



Expert Interview:

Children's Hearing Research

Laurie Eisenberg, Ph.D., is a scientist and Acting Co-Department Head of research in the House Ear Institute's Children's Auditory Research and Evaluation (CARE) Center. Here she discusses with House Calls Magazine the importance of pediatric auditory research and one of her current research projects at HEI.

House Calls: Why is pediatric auditory research so important?

Dr. Eisenberg: Many people may not realize that hearing loss occurs in newborns more frequently than any other health condition for which they are screened in the hospital. Two to three in every 1,000 children are born with a hearing loss likely to impact development. At HEI, we consider our research of the auditory system at its early developmental stages – and our efforts to identify hearing loss and initiate appropriate rehabilitation strategies – crucial to the healthy development of a child. We know from experience that early detection of hearing loss, and early intervention with appropriate treatment and follow-up services, are highly effective in facilitating the development of a child's communication and cognitive skills.

House Calls: I understand that in addition to conducting several other research studies, you are currently investigating the longitudinal effects on children

who received early intervention for deafness with cochlear implants. Can you tell us more about that study?

Dr. Eisenberg: I am an investigator on a five-year, multi-center project entitled "Childhood Development After Cochlear Implantation" on which we are collaborating with Johns Hopkins University, University of Texas at Dallas, University of Michigan, University of North Carolina, and University of Miami, funded by the National Institutes of Health. We are researching the long-term outcomes in young deaf children fitted with cochlear implants before five years of age. In the field of auditory research we know that while cochlear implants have profoundly affected the rehabilitation of deaf children, the conditions that best support the use of this technology need further study. Our study addresses the complex question of how children use partially restored hearing with an implant to learn, listen and develop spoken language during a period when cognitive and communication milestones arrive in a rapid-fire sequence.

House Calls: Can you outline the experiences of the study participants?

Dr. Eisenberg: Surgical implantation of 30 children at each center will occur during the first two years of the investigation (which was initiated in 2002). All children participating in the study are evaluated carefully before they receive an implant, and are followed twice a year for three years after implantation. The intense evaluation and follow-up differentiates our study from many conducted in the past, and adds to its significance in generating meaningful conclusions. We'll also rely heavily on video analysis of each participant to determine how individual innate abilities and interactions with a parent might affect the ability to learn spoken language.

House Calls: What are your specific aims for this study?

Dr. Eisenberg: We will assess the development of oral language abilities in children with cochlear implants, and determine their course of speech recognition over time. We'll also be evaluating the development of specific cognitive and psychosocial skills in children with cochlear implants, such as joint attention, selective attention and problem solving, behavioral and social skills, among other things.

House Calls: Will you be evaluating the role of family dynamics in outcomes for this study?

Dr. Eisenberg: We'll investigate social adjustment issues, including parent-child interactions and parental stress and well-being. As you might imagine, it can be very challenging for parents and families to raise a child with hearing loss and parental interaction is pivotal to good outcomes. We will survey parental perspectives on quality of life issues that result from their child's experience with a cochlear implant.



William M. Luxford, M.D., and patient

House Calls:

Do you expect that outcomes of your study will change how parents approach raising a cochlear implant child?

Dr. Eisenberg: Our study will provide new information to help parents determine how best to teach a child with



The research team for this project is Karen Johnson, Ph.D., Laurie Eisenberg, Ph.D., Jean DesJardin, Ph.D., Amy Martinez, M.A., at HEI, and William M. Luxford, M.D., at the House Clinic.

a cochlear implant to relate to a world that includes the sounds of speech. There will be multiple benefits for parents who participate in this study, and for those who read our findings. Parents will gain a better understanding of the abilities and needs of their child. This understanding can be critical to helping parents seek or direct further therapy and opportunities for using the device.

House Calls: Do you expect your study outcomes to affect clinical practice?

Dr. Eisenberg: I'm glad you raised the issue of clinical practice, since the involvement of William Luxford, M.D., of the House Clinic, and Karen Johnson, Ph.D., are crucial to our study. Their involvement in the study helps us to produce results that may affect how clinicians decide when, and in which types of childhood deafness, a cochlear implant is most likely to be successful. Our outcomes may also affect who is able to receive implants in the future, since our study is also examining cost-effectiveness of cochlear implantation in young children to better inform policy regarding access. We're pretty excited that the outcomes of our study may benefit future patients and improve clinical practice. ❖