Cole Brokamp

Contact Information

Division of Biostatistics and Epidemiology
Cincinnati Children's Hospital Medical Center
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Research Interests

Geoinformatics, environmental health, statistical computing, population health, causal inference for machine learning

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 - present

Publications

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 Gatziolis, 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. 760-767. 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. 37-43. 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*. 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 A. Florin. Emergency Medical Services Utilization is Associated with Community Deprivation in Children. *Prehospital Emergency Care*. Online ahead of print. 2018. *Download*.

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*.

Rhonda Szczesniak, **Cole Brokamp**, Weiji Su, Gary L. McPhail, John Pestian, John P. Clancy. Early Detection of Rapid Cystic Fibrosis Disease Progression Tailored to Point of Care: A Proof-of-Principle Study. *Healthcare Innovations and Point of Care Technologies*. (HI-POCT), 2017 IEEE. 204-207. 2017. *Download*.

Cole Brokamp, MB Rao, Patrick Ryan, Roman Jandarov. A comparison of resampling and recursive partitioning methods in random forest for estimating the asymptotic variance using the infinitesimal jackknife. *Stat*. 6(1). 360-372. 2017. *Download*.

Cole Brokamp, Chris Wolfe, Todd Lingren, John Harley, Patrick Ryan. Decentralized and Reproducible Geocoding and Characterization of Community and Environmental Exposures for Multi-Site Studies. *Journal of American Medical Informatics Association*. 25(3). 309-314. 2017. *Download*.

Rhonda D. Szczesniak, Dan Li, Weiji Su, **Cole Brokamp**, John Pestian, Michael Seid, John P. Clancy. Phenotypes of Rapid Cystic Fibrosis Lung Disease Progression during Adolescence and Young Adulthood. *American Journal of Respiratory And Critical Care Medicine*. 196(4). 471-478. 2017. *Download*.

Todd Florin, Lilliam Ambroggio, **Cole Brokamp**, Mantosh S. Rattan, Eric J. Crotty, Andrea Kachelmeyer, Richard M. Ruddy, Samir Shah. Reliability of Examination Findings in Suspected Community-Acquired Pneumonia. *Pediatrics*. 140(3). e20170310. 2017. *Download*.

Cole Brokamp, Andrew F. Beck, Louis Muglia, Patrick Ryan. Combined Sewer Overflow Events and Childhood Emergency Department Visits: A Case-Crossover Study. *Science of the Total Environment*. 607-608. 1180-1187. 2017. *Download*.

Patrick Ryan, James E. Lockey, Brad Black, Carol H. Rice, Jeff Burkle, Tim Hilbert, Linda Levin, **Cole Brokamp**, Roy McKay, Ted Larson, Grace K. LeMasters. Childhood exposure to libby amphibole asbestos and respiratory symptoms in young adulthood. *Environmental Research*. 158. 470-479. 2017. *Download*.

Lusine Yaghjyan, R Aroa, **Cole Brokamp**, E O'Meara, B Sprague, G Ghita, Patrick Ryan. Association of air pollution with mammographic breast density in the Breast Cancer Surveillance Consortium. *Breast Cancer Research*. 19:36. 1-10. 2017. *Download*.

Cole Brokamp, Roman Jandarov, MB Rao, Grace LeMasters, Patrick Ryan. Exposure assessment models for elemental components of particulate matter in an urban environment: A comparison of regression and random forest approaches. *Atmospheric Environment*. 151. 1-11. 2017. *Download*.

Hong Ji, Jocelyn M Biagini Myers, Eric B Brandt, **Cole Brokamp**, Patrick H Ryan, Gurjit K Khurana Hershey. Air pollution, epigenetics, and asthma. *Allergy, Asthma & Clinical Immunology*. 12(1). 51. 2016. *Download*.

Jennifer Kannan, **Cole Brokamp**, David I. Bernstein, Grace K. LeMasters, Gurjit K. Khurana Hershey, Manuel Villareal, James E. Lockey, Patrick Ryan. Parental Snoring and Environmental Pollutants, but Not Aeroallergen Sensitization, Are Associated with Childhood Snoring in a Birth Cohort. *Pediatric Allergy, Immunology, and Pulmonology*. 0. 2016. *Download*.

Cole Brokamp, Grace LeMasters, Patrick Ryan. Residential mobility impacts exposure assessment and community socioeconomic characteristics in longitudinal epidemiology studies. *Journal of Exposure Science and Environmental Epidemiology*. 26(4). 428-34. 2016. *Download*.

