed a method of measuring speech cue access in this range of frequencies by analyzing acoustic speech waveforms. Our new method could be an important clinical tool because it can be used to get more information out of speech recognition tests that we already use in the clinic. That information could help clinicians modify hearing device programming to improve speech recognition outcomes by tailoring each device to the needs of each patient. We have applied for grant support from the NIH and submitted patents to support development of this tool.

AWARDS

Chris Stecker, Ph.D.

CPCC Research Technology Services Core Director, Chris Stecker, Ph.D., received a Fulbright Specialist Award from the U.S. Department of State and the Fulbright Foreign Scholarship Board.

Lisa Goffman, Ph.D.

CPCC Advisory Committee Member, Lisa Goffman, Ph.D., was appointed the Endowed Chair in Childhood Deafness, Language and Learning.

Heather Porter, Ph.D.

Prior CPCC Pilot Project Lead, Heather Porter, Ph.D., received the American Journal of Audiology Editor's Award.

Karla McGregor, Ph.D.

Former CPCC Core Director, Karla McGregor, Ph.D., was selected for an ASHA Lifetime Achievement Award.

Krystal Werfel, Ph.D.

CPCC Research Participant Services Core Lead, Krystal Werfel, Ph.D., received the American Journal of Speech-Language Pathology Editor's Award.

HIGHLIGHTS

MEET LAB MANAGER
Grace Dwyer

Grace Dwyer was a research assistant for several years and is now the lab manager in Dr. Kaylah Lalonde's lab. Dr. Lalonde's lab (the Audiovisual Speech Processing Laboratory) focuses on how visual information and visual speech provide us with a better understanding of what others are trying to say.

Grace previously worked with adults in a sleep study laboratory at Iowa State University while studying psychology. She didn't know much about children who are hard of hearing, or how children use visual cues to understand speech, but knew she wanted to continue in research.

"Working with kids has taught me how self-motivated they are. They are so intelligent and are excited to participate in research."

Grace suggests that anyone who is considering going into research look into the opportunities and avenues available at Boys Town. She has enjoyed getting to work hands-on with the children and helping them cultivate a love of research.

"There are so many different types of research labs and areas of science to go into. You can't go wrong going into research."

MEET LAB MANAGER
Margo Appenzeller

Dr. Margo Appenzeller has been involved with Boys Town for eight years. For the last year-and-a-half, she has been a manager of Dr. Karla McGregor's Word Learning Laboratory. Dr. McGregor's lab focuses on developmental language disorder (DLD).

"I took this position not because it would be easy, but because I could learn and be better at what I am doing."

Margo began working with children who are deaf and hard of hearing at a residential school and then moved to a position in special education at a public school. During this time, she realized she missed working with children who are deaf and hard of hearing and decided to get her Ph.D. in special education services, focusing on outcomes for those children.

"Coming from a world of deaf education, I can see how DLD would be easily missed. Typically, these children are affected by hearing loss or have other reasons DLD could be overlooked."

The Word Learning Lab is currently working on a research study for children with epilepsy to learn how seizures affect the strengths and weaknesses with their language. This is a collaborative project with Dr. Isabella Herman, a pediatric neurologist at Boys Town National Research Hospital.

"The nicest part is you are working with people that are significant in their research field. They are the experts and have such a commitment to working with children and working with others to push the field forward. They really care about the research process. I'm always learning from them whether it's research, language, or helping families and children."

Kristen Janky, Ph.D.

VESTIBULAR AND BALANCE LAB

The Vestibular and Balance Laboratory studies the effects of vestibular loss in children with hearing loss. The vestibular part of the ear is connected to the hearing part of the ear; therefore, some children with hearing loss have co-existing vestibular loss. Vestibular loss in children can cause gross motor delays and blurred vision during head movement and may also affect reading and cognition. Therefore, the purpose of our current grant is to examine vestibular loss as a contributing factor for reading difficulties in children with hearing loss.

This year we started two new projects. For our first project, we are studying the relationship between vestibular, balance, and hearing outcomes in individuals with Down syndrome. This study is important because balance dysfunction is commonly reported in individuals with Down syndrome; however, almost nothing is known about whether the vestibular system contributes to balance and its relationship to hearing loss for individuals with Down syndrome.

