

## Cole Brokamp

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### CONTACT INFORMATION

Division of Biostatistics and Epidemiology  
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### RESEARCH INTERESTS

Geoinformatics, Environmental and Population Health, Fairness in Precision Medicine

### EDUCATION

**Cincinnati Children's Hospital Medical Center**, Cincinnati, Ohio USA

Postdoctoral Research Fellow, Biostatistics & Epidemiology, 2016 – 2017

**University of Cincinnati**, Cincinnati, Ohio USA

Ph.D., Biostatistics and Bioinformatics, 2016

**University of Cincinnati**, Cincinnati, Ohio USA

B.S., Biomedical Engineering, 2010

### ACADEMIC EXPERIENCE

**Cincinnati Children's Hospital Medical Center**  
**University of Cincinnati Department of Pediatrics**  
Division of Biostatistics & Epidemiology

Assistant Professor, 2017 - 2022

Associate Professor, 2022 - present

### PUBLICATIONS

Erika Rasnick, Patrick Ryan, Jeff Blossom, Heike Luttmann-Gibson, Nathan Lothrop, Rima Habre, Diane R. Gold, Andrew Vancil, Joel Schwartz, James E. Gern, **Cole Brokamp**. High Resolution and Spatiotemporal Place-Based Computable Exposures at Scale. *AMIA Summits on Translational Science Proceedings*. In Press. 2023.

Clara Zundel, Patrick Ryan, **Cole Brokamp**, Autumn Heeter, Yaoxian Huang, Jeffrey Strawn, Hilary Marusak. Air Pollution, Depressive and Anxiety Disorders, and Brain Effects: A Systematic Review. *NeuroToxicology*. In Press. 2022.

Andrew Vancil, Jeffrey R Strawn, Erika Rasnick, Amir Levine, Heidi K Schroeder, Ashley M Specht, Ashley L Turner, Patrick H. Ryan, **Cole Brokamp**. Pediatric Anxiety and Daily Fine Particulate Matter: A Longitudinal Study. *Psychiatry Research Communications*. In Press. 2022.

Stephen Trinidad, **Cole Brokamp**, Andres Mor Huertas, Andrew Beck, Carley Riley, Erika Rasnick, Richard Falcone, Meera Kotagal. Use of Area Based Socioeconomic Deprivation Indices: A Scoping Review and Qualitative Analysis. *Health Affairs*. In Press. 2022.

Milan N. Parikh, **Cole Brokamp**, Erika Rasnick, Lili Ding, Tesfaye B. Mersha, Katherine Bowers, Alonzo T. Folger. Epigenome-Wide Association of Neonatal Methylation and Trimester-Specific Prenatal PM2.5 Exposure. *Environmental Epidemiology*. In Press. 2022.

Shannon C. Conrey, Allison R. Burrell, **Cole Brokamp**, Rachel M. Burke, Sarah C. Couch, Liang Niu, Claire P. Mattison, Alexandra Piasecki, Daniel C. Payne, Mary A. Staat, Ardythe L. Morrow. Neighbourhood socio-economic environment predicts adiposity and obesity risk in children under two. *Pediatric Obesity*. Online. 2022.

Jordan Pennington, Erika Rasnick, Lisa J. Martin, Jocelyn M. Biagini, Tesfaye B. Mersha, Allison

Parsons, Gurjit K. Khurana Hershey, Patrick Ryan, **Cole Brokamp**. Racial Fairness in Precision Medicine: Pediatric Asthma Prediction Algorithms. *American Journal of Health Promotion*. Online. 2022.

Esteban Correa, Lili Ding, Andrew F. Beck, **Cole Brokamp**, Mekibib Altayeb, Robert S. Kahn, Tesfay Mersha. Understanding Racial Disparities in Childhood Asthma Using Individual- and Neighborhood-Level Risk Factors. *Journal of Allergy and Clinical Immunology*. In Press. 2022.

Stephen Trinidad, **Cole Brokamp**, Rashmi Sahay, Suzanne Moody, Dawne Gardner, Allison A. Parsons, Carley Riley, Nicole Sofer, Andrew F. Beck, Richard A. Falcone Jr., Meera Kotagal. Children from Disadvantaged Neighborhoods Experience Disproportionate Injury from Interpersonal Violence. *Journal of Pediatric Surgery*. Online. 2022.

Anita N. Shah, Erika Rasnick, Mohammad AN Bhuiyan, Chris Wolfe, Dianna Bosse, Jeffrey M. Simmons, Samir S. Shah, **Cole Brokamp**, Andrew F. Beck. Using Geomarkers and Sociodemographics to Inform Assessment of Caregiver Adversity and Resilience. *Hospital Pediatrics*. 12(8): 689-695. 2022.