Kanistha C. Coombs, Ginger L. Chew, Christopher Schaffer, Patrick H. Ryan, **Cole Brokamp**, Sergey A. Grinshpun, Gary Adamkiewicz, Steve Chillrude, Curtis Hedman, Meryl Colton, Jamie Ross, Tiina Reponen. Indoor air quality in green-renovated vs. non-green low-income homes of children living in a temperate region of US (Ohio). *Science of The Total Environment*. 554-555. 178-185. 2016. *Download*.

Patrick Ryan, **Cole Brokamp**, Z-H Fan, MB Rao. Analysis of personal and home characteristics associated with the elemental composition of PM2.5 in indoor, outdoor, and personal air in the RIOPA study. *Health Effects Institute Research Report 185*. 2015. *Download*.

Kelly J Brunst, Patrick H Ryan, **Cole Brokamp**, David Bernstein, Tiina Reponen, James Lockey, Gurjit K Khurana Hershey, Linda Levin, Sergey A Grinshpun, Grace LeMasters. Timing and duration of traffic-related air pollution exposure and the risk for childhood wheeze and asthma. *American Journal of Respiratory and Critical Care Medicine*. 192(4). 421-427. 2015. *Download*.

Patrick H Ryan, Sang Young Son, Christopher Wolfe, James Lockey, **Cole Brokamp**, Grace LeMasters. A field application of a personal sensor for ultrafine particle exposure in children. *Science of The Total Environment*. 508. 366-373. 2015. *Download*.

Cole Brokamp, MB Rao, Tina Zhihua Fan, Patrick H Ryan. Does the elemental composition of indoor and outdoor PM2.5 accurately represent the elemental composition of personal PM2.5?. *Atmospheric Environment*. 101. 226-234. 2015. *Download*.

Cole Brokamp, Jacob Todd, Carlo Montemagno David Wendell. Electrophysiology of single and aggregate Cx43 hemichannels. *PLoS ONE*. 7(10):e47775. 2012. *Download*.

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*.

Michael Tranter, Robert N Helsley, Waltke R Paulding, Michael McGuinness, **Cole Brokamp**, Lauren Haar, Yong Liu, Xiaoping Ren, W Keith Jones. Coordinated post-transcriptional regulation of HSP70. 3 gene expression by microRNA and alternative polyadenylation. *Journal of Biological Chemistry*. 286(34). 29828-29837. 2011. *Download*.

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 application US 15/927,575. 2018 Sep 27

Talks

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.*

Decentralized and Reproducible Geocoding and Characterization of Community and Environmental Exposures at Scale. *Biomedical Informatics (BMIN8001) Practicum Lecture.* Cincinnati, OH. 2019. *Download.*

Decentralized and Reproducible Geocoding and Characterization of Community and Environmental Exposures for Multi-Site Studies. *Northwestern Institute for Public Health and Medicine Seminar Series.* Chicago, IL. 2018.

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 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 PM2.5 with Machine Learning and Remote Sensing. *International Society of Exposure Science Annual Meeting.* Research Triangle Park, NC. 2017. *Download.*

Assessing Daily Exposure to PM2.5 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.

Computer Skills

Statistical Packages: R (including GIS packages: sf, rgdal, rgeos, sp, raster)

Languages: Python, Unix shell scripting, R Markdown

Applications: R Shiny, Knitr, LaTeX, Vim, Emacs, MS Office, qGIS, ArcGIS, GEOS, LSF

Operating Systems: Unix/Linux, Mac, Windows

Software

`DeGAUSS`
A decentralized, offline, secure, and reproducible method for geocoding and deriving community and individual level environmental characteristics while maintaining the privacy of protected health information.
https://github.com/cole-brokamp/DeGAUSS

`hamilton`
Offline parcel-based geocoding for addresses in Hamilton County, USA.
https://github.com/cole-brokamp/hamilton

`OfflineGeocodeR`

R wrapper around calling a Docker container (DeGAUSS/geocoder_slim) to geocode addresses from R without exposing PHI to the internet.
https://github.com/cole-brokamp/OfflineGeocodeR

`automagic`
Automagically install packages necessary to run R code.
https://github.com/cole-brokamp/automagic

`rize`
Dockerize R shiny apps.
https://github.com/cole-brokamp/rize

`aiR`
aiR is used to assess PM2.5 exposures in the Cincinnati, Ohio area. The package creates predictions based on a spatiotemporal hybrid satellite/land use random forest model. PM2.5 exposure predictions are available at 1 x 1 km grid resolution covering the seven county area (OH: Hamilton, Clermont, Warren, Butler; KY: Boone, Kenton, Campbell) on a daily basis from 2000 - 2015.
https://github.com/cole-brokamp/aiR

