HARVARD T.H. CHAN
SCHOOL OF PUBLIC HEALTH

PIPELINES INTO PUBLIC HEALTH

Dedicated to increasing the presence of underrepresented communities in public health through formal training, collaborative research, and mentoring.

Annual Symposium »

July 13, 2023

Hosted by the Department of Biostatistics' Summer Program in Biostatistics and Computational Biology & the Office of Diversity and Inclusion's FACETS Summer Program

KEYNOTE SPEAKER

Monica L. Wang, ScD

Harvard University, ScD
Harvard University, MS

Associate Professor
Community Health Sciences
Boston University School of Public Health

Dr. Monica Wang is an Associate Professor of Community Health Sciences at the Boston University School of Public Health, Chair of the Narrative Office at the Boston University Center for Antiracist Research, and an Adjunct Associate Professor of Health Policy and Management at the Harvard T.H. Chan School of Public Health. Dr. Wang is nationally recognized as a leading health equity researcher in obesity and chronic disease prevention. She directs community-engaged research to target racial inequities in health and pursues cross-sector collaborations to promote health and health equity through public health interventions and policies. Dr. Wang has generated $6 million in federal and foundation grants and over $1.5 million in gifts for her portfolio of work and published over 55 peer-reviewed manuscripts and over a dozen policy and public engagement documents. One of her current studies is a randomized controlled trial of a youth empowerment intervention to reduce consumption of sugary drinks and obesity risk through youth narratives. As an expert in curriculum development, case-based teaching, and digital learning design, Dr. Wang has developed and taught graduate courses on the social determinants of health at Harvard and Boston University since 2010.

Dr. Wang has received numerous national, regional, and institutional awards for her research, teaching, and service, including the Society of Behavioral Medicine Leading the Narrative Award, the Society of Behavioral Medicine Early Investigator Award, the Greater Boston Chamber of Commerce Ten Outstanding Young Leaders Award, and the Boston University School of Public Health Excellence in Teaching Award and Excellence in Public Health Practice Award. At the national level, she advanced science communication initiatives through her former role as Chair of the Civic and Public Engagement Committee of the Society of Behavioral Medicine. She is currently an advisory board member of The Emancipator and sits on the Board of Directors of Vital CxNS. Her work and insights have been featured in the New York Times, The Washington Post, NPR, the Boston Globe, and CBS.

Thursday, July 13th

Breakfast and Opening Remarks in Kresge G3

9:00 - 9:30am   **Registration and Breakfast**

9:30 - 10:00am   **Marcello Pagano**
Professor of Statistical Computing and Principal Investigator, HSPH

John Quackenbush
Henry Pickering Walcott Professor of Computational Biology & Bioinformatics
Department Chair of Biostatistics, HSPH

Summer Program in Biostatistics and Computation Biology
Research Project Presentations in Kresge G3

10:00 - 10:20am   **Exploring the Causal Effect of Wildfire Exposures on**
School Performances in USA

There are an estimated 7.4 million children in the United States affected by wildfire smoke annually. In parts of the USA, up to 20% of the fine particulate matter to which children are exposed, results from wildfires. Literature suggests that TRAPs exposure can lead to cognitive and socioeconomic decline. We obtained a copy of the publicly accessible data published by Wen & Burke (2022) in which they quantified the impact of wildfire-smoke-attributable PM2.5 exposure, a rapidly growing source of particulate exposure throughout much of the United States. We analyzed the data with the application of a novel method utilized in the publication by McGrath et al. (2022); that allows the use of causal inference frameworks when working with spatiotemporal data. Linear regression models were used to identify the relationship between smoke exposure alongside Math and ELA scores for school districts in the United States; while also incorporating exploratory data analysis that allowed us to develop conclusions and suggestions after we measured the strengths and reliability of this methodology.

Sophia C. Delgado Astacio, University of Puerto Rico
Luis Bonilla, Salem State University
Cade McManus, Harvard College

Faculty mentor: Dr. Rajarshi Mukherjee, Assistant Professor of Biostatistics and Assistant Director of Graduate Studies, HSPH
Graduate Student Mentor: Sean McGrath, HSPH

10:25 - 10:45am   Is Preoperative Malnutrition Associated with Poor Surgical Outcomes in Young Children Undergoing Ventricular Septal Defect Closure in Low-Resourced Settings?

A ventricular septal defect (VSD) is an opening in the wall of the heart separating the right and left ventricles that affects approximately 3 out of every 1000 live births. When left unrepaired, VSD may lead to severe cardiovascular disease. However, certain patients face a greater risk of poor outcomes after congenital heart surgery than others, especially those in low to middle income countries (LMIC), where access to the surgery is limited. In addition to previously determined risk factors, the current study aims to determine whether the nutrition level of VSD-inflicted patients in LMICs is also a risk factor for adverse surgical outcomes. Using data from the registry for the International Quality Improvement Collaborative for Congenital Heart Disease (IQIC), the study conducts tests on contingency tables and employs regression modeling to establish a potential relationship between malnourishment indicators defined by the World Health Organization (WHO)—stunting, being underweight, and wasting—-and post-operative complications—in-hospital mortality, major infections, and length of stay in the intensive care unit (ICU). Results suggest that, in general, malnourished patients are significantly more likely to encounter adverse surgical outcomes than non-malnourished patients, even after adjusting for age, pre-existing illness, and oxygen saturation.

