Abstract: Socioeconomic disparities in childhood are associated with remarkable differences in cognitive and socio-emotional development during a time when dramatic changes are occurring in the brain. Recent work has focused on understanding the neurobiological pathways through which socioeconomic factors shape development. Behavioral evidence suggests that language, memory, social-emotional skills, and executive functions exhibit relatively large differences across socioeconomic lines, and more recent work has found differences in socioeconomic differences in brain structure in the very regions that support these skills. It is likely that socioeconomic factors operate via multiple mechanisms to explain the development of different neural circuits. A theoretical model will be presented whereby differences in the home language environment and family stress likely impact particular brain systems, which in turn support distinct neurocognitive skills. Evidence for the model, as well as ongoing and future work testing aspects of the model, will be discussed. Finally, the question of interventions will be addressed, along with an overview of plans for the first clinical trial of poverty reduction in early childhood.

Bio: Kimberly Noble, MD, PhD, is an Associate Professor of Neuroscience and Education at Teachers College, Columbia University. As a neuroscientist and board-certified pediatrician, she studies how socioeconomic inequality relates to in children's cognitive and brain development. Her work examines socioeconomic disparities in cognitive development, as well as brain structure and function, across infancy, childhood and adolescence. She is particularly interested in understanding how early in infancy or toddlerhood such disparities develop; the modifiable environmental differences that account for these disparities; and the ways we might harness this research to inform the design of interventions. Along with a multidisciplinary team from around the country, and with funding from NICHD and a consortium of foundations, she is currently planning the first clinical trial of poverty reduction to assess the causal impact of income on children’s cognitive, emotional and brain development in the first three years of life. In 2017, she was awarded an Association for Psychological Science Janet Taylor Spence Award for Transformative Early Career Contributions. Her work linking family income to brain structure across childhood and adolescence has received worldwide attention in the popular press.