`geocoder`
A software package for linux that geocodes using TIGER/Line data. Offline geocoding is useful when dealing with private health information. This software is also implemented on a internal server, available to researchers at CCHMC.
https://github.com/cole-brokamp/geocoder

`CFPOPD`
An R Shiny application for predicting rapid decline in lung function in children with cystic fibrosis.
http://predictfev1.com

`R Shiny`
Several R Shiny Applications.
http://colebrokamp.com/shiny

Awards and Memberships

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 - American Statistical Assocation	*2013 – 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 Cincinnatus Scholar Recipient	*2005 – 2010*

Leadership and Service

Journal Reviewer for:
Academic Pediatrics
Annals of Epidemiology
Environment Health Perspectives
Environment International

Environmental Modeling & Assessment
Environmental Pollution
Environmental Science & Technology
Health & Place
International Journal of Environmental Research and Public Health
Journal of Exposure Science and Environmental Epidemiology
Pediatrics
PLOS ONE
Stochastic Environmental Research and Risk Assessment
The Science of the Total Environment

Grant Reviewer for:
Puerto Rico Science, Technology & Research Trust *2017*
Arnold S. Strauss Fellowship Award, CCHMC Medical Center *2018*
University of Rochester Processes and Methods Grant *2018 – 2019*

Abstract Reviewer for:
International Societies of Exposure Science and Environmental Epidemiology Meeting *2018*

Member of Divisional Faculty Career Development Committee, CCHMC *2019*

Member of Divisional Strategic Plan Steering Committee, CCHMC *2017 – 2018*

Member of Divisional Research Committee, CCHMC *2017 – 2018*

Chair of the Ensemble Learning for Air Pollution Exposure Assessment Session,
International Society of Exposure Science Annual Meeting *2017*

Chair of the Land Use Regression Modeling Session,
International Society of Exposure Science Annual Meeting *2016*

Co-founded Biostatistics Student Journal Club,
Department of Biostatistics, University of Cincinnati *2013*

Student Representative to Graduate Education Committee,
Department of Pharmacology, University of Cincinnati *2010 – 2011*

Grant Support

Active

NIH/NINDS R01 NS030678
Comparison of Hemorrhagic & Ischemic Stroke Among Blacks and Whites
Kleindorfer, PI (04/01/15 - 03/31/20)
Tracking of population-based stroke incidence in the Greater Cincinnati and Northern Kentucky region, with special emphasis on stroke in the young and stroke recurrence.
Role: Biostatistician

Internal Processes and Methods Award - Center for Clinical & Translational Science & Training
Using Machine Learning to Supplement Electronic Health Record databases with Individual Socioeconomic Status
Brokamp, PI (9/1/17 - 6/30/19)
Retrospective epidemiological studies are often created using electronic health record databases. Although these records are "wide", they are not "deep" with respect to individual level demographic data. We propose a novel machine learning based approach that uses open city and auditor databases to predict individual level income and family socioeconomic status. This will solve the urgent problem of unconfounding for individual SES in the execution of EHR based research.
Role: PI

NIH 5UG3OD023282-02
Children's Respiratory Research and Environment Workgroup (CREW)
Gern, PI (9/01/2016 - 8/31/2023)
This consortium will identify asthma endotypes and overcome shortcomings of individual cohorts by providing a large (nearly 9000 births and long-term follow-up of 6000-7000 children and young adults) and diverse national data set, harmonizing data related to asthma clinical indicators and early life environmental exposures, developing standardized measures for prospective data collection across CREW cohorts and other ECHO studies, and conducting targeted enrollment of additional subjects into existing cohorts.
Role: Co-I

Ohio Department of Medicaid
Ohio Opioid Analytics Project
Hall, PI (5/14/18 - 5/30/19)
This project will develop and implement point-of-care predictive models to identify risk factors for opioid endpoints in order to guide clinicians and service delivery as well as identify interventions that can be used to implement public health policies.
Role: Co-I

NIH/NHLBI R01HL141286-01A1
Mapping Environmental Contributions to Rapid Lung Disease Progression in Cystic Fibrosis
Sczcesniak, PI (1/1/19 - 12/31/23)
The overall objective of this research is to leverage a rich CF registry, extant national and local environmental data sources, and prospectively collected study data to accurately forecast the onset of rapid decline progression.
Role: Co-I