For our second project, we are studying the relationship between genetic, audiometric, and vestibular outcomes in children with an inner ear malformation called large vestibular aqueduct syndrome. Approximately 15% of children with early onset hearing loss have large vestibular aqueduct syndrome; however, audiometric and vestibular patterns can vary widely. These two projects will ultimately help us improve the information we have to provide better care for patients at a clinical level.

Gabrielle Merchant, Ph.D.

TRANSLATIONAL AUDITORY PHYSIOLOGY AND PERCEPTION LAB

This year, we expanded on our previous work, supported by the CPCC, aimed at improving the diagnosis of ear infections in children. With funding from an NIH R56 award, and a subsequent NIH R01 award that started on July 1, we have taken our testing on the road using a mobile van to monitor ear infections and hearing loss over time. This approach helps us better understand the stability and fluctuations associated with ear infections. Over the past year, we have successfully monitored more than 20 children with ear infections (alongside 20 children without ear infections for comparison) over weekly and then monthly interviews for an entire year.

Additionally, our lab is involved in a new R01 grant that began on May 1 investigating hearing and balance function in individuals with Down syndrome. This population is known to experience high rates of ear infections, but the relationship between these infections and subsequent hearing loss or balance deficits remains unclear. Using the BTRV, we plan to test a large group of 300 individuals with Down syndrome over the next five years to enhance our understanding and improve hearing and balance outcomes for this population. This highly collaborative project involves several other CPCC alums (including Dr. Janky and Dr. Porter).

Pictured L to R: Kristen Janky, Heather Porter, Research Participant, and Gabrielle Merchant

Boys Town National Research Hospital has been a leader in research and clinical services for children who are deaf or hard of hearing for more than 40 years.

Research CAMPS

The Boys Town National Research Hospital Community Engagement Program hosted two week-long research camps in March (spring break) and July (summer). The priority groups for the camps were children aged 7-14 from underrepresented communities and special populations (i.e., children who are deaf or hard of hearing and/or have speech/language disorders).

The research camps were promoted by our community partners (e.g., North and South Omaha Community Care Councils, Hands & Voices, etc.) and ads on Boys Town's social media pages. This year, we received 100 applications during the open enrollment periods! Due to limited space, we could only admit up to 30 children per camp. A total of 23 children participated in the Spring Break Research Camp (29 were admitted), and 26 participated in the Summer Research Camp (30 were admitted).

During the weeks of camp, children participated in a variety of interactive arts, dance, music, theater, and virtual reality workshops and engaged in STEM activities designed to inspire creativity and foster a love for learning. The children also completed a total of 364 research sessions across 37 research studies.

Aside from gaining participation in research, the spring break and summer research camps helped us build relationships with special populations and communities underrepresented in research and allowed us to share our work at Boys Town Hospital with the communities. This engagement fostered trust, increased awareness and encouraged future involvement in research studies, ultimately contributing to more representative research studies and paving the way for more comprehensive and inclusive findings

Research Camp photos of youth from the Omaha, NE area.

T32 Postdoctoral Training Program

At Boys Town National Research Hospital, the T32 program provides an opportunity to those with doctoral degrees to develop and broaden their research capabilities in one or a combination of scientific disciplines related to human communication and its disorders. A number of exceptional features associated with the program are particularly advantageous to trainees, including:

- Clinical and laboratory experience
- Supervised research, seminars, and elective courses
- Research experience in disciplines not directly related to their area of research
- A strong core support staff
- Opportunity to prepare and submit F32 postdoctoral fellowships
- NIH grant preparation

Individuals interested in learning more about postdoctoral training opportunities at Boys Town Hospital may submit a pre-application on the Boys Town Hospital website.

To apply, scan the QR code or visit boystownhospital.org/research/careers-training/postdoctoral/pre-application

Become a Boys Town Postdoc

Postdoctoral Research Symposium

Training Future Researchers

In spring of 2024, Boys Town hosted the second annual Postdoctoral Research Symposium with 110 attendees at the Scott Conference Center. Researchers and staff from across Boys Town's five research centers gathered to celebrate and showcase the achievements of our postdoctoral trainees, including those supported through our long-standing T32 training grant.

