



April 15-16, 2019

EMORY UNIVERSITY
HEALTH RESEARCH SCIENCES BUILDING
ROLLINS AUDITORIUM, 1ST FLOOR
1760 HAYGOOD DRIVE, ATLANTA, GA
30322

www.breakthecycleprogram.org

A PROJECT OF

**SOUTHEAST PEDIATRIC ENVIRONMENTAL HEALTH SPECIALTY UNIT (PEHSU) and
BREAK THE CYCLE OF HEALTH DISPARITIES INC (BCHD)**

ALSO SPONSORED BY

**EMORY SUSTAINABILITY INITIATIVES
EMORY UNIVERSITY NELL HODGSON WOODRUFF SCHOOL OF NURSING
GEORGIA GOVERNOR'S COUNCIL ON DEVELOPMENTAL DISABILITIES**



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NURSING**



Day 1: Monday, April 15, 2019

- 8:00AM** **Registration, Poster Setup, & Light Breakfast**
- 8:30AM** **Opening of Program**
Robert J. Geller, MD, Director, Southeast PEHSU, Professor of Pediatrics, Emory University, Atlanta GA
- 8:35AM** **Message from the ATSDR**
Michael Hatcher, DrPH, Chief, Environmental Medicine Branch, Division of Toxicology and Human Health Sciences, ATSDR, CDC, Atlanta GA
- 8:40AM** **Message from the US EPA**
Martha Berger, Office for Children's Health Protection, US EPA, Washington D.C.
- 8:45AM** **Sustainability Initiative**
Ciannat M. Howett, Director of Sustainability Initiatives, Emory University
- 8:50AM** **Introduction to Break the Cycle**
Leslie Rubin, MD, Director, Break the Cycle Program, Associate Professor, Morehouse School of Medicine, Co-Director Southeast PEHSU, Atlanta GA
- 9:10AM** **Student Presentations:**
Gentrification-related Changes in Neighborhood Quality and Academic Performance in NYC Adolescents
Teresa Durham, BS
Mentor: Julie Herbstman, PhD
Columbia University, Center for Children's Environmental Health
- 9:30AM** **The Impact of Childhood Exercise and Socioeconomic Status on Resilience in College Students**
Leah Postilnik
Mentor: Maeve Howett, PhD, RN
University of Massachusetts, College of Nursing
- 9:50AM** **Assessing the Feasibility of Integrating Trauma - Informed Practices into Primary Pediatric Care**
Cristian Quizhpi, MD
Mentor: David Wood, MD, MPH, FAAP
East Tennessee State University, Department of Pediatrics

Day 1: Monday, April 15, 2019

10:10AM

Health Break

10:25AM

The Development of a Prenatal Care Health Literacy Instrument for American Indian Mothers

Jordyn Gunville, MPH

Mentor: Jessica Williams, PhD

University of Kansas Medical Center, Health Policy and Management

10:45AM

Barriers and Opportunities to Provide Nurturing Care in Low-income Communities of Paraguay

Jimena Vallejos

Mentors: Cassie Landers, PhD; Renata Schiavo, PhD.

Columbia University, Mailman School of Public Health

11:05AM

Water Infrastructure, Childhood Blood Lead Levels, and Delinquency Risk: Characterizing the Effects of Exclusion from Municipal Water Services in Wake County (North Carolina, USA)

Allison Clonch, BS

Mentor: Jacqueline MacDonald - Gibson, PhD

University of North Carolina - Chapel Hill, Department of Environmental Science and Engineering

11:25AM

Keynote 1

The Practice of Environmental Justice: Issues and Opportunities

Onyemaechi Nweke, DrPH, MPH

Senior Environmental Health Scientist

EPA Office of Environmental Justice Liaison to the Office of Children's Health Protection and the American Indian Environmental Office.

12:00PM

Lunch

Student Presentations:

1:10PM

Power of the Parents: Leveraging Pediatric Stakeholders to Break the Cycle of Educational Disparities

Cori Walker, BA; Asher Liu

Mentors: Fuad Baroody, MD; Dana Suskind, MD

The University of Chicago, Departments of Surgery and Pediatrics

Day 1: Monday, April 15, 2019

1:30PM

Engaging Parents of Children with Autism Spectrum Disorder to Identify Rural Health Disparities and Factors Related to Delayed Diagnosis and Treatment

Amy Blumling, CPNP-PC

Mentor: Susan Brasher, PhD; Jennifer Stapel - Wax, PsyD

Emory University, Nell Hodgson Woodruff School of Nursing & Marcus Autism Center

1:50PM

Autism Disparities: Structural and Institutional Barrier

Alice Hong

Mentor: Jennifer Singh, MPH, PhD

Georgia Tech, History and Sociology of Science

2:10PM

Health Break

2:30PM

Health Literacy in Pediatric Onset Lupus Patients

Catherine (Cat) Park, MD

Mentor: Roshan George, MD

Emory University School of Medicine, Department of Pediatrics, Division of Nephrology

2:50PM

Did Medicaid Expansion Enhance Probability of Preventive Health Visit Among Children?

Patricia Daniel

Mentor: Brian Barger, PhD

Georgia State University, Center for Leadership in Disability

3:10PM

Keynote 2

Health Disparities in India

Henry Falk, MD, MPH

Former Director of the CDC, Agency for Toxic Substances and Disease Registry (ASTDR) and National Center for Environmental Health (NCEH).

3:50PM

Summary Remarks

4:00PM

Authors with Posters

4:45PM

Recognition Awards

5:00PM

Day 1 Concludes



April 16, 2019

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SCHOOL OF NURSING
ROOM 201
1520 CLIFTON RD, ATLANTA, GA 30322**

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Symposium: Tuesday, April 16, 2019

- 8:30AM** **Introduction: Disasters and Vulnerable Populations**
Leslie Rubin, MD
Director, Break the Cycle Program, Associate Professor, Morehouse School of Medicine, Co-Director Southeast PEHSU, Atlanta GA
- 9:00AM** **Disasters through a Health Equity Lens**
Amy Wolkin, DrPH, MSPH
Centers for Disease Control and Prevention, Center for Preparedness and Response, Office of Science and Public Health Practice
- 9:30AM** **Health Break**
- 9:45AM** **Promoting Resilience in Children in the Aftermath of Hurricanes**
Abby Mutic, PhD, MSN, CNM
Southeast PEHSU at Emory, Nell Hodgson Woodruff School of Nursing, Emory University
- 10:15AM** **Caribbean Strong: Building Resiliency with Equity Following Hurricanes Irma & Maria**
José F. Cordero, MD, MPH
Patel Distinguished Professor of Public Health, Head, Department of Epidemiology and Biostatistics College of Public Health, University of Georgia
- 10:45AM** **Health Break**
- 11:00AM** **Small Group Discussion and Generation of Recommendations**
- 11:50AM** **Report Back from Small Groups**
- 12:20PM** **Concluding Remarks**
- 12:30PM** **Adjourn**

Guest Presenters



Michael T. Hatcher, Dr. PH

Dr. Michael Hatcher is a public health professional with more than 39 years of health promotion and disease prevention experience at the local, state, and federal levels of public health. He has led health promotion and disease prevention planning, initiative development, and implementation of interventions that resulted in measurable population-level health improvements.

His achievements include articulating the *Principles of Community Engagement*, redefining public health practice through the *Essential Public Health Services and National Public Health Performance Standards*, which have improved health system operation and performance improvement. He has also conducted health services research at the interface of population health and personal health care services.

Dr. Hatcher has served as chief for the environmental medicine branch at ATSDR for nearly 14 years and has facilitated expansion of the Pediatric Environmental Health Specialty Units' work to include protecting expectant mothers and children at their earliest stages of development from hazardous substances in the environment.



Onyemaechi Nweke, Dr. PH, MPH

Onyemaechi Nweke is an environmental health scientist with the Office of Environmental Justice at the US Environmental Protection Agency. She currently serves as the liaison for the Office of Environmental Justice to the Offices of Children's Health Protection and the American Indian Environmental Office. Dr. Nweke has worked 18 years at the federal level on issues such as regulatory development and environmental justice policy.

She also led a national health equity partnership initiative at the US Department of Health and Human Services' Office of Minority Health (2012-2016), where she chaired the Federal Interagency Health Equity Team, and coordinated

Guest Presenters

non-federal partners across 10 regional public-private coalitions for health equity.