NIH/NIA R21AG057983
A Novel Research Infrastructure Enabling Life-Course Studies of Healthy Aging
Woo/Urbina, PI (8/15/18 - 7/31/23)
The goal of this two-phase study is to develop the data and biospecimen infrastructure for the Bogalusa Heart Study, the Princeton Lipid Research Study and the NHLBI Growth and Health Study (R21 phase) and to conduct pilot evaluations of the feasibility, acceptability and validity of data collected using a variety of biometric sensors relating to cardiometabolic risk, sleep quality and cognition in these cohorts (R33 phase). These two phases will together prepare these cohorts for future aging-related studies.
Role: Co-I

AHRQ PEDSnet K12
Inpatient Screening for Parental Adversity and Resilience
Shaw, PI (1/1/19 - 12/31/20)
This award will work to establish and implement a screening approach for the assessment of parental adverse childhood experiences in the hospital setting.
Role: Co-I

Pending

Health Effects Institute New Investigator Award
Data-driven discovery of subpopulations susceptible to the health effects of air pollution
Brokamp, PI (10/1/19 - 9/30/22)
The overall objective of this application is to develop methods to identify subpopulations most susceptible to the health effects of air pollution using a database of over 35 individual- and community-

level susceptibility characteristics within both (1) a dataset derived from electronic health records in order to identify subpopulations susceptible to acute PM2.5-related risks of psychiatric, respiratory, and cardiovascular emergency department visits and (2) a population-wide administrative database of mother-infant dyads to identify subpopulations susceptible to chronic gestational PM2.5-related risks of low birth weight, preterm birth weight, and hospitalization during the first year of life.
Role: PI

NIH/NIMHD R01
Achieving Pediatric Health Equity by Responding to Identified Sociomedical risks with Effective Unified Purpose – Development and Evaluation of the RISEUP System
Beck, PI (9/1/18 - 8/31/23)
The objective of this project is to enhance and test an integrated medical-social monitoring and response system designed to meet the needs of patients and communities.
Role: Co-I

NIH/NIEHS R21ES030092
Developing and Evaluating Novel Strategies for Reporting Back Individual Results of Personal Air Monitors
Ryan, PI (12/1/18 - 11/30/20)
This project will work to develop new methods for reporting individual-level personal air pollution concentrations to study subjects to better help them understand the risk of air pollution and to modify their behavior to improve health outcomes.
Role: Co-I

NIH R01FD006021
Predictive Molecular Marks of Lung Function Decline in CF
Ziady, PI (3/1/19 - 2/28/24)
Given our compelling cross-sectional proteomic and statistical modeling data we propose to produce an algorithm for lung function decline that is based on the integration of longitudinal behavior of novel disease markers with novel Functional Data (FD) analysis of FEV1.
Role: Co-I

NIH R21 (AN:4179153)
Disparities in cancellation of children's surgery: a community-oriented, mixed methods study
Pratap, PI (04/01/2019 – 03/31/2021)
The objective is to generate a comprehensive set of actionable differences in contextual facilitators and barriers distinguishing disadvantaged communities with high and low cancellation rates.
Role: Co-I

ECHO Opportunities and Infrastructure Fund Award
Decentralized and Reproducible Geomarker Assessment for Multi-Site Studies
Brokamp, PI (09/01/2019 - 08/31/2021)
This award will work towards building geospatial exposure assessment computing tools for utilizing high resolution spatiotemporal gridded datasets within ECHO.
Role: PI

NIH NLM G08
Informing community action to reduce and eliminate health disparities: Community driven app development and evaluation (ICARE)
Parsons, PI (07/01/2019 - 06/30/2022)
Create and disseminate electronic health resources for individual-level resources and neighborhood level health disparities via iterative community driven development.
Role: Co-I

NIH NLM 1R01LM013222-01
A Framework for Automated and Reproducible Geomarker Curation and Computation at Scale
Brokamp, PI (12/1/19 - 11/30/23)
This award will create a framework for developing a standardized, free and open source library of reproducible and computable geomarkers that will enhance the efficiency and collaboration of biomedical researchers utilizing place-based data at scale.
Role: PI

NIH R03
Addressing Child Well-Being Disparities Through Community Partnerships
Riley, PI (7/1/19 - 6/30/21)
This award will enchance our understanding of families' needs and expectations of local child health resources and why families do or do not access these resources.
Role: Co-I

NIH R01
Air pollution, greenness, and breast cancer risk in the Breast Cancer Surveillance Consortium
Yaghjyan, PI (1/1/20 - 12/31/24)
This award will examine the associations of air pollution and breast cancer risk and if this relationship is mediated by breast density or greenness.
Role: Co-I

Internal Innovative Core Award - Center for Clinical & Translational Science & Training
From Electronic Health Records to Research Quality Data
Hall, PI (7/1/19 - 6/30/19)
This award will implement a generalizable process for streamlining extraction, cleaning, and loading of EHR data into REDCap databases along with automated integration of relevant measures of patient neighborhood characteristics.
Role: Co-I