Ashley Lynn Turner, **Cole Brokamp**, Chris Wolfe, Tiina Reponen, Kelly J. Brunst, Patrick H. Ryan. Mental and Physical Stress Responses to Personal Ultrafine Particle Exposure in Adolescents. *International Journal of Environmental Research and Public Health*. In Press. 2022.

Antonella Zanobetti, Patrick H. Ryan, Brent Coull, **Cole Brokamp**, Soma Datta, Jeffrey Blossom, Nathan Lothrop, Rachel L. Miller, Paloma I. Beamer, Cynthia M. Visness, Howard Andrews, Leonard B. Bacharier, Tina Hartert, Christine C. Johnson, Dennis Ownby, Gurjit K. Khurana Hershey, Christine Joseph, Song Yiqiang, Eneida Mendoza, Daniel J. Jackson, Heike Luttmann-Gibson, Edward M. Zoratti, Anne L. Wright, Fernando D. Martinez, Christine M. Seroogy, James E. Gern, Diane R. Gold, for the Children's Respiratory and Environmental Workgroup (CREW) Consortium. Childhood Asthma Incidence, Early and Persistent Wheeze, and Neighborhood Socioeconomic Factors in the ECHO/CREW Consortium. *JAMA Pediatrics*. Online. 2022.

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Kim Hartley, Patrick Ryan, Gordon Gillespie, Joseph Perazzo, J. Michael Wright, Glenn Rice, Geoffrey Donovan, Rebecca Gernes, Gurjit Khurana Hershey, Grace LeMasters, **Cole Brokamp**. Residential Greenness, Asthma, and Lung Function Among Children at High Risk of Allergic Sensitization: A Prospective Cohort Study. *Environmental Health*. In Press. 2022.

Madhumita Roy, **Cole Brokamp**, Sivaraman Balachandran. Clustering and Regression-Based Analysis of PM<sub>2.5</sub> Sensitivity to Meteorology in Cincinnati, Ohio. *Atmosphere*. 13(4):545. 2022.

Joanna Thomson, Breann Butts, Saige Camara, Erika Rasnick, **Cole Brokamp**, Caroline Heyd, Rebecca Steuart, Scott Callahan, Stuart Taylor, Andrew Beck. Neighborhood Socioeconomic Deprivation and Health Care Utilization of Medically Complex Children. *Pediatrics*. e2021052592. 2022.

**Cole Brokamp**. A High Resolution Spatiotemporal Fine Particulate Matter Exposure Assessment Model for the contiguous United States. *Environmental Advances*. 7:100155. 2022.

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Lei Liu, Yizhao Ni, Andrew F Beck, **Cole Brokamp**, Ryan C Ramphul, Linda D Highfield, Megha Karkera Kanjia, J Nick Pratap. Understanding Pediatric Surgery Cancellation: Geospatial Analysis. *Journal of Medical Internet Research*. 23(8):e26231. 2021.

Ashley Turner, **Cole Brokamp**, Chris Wolfe, Tiina Reponen, Patrick Ryan. Personal exposure to average weekly ultrafine particles, lung function, and respiratory symptoms in asthmatic and non-asthmatic adolescents. *Environment International*. 156:106740. 2021.

Linnea Lowe, **Cole Brokamp**, Erika Rasnick, Eric S. Hall, Shauna Acquavita. A Geographic Perspective on Opioid Misuse: Substance Abuse Treatment Deserts in Southwestern Ohio. *Ohio Journal of Public Health*. 4(1). 2021.

Sarah de Loizaga, Lindsay Arthur, Bhawna Arya, Brian Beckman, Wubishet Belay, **Cole Brokamp**, Nak Hyun Choi, Sean Connolly, Soham Dasgupta, Tavenner Dibert, Marylou Dryer, Lakshmi Gokanapudy Hahn, Elizabeth Greene, Daphney Kernizan, Omar Khalid, Jennifer Klein, Ryan Kobayashi, Subhrajit Lahiri, Raymond Lorenzoni, Jennifer Marshall, Theodore Millette, Lily Moore, Babu Muhamed, Meghna Murali, Andrea Otero Luna, Kinjal Parikh, Amy Sanyahumbi, Divya Shakti, Elizabeth Stein, Sanket Shah, Hannah Wilkins, McAllister Windom, Scott Wirth, Meghan Zimmerman, Andrew Beck, Nicholas Ollberding, Craig Sable, Andrea Beaton. Rheumatic Heart Disease in the United States: Forgotten but not Gone. Results of a 10 Year Multicenter Review. *Journal of the American Heart Association*. In Press. 2021.