Dr. Nweke's work includes leading the development of the EPA's first "Technical Guidance for Assessing Environmental Justice in Regulatory Analysis" to facilitate the consideration of environmental justice in regulatory development. She has published papers on topics to advance the practice of environmental justice and health equity.

Dr. Nweke is a public health practitioner with interests in problem-solving and decision-making frameworks for environmental health inequities that reflect their complex causal pathways. Dr. Nweke has a Doctorate in Public Health (DrPH) in Environmental Health Sciences from Johns Hopkins Bloomberg School of Public Health, and a Master's in Public Health degree in Environmental and Occupational Health from Saint Louis University College of Public Health and Social Justice.



Henry Falk, MD, MPH

Dr. Henry Falk served in multiple capacities at CDC, including Assistant Administrator of ATSDR, Director of the National Center for Environmental Health, member of the Executive Leadership Board, and Director of the Coordinating Center for Environmental Health and Injury Prevention. He retired from the US Public Health Service Commissioned Corps after 30 years of service as Rear Admiral and Assistant Surgeon General, and from the CDC in December, 2010, although he continued there as a part-time consultant to the Deputy Director, ONDIEH/CDC on global aspects of Noncommunicable Diseases, Injury and Environmental Health until 2018.

Currently, he is at Emory Rollins School of Public Health as an Adjunct Professor of Environmental Health, and also consults in global environmental health, particularly in India and Israel.

Guest Presenters

At CDC, he helped start the environmental health, injury, disaster epidemiology, lead poisoning prevention, asthma, radiation studies, hazardous waste investigations, and a variety of other programs; he began his career at CDC as an EIS Officer and worked on the initial investigations of vinyl chloride induced hepatic angiosarcoma.

He has approximately 150 publications, and is the recipient of several awards, including the CDC Lifetime Science Achievement Award, the Distinguished Service Award of the US Public Health Service and the William C Watson Medal of Excellence at CDC.



Amy Wolkin, Dr. PH

Dr. Amy Funk Wolkin is the Senior Advisor for At-Risk Populations for the Center for Preparedness and Response at the Centers for Disease Control and Prevention. Dr. Wolkin focuses on improving the resilience of at-risk populations to natural and human-caused disasters, disease outbreaks, and other adverse events. She provides scientific expertise for emergency preparedness and response activities.

Since joining the CDC in 2002, Dr. Wolkin has led numerous national and international outbreak investigations and emergency responses. Her research experience includes vulnerable populations and emergencies, health impacts of extreme weather events, community health assessments, chemical and radiological terrorism, and environmental epidemiology. Dr. Wolkin has authored more than 80 peer-reviewed articles and book chapters on disaster epidemiology, environmental epidemiology, and surveillance. She received her Doctorate of Public Health from University of North Carolina, her Masters of Science in Public Health from Emory University, and her bachelor's degree from the University of Georgia.

Guest Presenters



Abby Mutic, PhD, MSN, CNM

Dr. Abby Mutic is a Certified Nurse Midwife with expertise in occupational and environmental exposures in vulnerable populations. Her research has focused on endocrine disrupting chemical exposures and their associations with depression during the perinatal period. She has significant interest engaging with communities in research and research translation to improve health outcomes. She currently leads the outreach efforts of Emory Children's Environmental Health Center and is a member of the Southeast PEHSU where her latest work has focused on community resiliency to improve health outcomes in children following natural disasters. She is a clinician at the Grady Teen Clinic providing GYN, preconception, pregnancy and family planning services to at risk youth. She received her Master's in Nurse-Midwifery from Vanderbilt University and her PhD from Emory University.



José F. Cordero, MD, MPH

Dr. Cordero's research centers on examining the role of endocrine disruptors and oxidative stress on preterm births and neurodevelopment. He is conducting a large cohort of pregnant women in Puerto Rico, the Puerto Rico Testsite for Exploring Contamination Threats (PROTECT) and following up the children born to PROTECT mothers through the Center for Research of Early Childhood Exposure and Development in Puerto Rico (CRECE).

He is also a member of the consortium called Zika in Pregnancy (ZIP) that is examining the risk of Zika infection to pregnant women and their babies.

BREAK THE CYCLE OF ENVIRONMENTAL HEALTH DISPARITIES

BREAK THE CYCLE 14

PROMOTING HEALTH EQUITY FOR ALL CHILDREN



Break the Cycle 14 Cohort Conference Participants



Student

Teresa Durham, BS

Teresa Durham received her undergraduate degree in Neuroscience and Behavioral Biology from Emory University and currently works as a Technician at Columbia's Center for Children's Environmental Health. While at Emory, Teresa conducted research at the Rollins School of Public Health examining the neurotoxic effects of heavy metals on the dopaminergic pathway of *C. elegans*. She was selected to participate in the three-year Emory Pipeline Collaborative (EPiC) program, for which she taught curriculum surrounding Sexual, Mental, and Public Health to low-income high-school students in the Atlanta Public Schools system. Since coming to Columbia, Teresa has been assisting in research on the impacts of prenatal exposure to environmental pollutants on children's brain health and development.

Faculty Mentor

Julie Herbstman, PhD

Julie Herbstman, PhD, is an Associate Professor in the Department of Environmental Health Sciences at Columbia's Mailman School of Public Health. She is the current Director of the Center for Children's Environmental Health. Trained as an epidemiologist, Dr. Herbstman's research focuses on the impact of prenatal and early life exposures to endocrine-disrupting environmental pollutants, including polybrominated diphenyl ethers (PBDE), pyrethroid pesticides, polycyclic aromatic hydrocarbons (PAH), environmental phenols (including BPA), perfluorinated compounds, and phthalates and their impact on child health and neurodevelopment. She has also been involved in research exploring the long-term environmental health impact of exposure to pollutants from the collapse of the World Trade Center on 9/11. She leads multiple longitudinal birth cohorts within the Columbia Center for Children's Environmental Health. She directs the Center's work involving the integration of epigenetic biomarkers to explore the mechanistic pathway between prenatal exposures and disease risk in childhood and across the lifecourse. Dr. Herbstman has recently been honored as a Columbia Butler Aging Center Fellow and a Columbia Tow Research Scholar.

Gentrification-related Changes in Neighborhood Quality and Academic Performance in NYC Adolescents

Teresa Durham, *student*; Dr. Julie Herbstman, *mentor*

Columbia University, Columbia Center for Children's Environmental Health, Mailman School of Public Health

Background:

Numerous reports document gentrification in Northern Manhattan over the last twenty years (Bergad, 2008; Newman & Wyly, 2006; Strug & Mason, 2008). With an influx of outside investment comes newly renovated apartments and commercial establishments. For residents already living in the area, and for those who may experience residential displacement into more affordable neighborhoods, this can lead to large changes in neighborhood quality, an environmental domain that is especially important for children's mental health. Poor neighborhood quality is associated with youth internalizing behaviors such as social withdrawal and low self-esteem, as well as increased symptoms of anxiety and depression. The majority of the reports assessing the association between neighborhood quality and child health use CENSUS data to capture neighborhood quality indicators, which rely only on objective, ecological components of neighborhood composition. The objective of our study is to use longitudinal measures of maternal self-reported neighborhood quality to assess the impact of changes in neighborhood quality on child mental health—specifically, anxiety and depression.

Methods:

We used data from the Mothers and Newborns Study, a prospective longitudinal birth cohort at the Columbia Center for Children's Environmental Health (CCCEH). We used maternal self-reported information about neighborhood quality collected repeatedly at child age 5, 7, 9, and 11. We first fit trajectory models to identify patterns of neighborhood quality across middle childhood. We assessed mental health at age 9-12 years—specifically mood disorders—including anxiety and depression. Anxiety was assessed using the Revised Children's Manifest Anxiety Scale (RCMAS) and depression symptoms using the Children's Depression Rating Scale (CDRS). We used multiple linear regression to assess the association between the pattern of neighborhood quality in middle childhood and symptoms of anxiety and depression in early adolescence.

Results:

Maternal self-reported neighborhood quality separated into two distinct trajectory groups—one with persistently more stressful neighborhood composition and the other with persistently less stressful neighborhood composition. Children of mothers who rated their total neighborhood quality more stressful over a six-year time period had significantly more symptoms of depression than children of mothers who reported their neighborhood to be less stressful (beta = 1.56, 95% CI: 0.03, 3.08). Additionally, there was an observable difference between number of clinically depressed individuals in each group, with the more stressful neighborhood quality trajectory group containing more clinically depressed youth (10% vs. 6%, $p=0.20$). There were no observed differences between neighborhood quality and total anxiety.

