Sarahna A. Moyd, MPH, MS, PhD

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EDUCATION

PhD. Environmental Health Sciences, focus: Computational Toxicology and Reproductive Epidemiology The Laney Graduate School, Emory University, Gangarosa Department of Environmental Health, Rollins School of Public Health, Emory University, Atlanta, GA	2019 - 2024

MS, Environmental Health Sciences,
The Laney Graduate School, Emory University, Rollins School of Public Health, Emory University, Atlanta, GA   2019-2021

MPH, Maternal and Child Health + Epidemiology, The Mel & Enid College of Public Health, The University of Arizona, Tucson, AZ   2014-2017

B.S., Molecular and Cellular Biology, The University of Arizona, Tucson, AZ   2009-2013

PROFESSIONAL APPOINTMENTS   2024-

IRTA Postdoctoral Fellow
National Institute of Environmental Health Sciences, Durham, NC
Epidemiology Branch, Division of Intramural Research
Perinatal and Early Life Epidemiology Research Group under the mentorship of Dr. Kelly Ferguson

Doctoral Candidate
HRSA Maternal and Child Health (MCH) Research & Practice Doctoral Scholar Fellow
Rollins School of Public Health, Emory University, Atlanta, GA
Title: "Human reproduction, fertility, and computational toxicology: leveraging computational modeling and causal inference to explore potential mechanisms of ovarian aging".

Computational Toxicology Modeling (Mentor: Qiang Zhang, MD. PhD)   2021-2024
- Develop predictive population-based simulation models of ovarian function over the life course using Monte Carlo methods
- Construct and implement biologically-plausible, clinically relevant ODE math functions in MATLAB
- Conduct parameter optimization of computational toxicological models and environmental endocrine disrupting chemical exposure
- Provide SME in human exposure sciences for animal-to-human extrapolation
- Proficient in U.S. EPA BMDS3 Benchmark Dose Modeling software for toxicological dose response of new and old generation PFAS chemicals (i.e GenX chemicals)
- Proficient in applying linear and nonlinear benchmark dose models to experimental toxicological data to biological endpoints
- Generate population distribution of reported age at menopause via multiple years of NHANES data from Reproductive Health Questionnaire with appropriate weighting

Reproductive Epidemiology (Mentor: Audrey Gaskins, ScD)
- Apply basic principles of epidemiologic methodologies to investigate the associations between *in utero* exposures and adulthood ovarian reserve
- Conduct statistical analyses using advanced SAS and R programming

Metabolomics
- Co-authored literature review on environmental metabolomics, air toxics epidemiology, and the effects of poor indoor air quality (Black Carbon) on birth outcomes

Public Health Advisor
Centers for Disease Control & Prevention-Field Services Branch, Washington, DC   2018-2019

- Support diverse portfolio of Maternal and Child Health Bureau Title V public health programs across 59 U.S. states and territories for Children & Youth with Special Healthcare Needs (CYSHCN) portfolio
- Utilize data information systems to monitor health risks in MCH populations related to lead and heavy metal exposure
- Provide technical assistance to state and territorial Title V MCH & CYSHCN programs
- Develop 4 state case studies of implementation strategies for National Standards for Systems of Care for CYSHCN
- Lead research identifying strategies for creating medical home model & improving systems of care for CYSHCN
- Convey clear, current, and factual data and information to professionals and the public using various approaches (reports, presentations, briefs, letters, press releases) in plain language

Program Manager

University of Arizona- Dean of Students Administration, Tucson, AZ   2015-2017

- Develop and implement residential retention program for undergraduate students
- Supervise team of 20 student interns, and 4 student mentors
- Develop college pipeline program with Tucson Unified School District for STEM

PUBLICATIONS

Peer reviewed publications

Hood, R.B., **Moyd, S.**, Hoffman, S. et al. Metabolomics Application in Understanding the Link Between Air Pollution and Infant Health Outcomes: A Narrative Review. Curr Pollution Rep (2024). https://doi.org/10.1007/s40726-024-00313-x. **Contributions: Develop inclusion criteria; led data extraction and compilation in Covidence**