Andrea R. Maxwell, Nana-Hawa Yayah Jones, Stuart Taylor, Sarah D. Corathers, Erika Rasnick, **Cole Brokamp**, Carley L. Riley, Allison Parsons, Jessica C. Kichler, Andrew F. Beck. Socioeconomic and racial disparities in diabetic ketoacidosis admissions in youth with type 1 diabetes. *Journal of Hospital Medicine*. In Press. 2021.

Emrah Gecili, Weiji Su, **Cole Brokamp**, Eleni-Rosalina Andrinopoulou, Francis J LaRosa Iii, Teresa Pestian, John P Clancy, George M Solomon, John J Brewington, Rhonda D Szczesniak. Rapid cystic fibrosis lung-function decline and in-vitro CFTR modulation. *Journal of Cystic Fibrosis*. S1569-1993(21)00111-9. 2021.

Grace Kelly, Jordan Pennington, Yonatan Segev, **Cole Brokamp**, Margaret N Jones, Saige Camara, Adrienne W Henize, Robert S Kahn, Andrew F Beck. Voter Participation is Associated with Child Health Outcomes at the Population Level. *Journal of Pediatrics*. In Press. 2021.

Mohammad Bhuiyan, Patrick Ryan, Farzan Oroumyeh, Yajna Jathan, Madhumitaa Roy, Siv Balachandran, **Cole Brokamp**. Source-specific contributions of particulate matter to asthma-related pediatric emergency department utilization. *Health Information Science and Systems*. 9(12). 2021.

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Emrah Gecilia, Anushka Palipana **Cole Brokamp** Rui Huang, Eleni-Rosalina Andrinopoulou, Teresa Pestian, Erika Rasnick, Ruth H. Keogh, Yizhao, Ni, John P.Clancy, Patrick Ryan, Rhonda D. Szczesniak. Seasonality, mediation and comparison (SMAC) methods to identify influences on lung function decline. *MethodsX*. 8:101313. 2021.

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Todd A Florin, Lilliam Ambroggio, **Cole Brokamp**, Yin Zhang, Eric S Nylen, Mantosh Rattan, Eric Crotty, Michael A Belsky, Sara Krueger, Thomas N Epperson, Andrea Kachelmeyer, Richard M Ruddy, Samir S Shah. Proadrenomedullin Predicts Severe Disease in Children with Suspected Community-Acquired Pneumonia. *Clinical Infectious Diseases*. ciaa1138. 2020.

Sharad I. Wadhwani, **Cole Brokamp**, Erika Rasnick, John C. Bucuvalas, Jennifer C. Lai, Andrew F. Beck. Neighborhood Socioeconomic Deprivation, Racial Segregation, and Organ Donation Across 5 States. *American Journal of Transplantation*. Online. 2020.

Jaron Arbet, **Cole Brokamp**, Jareen Meinzen-Derr, Katy E. Trinkley, Heidi M Spratt. Lessons and Tips for Designing a Machine Learning Study Using EHR Data. *Journal of Clinical and Translational Science*. Online. 2020.

Todd Florin, Lilliam Ambroggio, **Cole Brokamp**, Yin Zhang, Mantosh Rattan, Eric Crotty, Michael A Belsky, Sara Krueger, Thomas N Epperson, Andrea Kachelmeyer, Richard Ruddy, Samir S Shaw. Biomarkers and Disease Severity in Children with Community-Acquired Pneumonia. *Pediatrics*. Online. 2020.

Rhonda Szczesniak, Jessica L. Rice, **Cole Brokamp**, Patrick Ryan, Teresa Pestian, Yizhao Ni, Eleni-Rosalina Andrinopoulou, Ruth H. Keogh, Emrah Gecili, Rui Huang, John P. Clancy, Joseph M. Collaco. Influences of Environmental Exposures On Individuals Living with Cystic Fibrosis. *Expert Review of Respiratory Medicine*. Online. 2020.

Zana Percy, **Cole Brokamp**, Jennifer M McAllister, Patrick Ryan, Scott L Wexelblatt, Eric Hall. Subclinical and Overt Newborn Opioid Exposure: Prevalence and First Year Healthcare Utilization. *Journal of Pediatrics*. Online. 2020.

Sharad Wadhwani, John Bucuvalas, **Cole Brokamp**, Ravinder Anand, Ashutosh Gupta, Stuart Taylor, Eyal Shemesh, Andrew Beck. Association Between Neighborhood-level Socioeconomic Deprivation and the Medication Level Variability Index for Children Following Liver Transplantation. *Transplantation*. Online. 2020.