Conclusions:

This analysis showed that, after adjusting for covariates, poor neighborhood quality across middle childhood is associated with an increase in depressive symptoms among children. Maternal assessment of neighborhood composition while a community is gentrifying can be used as an important tool as researchers continue to analyze the impacts of gentrification on children's health. Moving forward, we plan to use geocoding to examine how residents of Northern Manhattan have moved in and out of the area in response to gentrification, as we believe this can more closely link neighborhood quality changes and gentrification—to ultimately, evaluate the effects of gentrification on child health outcomes.

Student

Leah Postilnik

Leah Postilnik is completing her final year of undergraduate studies at the University of Massachusetts College of Nursing. As a Commonwealth Honors Scholar, Leah is participating in the Break the Cycle initiative as part of her senior research thesis. Previously, Leah represented the University as a Delegate for the National Student Nurses Association at the 2017 and 2018 national conventions in Dallas and Nashville. For the 2017 convention, Leah's research discussed the benefit of policies regarding family presence during resuscitation and stress-mediating programs for nursing students in 2018. As a life-long athlete, Leah has a passionate interest in helping other young adults and children apply exercise to improve their being and is excited and grateful for the opportunity to share this topic with the Break the Cycle participants and the greater healthcare community.

Faculty Mentor

Maeve Howett, PhD, APRN, CPNP-PC

Dr. Maeve Howett is a Pediatric Nurse Practitioner, Lactation Consultant, and Clinical Professor at the University of Massachusetts Amherst, where she is also the Assistant Dean for Undergraduate Education. She received her undergraduate and graduate degrees in nursing at Emory University in Atlanta, Georgia, where she was awarded the prestigious Woodruff Fellowship. Her research and clinical expertise is inter-disciplinary, focusing on breastfeeding and early childhood exposures. She is particularly interested in the at-risk mother-infant dyad made vulnerable by poverty, early childhood malnutrition, and toxicant exposures. Dr. Howett is one of the "Top Twenty Nursing Professors to Follow on Twitter" according to OnlineEducation.com and serves on the Federal Advisory Committee: Environmental Protection Agency (EPA) Children's Health Protection Advisory Council (CHPAC), the United States Breastfeeding Committee (USBC), and the Technology Committee for the Massachusetts Chapter of the American Nurses Association.

The Impact of Childhood Exercise and Socioeconomic Status on Resilience in College Students

Leah Postilnik, *student*; Dr. Maeve Howett, *mentor*
University of Massachusetts Amherst, College of Nursing

Background:

Low socioeconomic environments (SEE) have been shown to have detrimental effects on children's health. Children from low SEE families have a higher risk of developing behavioral issues, gaining weight, and developing a chronic disease later in life. These statistics highlight an environmental health disparity between children in low and average or high SEE. In order to mitigate the damaging health effects of a low SES, children need to have tools to manage increased stressors in their environment and cope with the adverse effects. Exercise is one such tool that can be used to lessen the impact of stressors, but children in low socioeconomic environments are exercising less than their wealthier peers. The purpose of this research is to determine if students from low socioeconomic environments who successfully develop exercise habits in childhood and maintain them as young adults are more resilient than students who do not develop these habits. The hypothesis is that students from low socioeconomic environments with long-term exercise habits have higher resilience levels than students from similar backgrounds with poor exercise habits.

Methods:

After approval by the University's institutional Review Board, a 23-question five-minute online electronic survey was completed by Undergraduate students (n=300) at the University of Massachusetts, Amherst. A link to the survey was sent to professors of large lectures who forwarded it to students or asked them to complete it during class time. The link was also posted on University Facebook pages. In the survey, the Brief Resilience Scale was used to measure students' current resilience levels, the Godin Leisure-Time Exercise Questionnaire was used to measure current exercise patterns and childhood exercise pattern history and students' socioeconomic status was determined through demographics questions. After the data collection period, quantitative statistical analysis was performed with SPSS software to examine the relationship between SEE, exercise habits and resilience.

Results:

Among survey respondents this study, students in highest income brackets had the highest exercise levels in middle school, high school and college while respondents from lowest income brackets exercised the least. Across income levels, students exercise the most in high school and the least in college. Multiple regression analysis showed that high exercise levels in middle school strongly predicted higher exercise levels in high school and moderately predicted exercise levels in college. High levels of exercise in college were found to be significantly correlated with resilience. While resilience scores increased with income, income and other socioeconomic factors were not found to be statistically significant predictors of resilience, which demonstrates the need for further research.

Conclusions:

The results of this pilot study demonstrate that promoting exercise in college will increase students' resilience to stress and can thus be used to mitigate the negative health impacts of a low socioeconomic environment. Additionally, the data shows children who exercise in middle school are likely to continue exercising in high school and college, which suggests exercise interventions should be initiated early in a child's life. The results also reveal disparities in resilience levels and exercise scores by socioeconomic status. Therefore, more research using different data collection methods and with larger, more diverse samples must be conducted to better understand the relationships between children's socioeconomic status, resilience and physical and mental health.

Student

Cristian Quizhpi, MD

Cristian Quizhpi is a second-year resident in the ETSU Department of Pediatrics. He holds an MD from the Medical College of Georgia in Augusta, Georgia. He previously received his Bachelor of Science from Vanderbilt University and Master of Science from Georgia State University. Prior to pursuing a career in medicine, he worked as a middle school science teacher at a Title I school in Atlanta, Georgia. During his residency, he has worked to provide patient centered care to Spanish-only speaking patients, including translating to Spanish a ReadNPlay children's book that educates families on proper child-safety practices. Cristian's research experience includes collaborating in a Quality-Improvement initiative to enhance bronchiolitis management at Niswonger Children's hospital. Cristian's passion is to work with children in medically underserved communities and advocate for the improvement of preventative care services for at-risk families. In his free time, he enjoys spending time with his wife and very energetic 9-month-old son.

Faculty Mentor

Dr. David Wood, MD, MPH, FAAP

Dr. David Wood graduated with honors from Harvard University, completed medical school and pediatric and preventive medicine residencies at UCLA. He also completed a fellowship in Health Services Research at RAND/UCLA. He is currently a Tenured Professor and Chair, Department of Pediatrics at the East Tennessee State University. For more than twenty years his research and advocacy efforts have focused on improving the health and health care for underserved children and adults. He has published more than 150 peer-reviewed publications, reports, and book chapters. He has founded programs for and conducted advocacy-oriented research on multiple groups of disadvantaged children, including poor children, children in homeless shelters, children in foster care and youth with special health care needs. He directed the Jacksonville Health and Transition Services (JaxHATS) program from 2005 until late 2014, a model patient-centered medical home to over 1000 medically complex and developmentally disabled youth and young adults. Dr. Wood has been active in advocacy for disadvantaged children and adults, with a focus on children and adults with IDD, serving as a gubernatorial appointee to the Florida Developmental Disabilities Council for over 12 years. In his current position, Dr. Wood is working with ETSU colleagues and community partners to evaluate the health and health care services of children, youth and young adults in Middle Appalachia and to build high quality health care system for to meet those needs.

Assessing the feasibility of integrating trauma-informed practices into the primary care setting

Cristian Quizhpi, *student*; Dr. Karen Schetzina, *mentor*; Dr. David Wood, *mentor*;
ETSU Department of Pediatrics, Quillen College of Medicine

Background:

Disadvantaged social, economic, and environmental factors create Adverse Childhood Experiences (ACEs), which can harm a child's developing brain and have lasting effects on health. These experiences range from physical, emotional, or sexual abuse to parental divorce or substance abuse. Afflicted children have a significantly increased risk of behavioral and health issues later in childhood, as well as adult onset chronic health problems. We hypothesize that primary care ACEs screening, intervention by a primary care-behavior health care integrated care team, and referrals for parenting support and resources will be feasible, acceptable, and beneficial from parent and provider perspectives.

Methods:

Parents with an ACE score of four or higher at the one-month checkup will be offered The Incredible Years interactive video intervention during checkups through 9 months of age. Parents or children with an ACE score of four or higher at the 1-4 year well child visits will be referred to participate in Nurturing Parenting group visits provided by a partnering community agency. Both programs are evidence-based, family-centered trauma-informed programs supporting positive child rearing practices. Process and outcome variables will be assessed using surveys administered after patient screening and following each program session, and primary care providers will be surveyed at the end of the project period. Process and outcome measures include; number of families screened for ACEs, number referred to parenting programs, the number of program sessions completed and attendance and changes in self-assessed parenting competence. This study will demonstrate the feasibility of integrating trauma-informed practices into primary pediatric care, document an increase in referrals to community support services and document an increase in self assessed parenting competence among parents who have suffered 4 or more ACEs.

