

## ***Assessing the Role of Social Determinants of Health on Early Brain Development in Racially Diverse Cohorts***

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Exposure to social determinants of health like poverty, neighborhood crime, environmental toxins and racial discrimination are increasingly recognized as negatively impacting brain and cognitive development. This presentation will highlight research supporting this link in two cohort studies that are racially diverse.

**Methods:** One cohort includes infants born very preterm and a term comparison cohort with measures of neighborhood poverty while the second cohort including approximately 400 caregiver-infant dyads that were recruited during pregnancy with assessments of income to needs, neighborhood poverty, neighborhood crime exposure, racial discrimination, depression, perceived stress, and stressful life events. Infants in these studies underwent MRI scans during the neonatal period. Image analyses included resting state functional connectivity, diffusion tractography of white matter tracts and structural analyses of volume and surface area with a focus on brain regions related to emotion regulation and emotion processing. Factors related to social determinants of health variables were related to neonatal brain measures. Analyses disentangling race and social determinants were also conducted.

**Results:** Prenatal social disadvantage was significantly related to the functional connectivity of cortical networks, and neonatal diffusion measures of multiple white matter tracts. Social disadvantage was also related to cortical gray matter volumes and surface area. Neighborhood crime was also found to contribute to early brain development.

**Discussion:** Prenatal exposure to social determinants of health particularly those that index social disadvantage and poverty were related to multiple measures of neonatal brain development including cortical networks, white matter tracts and structural cortical development.