Dr. Hongying (Daisy) Dai
Curriculum Vitae

Contact Information

Department of Biostatistics
College of Public Health
University of Nebraska Medical Center
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Employment

Associate Professor   *2018 – Present*
Department of Biostatistics, College of Public Health
University of Nebraska Medical Center

Associate Member, University of Nebraska Cancer Center   *2018 - Present*
Full member, University of Kansas Cancer Center   *2018*

Associate Professor   *2015 – 2018*
Assistant Professor   *2009 – 2015*
Department of Biomedical & Health Informatics, UMKC
Department of Pediatrics, University of Missouri Kansas City (UMKC)

Research Faculty   *2009 – 2018*
Division of Health Services & Outcomes Research
Department of Medical Research, Children's Mercy Research Institute

Assistant Professor in Statistics
Department of Mathematics, Columbus State University   *2006 – 2008*

Research Funding

Current Research Support

76985   Dai (PI) $233,688   11/1/2019-10/31/2021
Robert Wood Johnson Foundation
A Community Data-Driven Policy Analysis Framework to Promote Tobacco 21 In The United States
This will be the first study to comprehensively assess community-level health equity related to T21 adoption (Aim 1) and impact on youth tobacco use behaviors (Aim 2) through linkage of large-scale national and community data at the zip code level. We propose a novel CDPF to optimally diffuse the effects of T21 through a mixed-method (Aim 3). We will first develop small area modeling (SAE) to estimate the T21 impacts at the local level, and then conduct semi-structured interviews with key stakeholders to identify gaps and opportunities in T21 implementation.
Role: Principal Investigator

R03CA228909   Dai (PI) $165,165   9/14/2018-8/31/2020
NIH/FDA
Effects of the FDA Compliance Inspections of Tobacco Retailers on Youth E-cigarette and Cigar Use: A National Study
This study will develop advanced statistical models and assess the impacts of the FDA retail compliance inspections on youth cigar and e-cigarette use behaviors (e.g., ever, current, and frequency of use). Results from this study are expected to inform appropriate retail compliance inspection strategies and further expand our knowledge of the potential impacts of regulatory actions on youth e-

cigarette and cigar use behaviors.
Role: Principal Investigator

33-FY17-5128   Dai & Catley (PI) $155,398   6/15/2017-6/14/2020
Health Forward Foundation
Impacts of Kansas City Area Tobacco 21 Initiative
The purpose of this proposal is to assess the impact of Tobacco 21 by conducting an annual survey (for 3 consecutive years) of tobacco use, attitudes and awareness of the Tobacco 21 initiative, perception of tobacco harmfulness, and sources of nicotine/tobacco product acquisition in targeted high schools students that are within and outside of cities with Tobacco 21 policies.
Role: Principal Investigator

                                Dai (PI) $20,000   7/1/2019/-6/30/2020
University of Nebraska Collaboration Initiative Planning Grant
"NO ENDS" – Collaborative Research towards Developing a Multifaceted Program in Prevention of Youth Vaping
The tobacco use landscape among youth has substantially changed with fewer adolescents smoking cigarettes and more adolescents vaping e-cigarettes. This study will develop a novel optimization design for a scalable and multifaceted school-based youth vaping prevention program.
Role: Principal Investigator

Innovation Fund   Dai (PI) $25,000   2/1/2020-1/31/2021
College of Public Health
A Feasibility, Acceptability, and Fidelity Study of School-Based Youth Vaping Prevention Program in Rural and Urban Nebraska
The prevalence of current e-cigarette use ("vaping") among U.S. youth substantially increased from 2017 to 2018,1 with high school and middle school students reporting 48.5% and 77.8% increases, respectively. School is an important venue to educate and prevent youth from substance use. The overarching goal of this study is to design, test, and measure a scalable and multi-faceted school-based youth vaping prevention program.

U54GM115458   Rizzo (PI) $19,705,557   10/1/2018-06/30/2021
NIH/DHHS/NIGMS
Great Plains IDeA-CTR
The aim of the RIISCC model is to reduce readmissions and emergency room visits in high-risk, high-utilization, and high severity diabetic patients; thus improving quality of care and reducing cost. This program will focus on Innovation Category Four- to improve the health of populations through better prevention efforts, and will have a specific focus on underserved populations. The purpose is to develop and test a new care delivery and payment model utilizing telehealth strategies for targeted case management.
Role: Co-Investigator / Mentor

3U54HD061939-10S1   Rizzo (PI) $478,254   10/1/2018-9/30/2019
NIH/ NCATS
Sterol and Isoprenoid Diseases Consortium Supplement 2018
Sjögren-Larsson syndrome is a rare genetic disease that is characterized by congenital ichthyosis, spasticity, intellectual disability and a distinct retinopathy. It is caused by mutations in a gene called *ALDH3A2* and results in abnormal lipid metabolism. The pathogenic mechanisms that are responsible for the symptoms are still not defined. The proposed research will investigate whether a distinctly abnormal group of biochemicals in the blood, which constitute a "metabolomics profile", will correlate with the severity of symptoms in patients and thereby act as an objective biomarker for disease severity.
Role: Co-investigator / Biostatistician