Johnson LCM, Josiah Willock R, Simmons S, **Moyd S**, Geiger D, Ghali JK, Quarells RC. COVID-19 Prevention and Mitigation Decision-Making Processes While Navigating Chronic Disease Care: Perspectives of Black Adults with Heart Failure and Diabetes. J Racial Ethn Health Disparities. 2024 May 3. doi: 10.1007/s40615-023-01862-5. Epub ahead of print. PMID: 38702490. **Contributions: draft manuscript for publication, qualitative interviewing and surveying, case recruitment, thematic analysis**

Preprint

Original Research, "Ovarian disrupting effects and mechanisms of long- and short-chain per- and polyfluoroalkyl substances in mice", Pawat Pattarawat, Tingjie Zhan, Yihan Fan, Jiyang Zhang, Hilly Yang, Ying Zhang, **Sarahna Moyd**, Nataki C. Douglas, Margrit Urbanek, Brian Buckley, Joanna Burdette, Qiang Zhang, Ji-Yong Julie Kim, Shuo Xiao bioRxiv 2024.02.20.581034; doi: bioRxiv 2024.02.20.581034; https://doi.org/10.1101/2024.02.20.581034 **Contributions: Implement PFAS Benchmark Dose Modeling with experimental data**

Under Review

Original Research "Maternal and paternal smoking and offspring antral follicle count in women from an infertility clinic", **Sarahna A. Moyd**, Robert B. Hood, Qiang Zhang, and Audrey J. Gaskins

Review, "Signal Amplification in the Negative Feedback Regulation of the Hypothalamic-Pituitary-Thyroid Axis", Li Jing**, Sarahna Moyd,** and Qiang Zhang

In Preparation

Original Research, "Computational Modeling of Endocrine Disruption of Gonadotrophin-Dependent Ovarian Follicle Maturation", **Sarahna A. Moyd**, Shuo Xiao, Qiang Zhang

Original Research, "Computational Modeling of the Biphasic Depletion of Ovarian Follicle Reserve and Chemical Effects on Ovarian Aging", **Sarahna A. Moyd**, Shuo Xiao, Audrey J Gaskins, Qiang Zhang

SELECTED PRESENTATIONS AND ABSTRACTS

"Gestational Phthalate Exposure and Fetal Growth: Findings from the LIFECODES Fetal Growth Study", **Sarahna A. Moyd**, Paige A. Bommarito, Danielle R. Stevens, Barrett M. Welch, John D. Meeker, David E. Cantonwine, Thomas F. McElrath, Kelly K. Ferguson, U.S Developmental Origins of Health and Disease (DOHaD) Society Annual Meeting, Chapel Hill, NC, October 2024, **poster**

"Computational Modeling of the Biphasic Depletion of Ovarian Follicle Reserve and Chemical Effects on Ovarian Aging", **Sarahna A. Moyd**, Shuo Xiao PhD, Audrey J Gaskins ScD, Qiang Zhang, PhD/MD*,*

- *International Society of Exposure Science* Annual Meeting, Chicago, IL, August 2023, **oral presentation**

- *Statistics in Pharmaceutical Sciences* Annual Conference, Storrs, CT, August 2023, **flash talk**
- *Society of Toxicology* Annual Meeting, Nashville, TN, March 2023, **poster**

"Computational Modeling of Endocrine Disruption of Gonadotrophin-Dependent Ovarian Follicle Maturation", **Sarahna A. Moyd**, Shuo Xiao PhD, Qiang Zhang, PhD/MD
- *Society of Toxicology* Annual Meeting, San Diego, CA, March 2022, **poster**
- *Environmental Endocrine Disruptors Gordon Research Conference, Newry, ME, June 2022*, **poster**
- *International Society for Exposure Science Annual Meeting,* Lisbon, Portugal, October 2022, **poster**
- *Georgia Statistics Day, Georgia Chapter American Statistical Association,* Athens, GA, October 2022, **poster**

"Identifying the Barriers and Facilitators to Breastfeeding for Mothers Participating in the Maricopa County Department of Public Health Special Nutrition Program for Women, Infants, and Children (WIC)", **Sarahna A. Moyd**, Jennifer Dykhuizen, Andrea Gloria,
- Arizona Public Health Association Conference, Phoenix, AZ September 2016, **poster**
- Research Frontiers in Nutritional Science Conference, Tucson, AZ February 2017, **poster**
- Association of Maternal and Child Health Programs, Kansas City, MO March 2017, **poster**
- Western Alliance to Expand Student Opportunities Student Research Conference, Tempe, AZ March 2017, **poster**