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Rhonda D. Szczesniak, Weiji Su, **Cole Brokamp**, Ruth H. Keogh, John P. Pestian, Michael Seid, Peter J. Diggle, John P. Clancy. Dynamic Predictive Probabilities to Monitor Rapid Cystic Fibrosis Disease Progression. *Statistics in Medicine*. 39. 740-756. 2020.

Sarah Orkin, **Cole Brokamp**, Toshifumi Yodoshi, Andrew T. Trout, Chunyan Liu, Syeda Meryum, Stuart Taylor, Christopher Wolfe, Rachel Sheridan, Aradhna Seth, Mohammad Alfrad Nobel Bhuiyan, Sanita Ley, Ana Catalina Arce-Clachar, Kristin Bramlage, Robert Kahn, Stavra Xanthakos, Andrew F. Beck, Marialena Mouzaki. Community Socioeconomic Deprivation and Non-Alcoholic Fatty Liver Disease Severity. *Journal of Pediatric Gastroenterology and Nutrition*. . 2019.

**Cole Brokamp**, Jeffrey R. Strawn, Andrew F. Beck, Pat Ryan. Pediatric Psychiatric Emergency Department Utilization and Fine Particulate Matter: A Case-Crossover Study. *Environmental Health Perspectives*. 127(9). 2019. [Download](#).

Erica Andrist, **Cole Brokamp**, Stuart Taylor, Carley Riley, Andrew Beck. Neighborhood Poverty and Pediatric Intensive Care Use. *Pediatrics*. . 2019.

**Cole Brokamp**, Eric B. Brandt, Patrick H. Ryan. Assessing Exposure to Outdoor Air Pollution for Epidemiological Studies: Model-based and Personal Sampling Strategies. *Journal of Allergy and Clinical Immunology*. . 2019. [Download](#).

Lilliam Ambroggio, **Cole Brokamp**, Rachel Mantyla, Brad DePaoli, Richard Ruddy, Samir Shah, Todd Florin. Validation of the British Thoracic Society Severity Criteria for Pediatric Community-Acquired Pneumonia. *Pediatric Infectious Diseases Journal*. . 2019.

Rebecca Gernes, **Cole Brokamp**, Glenn Rice, J. Michael Wright, Michelle Kondo, Yvonne Michael, Geoffrey Donovan, Demetrios Gatzliolis, David Bernstein, Grace LeMasters, James Lockey, G. Khurana Hershey, Patrick Ryan. Using high-resolution residential greenspace measures in an urban environment to assess risks of allergy outcomes in a cohort of children. *Science of the Total Environment*. 668. 2019. [Download](#).

**Cole Brokamp**, Andrew F. Beck, Neera K. Goyal, Patrick Ryan, James M. Greenberg, Eric S. Hall. Material Community Deprivation and Hospital Utilization During the First Year of Life: An Urban Population-Based Cohort Study. *Annals of Epidemiology*. 30. 2019. [Download](#).

Juliana Madzia, Patrick Ryan, Kimberly Yolton, Zana Percy, Nick Newman, Grace LeMasters, **Cole Brokamp**. Residential Greenspace Is Associated with Childhood Behavioral Outcomes. *Journal of Pediatrics*. . 2018. [Download](#).

**Cole Brokamp**. DeGAUSS: Decentralized Geomarker Assessment for Multi-Site Studies. *Journal of Open Source Software*. Online. 2018. [Download](#).

Rhonda D. Szczesniak, **Cole Brokamp**, Weiji Su, Gary L. McPhail, John Pestian, and John P. Clancy. Improving Detection of Rapid Cystic Fibrosis Disease Progression—Early Translation of a Predictive Algorithm into a Point-of-Care Tool. *IEEE Journal of Translational Engineering in Health and Medicine*. 7(1); 1-8. 2019. [Download](#).

Lauren C. Riney, **Cole Brokamp**, Andrew F. Beck, Wendy Pomerantz, Hamilton Schwartz, Todd

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**Cole Brokamp**, Roman Jandarov, Monir Hossain, Patrick Ryan. Predicting Daily Urban Fine Particulate Matter Concentrations Using Random Forest. *Environmental Science & Technology*. 52(7); 4173-4179. 2018. [Download](#).

Andrew F. Beck, Carley L. Riley, Stuart Taylor, **Cole Brokamp**, Robert S. Kahn. Toward a Culture of Health in Hospitals: Pervasive population disparities in inpatient bed-day rates across conditions and subspecialties. *Health Affairs*. 37(4); 551-559. 2018. [Download](#).