At the 2024 symposium, nine postdoctoral trainees provided podium presentations on their research and training progress, with each presentation followed by a Q&A with the audience. The afternoon included a poster session with presentations from a diverse group of students, junior-level lab members, and early career scientists. Topics included novel methods of testing speech perception and comprehension, effects of hearing loss among monolingual and bilingual children, factors influencing use of mnemonic strategies for memorization, effects of gait training for individuals with cerebral palsy, outcomes for alumni of Boys Town's youth service programs, and more.

The 2024 postdoctoral podium presentations were provided by: Drs. Brittany Williams, Nathan Petro, Steven Gianakas, Sara Momtaz, Attakias Mertens, Tiana Cowan, Ilenia Salsano, Devon Major and Lee Evans.

T35 Predoctoral Training Program

My experience in the T35 Program by Monica Zmudzinski, a student at the University of Arizona:

My biggest takeaway from my experience at Boys Town is how much collaboration goes into research. It's such an interdisciplinary field, and I enjoyed seeing how many labs and different researchers were involved in a variety of projects.

I would highly recommend applying for the Boys Town T35 to anyone who thinks they may be interested in research or is curious what research entails. Boys Town is a highly collaborative institute and everyone is more than happy and willing to answer your questions. I have loved meeting so many students and researchers from all over the country and across different interests. Plus, Omaha is a fun place to spend time and has so many different events and activities to do!

My experience in the T35 Program by Emily LaSpada, a student at the University of Massachusetts:

My T35 experience has been a time I will be forever grateful for. Having the opportunity to work with such supportive and knowledgeable clinicians and scientists in a field I have always been passionate about has been so inspiring. I was able to explore a very different area of research than I have worked in before, which has encouraged new career goals and endless ideas for future research questions. I have made lifelong friends in my T35 peers and mentors and look forward to staying connected and collaborating with them in future endeavors.

Boys Town has been one of the most supportive learning environments I have ever experienced. Regardless of your experiences clinically or in research, your mentors, peers, and lab team will make you feel so welcome and valued. It was challenging to take the leap almost halfway across the country away from my family, friends, and supports at home, however, I truly feel that I would not have been able to succeed without the endless encouragement and open arms of my mentors, Dr. Heather Porter, Dr. Maggie Miller, and the Human Auditory Development Lab team.

Omaha has been such a fun place to live! There is always an event to attend, concert, or new restaurant to try! I am very thankful to have been with a cohort that was willing to explore the city and try new things!

Pictured L to R: Bisma Choudhry (University of Illinois), Vivien Harrell (Vanderbilt University), Monica Zmudzinski (University of Arizona), Dahvae Turner (Western Washington University), Emily LaSpada (University of Massachusetts Amherst)

For future predoctoral students:

The purpose of this training program is to provide a short-term, intensive research experience related to hearing, vestibular, cognition, and/or speech/language sciences for audiology doctoral (Au.D.) students. The overarching goal is to provide Au.D. students with the experience and encouragement to consider a Ph.D. or otherwise pursue clinical/translational research careers to address the shortage of clinician-scientists in the field. Regardless of the trainees' eventual career choice, the research experience obtained through this training program will enhance clinical service delivery to individuals in the United States with hearing and/or vestibular loss.

Students will be matched with a mentor according to the students' interests and mentor availability. Other benefits of the T35 traineeship include:

- Weekly journal groups
- Local seminars and workshops
- Colloquia presentations by national and international experts in communication disorders
- A course on responsible conduct in research
- Access to all hospital faculty for informal discussions and consultations
- Technical and computer support
- Travel stipend to present the T35 research project during the Mentored Research Poster Sessions at the American Auditory Society meeting in sunny Scottsdale, Arizona, the following spring

Individuals interested in learning more about the T35 program and eligibility can scan the QR code.

Boys Town Researchers Present, Honored at ASHA Convention

CPCC scientists, speech-language pathologists, audiologists, and research assistants attended the 2024 American Speech-Language-Hearing Association (ASHA) Convention held in Seattle, Washington in early December. ASHA is the national professional, scientific, and credentialing association for 234,000 members, certificate holders, and affiliates who are audiologists; speech-language pathologists; speech, language and hearing scientists; audiology and speech-language pathology assistants; and students. A total of 30 CPCC members contributed to the conference content, including 11 poster presentations, 5 seminars, and 2 technical/clinical session. The CPCC was also represented at the Boys Town Hospital exhibitor booth, providing conference attendees with ample opportunities to learn more about CPCC research and new initiatives.