NIH NIMHHD
Civically Activated Neighbors Voicing & Affirming Societal Health (CANVAS Health)
Beck, PI (7/1/19 - 6/30/21)
This award will quantify the intersection between civic engagement and child health outcomes and qualitatively ascertain how parents of low income children understand the connection between health and civic engagement.
Role: Co-I

Complete

Internal Arnold W. Strauss Fellowship Award - Cincinnati Children's Hospital
Assessing Exposure to Air Pollution Across Time and Space
Brokamp, PI (7/1/16 - 6/30/17)
The primary objective of this award is to combine satellite-based measurements, land use characteristics, and meteorologic data to create a hybrid spatiotemporal model for ground level exposure to particulate matter using exact addresses and dates.
Role: PI

Internal Processes and Methods Award - Center for Clinical & Translational Science & Training
Validating a Geocoding Approach for Multi Site Studies
Brokamp, PI (1/24/17 - 6/30/17)

The primary objective of this award is to compare the geocoding (assigning latitude and longitude coordinates to addresses) accuracy of our software DeGAUSS (DEcentralized Geomarker Assessment for mUlti Site Studies) to with other common geocoding software. Furthermore, each method will be evaluated based on it ability to correctly estimate environmental exposures and community-level characteristics.
Role: PI

NIH/NIEHS 1R01ES019890-01
Neurobehavioral and Neuroimaging Effects of Traffic Exposure in Children
Ryan, PI (7/1/12 - 3/31/18)
The association between exposure to traffic-related air pollutants (TRAP) during early childhood and neurobehavioral and neuroimaging outcomes has not been thoroughly examined. The objective of the proposed study is to determine if children exposed to increased levels of TRAP during critical time periods of brain development have altered neurobehavior in childhood as measured by a battery of valid and reliable tests and to assess the physiologic impact of TRAP exposure on brain structure, organization, and function using quantitative magnetic resonance imaging (MRI). These results will fill important gaps in current scientific knowledge related to the relationship between TRAP exposure and neurobehavior and central nervous system effects.
Role: Biostatistician

NIH 5K23AI121325
Biomarkers and Risk Stratification in Pediatric Community
Florin, PI (01/01/16 - 12/31/19)
The extensive variation in care, in addition to the lack of evidence-based decision aids, highlights the critical need for an improved understanding of disease severity and tools to guide management for pediatric CAP. The proposed research will address this important knowledge and practice gap.
Role: Biostatistician

NIH U01HG008666
EMERGE: Better Outcomes for Children: Promoting Excellence in Healthcare Genomics to Inform Policy
Harley, PI (09/01/15 - 05/31/19)
We have developed algorithms for the electronic health record (EHR), led the Pediatric Workgroup, developed pharmacogenomics, evaluated the preferences of parents and caregivers to advance genomic medicine and assimilated technical advances into our EHR. The eMERGE effort has become the basic fabric of the institutional initiative to incorporate the extraordinary advances of genetics, genomics and the electronic medical record into healthcare.
Role: Biostatistician

Internal ARC - Cincinnati Children's Hospital
Mother Infant Data Hub
Marsolo, PI (7/1/15 - 7/1/18)
The goals of this award are to create a research database of comprehensive clinical coverage for neonates born throughout the greater Cincinnati area including linkage of medical records to external data sets at the individual- and area-level during the first year of life.
Role: Biostatistician

Internal ARC - Cincinnati Children's Hospital
CARPE DIEM
Ambroggio, PI (7/1/15 - 7/1/18)
The goals of this award are to develop a diagnostic tool based on the urinary metabolome that can differentiate between viral and bacterial community-acquired pneunomia in children.
Role: Biostatistician

Internal - University of Cincinnati
Epidemiology of Rural/Urban Disparities in Stroke
Jasne, PI (1/1/17 - 6/31/17)
The goal of this project is to identify stroke incidence disparities among rural and urban geographic areas.
Role: Co-I

HEI 4784-RFA08-1/09-5
Analysis of Personal and Home Characteristics Associated with the Elemental Composition of PM2.5 in Indoor, Outdoor, and Personal Air in the RIOPA Study
Ryan, PI (12/1/12 - 11/30/13)
The purpose of this study is to assess the relationship between concurrent measurements of the elemental composition of PM2.5 in indoor, outdoor, and ambient air and the elemental composition of indoor, outdoor and personal air across individuals and cities. The study will also identify personal, home, and environmental factors significantly associated with specific elements or clusters of elements in PM2.5.
Role: Biostatistician