Todd A. Florin, **Cole Brokamp**, Rachel Mantyla, Bradley DePaoli, Richard Ruddy, Samir S. Shah, Lilliam Ambroggio. Validation of the IDSA/PIDS Severity Criteria in Children with Community-Acquired Pneumonia. *Clinical Infectious Diseases*. ciy031; 1-29. 2018. [Download](#).

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Sheryl E Koch, Xiaoqian Gao, Lauren Haar, Min Jiang, Valerie M Lasko, Nathan Robbins, Wenfeng Cai, **Cole Brokamp**, Priyanka Varma, Michael Tranter, Yong Liu, Xiaoping Ren, John N. Lorenz, Hong-Sheng Wang, W Keith Jones, Jack Rubinstein. Probenecid: novel use as a non-injurious positive inotrope acting via cardiac TRPV2 stimulation. *Journal of Molecular and Cellular Cardiology*. 53(1); 134-144. 2012. [Download](#).

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#### PATENTS

Assem Ziady, Rhonda Szczesniak, John Clancy, **Cole Brokamp**, inventors; Cincinnati Children's Hospital Medical Center, assignee. Compositions and methods for treatment of lung function. United States patent US 10,761,099. 2020 Sep 1.



**A Framework for Automated and Reproducible Geomarker Curation and Computation at Scale.** *Yale Biostatistics Seminar*. Online. 2022.

**Introduction to Geoinformatics.** *University of Cincinnati Introduction to Medical Informatics course guest lecture*. Cincinnati, OH. 2022. [Download](#).

**Automating Your Academic CV, Biosketch, and Website with R.** *CCHMC R Users Group Meeting*. Cincinnati, OH. 2022. [Download](#).

**Decentralized Geomarker Assessment for Multi-Site Studies.** *Pediatric Academic Societies Annual Meeting*. Denver, CO. 2022.

**Decentralized Geomarker Assessment for Multi-Site Studies.** *Rare Diseases Clinical Research Network (RDCRN) Steering Committee Meeting*. Online. 2022. [Download](#).

**Decentralized Geomarker Assessment for Multi-Site Studies.** *NIH Bench to Bassinet PCGC EMR Extraction Working Group Meeting*. Online. 2022. [Download](#).

**Challenges and Solutions for Private and Reproducible Environmental Exposure Assessment at Scale.** *NIH Ethical, Legal, and Social Implications of Gene-Environment Interaction Research Workshop*. Online. 2022. [Download](#).

**Geoinformatics for Population Health.** *University of Cincinnati Introduction to Medical Informatics course guest lecture*. Cincinnati, OH. 2021. [Download](#).

**Efficient and Secure High Resolution Spatiotemporal Exposure Assessment.** *International Society of Exposure Science Annual Meeting*. Online. 2021.

**Decentralized, Efficient, and Secure High Resolution Spatiotemporal Exposure Assessment at Scale.** *NIH Integrating Multiscale Geospatial Environmental Data into Large Population Health Studies Workshop*. Online. 2021. [Download](#).

**Decentralized and Reproducible Geocoding and Geomarker Assessment for Multi-Site Studies.** *Pediatric Acute Care Cardiology Collaborative Spring Conference*. Online. 2021. [Download](#).

**Geomarkers and Health.** *Rutgers University Social Epidemiology guest lecture*. Online. 2021. [Download](#).

**Decentralized and Reproducible Geocoding and Characterization of Community and Environmental Exposures at Scale.** *University of Cincinnati Biomedical Informatics Practicum (BMIN8001) guest lecture*. Cincinnati, OH. 2021. [Download](#).

**Three Levels of Computational Mobility in R.** *SatRday Columbus*. Virtual. 2020. [Download](#).

**Decentralized and Reproducible Geocoding and Characterization of Community and Environmental Exposures at Scale.** *Pediatric Musculoskeletal & Rheumatology Innovation Core Center Seminar Series*. Virtual. 2020. [Download](#).

**Introduction to Geoinformatics for Precision Population Health.** *University of Cincinnati Introduction to Medical Informatics course guest lecture*. Cincinnati, OH. 2020. [Download](#).

**Short-term Ambient Fine Particulate Matter and Anxiety Symptoms in Adolescents with Generalized Anxiety Disorder.** *International Society of Environmental Epidemiology An-*



*nual Meeting*. Virtual. 2020.

**Decentralized Geomarker Assessment for Multi-Site Studies (DeGAUSS).** *UseR! 2020 Conference (Conference Canceled)*. St. Louis, MO. 2020.

