



Hearing Study Update

Seeing the Big Picture of Hearing Research

The fact that over 31 million Americans suffer from hearing loss is no surprise to Epidemiology of Hearing Loss Study (EHLS) researchers. It is, however, a challenge, and the need for new approaches to address it guides our daily efforts. An emerging approach in hearing research is to bring small research groups together to form collaborative, multi-disciplinary networks to support and enhance hearing research. Two such emerging alliances have benefited from the insight and expertise of Dr. Karen Cruickshanks, Principal Investigator of the EHLS and Beaver Dam Offspring Study (BOSS). Last March, British epidemiologist Dr. Adrian Davis brought together a group of researchers with the intention of sharing ideas and data related to hearing. This network unites researchers from across the globe and facilitates the use of data for international comparisons. With diverse backgrounds in Audiology, Neuroscience, Psychology, Communicative Disorders and Epidemiology, each individual can learn new approaches and gain fresh insights to enhance his or her own research. This synergy also promotes a “translational” approach to research, which allows the results of the research to be more quickly and efficiently put into practice.

The formation of the international group has also led to the creation of smaller, more focused partnerships like the one established by Dr. Cruickshanks and Dr. Kelly Tremblay, an audiologist and neuroscientist from the University of Washington. Much of Dr. Tremblay’s clinical practice focuses on Auditory Processing Disorders, which could be described as the brain’s inability to process sounds that the ear has perceived. Working with EHLS and BOSS data will enable Dr. Tremblay to better understand the processing and other communication difficulties experienced by typical older adults. Similarly, Dr. Cruickshanks will learn more about the brain’s function and how that may contribute to why many people do not benefit from hearing aids. Ultimately, sharing knowledge will enable both scientists to identify better ways to reduce hearing and communication difficulties.

EHLS and BOSS researchers and their hearing research colleagues can look forward to new solutions and new collaborative opportunities to help meet the challenges of hearing changes in aging.

*More than
31 million
Americans
suffer from
hearing loss*



The Madison staff is housed at the Wisconsin Alumni Research Facility (WARF) building. Front row left to right: Carla, Alex, Dayna, Mary, Grete. Back row left to right: Dave, Scott, Adam

Making Sense of Your Senses – Our Scientists at Work

All of our participants know the routine: several hours of tests, then it's time to go home. But for EpiSense staff, work continues to go on for a much longer time than most participants might imagine.

Principal Investigator, Karen Cruickshanks, Ph.D. along with Epidemiologists Dayna Dalton, MS; Carla Schubert, MS; Adam Paulsen, MS; and Mary Fischer, Ph.D. decide what important questions should be investigated and then determine how to best collect data to answer those questions. Examination procedures are carefully developed and equipment used in the examination is checked and calibrated before participants arrive. Ms. Dalton states that, "In a research setting it is important that the procedures and equipment we are using always measure accurately and consistently." Once the data has been collected statisticians David Nondahl, MS and Alex Pinto, MS check it for accuracy and quality. The epidemiologists and statisticians work together to analyze the data and write papers describing the findings; challenging tasks which require careful consideration of all explanations of the patterns observed. Two important aspects of the EHLS make that challenge more achievable – the large number of participants and the multiple times that they participate.

According to Ms. Dalton the large size of the EHLS study makes it particularly robust. A large number of participants make patterns in data more readily identifiable and more scientifically significant than a smaller study. The longitudinal design - the fact that data has been collected from the same people over time, allows researchers to observe the natural progression of the condition and provides the opportunity to make temporal associations between suspected risk factors and the development of the condition. A study based only on a single point in time can show which factors are linked to a condition such as hearing loss, but cannot determine whether such factors came **before** the condition existed and may have been involved in causing the condition. In a longitudinal study, like the EHLS, researchers can study how hearing loss worsens or changes over time, which can provide clues about causes of hearing loss and possible preventive measures.

Appreciating the importance of the longitudinal design underscores the importance of our returning participants. "Participating in our study is important, but having people who continue to participate has been the key to all that we currently know about hearing loss," said Ms. Dalton. Clearly, many people are involved in making this research happen, but none are more important than the participants themselves.

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*Dayna Dalton
UW Epidemiologist*



For more information:

800-253-0986

920-885-6823

608-890-0332

boss@episense.wisc.edu

Epidemiology of Hearing Loss Study
University of Wisconsin
School of Medicine & Public Health
610 Walnut Street, 10th Floor
Madison, WI 53726-2336
boss.pophealth.wisc.edu

What Are Your Children Doing?

News from the Beaver Dam Offspring Study

On May 12, 2012 the 2000th participant of BOSS2 was seen. In the baseline Beaver Dam Offspring Study we examined 3,298 participants. Before we complete the 5-year follow-up examination period, which began in July 2010, we hope to reach our goal of examining close to 3000 participants. It is a rare achievement in studies of healthy subjects to reach such a milestone and we are extremely grateful to all who have participated in this examination phase for making time for the study in their busy lives.