One indication of all the impact is the many ASHA presentation awards received by CPCC scientists, highlighted by Dr. Karla McGregor receiving the prestigious 2024 Kawana Award. This award is presented to scholars ASHA believes have a sustained history of exemplary publications with journal contributions spanning at least 10 years that are deserving in educational, scientific or clinical value. In addition, Drs. Krystal Werfel and Heather Porter were each recognized for their important scientific contributions, with each receiving a 2024 ASHA Journal Editor's Award. Finally, our IMPACT program collaborators, Drs. Lauren Calandruccio and Jessica Sullivan, received the Certificate of Recognition for Special Contributions in Higher Education for their work supporting students from underrepresented backgrounds.

Boys Town National Research Hospital Retirement

Barb Peterson – RESEARCH LAB MANAGER

Barb has retired after more than 31 years at Boys Town Hospital. Over the years, Barb actively supported several research studies focused on hearing loss, including the cochlear implant multi-lab project and much more. Barb's dedication and ability to cultivate strong relationships have successfully kept families actively involved in research.

Boys Town New Endowed Chair in Center Childhood Deafness, Language and Learning to be Held by Lisa Goffman, Ph.D.

Boys Town welcomes Lisa Goffman, Ph.D., CCC-SLP, as the new Endowed Chair in the Center for Childhood Deafness, Language and Learning

Dr. Lisa Goffman's research focuses on how children with developmental language disorder (DLD) acquire language and motor abilities. She is interested in how interactions between language, cognitive, and motor skills may contribute to new and effective assessment and intervention approaches. Her research has been funded by the National Institute on Deafness and Other Communication Disorders at the National Institutes of Health for over 25 years.

"I am thrilled to join the Boys Town research team and a remarkable group of scientists focused on language disorders in children," Dr. Goffman said. "We have eight researchers focused on DLD who all have unique perspectives. I study how language and action interact in complex learning. Other scientists in the center consider DLD in relation to trauma; cognitive abilities, such as memory; auditory abilities and hearing; and literacy. We are interested in DLD across the lifespan. We share a passion for understanding mechanisms that underlie DLD and for identifying and developing new assessments and treatments to alleviate this disorder that affects so many children and adults. The excellent and multifaceted group at Boys Town was the big attractor for me to come here."

Dr. Goffman was on faculty at Purdue University for 21 years, where she established her "Language in Motion" lab. Most recently, she served as the endowed chair in Early Childhood Communication Disorders in the School of Behavioral and Brain Sciences at the University of Texas at Dallas.

Dr. Goffman received her clinical master's degree in Speech-Language Pathology from Purdue University, went on to work as an SLP in a highly interdisciplinary early intervention program, and then returned to Purdue for her doctorate. The inspiration for her return to research came from her clinical observations while working as a speech-language pathologist in early intervention.

"I had the opportunity to work closely with psychologists, psychiatrists, medical doctors, occupational and physical therapists, audiologists, and educators. The interdisciplinary perspective I was exposed to inspired me to consider how social, cognitive, language, and motor factors all interact in the development of a child. This interdisciplinary, interactive, and family-centered approach fueled my desire to return to school for doctoral study and laid the groundwork for my excitement in joining the group at Boys Town."

She is transitioning her "Language in Motion" lab to Boys Town and her plans for the endowed chair position include "engaging in the array of research and clinical opportunities that are the essence of Boys Town." Some of these opportunities include joint research with her colleagues in the Center for Childhood Deafness, Language, and Learning in investigating and establishing optimal treatments for people with DLD across the lifespan. She also has initiated interactions with new colleagues in the other centers, as she establishes novel conceptual and methodological approaches for studying how children, especially those with DLD, learn. Dr. Goffman is extremely excited to be part of the Boys Town clinical research team.

RESEARCH-COMMUNITY PARTNERSHIP:

The Boys Town Research Vehicle (BTRV) Teams Up with P.A.C.E.

Members of the Community Engagement Program and the Human Auditory Development Laboratory forged a new collaboration with Omaha's Police Athletics for Community Engagement (P.A.C.E.) program.

P.A.C.E. offers free athletics programs to Omaha youth, focusing on providing opportunities for children whose families cannot afford organized athletics programs. More than 4,000 children participated in P.A.C.E. programs last year, with coaching and mentoring provided by police officers and community volunteers.