Results:

Preliminary survey results show that families evaluate the process of undergoing ACEs screening and follow up discussion with providers in a favorable manner. Additionally, families with elevated ACEs scores that meet criteria for additional interventions, received the corresponding program in as acceptable and appropriate. Provider surveys are forthcoming, however the additional screening, intervention provided by the Behavioral Health Team, and feasibility survey collection has not affected the clinic's productivity or delayed patient care. Upon initially starting screening and survey administration at clinic, an error was noted in the reporting of ACEs screening results in the EMR. Data collection was delayed while the EMR function was edited by IT administrator.

Conclusions:

Our multidisciplinary team will continue to collect data and continue to evaluate and streamline all aspects of the project in order to enhance the care of our patients and families. Additionally, will evaluate concerns and recommendations noted with provider administration survey at conclusion of data collection.

Student

Jordyn Gunville, MPH

Jordyn Gunville, MPH, enrolled member of the Cheyenne River Sioux Tribe, is a PhD student in Health Policy and Management at the University of Kansas Medical Center (KUMC), where she also received her Master of Public Health degree as a Susan G. Komen Scholar. Jordyn is a research associate at the Center for American Indian Community Health, where she has worked on numerous research projects, including maternal and child health, mental health, ethnic identity studies, various health literacy, smoking cessation programs, community outreach activities, and breast cancer research and education. Jordyn is currently a Zegar scholarship recipient at Johns Hopkins Bloomberg School of Public Health where she is receiving additional training for public health professionals working in American Indian communities.

Faculty Mentor

Jessica Williams, Ph.D

Jessica A. Williams, PhD is an assistant professor University of Kansas Medical Center, Department of Health Policy and Management. Prior to joining the University of Kansas faculty, Dr. Williams was a Robert Wood Johnson Health & Society Scholar at Harvard University. Dr. Williams received her PhD in Health Policy and Management with a concentration in Health Economics from UCLA and has worked for the Federal Reserve Board of Governors and the Congressional Budget Office. Dr. Williams has published scholarly articles in such journals as the American Journal of Public Health, JAMA Pediatrics, Journal of Occupational and Environmental Medicine, and Medical Care. Dr. Williams' research has investigated the relationships between psychosocial workplace factors, employee health, future medical expenditures, and productivity at work. She has also evaluated the impact of occupational factors on health behaviors. Additionally, she has studied children's sleep habits in the U.S., prescription drug nonadherence in Medicare beneficiaries, and the use of preventive medical services in the U.S. Dr. Williams has expertise in a variety of quantitative methods, including using large administrative databases. She collaborates on several interdisciplinary research projects and is passionate about mentoring and teaching.

The Development of a Prenatal Care Health Literacy Instrument for American Indian Mothers

Jordyn Gunville, *student*; Dr. Jessica Williams, *mentor*

University of Kansas Medical Center, Department of Health Policy and Management

Background:

American Indian infants are nearly 4 times as likely as White infants to have mothers who only received prenatal care in the third trimester, or not at all. Infant mortality rates among American Indians are excessively high. The leading causes of infant mortality for American Indians are congenital malformations, low birthweight, sudden infant death syndrome, and unintentional injuries. Additionally, American Indians are the only racial/ethnic group that has not had a decline in infant mortality between 2005 and 2014. Many of these outcomes could be addressed with adequate prenatal care. We have created a health literacy instrument that is specific to prenatal care health for American Indians. This is a necessary step in primary and secondary prevention efforts to develop interventions.

Methods:

We developed an instrument with four domains including: awareness (care, warning signs, symptoms), screening (when, where/how, cost), incidence (rates and ranks), and risk (ways to increase and decrease risk). We incorporate aspects of prose, document, and quantitative literacy into the instrument; ensuring holistic representation of health literacy.

Results:

A long form of 60 questions was originally drafted. Two maternal health researchers and one health literacy expert reduced the instrument from 60 to 25 questions. We have started evaluating the reliability and validity among American Indian populations by cognitive and pilot testing the instrument with American Indian mothers. We plan to conduct 6 cognitive interviews; 3 American Indian community members and 3 American Indian Community Advisory Board members.

Conclusions:

This study aims to obtain an understanding of prenatal care health literacy for American Indian mothers. There is little information on health literacy specific to prenatal care health among American Indians. By learning about health literacy levels, we can create more appropriate interventions, educational programs, and materials. Effective interventions and educational programs are vital for American Indian Reservation as they face high rate of health disparities, harsh environmental living conditions, and geographic isolation.

Student

Jimena Vallejos, MPA in Development Practice

Jimena Vallejos is a student at Columbia University School of International and Public Affairs where she is pursuing a Master of Public Administration in Development Practice. She is a Graduate Research Assistant for the Fostering Resilience Initiative at the Earth Institute and Notre Dame University and a Teaching Assistant for Quantitative Analysis. As a development professional, Jimena has 5 years of experience in poverty elimination programs, microfinance and financial inclusion. She worked as a manager of Poverty Stoplight, an innovative and participatory poverty assessment tool that has been replicated in over 15 countries. During her time at Fundacion Paraguaya, Jimena also worked as manager of the program Inclusive Microfinance Opportunities which created tools and procedures to enable people with disabilities and their families access financial services and improve their quality of life. This past summer, Jimena worked as a Fellow for IMAGO Global Grassroots supporting organizations such as Transforming Rural India to evaluate their existing programs and scale up operations. She also worked as Monitoring, Evaluation and Learning (MEL) Consultant with ChildFund International conducting a desk review and drafting an MEL framework for their program model.

Faculty Mentors

Cassie Landers, PhD, MPH

Renata Schiavo, PhD, MA, CCL

Dr. Cassie Landers holds a Doctorate in Education, as well as a Master's in Public Health, both from Harvard University. Since 1985, Dr. Landers has worked with UNICEF and other international agencies to promote policies and programs in support of young children and their families. Over the past 20 years, she has provided technical assistance and support to child development programs in over 60 countries throughout Southern Africa, South Asia, East Asia, Middle East and North Africa, Central Asia and Eastern Europe. In collaboration with the Open Society Foundations, Dr. Landers has designed a Master degree program in Early Childhood Development, BRAC University, Bangladesh and was a visiting professor at the Moscow School of Social and Economic Studies. She has extensive experience in the design, implementation, and training of practitioners at all levels, developing global interventions ranging from parenting education to developmental pediatrics. Dr. Landers has participated in rapid assessment missions in areas of conflict including Haiti, Liberia, East Timor, Iraq, Afghanistan, Kosovo, and Romania and has designed interventions for children in conflict and post conflict situations. An early literacy initiative in collaboration with Head Start National Literacy Center brings her international expertise to young children and families throughout the US.

Dr. Renata Schiavo is a public health, health communication, global health, healthcare, international development, and social innovation specialist with broad experience in the United States, Europe, Latin America and Africa. For over 20 years, Dr. Schiavo has worked at the interface of health equity, social and behavior change communication, health systems, community health, community development, social enterprises, population health, health policy/advocacy, and community, patient, and citizen engagement to improve health and social outcomes among different populations. Dr. Schiavo is the author of the internationally acclaimed book, *Health Communication: From Theory to Practice*, as well as 35+ publications and 125+ scientific presentations. At Mailman she teaches courses on Society, Health Equity and Health Communication; Health Communication; and Trends in Designing Child Health and Development Programs. Currently, Dr. Schiavo is Founding President, Board of Directors, of Health Equity Initiative, a member-driven nonprofit membership organization dedicated to building a global community that engages across sectors and disciplines to advance health equity. As a researcher, advocate and practitioner, Dr. Schiavo is interested in community- and system-driven multisectoral models, partnerships, and interventions to address health, equity, and social issues.

