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14th World Pediatrics & Neonatal Healthcare Conference

September 11-12, 2017 Los Angeles, USA

Keynote Forum

Day 1

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Karen Pierce

University of California, USA

Autism from the beginning: Early screening and detection and the search for biomarkers

Our understanding of autism spectrum disorder (ASD) has advanced tremendously across the past decade, with a growing appreciation of its probable prenatal origins and wide-ranging biological features. Still it remains behaviorally identified and diagnosed with the mean of detection in America after around age of 3-4 years. The first three years of life are the most primary transformative period for human postnatal brain development. Such a late age of ASD detection and subsequent treatment (that is most often after age 3 years) has implications not only for the long-term outcome of the child, but for the ability of scientists to discover early biomarkers of ASD. This presentation will describe efforts to detect ASD in the general population around the 1st birthday via the use of a new approach–the Get S E T Early Model - that hinges on pediatrician engagement in the early detection process. The author will present data on the diagnostic stability of ASD starting at 12 months and will explore the phenotypic overlap of ASD and other early delays during early development. The presentation will also describe how ASD toddlers detected via the Get SET Early Model have been essential in making new discoveries of early biomarkers in the areas of eye tracking and functional brain imaging. For example, most recently the author has created an eye tracking test, the GeoPref Test for Autism, which identifies a subset of ASD toddlers based on unusual visual attention patterns with 98% specificity. ASD toddlers that display the most severe eye gaze patterns as indexed through eye tracking also show highly unusual patterns of brain connectivity. Disentangling heterogeneity through eye tracking, brain imaging and other approaches is foundational in making a significant progress towards the goal of precision medicine for ASD and will be a key focus of the presentation.

Biography

Karen Pierce has been studying autism for the past 20 years and is a Leading Expert on the neural and clinical phenotype of ASD. Her research spans a range of topics from early screening and detection to eye tracking and functional magnetic resonance imaging (fMRI). Her early detection approach, called the 1-Year Well-Baby Check-Up Approach, has identified several hundred ASD toddlers around the 1st birthday and has resulted in rapid treatment access. This is a major advance because the mean age of detection in the US is around 4 years in age. She has been invited as a Keynote Speaker on the topic of Autism at both national and international conferences. Her work is published in high-impact journals and has been highlighted in the public media including CNN, The Wall Street Journal, and Time Magazine. Her research is funded by both NIH as well as private organizations such as the National Foundation for Autism Research. She has been honored by several awards including US Department of Health and Human Services IACC Top Research Paper Award, Autism Speaks Top 10 Research Paper Award, and the San Diego Health Hero Award.

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Kai Jiao

University of Alabama at Birmingham, USA

Functions of *CHD7*, the disease-causing gene for CHARGE syndrome, during mammalian heart development

CHD7 encodes an ATP-dependent nucleosome remodeling factor and haploinsufficiency for *CHD7* is the leading cause of charge syndrome. Congenital heart defects are major clinical features of CHARGE syndrome; however, the underlying molecular mechanisms of CHDs in CHARGE patients remain largely unknown. Our complementary yeast two-hybrid and biochemical assays reveal that *CHD7* is a novel embryonic-heart-interaction partner of BMP R-SMADs, which are nuclear mediators of BMP signaling pathways. *CHD7* is associated in a BMP dependent manner with the enhancers of Nkx2.5 that contains functional SMAD1 binding elements. *CHD7* is required for sustaining the active epigenetic signature of Nkx2.5 regulatory elements and its proper cardiac expression. Furthermore, inactivation of *CHD7* in mice impairs multiple BMP signaling-regulated cardiogenic processes at molecular, cellular, and morphological levels. Our results support the model that *CHD7* is recruited by BMP R-SMADs to the enhancers of BMP-targeted cardiogenic genes to epigenetically regulate their expression. Impaired BMP activities in embryonic hearts may have a major contribution to the heart defects in CHARGE syndrome.

Biography

Kai Jiao has acquired his MD from Beijing Medical University in 1992 and acquired his PhD from University of Iowa in 2000. He has completed his Postdoctoral training in Vanderbilt University Medical Center, Drs. Brigid Hogan and Scott Baldwin. He started his own lab in 2005 in Dept. of Genetics, UAB, where he was promoted to Associated Professor with tenure in 2010. He has published ~40 papers in peer reviewed journals. His major scientific interest is to reveal the molecular, genetic and epigenetic mechanisms that regulate heart development and their contribution to congenital heart diseases.