TEACHING and SERVICE
Served on various instructional teams in professional, applied science, and basic science courses supporting over 500 undergraduate & masters students

Instruction	Teaching Associate, *Rollins School of Public Health, Emory University, Atlanta, GA*	2019- 2024
	• Foundations in Maternal and Child Health	Spring 2023
	• Community Engagement & Health Disparities in Clinical & Translational Research, (required course for Georgia Clinical & Translational Science Alliance Research Education program)	Spring 2022; 2023
	• Intro to Injury Control & Prevention	Fall 2021; 2022
	• Public Health Professional Development Seminar	Spring 2021; 2022
	• Perspectives in Environmental Health	Fall 2020
	University Instructor, *Laney Graduate School Summer Opportunities for Academic Research*	Summer 2021; 2022
	• Public Health and Quantitative Science track	
	University Instructor, *College of Letters, Arts, and Sciences, The University of Arizona, Tucson*	2015-2017
	• Developed community leadership course for first- and second-year undergraduate students participating in residential retention program	
Guest Lecture	• "Injustice of Beauty: Environmental health & policy implications for exposure assessment cosmetics industry", MCH Foundations Course, Spring 2023	Fall 2019
	• MCH Leaders training for MPH students: "Intersectionality and bias training for interpersonal understanding"	Spring 2023
	• "Environmental Injustice of Beauty Standards", Maternal and Child Health Fellows Journal Club	Fall 2022
	• Intro to Environmental Health, Injury Prevention and Harm Reduction in Maternal and Child Health	Fall 2021; 2022
	• Laney Graduate School Summer Opportunities for Academic Research – Intro to Environmental Health, Summer 2020	
Mentorship	• *Rosa Emilia Gomez Torres- "Assessment of Social Determinants of Health in Latin American Residents on Buford Highway, Atlanta"- Jornada De Iniciacion Cientifica (JIC), Panama, October 2022*	2019-2022
	• *IMSD Undergraduate Mentor, Emory University, 2019-2020*	
	• *MPH Student Mentor, Emory University, 2019*	
	• *Undergraduate Summer Intern, Spelman College, 2022*	

RESEARCH FUNDING and SCHOLARSHIP AWARDS

Predoctoral Fellowship, Maternal and Child Health (MCH) Education, Science and Practice, HRSA-Centers of Excellence in MCH, recipient (HRSA Maternal and Child Center of Excellence T76MC28446-08-00).	2022-2024

Statistics in Pharmaceuticals Conference Travel Scholarship, recipient	2023
Laney Graduate School, Conference Travel Grant, awardee	2022
Laney Graduate School, Training Grant, awardee	2022
Research Fellowship, T32 Training Program in the Environmental Health Sciences and Toxicology, National Institutes of Environmental Health Sciences (NIEHS)	2021-2022
Laney Graduate School, Training Grant, awardee	2020
NIH Initiative to Maximize Student Development – Predoctoral Merit Award URM STEM	2019-2021
National Science Foundation-Western Alliance to Expand Student Opportunities Student Research Conference, the Louis Stokes Alliances for Minority Participation (LSAMP), First Place Pre-Doctoral Research Award, Tempe, AZ	2017
Mel & Enid Zuckerman College of Public Health, Victoria Foundation/George H. Dean Graduate Merit Scholarship, recipient	2015-2017
University of Arizona Wildcat Excellence Academic Scholarship, recipient	2009-2013
J.W. Robinson Society of Black Firefighters Merit Scholarship, recipient	2009
U.S. Air Force Family Foundation Scholarship, recipient	2009
Alpha Kappa Alpha, Phoenix AKARAMA Foundation Merit Scholarship, recipient	2009

HONORS and RECOGNITION

University of Arizona, (inaugural) Graduate Student Leader of the Year, inaugural recipient	2017
Stewardship of Inspiration Award, Tucson Unified School District: African American Student Affairs, awardee	2017
Graduate and Professional Student Council Outstanding Teaching Assistant, University of Arizona, nominee	2017