Barriers and Opportunities to Provide Nurturing Care in Low-income Communities of Paraguay

Jimena Vallejos, *student*; Dr. Cassie Landers, *mentor*, Dr. Renata Schiavo, *mentor*
Columbia University, School of International and Public Affairs & Mailman School of Public Health

Background:

This study aims to form a conclusion about Early Childhood Development (ECD) in Paraguay, with a special focus on children ages 0-3 and their caregivers. In particular, it seeks to understand the opportunities and barriers for caregivers to provide nurturing environments for their children before they enroll in primary education. Drawing on examples of policies and programs from the region, as well as from key informant semi-structured interviews of stakeholders working in government, multilateral and civil society organizations, the study provides a series of recommendations of potential policies, programs and platforms that can support parents and caregivers in their arduous task of helping children reach their full developmental potential in order to break the cycle of health disparities.

Methods:

Data collection for this study was primarily dependent on secondary sources. A desk review was conducted to assess for the following categories of data: (a) nurturing care framework and evidence of its effectiveness and implementation in Latin American countries; (b) analysis of ECD policies from the region; and (c) available data related to ECD programs implementation of early childhood development in Paraguay. Findings are presented under these categories. The desk review included peer-reviewed articles and evaluations as well as grey and programmatic literature from multi-lateral organizations (UNICEF, World Bank) and country level institutions (Ministry of Health and Wellbeing, Ministry of Education and Science, Census Survey and Statistics Bureau (DGEEC). The desk research is complemented by a series of semi-structured interviews with selected key informants in Paraguay. These interviews elicited stakeholder experiences on the relevance, effectiveness, efficiency, sustainability and impact of early childhood development programs in Paraguay as it related to the Nurturing Care and the Break the Cycle for Health Disparities frameworks.

Results:

Over the past 10 years, Paraguay has developed important policies and programs in line with the regional trends of increased investment in Early Childhood Development. The programs aim to serve the population of children 0-8 through an interdisciplinary approach lead primarily by Health, Education and Children and Adolescence ministries. However, several threats to the development of nurturing environments for children were identified that prevent them from reaching optimal potential. Multiple barriers that prevent the translation of policies and programs to effective implementation, scale and sustainability were identified at the national, community and family level. One of the most important barriers is ensuring opportunities for the development of caregivers' capabilities to provide the nurturing environment and responsive care children need to develop in the early years. Using the new global framework for Nurturing Care, we identified several practices that can be implemented for breaking the cycle of health and development disparities, including: (1) promoting responsive relationship based interactions and experiences; (2) combining training and support for parents in early childhood development with services that meet families' basic needs, and (2) promoting programs that minimize sources of stress and provide social support at community level.

Student

Allison Clonch, BS

Allison Clonch received her undergraduate degrees from North Carolina State University with a BS in Nutrition Science and a BS in Biological Sciences. She knew for many years that she wanted to study public health, and she achieved that goal when she came to UNC Chapel Hill in 2016. Allison is currently pursuing dual masters degrees in Environmental Science and Engineering (MSPH) and City and Regional Planning (MCRP). Dr. Jacqueline MacDonald-Gibson is her masters advisor in the School of Public Health. Allison's research interests during her masters have focused on environmental justice in underserved communities, and land use and environmental policy. Allison has had research and training fellowships with the Johns Hopkins Bloomberg School of Public Health, RTI International, and the National Institutes of Occupational Safety and Health (NIOSH). Her research for Break the Cycle involves an epidemiological approach to determine how access or lack of access to municipal water may impact childhood blood lead levels.

Faculty Mentor

Jacqueline MacDonald-Gibson, PhD

Dr. Jacqueline MacDonald Gibson is a professor of Environmental Science and Engineering at Gillings School of Global Public Health. Dr. Gibson has a multi-disciplinary background in mathematics, engineering, and science that she has applied to study risk assessment, policy, and communication for more than 25 years. Much of her research centers on predicting population health impacts of alternative environmental policy decisions. Her recent research to quantify the health impacts of disparities in access to municipal water service in peri-urban areas of North Carolina arose from a request from the North Carolina Director of Public Health for estimates of the magnitude of risks facing such communities. Dr. MacDonald Gibson also led multiple studies to inform environmental policies in the US Environmental Protection Agency, Department of Defense, and other federal agencies while on the staff of the RAND Corporation and, before that, the US National Research Council. She has received multiple awards for her science policy work, including two best paper awards from Risk Analysis, the National Research Council Award for Distinguished Service (conferred to two staff members per year), and the RAND Merit Bonus Award (for one of the year's best science policy projects). Her PhD studies were supported by a National Science Foundation Graduate Research Fellowship.

Water Infrastructure and Childhood Blood Lead Levels: Characterizing the Effects of Exclusion from Municipal Water Services in Wake County (North Carolina, USA)

Allison Clonch, *student*; Dr. Jacqueline MacDonald-Gibson, *mentor*

University of North Carolina – Chapel Hill

Gillings School of Global Public Health, Environmental Science and Engineering

Background:

Lead exposure in childhood has been strongly associated with impaired cognitive development and decreased IQ levels. Research has shown that a lack of access to municipal water services is associated with higher levels of lead in drinking water and disproportionately affects low-income and Black neighborhoods through a phenomenon known as "municipal underbounding." Individuals outside of municipal service areas live in what are known as "extra-territorial jurisdictions" (ETJs), and most of these households rely on private wells for water. Historically, little has been known about the burden of lead contamination from private wells. Municipal water systems have corrosion control protocols that prevent lead leaching into drinking water, but private wells often go untested for lead or other metals. Private wells often lack regulatory oversight altogether, and the burden to ensure the safety of household drinking water rests entirely on the individuals. With the knowledge that private wells often go unregulated, untested, and may contain harmful levels of lead, it is important to examine the populations who rely upon these wells as their water source. In our study, we hypothesize that children without municipal water service will have increased blood lead levels, and individuals living in predominantly low-income or minority neighborhoods will also have elevated blood lead levels.

Methods:

This study was completed using a retrospective database that included tax parcel data from Wake County GIS Services, childhood blood lead data from the North Carolina Department of Public Health's NC LEAD project, and 2010 Census data and 2017 American Community Survey (ACS) 5-year estimates data. Tax parcel data spanned from 2002 to 2018, while childhood blood lead data ranged from 1985 to 2015. We merged all datasets into a large, multi-year database at the individual child level. The resulting dataset contained 34,239 individual children. After completing the merged database, we used ArcMap to geocode the data and perform a spatial join to merge Census demographic data and ACS income data at the block level to each individual in our database. In our analyses, the primary outcome of interest was childhood blood lead level, and the primary exposure of interest was water source. We built an ordinary least squares (OLS) regression model and a logistic regression model using a blood lead benchmark of 5 mcg/dL in STATA 15, controlling for covariates throughout.

Results:

In our population, the mean blood lead level was 1.65 mcg/dL. Water access at time of birth was significantly associated with blood lead in both the OLS regression model ($b = -0.13$, $p < 0.0001$) and the logistic regression ($OR = 0.79$, $p = 0.006$). Additionally, the percent of the population that is Black in the individual's census block was also significant in both models ($b = 0.37$, $p < 0.0001$; $OR = 1.64$, $p = 0.005$). Other variables significant in both models included age of the individual at time of testing, year that the testing occurred, year the house was constructed, and median household income. Municipal status of the individual, meaning whether the individual lived in an extraterritorial jurisdiction or not, was only marginally significant in the OLS model ($p = 0.07$) and was not significant in the logistic model.

Conclusions:

These findings support our hypotheses that children living without access to municipal water utilities will have increased blood lead levels. The results also support that individuals living in predominantly Black and low-income areas have elevated blood lead levels. The results of this study suggest that further field testing should be done to determine a causal effect between lack of municipal water access and elevated blood lead levels. Additionally, the findings of this study support the need for more frequent testing of private wells and more oversight into private well water quality.

Students

Cori Walker, BA, MD

Asher Liu

Cori Walker received her undergraduate degree from Southern Illinois University Edwardsville in Edwardsville, Illinois with a major in Chemistry and minor in Spanish. She joined The University of Chicago Pritzker School of Medicine in 2015 and has participated in research with the TMW Center for Early Learning + Public Health since her first year of medical school. Her research interests include healthcare disparities, pediatric health, and community health. Through the TMW Center, she has helped implement evidence-based, parent-directed programs to advance early cognitive and language development in underserved pediatric populations. Cori plans to continue her work with the TMW Center during her final year of medical school and has aspirations to become a pediatric otolaryngologist after graduating in 2020. In her free time, Cori enjoys spending time with her husband and their twin infants, Hendrix and Murphy!