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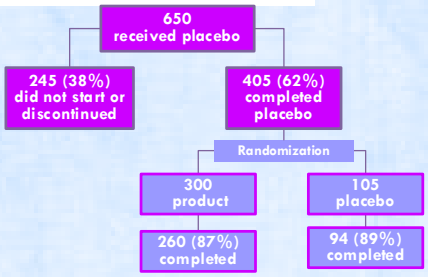
Jane L Holl

Northwestern University & Focus Pointe Global, Inc., USA

Introduction and maintenance of early adaptive training protein blends in support of infant nutritional goals: Safety and acceptability

Childhood food allergy affects about 8% of US children. Recent research has revealed protective effects of early dietary introduction of allergenic foods on the development of food allergy for infants, including those at elevated risk. The goal of this study was to evaluate the safety and acceptability of a blend of 16 common allergenic proteins (peanut, soy, almond, cashew, hazelnut, pecan, pistachio, walnut, wheat, oat, milk, egg, cod, shrimp, salmon, and sesame) combined with 400 IU of Vitamin D into a food supplement powder. Caregivers were instructed to mix the powder into a solid or liquid feeding once a day. All procedures were deemed exempt by the Northwestern University IRB. A national sample of healthy infants, 5-11 months of age, without severe eczema participated in the 28-day placebo period followed by a 28-day randomized, blinded, placebo-controlled period. Caregivers were instructed to feed the infant one packet of the food supplement powder per day, observe their infant for 2 hours after ingestion, and record, in a web-based diary, any symptoms or allergic-type reaction including anaphylaxis occurring within 2 hours of ingestion and any reaction-related prescribed medication or medical care. Caregiver perceptions of the food supplement's smell, texture, and packaging, were also assessed. Figure 1 shows enrollment and completion rates of the study. Of the 8,400 food supplement ingestions, no infants had any allergic reaction nor received any prescribed medication or medical care. Of 14,252 placebo ingestions, 1% (N=250) resulted and 0.7% (N=61) of food supplement ingestions in a report of symptoms (e.g., cough, diarrhea). This study suggests that the food supplement is safe and feasible for infants. Future study should assess the effect of the food supplement on immunologic responses to the allergenic proteins and on the incidence of food allergy.

Figure 1. Enrollment and Completion Rates



Biography

Jane L Holl is a General Pediatrician and Health Services and Outcomes Researcher who has conducted substantial prior research on childhood food allergy in the US. She is the Director of the Center for Healthcare Studies, an interdisciplinary center at Northwestern University. She has partnered previously with Kay Savio from Focus Pointe Global, Inc., a global market research company with fully vetted, precision-targeted participants.

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Day 2

Shoshana Dayanim

Keiser University, USA

Infants, video viewing and learning

There is no question that children today are immersed in technology. They are exposed to video and technology from the youngest ages, even before they can hold a device. There is strong evidence that preschool and school aged children can learn from quality television programming, however, the research concerning infants 18 months and younger is limited, offers little evidence of possible benefits, and questions the adverse impact video may have on cognitive development. Despite the recommendations from the American Academy of Pediatrics that children younger than 18 months should refrain from screen media, with the exception of video chatting, videos targeted toward infants continue to saturate the market. Many of these videos purport to enhance infant vocabulary and language development. Because the use of baby signs enhances infants' communicative repertoire and appears to serve the same communicative functions as words for young children, baby signs offer the opportunity to examine the efficacy of video instruction towards infant language development in a controlled experiment. This talk will provide a brief overview of the existing research on the impact of video viewing on infant cognitive development, and will focus on the findings of a four-week longitudinal experiment that investigated 15-month-old's ability to learn american sign language signs from at-home viewing of instructional video, either with or without parent support, compared to traditional parent instruction and a no-exposure control condition. Forced-choice, elicited production, and parent report measures indicate learning occurred across exposure and testing conditions. This constitutes the first experimental evidence of infants' ability to learn expressive communication from commercially available educational videos. These findings offer educators and physicians evidence based insights to help parents make the best choices available concerning infant screen time.

Biography

Shoshana Dayanim earned an MA Degree in Creative Arts Therapy, and practiced as a Psychotherapist for several years before returning to school to earn her PhD in Applied Developmental Psychology from Fordham University and completing a Post-doctoral Fellowship at Emory University. Her research interests focus on the effects of television and technology on child development and ranges from infancy through adolescence. She has served as an Analyst and Research Consultant for various organizations involved in the development of educational media for children. She currently is the Chair of the IRB and Professor of Psychology at Keiser University.

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Natasha Lepore

Children's Hospital Los Angeles, USA

Understanding the brain anatomy of premature and healthy newborns using MRI

I will cover some of the MRI analysis tools that we designed to understand the brain anatomy of newborns, such as cortical and subcortical morphometry and white matter tract analyses in these populations. I will also give some results on our analyses of early development of subcortical structures and networks in preterm and term born neonates and infants.

Biography

Natasha Lepore involves in the development of numerical tools for the analysis of brain magnetic resonance imaging data. She also works on applying these methods to different clinical and neuroscience applications. She is currently working as an Assistant Professor in Radiology at the University of Southern California and at Children's Hospital Los Angeles. She has Graduated with a BSc in Physics and Mathematics from the University of Montreal and then obtained a Masters in Applied Mathematics from Cambridge University. She has completed her PhD in theoretical physics (Harvard University), later she switched to neuroimaging and became a Postdoctoral fellow at the Laboratory of Neuro Imaging.

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