R21DC018110   Wang (PI) $460,356   07/01/2019 – 06/30/2022
Neural Predictors of Speech Perception Outcomes in Adults with Cochlear Implants
NIH/NIDCD
Although cochlear implants (CIs) can significantly improve auditory speech perception, their success rate is highly variable across CI users. The proposed project will identify pre-surgical neural and behavioral measures that predict post-surgical CI outcomes and elucidate how brain reorganization occurs before and after implantation, which will ultimately support better post-surgical planning and the optimization of aural rehabilitation plans for CI candidates.
Role: Co-investigator / Biostatistician

                     Guenzel (PI) $49,989   7/1/2019-6/30/2020
UNMC Health Disparities Pilot Grant
Peer Recovery Coaches to Help Native Americans Recovering from Addiction
Addiction devastates American Indian (AI) communities across the country. One promising solution is training AI peer recovery coaches (PRCs) who have overcome addiction, allowing them to relate to struggling individuals. We believe AI PRC services will be associated with a significantly lower rate of relapse providing support for more widespread training and employment of PRCs in AI communities.
Role: Co-investigator

GOLDSW18A0-1   Goldsweng (PI) $48,611   07/01/2019 – 06/30/2020
Measurement of Beta Cell Death in Individuals with Cystic Fibrosis
Systic Fibrosis Foundation
This study evaluates the feasibility of using differentially methylated insulin DNA, a biomarker of beta cell death, in determining the time course of beta cell death and development of diabetes in people with cystic fibrosis. If this assay successfully detects beta cell death in individuals with CF, the investigators can identify critical time points of beta cell loss in people with CF.
Role: Co-investigator / Biostatistician

Completed Research Support

R01DK107490   Srivastava (PI) $2,006,845   8/27/2016-8/04/2018
NIH/NIDDK
Targeting PGE2 Receptors to attenuate shear stress-induced glomerular injury.
The study is investigating the role of biomechanical forces in hyperfiltration-mediated glomerular injury, and how one can attenuate the injury by targeting prostanoid receptors. The study also is evaluating biomarkers that can be used in clinical trials addressing hyperfiltration-mediated injury in children.
Role: Co-Investigator

R01DK100779   Patton (PI) $1,776,142   8/1/2014-8/04/2018
NIH (NIDDK)
Longitudinal test of adherence &control in kids new to T1 diabetes &5-9 yrs old
Summary: The proposed study aims to 1) prospectively identify adherence and glycemic trajectories in families of 5-9 year-olds with new-onset T1DM; 2) identify modifiable parent, child, and family behavior factors that serve as barriers or facilitators of adherence and glycemic trajectories in these families; 3) perform initial efficacy and feasibility testing of a prototype
education plus behavioral intervention to improve health outcomes in these children.
Role: Co-Investigator

                     Raje (PI) $141,632   7/1/2015-6/30/2018
New Investigator Award, Children's Mercy
Noncoding RNA and phenotypic variation in chromosome 22q11.2 deletion syndrome
This study promises to advance the limited knowledge about the role of long non-coding RNAs in immune deficiencies. The findings from this study will lead to new ideas for future –omics research to determine the role of epigenetic factors like non-coding RNA in immune deficiencies, particularly

22qDS.
Role: Co-Investigator

Burgert (PI) $140,000   7/1/2015-6/30/2018
Katharine Berry Richardson, Children's Mercy
The Effect of Treating Insulin Resistance & Androgen Excess on Metabolic and Neuro-functional Aspects of Adolescent PCOS
Polycystic Ovarian Syndrome (PCOS) is the most common endocrinopathy in adolescent females and also one of the most complex. Prior to treatment and 6 months post treatment initiation, we will conduct structural and functional magnetic resonance imaging (MRI) with participants.
Role: Co-Investigator

U19HD077693   Kingsmore (PI) $5,000,000   9/5/2013-12/31/2016
NIH (NICHD/ NHGRI)
Clinical and social implications of 2-day genome results in acutely ill newborns
Summary: The proposed study aims to increase scientific knowledge of whole genome sequencing (WGS) for acutely ill neonates. The proposed clinical study is a prospective, randomized, partially blinded study which has both quantitative and qualitative assessments of the risks and benefits of the use of STATseq, a 2-day genome test, in acutely ill neonates at Children's Mercy Hospital. Study participants include neonates, their parents and clinicians caring for them.
Role: Co-Investigator / Biostatistician

                         Shakhnovich (PI) $100,000   1/1/2013 - 8/31/2017
Marion Merrell Down Fund, Children's Mercy
Effect of obesity on pantoprazole pharmacokinetics and CYP2V19 activity in children and adolescents with GERD: a pilot study.
The proposed study will examine the effect of obesity on the metabolism of a commonly used medication, the proton pump inhibitor pantoprazole, by exploring the relationships between age, obesity, basal metabolic rate and genetic control of the enzyme primarily responsible for pantoprazole metabolism (CYP2C19).
Role: Co-investigator

MOHHU0016-13   Kennedy (PI) $748,000   11/01/2013 – 10/31/2017
Housing & Urban Development (HUD) Healthy Home Technical Studies Grant
Through this effort, KC-HEART will attempt to provide significant advancement in knowledge about the relationship between basic housing conditions and their relationship to the health of occupants as well as new knowledge about the relationship between outdoor and indoor environmental characteristics of homes and the methods and data collected to assess these hazards.
Role: Co-Investigator