ETHICS in RESEARCH TRAINING

Responsible Conduct of Research Training for Postdocs, NIEHS 8-hours	2024
Emory University, Jones Program in Ethics workshop: Book Tour, Sexual Citizens	2021
Emory University, Jones Program in Ethics workshop: Equity in Science	2021
Emory University, Jones Program in Ethics workshop: Science Communication	2021
Emory University, Jones Program in Ethics workshop: Lab Animals BIO Research	2021
Emory University, Jones Program in Ethics workshop: Core Class	2019

CONTINUING EDUCATION AND TRAINEESHIPS

Clinical	**Frontiers in Addiction Research and Pregnancy Traineeship** *International Cell Research Organization,* San Diego, CA	Spring 2023

- Clinical training on research, identification, and intervention applicable to substance use and addiction during pregnancy

	Emory Advanced Practice Nursing: NICU. IMPRINT (Insightful, multidisciplinary, presentation of relevant and influential neonatal topics) Conference	Summer 2022

- The impact of Social Determinants of Health on the NICU

Exposure Assessment	**Frontiers in Environmental Science and Health, Advanced Laboratory Training,** *Morehouse School of Medicine, Atlanta, GA*	Summer 2022
	Research Associate, "Urban Atlanta Soils and Child Environmental Lead Exposure" *Emory College Department of Environmental Sciences, Advisor: Eri Saikawa, PhD*	Fall 2019

- Developed & led field assessment of 6 neighborhood parks to quantify lead exposure in West Atlanta using U.S. EPA soil sampling guidelines
- Collaborated with EPA to measure soil content of 4 heavy metals (primary: arsenic and lead) via X-Ray Fluorescence
- Obtained informed consent for participation of guardians and minors in pilot study to evaluate childhood lead exposure using a non-invasive screen
- Provide policy recommendations based on real world evidence on personal care product toxicology and reproductive health risk for Georgia state Representatives

Epigenetics	**Research Associate,** *"Exploring epigenetics of maternal psychosocial stress in the Rhode Island Child Health Study (RICHS) birth cohort"* *Rollins School of Public Health Emory University, Advisor: Todd Everson, PhD*	Fall 2022

	• Apply basic principles of epidemiology to explore epigenetic clocks and biological aging in high dimensional dataset	
	• Conduct exploratory study of relationships between maternal psychosocial health indicators and birth outcomes as possible principle components associated with age acceleration	
Reproductive Endocrinology	**Research Associate, "Thyroid/TSH signal amplification in hypothalamic-pituitary-thyroid (HPT) axis"** *Rollins School of Public Health Emory University, Advisor: Qiang Zhang, MD/PhD*	Summer 2020

- Apply principles of control theory to develop preliminary model of negative feedback regulation of TSH/TH signaling between hypothalamus, pituitary and thyroid
- Applied fundamentals of mathematical modeling to a nonlinear dynamical system via Berkeley-Madonna differential equation solver software
- Critical assessment of toxicological literature on neuro-endocrine systems and disruptors for variable parameterization
- Examine biological mechanisms reported in experimental studies for model structure development

Data Science	**Pre-doctoral Trainee**	
	UCLA Lange Computational and Statistical Genomics Research Symposium	Spring 2024
	Epigenetics Bootcamp, *Columbia Public Health: Skills for Health and Research Professionals (SHARP)* training	Summer 2022
	Machine Learning Boot Camp, *Columbia Public Health: Skills for Health and Research Professionals (SHARP)* training	Summer 2021
	Data Mining and sentiment analysis, *Big Data to End Drug Related Harms (gene x environment, machine learning, social media data)*	Fall 2021

PROFESSIONAL AFFILIATIONS		
	Faculty Women of Color in the Academy	2023- present
	Society of Toxicology, Graduate Student Member	2022- present
	International Society of Exposure Science, Student Member	2022- present
	American Statistical Association, Georgia Chapter, Student Member	2022- 2024

INVITED JOURNAL REVIEWS
SSM – Population Health, 2022
Environmental Health, 2024