Asher Liu is currently a high school junior at the University of Chicago Laboratory Schools in Chicago, Illinois. He joined the TMW Center for Early Learning + Public Health in 2018 and is working to educate parents about the importance of early childhood language exposure. Through the TMW Center, he has participated in developing and testing a curriculum for pediatric clinic staff to understand their role in helping parents advance early brain and language development. Asher is also the Content Director for SLAP'D (Surviving Life After a Parent's Death), which is a social media platform for teens to cope with their loss. Asher has further aspirations to attend medical school with a specific interest in pediatric medicine. In his free time, Asher enjoys watching sci-fi movies and playing baseball with friends.

Faculty Mentors

Fuad Baroody, MD, FACS, FAAAAI

Dana Suskind, MD

Dr. Fuad M. Baroody is Professor of Surgery (Section of Otolaryngology–Head and Neck Surgery) and Pediatrics as well as the Director of the Residency Program in Otolaryngology at the University of Chicago in Chicago, Illinois. Dr. Baroody received his medical degree from the American University of Beirut in Lebanon, and he completed his internship and residencies in Otolaryngology–Head and Neck Surgery at the same university. He completed fellowships in Otolaryngology/Allergy and Clinical Immunology as well as Pediatric Otolaryngology at the Johns Hopkins University School of Medicine in Baltimore, Maryland. He is currently the director of Pediatric Otolaryngology at the University of Chicago and his clinical practice centers around treating allergic rhinitis, sinusitis and other pediatric disorders. He is regularly featured in the Chicago metro area top doctors publications and listed as one of the "Best Doctors in America" by Best Doctors Inc.

Dr. Baroody has written more than 160 scientific articles and 30 book chapters on allergic and pediatric otolaryngologic diseases. He is a fellow of the American Academy of Otolaryngology-Head and Neck Surgery (AAOHNS), The American Academy of Asthma, Allergy, and Immunology (AAAAI), the American College of Surgeons (ACS), and the American Rhinologic Society (ARS). He is also a member of the American Society of Pediatric Otolaryngology (ASPO), the Society of University Otolaryngologists (SUO), and the Chicago Laryngologic and Otologic Society (CLO) of which he also served as president. He is a regularly invited speaker at national conferences (AAOHNS and AAAAI) as well as international meetings.

Dr. Dana Suskind is Co-Director of the TMW Center for Early Learning + Public Health at the University of Chicago. A Professor of Surgery, she is Founder and Director of the Pediatric Cochlear Implant Program, and Founder and Director of Thirty Million Words. She received her MD at the University of Missouri-Kansas City School of Medicine. She completed her residency in Otorhinolaryngology, specializing in head and neck surgery, at the Hospital of the University of Pennsylvania, and fellowship in Pediatric Otolaryngology at the Children's Hospital at the Washington University School of Medicine in St. Louis, Missouri.

At the TMW Center, she is working on advancing a novel public health approach to early learning which places parents at the center of their children's language and cognitive development. Her research focuses on foundational brain development, with an overarching aim to affect a population-shift in the knowledge and the behavior of parents and caregivers in order to reduce and prevent early cognitive disparities at onset. Given the absence of any such tools in the field, she and her team developed a knowledge assessment tool, the Scale of Parent/Providers' Expectations and Knowledge (SPEAK), which influences all three areas of her research: behavior change interventions, efficacy testing, and implementation scaling.

Her research includes numerous peer-reviewed publications, and national and international speaking engagements. Author of the book, *Thirty Million Words: Building a Child's Brain*, she has been featured in *The New York Times*, *The Washington Post*, *Crain's Chicago Business*, *National Public Radio*, and other national media outlets.

The Power of Parents: Impacting Early Learning Disparities Through Pediatric Well-Child Visits

Cori Walker & Asher Liu, *students*;

Drs. Fuad Baroody & Dana Suskind, *mentors*

The University of Chicago, Departments of Surgery and Pediatrics

TMW Center for Early Learning + Public Health

Background:

A child's early language environment is an important social determinant of health, as early interactions are critical for cognitive and language development and set the foundation for future learning. Research suggests that disparities exist among early language exposure and disproportionately affect those in poverty. These disparities have been shown to negatively impact future educational, occupational, and health outcomes among socioeconomically disadvantaged youth. Opportunely, research also identifies the powerful role parents play in children's brain development and has shown that evidence-based, parent-directed interventions can lead to positive behavior change in interactions with children across all income levels.

With 12 routine well-child visits in the first 3 years of life, pediatric offices are uniquely positioned to intervene early, during this critical period of foundational brain development. In an effort to enhance the early language environment of children in these first 3 years, this study aims to improve pediatric clinic stakeholders' knowledge about early cognitive and language development and their perceptions of the role they can play in educating parents. We hypothesize that after receiving a curriculum intervention, study participants will exhibit improved knowledge of early cognitive and language development and will indicate that they are more comfortable and more likely to discuss early language exposure with parents and caregivers during well-child visits.

Methods:

All pediatric clinic support staff (nurses, medical assistants, receptionists, etc.) were recruited to participate without exclusion criteria. The study was ran as a quasiexperimental, one group pretest posttest design. The intervention was administered in the form of an in-person, group presentation. Participants completed pre and post intervention questionnaires assessing their knowledge on early language and cognitive development and their beliefs and behaviors regarding educating parents on early language exposure during well-child visits.

Results:

Consistent with our hypotheses, findings revealed a statistically significant increase in knowledge of early cognitive and language development among staff members post-intervention, with a p-value less than 0.05 (n=53). Participants also reported increased comfort and likelihood of discussing these topics with parents and caregivers after receiving the intervention.

Conclusion:

This study highlights the importance of educating all clinic staff about early language and cognitive development, and making them aware of the crucial role they can play to enhance early language environments for their patients. The results and qualitative responses suggest that pediatric clinic stakeholders benefit from education on this topic, and they desire to learn strategies they can use to discuss brain development with parents. Using the multiple well-child visits in the first 3 years of life to teach parents about the advantages of early language exposure presents an important opportunity to reduce educational disparities at their earliest onset.

Student

Amy Blumling, MS, CPNP-PC, PhD(c)

Amy Blumling is a Certified Pediatric Nurse Practitioner currently pursuing her PhD in Nursing at the Emory University Nell Hodgson Woodruff School of Nursing. She previously received both her Bachelor of Nursing Science and Master of Science from Emory University. She has worked as both a Postpartum/Mother-Baby Registered Nurse and as a Primary Care Pediatric Nurse Practitioner in rural Georgia. Amy's research training and background include qualitative and mixed methods research in topics such as parental perceptions of the HPV vaccine in rural Georgia and the quality of life in men with rare, genetic Sex Chromosome Aneuploidies. She is particularly interested in working with families, children, and young adults with disorders involving developmental delays, intellectual disabilities, psychosocial impairments, and difficulties transitioning to adulthood/adult care.

Faculty Mentors

Susan Brasher, PhD

Jennifer Stapel-Wax, PsyD

Dr. Susan Brasher is an Assistant Professor in the Emory University Nell Hodgson Woodruff School of Nursing. Her training background includes that of a pediatric Registered Nurse, Certified Pediatric Nurse Practitioner (CPNP), and a PhD in Nursing with an emphasis in neurodevelopmental disorders, specifically Autism Spectrum Disorder (ASD). She has several years of experience as the lead (PI), co-lead (co-I), and project coordinator of multiple funded Patient-Centered Outcomes Research Institute (PCORI) awards to work collaboratively with patients and stakeholders to identify health disparities and improve health outcomes in children and adolescents with ASD. Recently, she was appointed to be a PCORI ambassador to expand knowledge and participation in patient-centered outcomes research (PCOR) across the nation.

Dr. Jennifer Stapel-Wax is an Associate Professor in the Division of Autism and Related Disorders in the Department of Pediatrics at Emory University School of Medicine. Her primary clinical and administrative role is Director of Infant Toddler Community Outreach Research and Infant Toddler Clinical Research Operations at the Marcus Autism Center at Children's Healthcare of Atlanta. Dr. Stapel-Wax has worked clinically with children and families for over 25 years with a 20-year career in doctoral level research, clinical practice, and graduate level teaching. Her specialties include assessment of young children, neurodevelopmental disorders, and consultation/liaison in multiple systems of care. Her current research focus is to lead community-based research on infants and toddlers universally and for those at risk for developmental disorders. Dr. Stapel-Wax uses her clinical and interpersonal strengths in building collaborative and consultative relationships among professional colleagues in the community and other institutions.