**Decentralized and Reproducible Geocoding and Characterization of Community and Environmental Exposures at Scale.** *University of Cincinnati Biomedical Informatics Practicum (BMIN8001) guest lecture*. Cincinnati, OH. 2020. [Download](#).

**Pediatric Psychiatric Emergency Department Utilization and Fine Particulate Matter: A Case-Crossover Study.** *University of Cincinnati Department of Epidemiology Seminar*. Cincinnati, OH. 2020. [Download](#).

**Using Twitter for Academic Networking.** *Cincinnati Children's Faculty Career Development Seminar Series*. Cincinnati, OH. 2019. [Download](#).

**Causal Inference Machine Learning Methods for Identifying Subpopulations Susceptible to the Health Effects of Air Pollution.** *Cincinnati Children's Machine Learning Focus Group*. Cincinnati, OH. 2019. [Download](#).

**Non-Parametric and Data-Driven Methods for Identifying Subpopulations Susceptible to the Health Effects of Air Pollution.** *International Biometric Society (Eastern North American Region) Spring Meeting*. Philadelphia, PA. 2019. [Download](#).

**Decentralized and Reproducible Geocoding and Characterization of Community and Environmental Exposures at Scale.** *Center for Clinical & Translational Science & Training Grand Rounds*. Cincinnati, OH. 2019. [Download](#).

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**Introduction to Geoinformatics for Precision Population Health.** *University of Cincinnati Introduction to Medical Informatics course guest lecture*. Cincinnati, OH. 2018. [Download](#).

**Reproducible Research in R: Geoinformatics, Epidemiology, and Publicly Available Health and GIS Data.** *Workshop at the American College of Epidemiology Annual Meeting*. Cincinnati, OH. 2018. [Download](#).

**Climate Change and Health Disparities in the Urban Environment.** *University of Cincinnati Research and Innovation Week*. Cincinnati, OH. 2018.

**Geoinformatics for Environmental Epidemiology.** *Biomedical Informatics (BMIN8001) Practicum Guest Lecture*. Cincinnati, OH. 2018.

**Hot Topics in Pediatric Research Methodology: CART and Random Forest.** *Pediatric Academic Society Annual Meeting*. Toronto, ON. 2018.

**Ensemble Machine Learning for Air Pollution Exposure Assessment.** *American Statistical Association, Cincinnati Chapter Meeting*. Cincinnati, OH. 2018. [Download](#).

**Combined Sewer Overflow Events and Childhood Emergency Department Visits: A Case-Crossover Study.** *University of Cincinnati Environmental Health Seminar*. Cincinnati, OH. 2017. [Download](#).

**The Cincinnati Childhood Allergy and Air Pollution Study: An Overview and New Approaches to Exposure Assessment.** *Harvard School of Public Health Air, Climate & Energy Center Research Meeting.* Boston, MA. 2017.

**Decentralized and Reproducible Geocoding and Characterization of Community and Environmental Exposures for Multi-Site Studies.** *Harvard School of Public Health Air, Climate & Energy Center Research Meeting.* Boston, MA. 2017. [Download](#).

**Decentralized and Reproducible Geocoding and Characterization of Community and Environmental Exposures for Multi-Site Studies.** *International Society of Exposure Science Annual Meeting.* Research Triangle Park, NC. 2017. [Download](#).

**Assessing Daily Exposure to PM<sub>2.5</sub> with Machine Learning and Remote Sensing.** *International Society of Exposure Science Annual Meeting.* Research Triangle Park, NC. 2017. [Download](#).

**Assessing Daily Exposure to PM<sub>2.5</sub> with Machine Learning and Remote Sensing.** *Cincinnati Children's Hospital Medical Center Division of Biostatistics and Epidemiology Seminar.* Cincinnati, OH. 2017.

**Using GRAPPH to Leverage Geoinformatics for Innovative Research, Place-based Clinical Care, and Community-Centered Quality Improvement.** *Cincinnati Children's Hospital Medical Center Mayerson Center for Safe and Healthy Children Quarterly Research Meeting.* Cincinnati, OH. 2017. [Download](#).

**Combined Sewer Overflow Events and Childhood Emergency Department Visits: A Case-Crossover Study.** *Cincinnati Children's Hospital Medical Center Postdoc and Research Associate Meeting.* Cincinnati, OH. 2017. [Download](#).

**Geocoding to Characterize Community and Environmental Exposures for Multi-site Studies.** *Cincinnati Children's Hospital Medical Center Division of Biomedical Informatics Hutton Lecture Series.* Cincinnati, OH. 2017. [Download](#).

**GIS Tools for Environmental Epidemiology.** *University of Cincinnati Biomedical Informatics (BMIN8001) Practicum course guest lecture.* Cincinnati, OH. 2017. [Download](#).