W81XWH-14-1-0374   Talebizadeh (PI) $148,000   9/30/2014-9/29/2016
Department of Defense
Autism and Obesity: Co-Occurring Conditions or Drug Side-Effects?
The objective of this pilot project is to better understand the relationship between autism and obesity. Despite recent suggestive links between autism and obesity, it is not clear if obesity is co-occurring with autism or is related to antipsychotic-induced weight gain (AIWG). Weight gain is one of the main side-effects of the commonly used antipsychotics. Since the majority of patients with autism take antipsychotics, a *general assumption* is that the observed elevated rate of obesity in autism (i.e., 40%) is caused by AIWG. Our hypothesis is that the prevalence of known AIWG associated SNPs in obese and non-obese autistic subjects is comparable; thus, AIWG cannot be
the only reason for the observed higher rate of obesity.
Role: Co-Investigator

Lyman (PI) $5,000   7/1/2015-6/30/2016
Jonathan Rhoads Foundation from ASPEN
Enteral Feeding Set Handling Techniques: A Comparison of Bacterial Growth, Nursing Time, Labor, and Material Cost
This study compared 3 different methods of handling enteral formula delivery sets in between bolus feedings. This study done on nursing units but not with patients demonstrated the use of a ready to hang product or refrigeration of the enteral delivery set to be comparable in terms of nursing time, cost of supplies, and bacterial growth.
Role: Biostatistician

Yin (PI) $200,000   7/1/2014-6/30/2016
Marion Merrell Dow Award
Genetic variation and variability in posaconazole pharmacokinetics in children
The main goal of this study is to see how the body breaks down an antifungal drug named posaconazole in children with certain cancers, blood disorders, or transplantation of bone marrow or similar blood cells. This study will also help us learn whether a child's age, genetics, or disease affect how well the body breaks down posaconazole.
Role: Biostatistician

                                        Raman (PI)   3/1/2013-2/28/2014
Frontiers: The Heartland Institute for Clinical and Translational Research
Role of HbA1c Variability in Risk Prediction Models for Diabetes Mellitus (DM) Neprhopathy in Children with Type I Diabetes
To test the hypothesis that HbA1c variability, as measured by standard deviation (SD), is associated with increased risk for incident microalbuminuria and persistent microalbuminuria in pediatric type 1 diabetes (T1D).
Role: Co-Investigator

                                  Bartholomew (PI) $50,000   6/1/2014-5/31/2015
Kansas City Area Life Sciences Institute
Feasibility of Outpatient High Dose Methotrexate Infusions in Pediatric Patients with B-Lineage Acute Lymphoblastic Leukemia
This pilot aimed to assess the feasibility of a 24hour continuous home methotrexate infusion in adherence to best care practices established by a MTX clearance algorithm while ensuring high level supportive care in a cost effective manner for children with ALL.
Role: Co-Investigator

                                    McCulloh (PI) $50,000   1/1/2014 – 12/31/2015
The Katharine Berry Richardson (KBR) Award
A national assessment of the microbiology, epidemiology, and resource utilization in infants hospitalized for suspected serious bacterial infection (SBI)
Role: Biostatistician

R01AR061513   Connelly (PI) $2,047,717   9/15/2011-6/30/2016
NIH (NIAMS)
WEBSMART: Efficacy and Web-based Pain Self-management for adolescents with JIA.
There is a critical gap in the contemporary treatment of Juvenile Idiopathic Arthritis (JIA) wherein a majority of adolescent patients still experience ongoing pain even with treatments. The project will develop an online training program to produce superior improvements in pain and health-related quality of life outcomes for adolescents with JIA.
Role: Co-Investigator

                                  Abhyankar and Dalal (PI)   12/4/2009 -6/30/2015
Midwest Cancer Alliance

Chronic Graft versus Host Disease Treated with Extracorporeal Photopheresis
Role: Biostatistician

	Talebizadeh (PI)	$50,000	7/1/2013 – 6/29/2014

Kansas City Area Life Sciences Institute
Analysis of circadian genes in autism: characterization of alternative splicing profile of JARID1 genes
Role: Biostatistician

	Ciaccio (PI)	$20,000	1/1/2013 – 12/31/2013

Paul Henson Award (Children's Mercy Hospital)
The Impact of Dietary Fatty Acids on the Development of Food Allergic Sensitization
The objective of this study is to determine the effect of dietary fat consumption during pregnancy on the development of allergic sensitization to food allergens in offspring. The central hypothesis is that a diet low in n-3-polyunsaturated fatty acids and/or high in saturated fats during pregnancy will lead to an increased risk of food allergic sensitization.
Role: Biostatistician

HHSN267200603421C & N01-DK-6-3421	Brunstrom (PI)	$549,528	8/1/2007-6/30/2011

NIH
Use of Oral Baclofen for Treatment of Spasticity of Cerebral Palsy in Children
Cerebral palsy (CP) is a disorder that affects muscle tone, movement, and motor skills and is usually caused by brain damage that occurs in the early stage of a child's life. This is a multicenter study of oral baclofen for the treatment of spasticity in children with CP.
Role: Biostatistician