Engaging Parents of Children with Autism Spectrum Disorder to Identify Rural Health Disparities and Factors Related to Delayed Diagnosis and Treatment

Amy Blumling, *student*; Dr. Susan Brasher, *mentor*, Dr. Jennifer Stapel-Wax, *co-mentor*
Emory University Nell Hodgson Woodruff School of Nursing and School of Medicine; Marcus Autism Center

Background:

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental disorder that causes communication, social, and behavioral challenges. Research indicates the sooner children with ASD are diagnosed and begin evidence-based treatments, the better their long-term health outcomes. While a valid ASD diagnosis can be achieved at age 2, the current average age of diagnosis is between 4 and 5. This delay in diagnosis and subsequent treatment is considered to be significantly worse and more detrimental to the health of disadvantaged populations. The purpose of this project is to identify barriers and facilitators in Medically Underserved Areas (MUAs) that may contribute to delayed ASD diagnosis and treatment.

Methods:

Researchers conducted two focus groups with parents of children with ASD, parent mentors, and other stakeholders living in MUAs in Georgia. Groups included three to ten participants. Open- and closed-ended questions were used to identify social, economic, geographic, or institutional influences that perpetuate MUA health disparities and contribute to delayed ASD diagnosis and treatment. Focus groups also explored patient-centered solutions to minimize such disparities. Both online focus groups via Zoom and in-person focus groups were conducted. Sessions were audio recorded, transcribed, coded, and thematically analyzed.

Results:

Interested participants represented a variety of geographically diverse locations throughout Georgia. Focus group results show that there are barriers in MUAs in Georgia to receiving a timely ASD diagnosis and appropriate ASD treatment. The main barriers to diagnosis and treatment included distance, limited providers, insurance, cost, and overall lack of education. The main facilitators to diagnosis and treatment included school system referrals, research studies and support in large ASD centers, support groups, and insurance extenders. Participants discussed issues with concerns being dismissed by providers, lengthy wait times, and problems with insurance. Thematic analysis revealed decreased parental autonomy over their child's healthcare, frustration and disappointment with the healthcare system, feelings of being unsure of what the next steps are, and a desire for more support and education.

Discussion:

Parents of children with ASD living in MUAs in Georgia discussed a number of barriers related to ASD diagnosis and treatment. Parental ideas on ways to improve this situation included increased education for parents, the education system, and providers; enhanced awareness of ASD and the needs of MUAs; and better access to care in rural and MUAs. Potential points of intervention could include offering telehealth or mobile clinics in MUAs, as well as increasing the number of providers in the area by offering incentives to work in these underserved areas. Future research may also focus on the use of online focus groups to ensure that the voices of individuals from rural and MUAs are present in ASD research.

Conclusion:

Families living in rural and MUAs in Georgia face a variety of barriers related to ASD diagnosis and treatment for their children. However, future interventions and research may ameliorate some of these problems by increasing ASD and MUA awareness, ensuring enough providers are available to meet the needs of these populations, and potentially utilizing online and electronic technology to engage and treat individuals in these areas.

Student
Alice Hong

Alice Hong is a Master's student in the School of History of Sociology at Georgia Institute of Technology in Atlanta, GA. In 2015, received her undergraduate degree from University of Pennsylvania in two interdisciplinary majors: Biological Basis of Behavior and Health and Societies. It was from her Health and Societies coursework where she cultivated an interest in examining the socio-historical components of health and illness. Her current research interests include the politics of healthcare institutions, the history and sociology of medicine, and the ways in which different social groups understand bodies and illness. After completing her Master's, Alice plans to pursue a doctorate in the history of medicine.

Faculty Mentor
Jennifer S. Singh, MPH, PhD

Jennifer S. Singh is Associate Professor of Sociology in the School of History and Sociology at Georgia Institute of Technology. She is the author of the book *Multiple Autisms: Spectrums of Advocacy and Genomic Science*, which explores a range of perspectives from scientists, activists, parents, and people with autism surrounding the rise and implementation of autism genetics research. Her current research investigates the quality of care provided by a community-based autism clinic that serves under-privileged communities, as well as an intersectional analysis of social and structural barriers to autism diagnosis and services. Prior to coming to Georgia Tech, Singh worked in the biotechnology field for eight years and was an Association of Schools of Public Health Research Fellow at the Center for Disease Control and Prevention.

“Punished for Having Medicaid”: Autism Disparities and Structural Barriers

Alice Hong, *student*; Dr. Jennifer S. Singh, *mentor*
Georgia Institute of Technology, School of History and Sociology

Background:

According to the Centers for Disease Control and Prevention, Autism Spectrum Disorder (ASD) affects 1 in 59 children, and it is the fastest growing development disorder in the United States. Scholarly research in various fields, including sociology and gender and disability studies, typically shows that mothers are the primary caretakers of children, especially those with disabilities. Thus, mothers' abilities to navigate the healthcare system is a critical factor in affecting the health, growth, and development of children with ASD. However, the representation of female caregivers of children with ASD in the United States is often uneven, with most voices in mainstream culture being that of married, White, upper-class mothers who have the time, social capital, and financial resources to seek early diagnosis and acquire expertise and knowledge on how to help their children. This research focuses on the experiences of single, African American women, whose ability to seek early intervention and appropriate services are often compromised due to multiple compounding factors in a structurally uneven society.

Methods:

This project is based on in-depth interviews conducted with single, African American caregivers of children with ASD who rely on state Medicaid health insurance (N=20). These interviews are a subset sample of a larger body of 70 interviews. Interviews were conducted with caregivers who receive services at an autism clinic located in a public children's hospital in Atlanta, GA, where 90% of patients are uninsured or rely on Medicaid. This study used a grounded theory analysis of the interviews to systematically identify themes and multi-level barriers to ASD diagnosis and services. This involved coding segments of qualitative data to specific categories and writing memos for categories to capture the data conceptually.

Results and Discussion:

Despite improvements over the past couple decades in diagnosing children with autism in Atlanta and recent Georgia legislation that mandates that Medicaid covers behavioral therapy, it is clear from the women interviewed in this study that there are still significant barriers to overcome when it comes to accessing services like behavioral therapy after a diagnosis has been made. One particularly salient theme that cropped up repeatedly is how location of services was identified as a constraint on Medicaid's ability to enhance health care access. For many of the women in this study, transportation served as a challenge because many of them relied on the Medicaid bus or public transportation, both of which were not always reliable or practical given these women's demanding life schedules. The challenges these women regarding location of services compounded with the consequences of being a single parent (e.g., less income, employment options, social capital, etc.). This study identified that there are spaces in Atlanta where services just do not physically and/or practically exist for families reliant on Medicaid. Autism disparities in Atlanta are a lens to a larger problem regarding lack of services in certain areas of cities, as well as the challenges that individuals reliant on Medicaid with disabilities or chronic health problems face when trying to access health care services.

Student

Catherine (Cat) Park, MD

Catherine (Cat) Park, MD is a second year pediatric nephrology fellow. She is originally from Augusta, GA and ventured off to the bright lights of Atlanta, GA to attend college at Georgia Tech. She then went back home for med school. She completed her pediatric residency as well as a chief year at UTHSC-Memphis where she fell in love with the 901. During her residency, she became interested in pediatric lupus, particularly how it affects the kidneys. She also discovered how important looking at a person as a whole and how important it is to incorporate social determinants of health into patients' medical management. Cat moved back to her old stomping grounds (Atlanta) in 2017 to begin her pediatric nephrology fellowship where she has been able to build on those aforementioned interests. Currently, she is doing research on pediatric onset lupus patients and determining if social aspects affect long term renal outcomes. Cat's long-term career goal is to continue to work with and support lupus patients and figure out ways to make this lifelong disease more controllable by looking at both the medical and social aspects.

Faculty Mentor

Roshan George, MD

Roshan George, MD is the Associate Program Director for Pediatric Nephrology Fellowship Program for Emory University and is involved in fellow education, research and quality improvement projects. She is also the Medical Director for Transplant Quality for Solid Organ Transplantation at Children's Healthcare of Atlanta. She is interested in social determinants of health- specifically looking at racial and ethnic disparities in renal transplant as well as impact of health literacy in long term outcomes of children with renal transplant. Expanding on this interest, she partnered with the current Pediatric Nephrology Fellow- Catherine (Cat) Park, MD, to assess health literacy in children with systemic lupus erythematosus (SLE)- another chronic condition requiring complex medical care and interdisciplinary coordination. The long-term goal of the project is to build appropriate information material regarding treatment options for this patient population, based on their health literacy needs.