Free hearing screenings and opportunities to participate in short research studies were provided to children, siblings, and parents during after school and early evening practices.

BTRV: Research on the Road

Gage Beiro is the main driver of the Boys Town Research Vehicle (BTRV). The BTRV is a truck and fully equipped research trailer including a hearing booth. Gage started at Boys Town in August 2023. In the past year and a half, he has traveled across the country to North Carolina, Florida, Colorado, and Arizona.

"When I started, I was focused on driving the BTRV and learning everything it takes to set up, transport, and park the RV," Gage said. "I didn't really know much about research. Being in these communities has taught me that what we are doing and what we are offering with the BTRV is very needed. So many of these communities don't have things like hearing screenings available to them."

Gage is hoping he receives the opportunity to take the BTRV to our Boys Town site in Las Vegas, Nevada, where he lived until he was 10 years old.

"Driving through the mountains is challenging, but the view is great!"

Publications

November 2023 – November 2024

Kamerer A. M. (2024). A Time-Saving Alternative to "Peak-Picking" Algorithms: A Gaussian Mixture Model Feature Extraction Technique for the Neurodiagnostic Auditory Brainstem Response. Ear and hearing, 45(5), 1115–1124. https://doi.org/10.1097/AUD.0000000000001498 [PMID 38419164, PMC11325956]

Bosen A. K. (2024). Characterizing correlations in partial credit speech recognition scoring with beta-binomial distributions. JASA express letters, 4(2), 025202. https://doi.org/10.1121/10.0024633 [PMID 38299983, PMC10848658]

Smith, N. A., Hammans, C. A., Vallier, T. J., & McMurray, B. (2024). Child-Directed Speech in Noise: Testing Signal- and Code-Based Phonetic Enhancement. Journal of speech, language, and hearing research : JSLHR, 67(1), 72–91. Lalonde, K., Walker, E. A., Leibold, L. J., & McCreery, R. W. (2024). https://doi.org/10.1097/AUD.0000000000001430 [PMID 37882100, PMC10922378]

AuBuchon, A. M., Wagner, R. L., & Sackinsky, M. (2024). Children's rehearsal development parallels that of self-talk in other executive functions. Developmental psychology, 60(7), 1237–1243. https://doi.org/10.1037/dev0001697 [PMID: 38358660]

Lalonde, K., Peng, Z. E., Halverson, D. M., & Dwyer, G. A. (2024). Children's use of spatial and visual cues for release from perceptual masking. The Journal of the Acoustical Society of America, 155(2), 1559–1569. https://doi.org/10.1121/10.0024766 [PMID 38393738, PMC10890829]

Leibold, L. J., Buss, E., Miller, M. K., Cowan, T., McCreery, R. W., Oleson, J., Rodriguez, B., & Calandruccio, L. (2024). Development of the Children's English and Spanish Speech Recognition Test: Psychometric Properties, Feasibility, Reliability, and Normative Data. Ear and hearing, 45(4), 860–877. https://doi.org/10.1097/AUD.0000000000001480 [PMID 38334698, PMC11178473]

Chatterjee, M., Feller, A., Kulkarni, A. M., & Galvin, J. J. (2023). Emotional prosody perception and production are linked in prelingually deaf children with cochlear implantsa). JASA express letters, 3(12), 127601. https://doi.org/10.1121/10.0023996 [PMID 38117231, PMC10759799]

Gordon, K. R., & Lowry, S. L. (2024). Fostering retention of word learning: The number of training sessions children retrieve words positively relates to post-training retention. Journal of child language, 51(3), 710–719. https://doi.org/10.1017/S0305000923000752 [PMID 38269415, PMC11056717]

Bosen, A. K., & Doria, G. M. (2024). Identifying Links Between Latent Memory and Speech Recognition Factors. Ear and hearing, 45(2), 351–369. https://doi.org/10.1044/2023_JSLHR-23-00033 [PMID 38039984]

Lewis, D., Al-Salim, S., McDermott, T., Dergan, A., & McCreery, R. W. (2023). Impact of room acoustics and visual cues on speech perception and talker localization by children with mild bilateral or unilateral hearing loss. Frontiers in pediatrics, 11, 1252452. https://doi.org/10.3389/fped.2023.1252452 [PMID: 38078311, PMC10703386]