Study Sections

[1] NIH Review for Special Emphasis Panel ZRG1 BST-W (55): Tobacco Regulatory Science – Behavioral. May 20, 2019

[2] NIH Review for Dissemination and Implementation Research in Health (DIRH) Study Section. June 12-13, 2019

[3] NIH Review for Dissemination and Implementation Research in Health (DIRH) Study Section, October 23-24. 2019

[4] NIH Review for Special Emphasis Panel ZRG1 RPHB-U (56) entitled PAR: Electronic Nicotine Delivery Systems (ENDS): Population, Clinical and Applied Prevention Research. November 18, 2019

Consulting Positions, Editorial Duties and Review Services

[1] Associate Editor for Journal of Applied Statistics (2019-) [Impact Factor=0.7]

[2] Associate Editor for 'BMC Public Health' (2018 -) [Impact Factor=2.6]

[3] Editorial Board Member for 'Frontiers in Genetics' (2011 -)

[4] Editorial Board Member for 'JP Journal of Biostatistics' (2010 –)

[5] Editorial Board Member for 'Journal of Biometrics & Biostatistics' (2012 - 2016)

[6] Referee for New England Journal of Medicine, Biostatistics, Frontiers in Bioengineering and Biotechnology, IEEE/ACM Transactions on Computational Biology and Bioinformatics, Frontiers in Genetics, Computers in Biology and Medicine, Medical Science Monitor, Journal of Data Science, Journal of Probability and Statistical Science, Journal of Statistical Theory and Practice, Journal of Statistical Planning and Inference, Journal of Biometrics & Biostatistics, Tobacco Control, Nicotine and Tobacco Dependence, Drug and Alcohol Dependence, Journal of Adolescent Health, Behavioral Sleep Medicine, Addictive Behaviors, American Journal of Preventive Medicine, Tobacco Induced Disease.

[7] 2019: Review Panel member for health disparities pilot grant, UNMC

[8] 2019: Review Panel member for Suzanne and Ward Chambers Global Health Fellowship Evaluation

[9] Judge for the resident/fellow poster sessions in the 5th Annual Vijay Babu Rayudu Quality & Patient Safety Day, University of Missouri Kansas City, May 11, 2018.

[10] Judge for the oral presentations at CMH Research Days May 15-17, 2018.

[11] Judge for the 9th Annual Quality Poster Session scheduled for Thursday, The Center for Clinical Effectiveness, October 19th 2017, in the Medical Office Building (MOB)

[12] External reviewer for the Arkansas Children's Hospital Research Institute special grant, 2017

[13] Serve on the interview panel for 2015 B.A./M.D. program in School of Medicine at University of Missouri Kansas City.

[14] Special Emphasis Panel member for the spring 2010 competition for clinical scholar awards Reviewer for Katharine B. Richardson (KBR) Foundation Award.

[15] Special Emphasis Panel member for the spring 2010 competition for clinical scholar awards Reviewer for Young Investigator Award in Clinical/Translational Research

Military Service: None

Honors and Awards

2017   Research Impact Award, Children's Mercy Research Institute

2016   Honorarium and Travel Award for an invited presentation at the 2016 SOCN New Data Linkages Conference (sponsored by NSF)

2014   Travel Award for the Beyond Bioinformatics Opening Workshop, Statistical and Applied Mathematical Sciences Institute (NSF, Duke, NCSU, UNC, NISS)

2014   Travel Award for 2014 Conference on Nonparametric Statistics for Big Data

2013   Travel Award for 2013 ENAR Workshop for Junior Researchers in Biostatistics

2012   Bursary Award for research collaboration, issued by 1st Short Course on Statistical Genetics and Genomics, University of Alabama at Birmingham

2011   Travel Award for NIH Funded 1st Short Course on Statistical Genetics and Genomics, University of Alabama at Birmingham

2006   Biopharmaceutical Student Paper Competition Award (first place), Joint Statistical Meeting of American Statistical Association

2006   R.L. Anderson Award for Best Student, Department of Statistics, University of Kentucky

Professional Memberships

American Statistical Association
The Society of Nicotine and Tobacco Research (SNRT)
The International Biometric Society: The East North American Region (ENAR)

Service in Committee

- 2019-: Research & Development Committee member, College of Public Health, UNMC
- 2019-: Ph.D. Admission Committee Chair, Department of Biostatistics, UNMC
- 2019-: Curriculum Committee member, Department of Biostatistics, UNMC
- 2019-: Exam Committee member, Department of Biostatistics, UNMC
- 2019-: Committee member of COPH cancer workgroup for the Center for Cancer Prevention and Population Science (CCPPS), UNMC
- 2018-: Committee member for Data and Safety Monitoring Committee at the Buffett Cancer Center,

UNMC

- 2018: Search Committee member for Chair, Department of Biostatistics, COPH, UNMC.
- 2014 – 2018: Committee member for medical project review system at CMRI
- 2015: Interview Panel member for B.A./M.D. program in School of Medicine at University of Missouri Kansas City.