Health Literacy in Pediatric Onset Lupus Patients

Catherine Park, MD, *student*; Roshan George, MD, *mentor*
Emory University, Department of Pediatric Nephrology

Background:

Systemic Lupus Erythematosus (SLE) affects people of all ages and races, but minority and ethnic groups are disproportionately affected. Up to 20% of cases present during childhood and adolescence. Medication non-adherence, in general, is prevalent in adolescents putting them at higher risk for worse outcomes. An adequate functional health literacy level (HLL), especially in minority patients, is crucial for patients to better understand their disease, improve adherence, and reduce healthcare disparities. Health literacy interventions targeted at high-risk groups may reduce health disparities. Also within health literacy there is a component of environment literacy as smoking is known to trigger SLE flares, so it is important that patients are aware of secondhand smoke exposure.

Hypothesis:

We hypothesize that pediatric SLE patients have lower HLL, particularly with numeracy literacy, which may in turn lead to more hospitalizations and emergency room visits. Patients with lower HLL may benefit from obtaining healthcare information via nonstandard methods.

Methods:

We enrolled 22 SLE patients (8-19 years old) over 3 months. Demographic information and medical history were collected at clinic visits. Health and numeracy literacy were assessed using short test of functional health literacy (S-TOFHLA) and Newest Vital Signs (NVS). Based on results, patients' HLL were classified as either adequate or inadequate. Awareness and exposure to secondhand smoke were assessed by a survey adapted from the CDC youth smoking survey.

Results:

86% were female while 14% were male. The majority of the patients were African American (45%) and 32% of patients identified as Hispanic. The median current age of the participants was 15 while the median age at diagnosis was 13.5 years old. 100% of the patients surveyed scored adequate on S-TOFHLA while only 36% scored adequate on the NVS with the remaining 64% scoring limited /inadequate. 27% of the patients surveyed stated that they have been exposed to secondhand smoke.

Conclusions:

The demographics of our small sample size are in line with previous studies on demographics of pediatric onset lupus patients. Although 100% of the patients surveyed scored adequate levels on the S-TOFHLA, the majority scored in the limited/inadequate range on the numeracy test. This could be problematic given that SLE patients are responsible for reading and taking multiple prescriptions as well as reading food labels. Moving forward, we hope to recruit at least 100 patients in total. Based on these preliminary results, we hope to create a product for easier identification of pills and pill dosages. By using these nonstandard methods, our hope is to increase adherence and patient outcomes.

Student
Patricia Daniel

Patricia Daniel is a student in GSU's public health department concentrating on biostatistics. Her primary interests are relations between public policy and children's health care outcomes. Her prior experience includes a Ph.D. in mathematics education and many years teaching mathematics in secondary and tertiary settings. Under Dr. Barger's direction Patricia is researching factors that explain inflated variance in subsets of complex survey data, evaluating the effects of a transition to adulthood program for children with disabilities, analyzing relationships between medical home and children with special health care needs access to healthcare, and describing differences in access to health care among states.

Faculty Mentor
Brian Barger, PhD

Dr. Brian Barger is an expert in autism and other childhood developmental disabilities and has been with Georgia State University since 2015. He works primarily with the school's Center for Leadership in Disability, whose mission includes translating research into sustainable community practices that lead to independent, inclusive and productive lives for people with disabilities. Much of Barger's research has focused on issues of autism, including regression, temperament, and peer's knowledge of autism. The CDC and Disability Research and Dissemination Center at the University of South Carolina selected Barger in 2013 as a policy research fellow for the "Learn the Signs. Act Early" campaign. Barger worked with the National Center on Birth Defects and Developmental Disabilities to improve community-based identification systems that connect infants and young children with disabilities with early intervention services.

The Development of a Prenatal Care Health Literacy Instrument for American Indian Mothers

Patricia Daniel, *student*; Dr. Brian Barger, PhD, *mentor*
Georgia State University, Department of Public Health

Background:

Research prior to the Affordable Care Act (ACA) of 2010 suggests that children of minority race or ethnicity have greater morbidity and mortality from disease than other children. Preventive health care is among the many documented disparities, although it could reduce negative health outcomes and reduce health care cost among vulnerable children. The ACA included a goal to expand Medicaid to cover all families below 138% of the poverty level, but not all states opted to expand Medicaid coverage. Medicaid expansion may have increased access to health care, including a preventive medical visit (PMV), among children who are of minority race or ethnicity.

Methods:

The questions asked were (a) Did Medicaid expansion reduce disparities among race/ethnic groups, and (b) Did Medicaid expansion increase the likelihood of children receiving preventive health care? A 2-level logistic general hierarchical linear model with a binomial link function was built to predict odds ratios for the outcome of PMV using data from the 2016 NSCH dataset, a cross sectional survey of 50,212 children in the U.S. The outcome variable was the caregiver's response to the question "Did the child receive one or more preventive medical visits in the past 12 months?", the individual predictors (level 1) were: (a) Speaks English in the home, (b) first generation, (c) insurance gap in the past 12 months, (d) child with special health care needs, (e) Hispanic ethnicity, (f) Black race, (g) Other race; the level-2 predictor state of residence, coded as Medicaid expansion or not.

Results:

Children living in Medicaid expansion states have 1.52 times the odds (95% CI = 1.26, 1.86) of PMV than children in non-expansion states. Hispanic children, children of Other race, and children who do not speak English in the home have reduced odds of PMV in both expansion and non-expansion states, although the odds are greater in expansion states.

Conclusions:

Children of Black race have similar odds of PMV as children of White race. Disparities persist among children of Hispanic ethnicity, Other race, and children who do not speak English in the home these disparities are more pronounced in states that did not expand Medicaid. These findings suggest that vulnerable children had increased access to preventive care in states that expanded Medicaid.

Poster Presentations



A PROJECT OF

SOUTHEAST PEDIATRIC ENVIRONMENTAL HEALTH SPECIALTY UNIT (PEHSU) and
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GEORGIA GOVERNOR'S COUNCIL ON DEVELOPMENTAL DISABILITIES

Assessing Differing Quality of Care in Autism Services among Medicaid vs. Non-Medicaid Patients

Authors: Stephanie Wagner, B.A.; Jennifer S. Singh, MPH, PhD; Leslie Rubin, MD, Associate Professor
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Amniotic Fluid and its Necessity in Gastrointestinal Development

Authors: Diana Kimbal
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Amplifying Children's Environmental Health Research: Development and Implementation of a Social Media Content Toolkit and Campaign

Authors: Nathan Mutic MS, MAT, MEd; Wendy Gutschow MSW; Emily Szweic MPH; Roxana Chicas PhD, RN; Brenda Koester MS; Paolo Mutia, BS; Lina Garcia, BA; May Chen
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Behaviors to Reduce Heavy Metal Soil Contaminant Exposures among Community Gardeners

Authors: Candis M. Hunter, PhD, MSPH, REHS; Dana HZ Williamson, MPH; Halle Bradshaw; Matthew O. Gribble, PhD, DABT; Melanie Pearson, PhD; Eri Saikawa, PhD; Michelle Kegler, DrPH
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Breaking the Cycle of Unemployment and Poverty in Transition Age Youth with Intellectual Disability

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Community-Engaged Assessment of Soil Heavy Metal Contamination in Atlanta Urban Growing Spaces

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Examining Polychlorinated Biphenyl Exposure and Reproductive Health Outcome

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HERCULES Exposome Research Center

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Identifying Child Screen-time Behavior and Prevalence of Healthy Home Habits

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Is Air Pollution Making Southeast Texas Children Sick?

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Know Better, Live Better: A Social Impact Campaign to Address Environmental Health Disparities

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Medical Online Education Platform for an Atlanta Head Start Community

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PreeMe + You: Using Mobile Technology to Transcend Poverty and Improve Quality of Life in Parents of Premature Babies

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Reducing Chemical Exposures through Social Media: A Formative Evaluation of the Know Better Live Better Campaign

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Social, Economic, and Structural Barriers to Autism Services in Metro Atlanta

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Sustainable Cafeteria Initiative

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The Association between Infant Birth Weight and Total Medications Received during Pregnancy in an Emory and Grady Subpopulation

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The Disability and Incarceration Cycle: Factors Implicated in High Rates of Intellectual and Developmental Disabilities in Prison

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Where Courageous Inquiry Leads: Climate action at Emory

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