Brandon Causing, University of Florida
Jaiann Caton, Spelman College

Faculty Mentor: Dr. Kimberlee Gauvreau, Associate Professor in the Department of Biostatistics, HSPH, Associate Professor of Pediatrics, HMS
Graduate Student Mentor: Jenny Lee, HSPH

10:50 - 11:10am   Classifying Ethnicity with SNP Scoring Algorithms

What are the genetic underpinnings of ethnicity? Phenotypic data has been historically used to classify people, but remains insufficient because many differences are too subtle to show up with simple measurements. Genotypic data, specifically single nucleotide polymorphisms (SNPs), can accurately predict the genetic ancestry of any given individual by measuring the levels of the major and minor alleles for each base pair. Motivated by this, we explored a dataset of 88 million SNPs from 2000 people with 26 labeled ethnicities, which was collected by the 1000 Genome Project. Our exploratory analysis used principal component analysis to visualize genetic variance, and a SNP scoring algorithm to accurately predict ethnicity for an individual in a homogenous population. Between several clusters of genetically isolated populations were swathes of intermediate, or admixed, populations. Taking inspiration from the 23andMe ethnicity composition algorithm, we used a linear regression model to transform the binary choice of a single ethnicity label into percentages of each region an individual originated from. This spectrum of possibilities paints a more nuanced picture of ethnic diversity within an individual.

Maya Abdalla, Emmanuel College
Adam Genda, B.S. in Biology, University of Northwestern
Selma Chamime Skiba, Simmons University

Faculty Mentor: Dr. Rafael Irizarry, Professor of Biostatistics, DFCI, HSPH
Graduate Student Mentor: Madhav Sankaranarayanan, HSPH

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**Fostering Advancement & Careers through Enrichment Training in Science (FACETS)
Research Project Presentations in Kresge G3**

11:15 - 11:25am   Identifying social environmental stressors that increase risk for
preeclampsia in Black and Hispanic birthing people

                           Gene Pozas, University of Florida
                           Research Mentor: Dr. Brittney Francis
                           Group Leader: Heather Alexis Olden

11:30 - 11:40am   **Evaluating a Risk Assessment Tool for Metals In Personal Care Products
as Endocrine Disruptors**

                           Monika Malaka-Kajangu, North Carolina Agricultural & Technical University
                           Research Mentor: Dr. Tamarra James-Todd
                           Group Leader: Heather Alexis Olden

11:45 - 11:55am   From Choice To Crisis: Examining Racial Differences In Responses
To Fentanyl Use In Healthcare

                           Serenity Greene, Clark Atlanta University
                           Research Mentor: Dr. Marie Plaisime
                           Group Leader: Heather Alexis Olden

Keynote Speaker and Lunch in FXB Atrium

12:00 - 1:00pm   **Monica L. Wang, ScD**
                           Associate Professor of Community Health Sciences
                           Boston University School of Public Health

**Fostering Advancement & Careers through Enrichment Training in Science (FACETS)
Research Project Presentations Continued in Kresge G3**

1:15 - 1:25pm   **Community Engaged Research: An Evaluation of an Environmental Justice
Workshop on Endocrine Disrupting Chemicals in Personal Care Products**

                           Humza Irfan, University of Michigan
                           Research Mentor: Dr. Tamarra James-Todd
                           Group Leader: Anusha Venkatesh

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1:30 - 1:40pm **Assessing the Efficacy of Perinatal Care for Black Women: A Review of the QI tools, MADM, PCPC, and PREM-OB by Constructs**

Kahini Patel, New York University
Research Mentor: Dr. Brittney Francis
Group Leader: Anusha Venkatesh

1:45 - 1:55pm **Mindfulness: The Influence of Meditation Practices to Address Perceived Stress and Risk of Cardiovascular Disease Among Black Women**

Camila Maldonado, University of Puerto Rico, Rio Piedras
Research Mentor: Dr. Marie Plaisime
Group Leader: Anusha Venkatesh

2:00 - 2:10pm **Invisible and Overlooked: Barriers undocumented African immigrant patients face in accessing healthcare services**

Rofiat Olasunkanmi, New York University
Research Mentor: Dr. Marie Plaisime
Group Leader: Azariah Boyd

2:15 - 2:25pm **Cost Analysis of Preeclampsia Disparities Among Black Women**

Braulio Gonzalez, University of Pennsylvania
Research Mentor: Dr. Brittney Francis
Group Leader: Azariah Boyd

2:30 - 2:40pm **Good Hair or No Hair: An Examination of the Impossible Hair Choices Black Women Adversely Face**

Shana Grant, Spelman College
Research Mentor: Dr. Tamarra James-Todd
Group Leader: Azariah Boyd

2:45 - 3:00pm **Closing Remarks**
Amarildo "Lilu" Barbosa
Chief Diversity, Inclusion & Belonging Officer, HSPH

3:00 - 5:00pm **Closing Reception in FXB Atrium**

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With Special Thanks...

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Marcello Pagano, Harvard Chan School

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Priti Thareja, Harvard Chan School

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Research Mentors
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Jenny Lee, Harvard Chan School
Rajarshi Mukherjee, Harvard Chan School
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Professional Development Workshop Speakers

Lilu Barbosa, Harvard Chan Office of Diversity and Inclusion
Jennifer Castro, Harvard Chan Office of Diversity & Inclusion
Will Gammerdinger, Harvard Chan School
Oana Geambasu, Harvard Chan School
Evan Goldberg, Harvard Chan School
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Seminar Series Speakers

Rebecca Betensky, New York University
Carmen Cabrera Rodriguez, Harvard Chan School
Brent Coull, Harvard Chan School
Rui Duan, Harvard Chan School
Viola Fanfani, Harvard Chan School
Alena Figueroa, Harvard Chan School
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