Presentations (selected from 109 presentations) * Mentee, # Mentor, & Committee Member

[1] **Dai H**. "Modeling Retail Violation of FDA Compliance Inspections", Oral Presentation at 2019 The National Conference on Tobacco or Health (NCTOH), Minneapolis, MN, August 27-29, 2019.

[2] Appiah A*, Haynatzki G&, **Dai H#.** "H-Likelihood Estimation for Survival Analysis with Log-Skew-Normal Shared Frailty", Contributed Oral Presentation at 2019 Joint Statistical Meeting, Denver, CO, August 1-6, 2019.

[3] Bisslou K*, **Dai H&**, Haynatzki G#. "Hierarchical Likelihood Approach for Joint Models of Longitudinal Non-Survival Responses and Survival Data: a Semiparametric Model with Gamma Shared Random Effects", Contributed SPEED Talk at 2019 Joint Statistical Meeting, Denver, CO, August 1-6, 2019.

[4] **Dai H.** "The Impact of Assurance of Voluntary Compliance on Retail Sales to Minors", Invited Oral Presentation, 2019 Tobacco Policy and Responsible Retailing Conference, National Association of Attorneys General, Tampa, FL, May 6-8, 2019.

[5] Guo I*, Noel-MacDonnell J, Chew W*, Lee B, **Dai H#**. "Can Social Media Reliably Predict Trends in Pediatric Asthma-related Emergency Department Visits?" poster presentation at American Academy of Allergy Asthma & Immunology, San Francisco, CA, February 22-25, 2019.

[6] **Dai H**, Chaney L, Ellerbeck E, Cupertino P, Friggeri R, White N, Catley D. "Youth Knowledge of Minimum Legal Age to Purchase Tobacco Products and Its Association with Susceptibility to Tobacco Use", poster presentation at Society For Research On Nicotine and Tobacco (SRNT), San Francisco, CA, February 20-23, 2019.

[7] **Dai H**, "Changes in Flavored Tobacco Product Use among Current Youth Tobacco Users in the United States: 2014 – 2017", poster presentation at Society For Research On Nicotine and Tobacco (SRNT), San Francisco, CA, February 20-23, 2019.

[8] Herath S, **Dai H**, Au A, Taylor K, Succar L, Endre Z, Erlich J. "Validation of housekeeper genes for normalisation for RT-qPCR gene expression studies in ischaemic and toxicological conditions in rat models" **scientific award** and oral presentation, the Australia New Zealand society of nephrology conference, September 10 – 13, 2018. [The study compared our novel statistical method with existing methods and perform biological validation]

[9] **Dai H**, "Effects Of Tobacco 21 On Underage Sales Violation In California: 2015-2017", oral presentation at Society For Research On Nicotine and Tobacco (SRNT), Baltimore, MD, February 21-24, 2018.

[10] **Dai H**, Chaney L, Ellerbeck E, Cupertino P, Friggeri R, White N, Catley D. "A quasi-experimental study of the effect of Tobacco 21 on Youth Smoking Prevalence in Kansas", poster presentation at Society For Research On Nicotine and Tobacco (SRNT), Baltimore, MD, February 21-24, 2018.

[11] **Dai H**, Catley D "FDA Compliance Inspections on Retail Sales to Minors of Cigars and Electronic Cigarettes in the United States: 2016-2017", poster presentation at the 5th Annual VCBH Conference on Tobacco Regulatory Science, Burlington VT, October 4-6, 2017.

[12] Noel-MacDonnell J*, **Dai H#**, Lee B. Utilization of Multi-level Data to Forecast Asthma Related Emergency Department Visits. 2nd Annual Midwest Bioinformatics Conference, Kansas City, MO, April 13-14, 2017.

[13] **Dai H**, Wu G, Wu M, Zhi D. "An Optimal Bahadur-efficient Method in Detection of Sparse

Signals with Applications to Pathway Analysis in Sequencing Association Studies", oral presentation at Innovations in Design, Analysis, and Dissemination: Frontiers in Biostatistical Methods – KS-Western MO Chapter of ASA Annual Symposium, Kansas City, MO, April 28 - 29, 2016.

[14] **Dai H**, Lee B, Hao J. "Predicting the Community Level Burden of Asthma Using Novel Linkages of Social Media, Social Economic and Air Quality Sensor Data", invited oral presentation at the SOCN New Data Linkages Conference, Washington DC, March 24-25, 2016.

[15] **Dai H**, Deem M, Hao J. "Socioeconomic Disparities In Marketing Of Electronic Cigarettes On Twitter", poster presentation at SRNT, Chicago, IL, March 2-5, 2016.

[16] Charnigo R, Fan Q, Yoshida R, Drton M, **Dai H**. "Altered Singular Bayesian Information Criteria for Bivariate Mixture Models", contributed oral presentation at ENAR, Austin TX, March 6 - 9, 2016.

[17] **Dai H**. "Compound Hierarchical Correlated Beta Mixture with an Application to Cluster Mouse Transcription Factor DNA Binding Data", invited oral presentation at First Annual Bioinformatics Conference, Kansas City, MO, October 15 - 16, 2015.