**Building A Platform for Data Sharing.** *Cincinnati Children's Hospital Medical Center Academy Health Site Visit.* Cincinnati, OH. 2017. [Download](#).

**Land Use Models for Elemental Components of Particulate Matter in an Urban Environment: A Comparison of Regression and Random Forest Models.** *International Society of Exposure Science Annual Meeting.* Utrecht, NL. 2016. [Download](#).

**Predictive Comparisons: Interpreting Input Effects for Any Supervised Learner.** *Cincinnati Children's Hospital Medical Center Division of Biostatistics & Epidemiology Journal Club.* Cincinnati, OH. 2016. [Download](#).

**Land Use Models for Elemental Components of Particulate Matter in an Urban Environment: A Comparison of Regression and Random Forest Models.** *University of Cincinnati Division of Biostatistics and Bioinformatics Seminar Series.* Cincinnati, OH. 2016. [Download](#).

**Data Visualization for Population Health Initiatives.** *All In Data Visualization Webinar.* Cincinnati, OH. 2016. [Download](#).

**Using Machine Learning and Interactive Dashboards to Understand How Children's**

**Health is Impacted by their Community and Surrounding Environment.** *University of Cincinnati Institute for Analytics Innovation Showcase and Networking Event.* Cincinnati, OH. 2016. [Download](#).

**Combined Sewer Overflow and Childhood Hospital Admissions.** *Cincinnati Children's Hospital Medical Center Division of Biostatistics & Epidemiology Seminar Series.* Cincinnati, OH. 2016. [Download](#).

**Land Use Random Forests for Estimation of Exposure to Elemental Components of Particulate Matter.** *University of Cincinnati Division of Biostatistics and Bioinformatics Doctoral Dissertation Defense.* Cincinnati, OH. 2016. [Download](#).

**Geospatial Data for Environmental Epidemiology.** *Cincinnati Children's Hospital Medical Center Environmental Epidemiology Shared Interest Group Seminar Series.* Cincinnati, OH. 2016. [Download](#).

**Confidence Intervals for Random Forest Predictions Using the Infinitesimal Jackknife.** *University of Cincinnati Division of Biostatistics and Bioinformatics Seminar Series.* Cincinnati, OH. 2015. [Download](#).

**Childhood Residential Changes are Associated with Decreased Traffic Exposure and Improved Neighborhood Characteristics.** *International Society of Exposure Science Annual Meeting.* Las Vegas, NV. 2015. [Download](#).

**R Studio and R Markdown: An integrated IDE and report generator for R.** *University of Cincinnati BE7022 (Intro To Biostatistics) Guest Lecture.* Cincinnati, OH. 2015. [Download](#).

**Does the Elemental Composition of Indoor and Outdoor PM2.5 Accurately Represent the Elemental Composition of Personal PM2.5?.** *University of Cincinnati Division of Epidemiology Seminar Series.* Cincinnati, OH. 2014.

**Assessing Personal PM2.5 Exposure Prediction Improvement After Addition of Indoor PM2.5 Exposure and Personal Characteristics to Outdoor PM2.5 Exposure Measurements.** *Joint Statistical Meeting.* Boston, MA. 2014.

**Exact Sampling and Counting for Fixed-Margin Matrices.** *University of Cincinnati Division of Epidemiology Seminar Series.* Cincinnati, OH. 2013.

**Small Molecule Disruption of G Beta Gamma Signaling Inhibits the Progression of Heart Failure.** *University of Cincinnati Department of Pharmacology and Biophysics Seminar Series.* Cincinnati, OH. 2011.

**Ultrasound-Targeted Microbubble Destruction to Deliver Nucleic Acid to the Heart.** *University of Cincinnati Department of Pharmacology and Biophysics Seminar Series.* Cincinnati, OH. 2011.

**An academic research cooperative education experience.** *University of Cincinnati BME321 Guest Lecture.* Cincinnati, OH. 2011.