Merchant, G. R., Al-Salim, S., Skretta, D., & Tempero, R. M. (2024). Limited Audiological Assessment Results in Children With Otitis Media With Effusion. Ear and hearing, 45(2), 505–510. https://doi.org/10.1097/AUD.0000000000001434 [PMID 37759362, PMC10922150]

Chatterjee, M., Gajre, S., Kulkarni, A. M., Barrett, K. C., & Limb, C. J. (2024). Predictors of Emotional Prosody Identification by School-Age Children With Cochlear Implants and Their Peers With Normal Hearing. Ear and hearing, 45(2), 411–424. https://doi.org/10.1097/AUD.0000000000001436 [PMID: 37811966, PMC10922148]

Lalonde, K., Walker, E. A., Leibold, L. J., & McCreery, R. W. (2024). Predictors of Susceptibility to Noise and Speech Masking Among School-Age Children With Hearing Loss or Typical Hearing. Ear and hearing, 45(1), 81–93. https://doi.org/10.1097/AUD.0000000000001403 [PMID 37415268, PMC10771540]

Al-Salim, S., Skretta, D., & Merchant, G. R. (2024). Survey of Wideband Acoustic Immittance Use by Clinical Audiologists. American journal of audiology, 33(1), 254–268. https://doi.org/10.1044/2023_AJA-23-00228 [PMID 38315574, PMC11005003]

Brennan, M., Rasetshwane, D., Kopun, J., & Mccreery, R. (2024). The influence of the stimulus level used to prescribe nonlinear frequency compression on speech perception. Journal of the American Academy of Audiology, 10.1055/a-2257-2985. Advance online publication. https://doi.org/10.1055/a-2257-2985 [PMID 38290549]

Eberhard, K. E., Merchant, G. R., Nakajima, H. H., & Neely, S. T. (2024). Toward Automating Diagnosis of Middle- and Inner-ear Mechanical Pathologies With a Wideband Absorbance Regression Model. Ear and hearing, 45(5), 1241–1251. https://doi.org/10.1097/AUD.0000000000001516 [PMID: 38797886, PMC11333182]

The Black, Indigenous, and People of Color – Communication Sciences and Disorders Network

The Black, Indigenous, and People of Color-Communication Sciences and Disorders (BIPOC-CSD) Network **provides a safe affinity space for individuals who are members of BIPOC and other racially and ethnically underrepresented groups working in fields related to communication sciences and disorders.** Members include university faculty, scientists, postdoctoral fellows, clinicians, students, and engineers. This space offers mentorship and provides opportunities to share resources, experiences, and position openings.

SCAN ME

The network was founded in 2021 by a team that includes Dr. Monita Chatterjee from the CPCC. The BIPOC-CSD Network is open to anyone working in the fields of hearing, balance, speech, and language who are members of the BIPOC/racial-ethnic minority community. **More information can be obtained by scanning the above QR code or visiting monitachatterjee.com/bipoc-csd.**

Collaborators Recognized for Outstanding Contributions to Education and Training

CPCC faculty and staff have long-standing collaborations with faculty at Case Western Reserve University (CWRU) and Hampton University (HU). In December 2024, two such collaborators – Drs. Lauren Calandruccio (CWRU) and Jessica Sullivan (HU) – were awarded the American Speech-Language-Hearing Association (ASHA) Certificate of Recognition in Higher Education for their outstanding contributions to education and training through their work on the IMPACT (Innovative Mentoring and Professional Advancement Through Cultural Training) Program.

The IMPACT Program empowers students from diverse backgrounds to pursue careers in the field of communication sciences and disorders by connecting them with mentors and professional development opportunities. Drs. Calandruccio and Sullivan launched the IMPACT Program in the fall of 2020 with funding from the ASHA Office of Multicultural Affairs and continued the program with generous support from the LaCalle Group. After a successful start to the IMPACT Program, Drs. Calandruccio and Sullivan were awarded a five-year grant in 2023 from the National Institutes of Health. To date, IMPACT Program alumni have succeeded in earning competitive scholarships, placements in summer programs, and admission to graduate programs in audiology and speech-language pathology. CPCC faculty and staff volunteer as research mentors for participating students and host an annual on-site networking and professional development event to kick off each academic year. Dr. Lori Leibold, Director of the CPCC, is a co-investigator for the IMPACT Program.

IMPACT students from Case Western Reserve University and Hampton University attend Boys Town National Research Hospital in May.