[18] **Dai H**. "D_CDF Test of Negative Log Transformed P-values with Application to Genetic Pathway Analysis", invited oral presentation at 2015 IMS-China International Conference on Statistics and Probability, Kunming, China, July 1 - 4, 2015.

[19] **Dai H,** Charnigo R. "Test of Negative Log Transformed P-values with Application to Genetic Pathway Analysis", invited poster presentation at the Beyond Bioinformatics Opening Workshop, Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC, September 8-12, 2014.

[20] **Dai H,** Charnigo R. "Test of Negative Log Transformed P-values with Application to Genetic Pathway Analysis", invited poster presentation at 2014 Conference on Nonparametric Statistics for Big Data, Madison, Wisconsin, June 4-6, 2014.

[21] **Dai H,** Charnigo R. "Test of Negative Log Transformed P-values with Application to Genetic Pathway Analysis", invited oral presentation at Innovations in Design, Analysis, and Dissemination: Frontiers in Biostatistical Methods – KS-Western MO Chapter of ASA Annual Symposium, Kansas City, MO, April 24 - 25, 2014.

[22] Fan Q, **Dai H**, Charnigo R. **"**Bilaterally Contaminated Normal Model with Nuisance Parameter and Its Applications", oral presentation at 2014 ENAR, Baltimore MD, March 16 - 19, 2014.

[23] Zhou F, **Dai H**, Charnigo R. "An EM Test for the Contaminated Chi-Square Model", oral presentation at 2014 ENAR, Baltimore MD, March 16 - 19, 2014.

[24] Charnigo R, Zhou F, and **Dai H**. "The Contaminated Chi-Square Model and Its Application to Microarray Data Analysis", Biometrics conference (2nd International Conference and Exhibition on Biometrics & Biostatistics), Hilton Chicago/Northbrook, June 10-12, 2013.

[25] **Dai H,** Charnigo R, Vyhlidal C, Jones B, Bhandary M. "Mixed Modeling and Sample Size Calculations for Identifying Housekeeping Genes", Oral Presentation at Innovations in Design, Analysis, and Dissemination: Frontiers in Biostatistical Methods – KS-Western MO Chapter of ASA Annual Symposium, Kansas City, MO, April 18-19, 2013.

[26] **Dai H**, Charnigo R, Vyhlidal C, Jones B, Bhandary M. "Mixed Modeling and Sample Size Calculations for Identifying Housekeeping Genes in RT-PCR Data", poster presentation at 2013 ENAR, Orlando FL, March 10-13, 2013.

[27] **Dai H,** Charnigo R, Becker M, Leeder S. "Epistasis Enriched Network and Risk Score Modeling of Continuous Multifactor Dimensionality Reduction", Oral Presentation at ENAR, Washington DC, April 1-4, 2012.

[28] **Dai H**. "Incorporating Global Tests of P-values in Multifactor Dimensionality Reduction Models for Genotyping Data", invited talk at the 18th Annual Biopharmaceutical Applied Statistics Symposium (BASS XVIII), Savannah, GA, November 7-11, 2011.

[29] Charnigo R, Fan Q, **Dai H**. "The Doubly Contaminated Normal Model and Its Application to Microarray Data Analysis", contributed talk at the Joint Statistical Meetings (JSM), Miami, FL, July 30-August 4, 2011.

[30] Kharod A, **Dai H**, Raghuveer G. "Pre-Hypertensive Children Have Similar Cardiac Sequelae as Hypertensive Children", platform presentation at the Pediatric Academic Societies' & Asian Society for Pediatric Research (PAS/ASPR) Joint Meeting, April 30-May 3, 2011.

[31] **Dai H** "Epistasis Enriched Network and Risk Score Modeling of Continuous Multifactor Dimensionality Reduction", invited talk at Department of Mathematics and Statistics, University of Missouri at Kansas City, April 22, 2011.

[32] **Dai H**. "Incorporating Global Tests of P-values in Multifactor Dimensionality Reduction Models for Genotyping Data", contributed talk at ENAR, Miami, FL, March 20-23, 2011.

[33] **Dai H** "Omnibus testing in detection of gene variation patterns", invited talk at Department of Mathematics and Statistics, University of Missouri at Kansas City, December 3, 20110.

[34] **Dai H**, Richard Charnigo. "Testing Contamination in Normal Mixtures with Application in Microarray Experiments" Contributed Talk at WNAR, Seattle, WA, June 22, 2010.

[35] **Dai H**, Herskovic J, Anton M. "Comparison of Experimental Designs and Measurement Types: Two Satiety Case Studies" Poster at Innovations in Design, Analysis, and Dissemination: Frontiers in Biostatistical Methods – 3rd KS-Western MO Chapter of ASA Annual Symposium, Kansas City, MO, April 8, 2010.

[36] **Dai H** and Charnigo R. "Omnibus Testing and Gene Filtration in Microarray Data Analysis" Contributed Talk at MAA-SE, Statesboro, GA, March 16, 2007.

[37] **Dai H** and Charnigo R. "L^2-Based Homogeneity Tests for Mixtures with Structural Parameters" Contributed Talk at ENAR, Atlanta, GA, March 13, 2007.