#### AWARDS AND MEMBERSHIPS

|   |      |
|---|------|
| CCHMC Division of Biostatistics & Epidemiology Top Publication          | 2020 |
| CCHMC Division of Biostatistics & Epidemiology Top Research Achievement | 2020 |
| CCHMC Division of Biostatistics & Epidemiology Top Research Achievement | 2017 |
| CCHMC Division of Biostatistics & Epidemiology Top Publication          | 2017 |

|                           |   |                |
|---------------------------|---|----------------|
|                           | CCHMC Division of Biostatistics & Epidemiology Travel Award   | 2016           |
|                           | CCHMC Arnold W. Strauss Fellowship Award  | 2016           |
|                           | Member - International Society of Exposure Science  | 2014 – present |
|                           | Member - International Society of Environmental Epidemiology  | 2017 – present |
|                           | Choose Ohio First Scholarship Recipient   | 2010 – 2015    |
|                           | University Graduate Scholarship Recipient   | 2010 – 2016    |
|                           | Distinguished Honors Scholar, UC Engineering  | 2010           |
|                           | University of Cincinnati Alumni Scholarship   | 2008 – 2009    |
|                           | University Cincinnati Scholar Recipient   | 2005 – 2010    |
| LEADERSHIP AND<br>SERVICE | Member of Artificial Intelligence Governance Council, CCHMC   | 2022           |
|                           | Chair of the “Harnessing Big Data in Exposure Science” Session,<br>International Society of Exposure Science Annual Meeting                 | 2021           |
|                           | Chair of the “Environmental Exposures and Mental Health” Session,<br>International Society of Environmental Epidemiology Annual Meeting     | 2021           |
|                           | Founder and leader of CCHMC R Users Group   | 2018 – present |
|                           | Member of Divisional Faculty Career Development Committee, CCHMC  | 2019 – 2022    |
|                           | Member of Divisional Strategic Plan Steering Committee, CCHMC   | 2017 – 2022    |
|                           | Member of Divisional Research Committee, CCHMC  | 2017 – 2020    |
|                           | Chair of the “Ensemble Learning for Air Pollution Exposure Assessment” Session,<br>International Society of Exposure Science Annual Meeting | 2017           |
|                           | Chair of the “Land Use Regression Modeling” Session,<br>International Society of Exposure Science Annual Meeting                            | 2016           |
|                           | Co-founded Biostatistics Student Journal Club,<br>Department of Environmental Health, University of Cincinnati                              | 2013           |
|                           | Student Representative to Graduate Education Committee,<br>Department of Pharmacology, University of Cincinnati                             | 2010 – 2011    |
|                           | <b>Journal Reviewer for:</b>  |                |
|                           | Academic Pediatrics   |                |
|                           | American Journal of Respiratory and Critical Care Medicine  |                |
|                           | Annals of Epidemiology  |                |
|                           | Environment International   |                |
|                           | Environmental Health Perspectives   |                |
|                           | Environmental Modeling & Assessment   |                |
|                           | Environmental Pollution   |                |
|                           | Environmental Research  |                |
|                           | Environmental Science & Technology  |                |
|                           | Environmental Science & Technology Letters  |                |
|                           | Health & Place  |                |
|                           | International Journal of Environmental Research and Public Health   |                |
|                           | International Journal of Epidemiology   |                |
|                           | Journal of Exposure Science and Environmental Epidemiology  |                |
|                           | Journal of Open Source Software   |                |
|                           | PLOS ONE  |                |
|                           | Pediatrics  |                |
|                           | Science of the Total Environment  |                |
|                           | Stochastic Environmental Research and Risk Assessment   |                |

**Grant Reviewer for:**

|   |                          |
|---|--------------------------|
| NIH NCI ZCA1 TCRB-J (M2) R  | <i>February 2023</i>     |
| NIH NIEHS ZES1 WL-W (K)   | <i>November 2022</i>     |
| NIH NIEHS ZES1 LKB-S (KS)   | <i>March 2022</i>        |
| NIH NIEHS ZES1 LWJ-S (K9)   | <i>March 2022</i>        |
| University of Louisville CIEHS Pilot Project Program                      | <i>2021</i>              |
| University of Michigan M-LEEd Center Pilot Projects                       | <i>2020</i>              |
| Ohio State University CCTS Pilot Projects                                 | <i>2020</i>              |
| NIH SIEE Study Section, Early Career Reviewer                             | <i>October 2019</i>      |
| Arnold S. Strauss Fellowship Award, Cincinnati Children's                 | <i>2018 – 2021</i>       |
| University of Rochester Processes and Methods Grant                       | <i>2018 – 2020, 2022</i> |
| Ohio State University CCTS Pilot Translational & Clinical Studies Program | <i>2020</i>              |
| Puerto Rico Science, Technology & Research Trust                          | <i>2017</i>              |

**Abstract Reviewer for:**

|  |                         |
|--|-------------------------|
| American Medical Informatics Association Clinical Informatics Conference | <i>2021, 2022, 2023</i> |
| International Society of Exposure Science Annual Meeting                 | <i>2018, 2019, 2022</i> |
| International Society of Environmental Epidemiology Annual Meeting       | <i>2018, 2020, 2022</i> |