[38] **Dai H** and Charnigo R. "Testing Homogeneity in Finite Mixtures and Mixture Regression Models" Contributed Talk at the ENAR, Tampa, FL, March 27, 2006.

[39] **Dai H** and Charnigo R. "Estimation and Testing Procedures in General Contamination Models" Invited talk at SCMA 2005/ FIM XII International conference on Statistics, Combinatorics, Mathematics and Applications, Auburn, Alabama, December 4, 2005.

[40] **Dai H** and Charnigo R. "L^2-Based Homogeneity Tests for Mixtures with Structural Parameters" Contributed Talk at the Joint Statistical Meetings, Minneapolis, MN, August 8, 2005.

Community Service and Media Outreach

November 2019. ASPPH (Association of Schools & Programs of Public Health) reported "UNMC: Prevalence of E-Cigarette Use Among Adults in the United States, 2014-2018".

September 2019, written testimony of health effects of e-cigarette aerosol for Nebraska Legislature, Health and Human Services Committee Hearing on LR 173 – An interim study to examine health concerns related to the public use of and secondhand exposure to electronic nicotine delivery systems.

September 2019, Media interviews on "A National Survey of Marijuana Use among US Adults with Medical Conditions: 2016-2017" published in JAMA Network Open, including, Altmetric, phillyvoice.com, reuters.com, MedicalResearch.com, HealthDay, reposted at medicalxpress.com, drugs.com, physiciansbriefing.com, doctorslounge.com, empr.com.

September 2019, Media interviews on "Prevalence of E-Cigarette Use among Adults in the United

States, 2014-2018." published in JAMA, including Altmetric, Digital Journal, Vox.com, Medical Health News, and MedicalResearch.com.

August 2019, APPPH (Association of Schools & Programs of Public Health) reported: UNMC: Study Highlights Importance of Marijuana Prevention Among Youth

August 2019, Expert commentary on "Teen vaping tied to marijuana use", *Reuters*, reposted at *Yahoo News*, *Physician's Weekly*, *WeatherHerald, AsianAge, DeccanChronicle, iAfrica.*

June 2019, Media interview on "Trends in Single, Dual, and Poly use of Alcohol, Cigarette, and Marijuana among U.S. High School Students: 1991-2017." Published in *American Journal of Public Health*. This study received multiple media citations: *Altmetric, AJPH Research, ASPPH (Association of Schools & Programs of Public Health), HealthDay.com, reposted at UPI.com, WebMD.com, Sheknows.com, Medicinenet.com, Yahoo.com, USNews.com, and Drugs.com, PR Industry News, Healthline.*

May 2019. ASPPH (Association of Schools & Programs of Public Health) reported *the study "Association of Electronic Cigarette Vaping and Subsequent Smoking Relapse Among Former Smokers"* published in *Drug and Alcohol Dependence.*

February 2019, E-cigarette use among teens is on the rise UNMC's Hongying Dai, Ph.D., publishes data analysis of the National Youth Tobacco Survey.

January 2019. Media interview on "*Hookah smoking increasing in popularity according to CDC*". Omaha KMTV News Now.

January 2019, six media interviews on "Changes in Flavored Tobacco Product Use among Current Youth Tobacco Users in the United States: 2014 – 2017" published in *JAMA Pediatrics*, including *Reuters, MedicalResearch, MEDPAGETODAY, United Press International, MD Magazine*

October 2018, UNMC: E-cigarette, cigar use among youth focus of study - Hongying Dai, Ph.D., associate professor of biostatistics, UNMC College of Public Health, will conduct the NIH-funded study. (https://www.unmc.edu/news.cfm?match=22780&pk_campaign=email&pk_kwd=Ecigarette_cigar_use_among_youth_focus_of_study)

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March 2017, Media interview on "Tobacco Product Use Among Lesbian, Gay, and Bisexual

Adolescents" published in *Pediatrics.* This study received multiple media citations, including *Altmetric, Reuters, Physician's Briefing, International Business Times, Huffington Post, Health Newsline, KDAL-FM, WHTC-AM, M.D. Alert, New England Cable News, WNYT-TV ! NBC News, Business Insider, Pink News, Doctor's Lounge, WTAG-FM*.

December 2016, Media interview on "Exposure to Advertisements and Susceptibility to Electronic Cigarette Use Among Youth." published in *Journal of Adolescent Health*. *Science News for Students*

November 2016, Media interview on "Flavored Electronic Cigarette Use and Smoking Among Youth" published in *Pediatrics*. This study received 100 media citations, including Altmetric, *NewYork Times, HealthDay News, Yahoo News, Fox News, 2minutesmedicine, MedPage Today, Reuters Health, WebMD.com, Health.com.*

Publications

a. Articles published in scholarly journals

Statistical Methodology and High Dimensional Data Research

1. **Dai H.** Review of Asymptotic Analysis of Mixed Effects Models, by Jiming Jiang. *Journal of the American Statistical Association*, 2019. [Impact Factor=2.3]

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Statistical Software Development

R package "CombinePValue" to test whether a vector of p-values are jointly significant when we combine them together, available in cran.r-project.org.

Teaching Activities

Teaching at UNMC

Fall 2019
  BIOS 823/CPH 653, Categorical Data Analysis (in class), 3 credit hours
  BIOS 823/CPH 653, Categorical Data Analysis (online), 3 credit hours
  BIOS 999 Biostatistics Doctoral Dissertation, 2 credit hours
  Invited Oral Cancer Prevention Lecture "E-cigarette and JUUL Use Among Youth" for the Preventive Dentistry Course, Creighton University, October 8, 2019 (in class)

Summer 2019
  BIOS 996 Directed Readings and Research: Time Series Analysis of Health Data, 1 credit hour
  BIOS 999 Biostatistics Doctoral Dissertation, 1 credit hour

Spring 2019
  BIOS 825/CPH 655, Correlated Data Analysis (in class), 3 credit hours
  BIOS 825/CPH 655, Correlated Data Analysis (online), 3 credit hours
  4 online-lectures with videos of "Quantitative research methods", invited lecture for HPRO 830 / CPH 500: the Foundations in Public Health course (online)
  BIOS 999 Biostatistics Doctoral Dissertation, 2 credit hours

Fall 2018
  BIOS 823/CPH 653, Categorical Data Analysis (in class), 3 credit hours
  BIOS 823/CPH 653, Categorical Data Analysis (online), 3 credit hours

"The Role of Quantitative Analysis", invited lecture for HPRO 830 / CPH 500: the Foundations in Public Health course (in class).
"The Genetic Analysis of Family-Based Studies", Invited Lecture for EPI 941 / CPH 741: Epidemiologic Methods in Applied Clinical Genetics (in class).

Teaching at CMH/UMKC
- Biostatistics for Medical Research (Fall 2010 - 2017), 3 credit hours
- Categorical Data Analysis (Spring 2010, Spring 2012, Spring 2014, Spring 2016), 3 credit hours
- Meta Data Analysis (Fall 2015), 1 credit hour

Teaching at Columbus State University
- Advanced Categorical Data Analysis (Spring 2007), 3 credit hours
- Introductory Statistics (Fall 2007, Spring 2007, Fall 2006), 3 credit hours
- College Algebra (Fall 2007, Spring 2007, Fall 2006), 3 credit hours
- Calculus I (Fall 2006), 3 credit hours

Teaching at University of Kentucky
- Calculus II (Summer 2004, Spring 2002), 3 credit hours
- Elementary Calculus & Its Applications (Spring 2004, Fall 2003), 3 credit hours
- Calculus I (Summer 2003, Spring 2003, Fall 2002), 3 credit hours

Teaching at Bellevue University
- Intermediate Algebra (Fall 2009), 3 credit hours

Academic Advising
- 2018-: Dissertation Advisor for Adam Kusi Appiah, Ph.D. student in Biostatistics at UNMC. Dissertation Title: "Analysis of Clustered Survival Data". Status: passed the oral/comprehensive exam on December 17, 2018.
- 2018-: Dissertation Advisor for Nirosha Rathnayake, Ph.D. student in Biostatistics at UNMC. Dissertation Title: "Small Area Estimation using Hierarchical Generalized Linear Mixed Models". Status: oral/comprehensive exam scheduled on September 23, 2019.
- 2018-: Dissertation Committee member for Karl Stessy Bisselou Moukagna, Ph.D. student in Biostatistics at UNMC. Dissertation Title: "Joint Analysis of Two or More Multivariate Longitudinal non-Survival Data and Time-to-Event Data with Implementation in R". Status: passed the oral/comprehensive exam on December 17, 2018.
- 2018-: Dissertation committee member for Ellen Kerns, Ph.D. student in Biomedical Informatics at UNMC.
- 2018-: Dissertation committee member for Mariam Taiwo, Ph.D. student in Health Promotion & Disease Prevention Research at UNMC.
- 2019-: Dissertation committee member for Qianqian Li, Ph.D. student in Environmental, Agricultural & Occupational Health at UNMC.
- 2019: Advisor for Fang Niu, MPH student with a concentration in Biostatistics at UNMC. Status: Graduation in August 2019.
- 2019-: Advisor for Ping Liu, MPH student with a concentration in Biostatistics at UNMC
- 2018-: Advisor for Dylan Scoggins, MPH student with a concentration in Biostatistics at UNMC
- 2019-: Committee member for Natalia Trinidad, MPH student in Epidemiology
  (Natalia defended her capstone entitled "Access to care and melanoma incidence and mortality in Nebraska" on July 29, 2019.)
- 2018-2019: Committee member for Sierra Garth, MPH student in Health Promotion at UNMC.

- 2019-: Committee member for Nick Guenzel, Master's in clinical translational research at UNMC
- 2016-2018: Mentor for Dr. Janelle Noel-MacDonnell, a post-doctoral scholar at CM
- 2018: Mentor for Irene Guo, a summer intern student at CM
- 2016-2017: Co-Mentor for William Chew, a summer intern student at CM
- 2017- 2018: Dissertation committee member for Raje Nikita on the Master of Science in Clinical Research (MSCR) at KUMC.
- 2014-2015: Scholarship oversight committee for Nazia Tabassum: Pediatric Hematology Oncology Fellow PGY6
- 2015-2018: Scholarship oversight committee for July Jean, Developmental-Behavioral Fellow.