

MARY D. WILLIS, Ph.D., M.P.H.

CONTACT INFORMATION

Address	Talbot 423E 715 Albany St Boston, MA 02118	Phone	(617) 358-4163
		Email	mwillis1@bu.edu
		Website	www.marydwillis.com

EDUCATION

Ph.D., Public Health - Environmental and Occupational Health Minor: Biological Data Science College of Public Health and Human Sciences, Oregon State University, Corvallis, OR <u>Dissertation</u> : Quasi-Experimental Methods to Assess Impacts of Energy Policy on Pregnancy Outcomes <u>Advisor</u> : Perry Hystad	2016- 2020
M.P.H., Public Health - Epidemiology School of Medicine and Dentistry, University of Rochester, Rochester, NY <u>Thesis</u> : Unconventional Natural Gas Development and Pediatric Asthma Hospitalizations <u>Advisor</u> : Elaine Hill	2014- 2016
B.A., Epidemiology, Environmental Studies Minor: Film and Media Studies College of Arts and Sciences, University of Rochester, Rochester, NY	2011- 2015

CURRENT ACADEMIC APPOINTMENTS

Assistant Professor Department of Epidemiology, School of Public Health, Boston University, Boston, MA	2022-present
Affiliate Faculty Population Health Data Science Program, Boston University, Boston, MA	2023-present
Affiliate Faculty Institute for Global Sustainability, Boston University, Boston, MA	2022-present
Partnering Faculty Center for Climate and Health, School of Public Health, Boston University, Boston, MA	2022-present
Courtesy Assistant Professor College of Public Health and Human Sciences, Oregon State University, Corvallis, OR	2022-present

PREVIOUS ACADEMIC APPOINTMENTS

Adjunct Instructor Department of Community Health Sciences, School of Medicine, Tufts University, Boston, MA	2022-2022
Visiting Researcher Department of Epidemiology, School of Public Health, Boston University, Boston, MA	2020-2022
Postdoctoral Scholar College of Public Health & Human Sciences, Oregon State University, Corvallis, OR	2020-2022
Graduate Research Fellow (NIEHS F31) College of Public Health & Human Sciences, Oregon State University, Corvallis, OR	2019-2020
Predoctoral Trainee (NCATS TL1) School of Medicine, Oregon Health and Science University, Portland, OR	2018-2019
Graduate Research Assistant College of Public Health & Human Sciences, Oregon State University, Corvallis, OR	2016-2018
Graduate Research Assistant School of Medicine and Dentistry, University of Rochester, Rochester, NY	2014-2018
Technical Assistant, NCI Community Clinical Oncology Research Program School of Medicine and Dentistry, University of Rochester, Rochester, NY	2013-2016

AWARDS & HONORS

NIH Director's Early Independence Award, NIH Office of the Director	2022
Recognition of Committee Service, International Society for Environmental Epidemiology	2022
Conference Travel Award, International Society for Environmental Epidemiology	2020
Fred & Helen E. Durbin Scholarship, Oregon State University	2020
Best Oral Paper, Cascadia Annual Symposium on Environmental, Occupational, and Public Health	2020
Doctoral Student Travel Award, Oregon State University (Canceled due to COVID-19)	2020
Ruth L. Kirschstein Predoctoral National Research Service Award, NIH NIEHS	2019-2020
Training Grant/External Fellowship Tuition Relief Scholarship, Oregon State University	2019-2020
Warren & Frederica Schad Fellowship, Oregon State University	2019-2020
Best Oral Presentation, CARTEEH Symposium on Transportation, Air Quality, and Health	2019
Invited Participant, Computable Exposures Workshop, Oregon State University	2019
Mentored Predoctoral Career Development Award, NIH NCATS	2018-2019
Liam Wood Memorial Fellowship, Oregon State University	2018-2019
Warren & Frederica Schad Fellowship, Oregon State University	2018-2019
Dean's Graduate Scholarship, Oregon State University	2018-2019
Conference Travel Award, International Society for Environmental Epidemiology	2018
Workshop Scholarship for Deep Learning in Life Sciences, IBM & Oregon State University	2018
Best Oral Paper, Annual Semiahmoo Symposium on Environmental, Occupational and Public Health	2017
Liberty League All-Academic Team, Women's Rowing, University of Rochester	2015
Dean's Scholarship, University of Rochester	2011-2015

RESEARCH SUPPORT

Active Funding

- Title:** A Preconception Cohort Study on Oil and Gas Development, Fertility, and Pregnancy Sep 2022-Aug 2027
Project Number: DP5 OD033415, PI: Mary Willis
Funder: NIH Office of the Director
Total Award: \$2,062,500
Role: Principal Investigator
- Title:** An Assessment of Environmental and Neighborhood-level Risk Factors for Subfertility among Black Women in the U.S. Apr 2023-Mar 2028
Project Number: R01-ES035053, RFA 18-1, PI: Amelia Wesselink
Funder: NIH National Institute of Environment Health Sciences
Total Award: \$2,358,548
Role: Co-Investigator
- Title:** Impacts of Vehicle Emission Regulations and Local Congestion Policies on Birth Outcomes Associated with Traffic Air Pollution Apr 2020-Mar 2023
Project Number: HEI 4970, RFA 18-1, PI: Perry Hystad
Funder: Health Effects Institute
Total Award: \$1,163,031
Role: Co-Investigator
- Title:** The Energy & Equity Exposures Database: A Tool for Understanding the Health and Societal Implications of a Just Energy Transition Jul 2023-Jun 2024
Project Number: N/A, MPI: Jonathan Buonocore, Mary Willis
Funder: Boston University Institute for Global Sustainability, Sustainability Research Program
Total Award: \$150,000
Role: Principal Investigator (co-PI: Jonathan Buonocore)
- Title:** Medicaid Claims Data for Climate and Health Apr 2023-Mar 2025
Project Number: N/A, PI: Nori-Sarma
Funder: Boston University School of Public Health, Spark Award
Total Award: \$100,000
Role: Co-investigator
- Title:** Mortality Trends and Disparities by Residential Proximity to Shale Gas Development in Central Appalachia May 2022-Jun 2023
Project Number: N/A, PI: Corrine Ruktanonchai
Funder: Interdisciplinary Network on Rural Population Health and Aging (INRPHA) Pilot Program, NIH National Institute on Aging
Total Award: \$20,000
Role: Co-investigator

Pending Applications

- Title:** Shedding Light on Power Outages, Adverse Pregnancy Outcomes, and Health Disparities: Insights from a Preconception Cohort and Medicaid Claims Data
Project Number: R01-NR021125, **MPI:** Mary Willis, Joan Casey
Funder: NIH National Institute of Nursing Research
Total Award: \$4,002,764
Role: Principal Investigator (MPI: Joan Casey) Sep 2023-Aug 2028

Completed Support

- Title:** Environmental Data Integration to Assess Impacts of Shale Gas Development on Perinatal Health Outcomes and Childhood Cancers
Project Number: F31 ES029801, **PI:** Mary Willis
Funder: NIH National Institute of Environmental Health Sciences
Total Fellowship: \$54,858
Role: Principal Investigator Sep 2019-Sep 2020
- Title:** Oregon Clinical and Translational Research Institute TL1 Program
Project Number: TL1 TR002371, **MPI:** Cynthia Morris & Allison Fryer
Funder: NIH National Center for Advancing Translational Sciences
Total Fellowship: \$28,324
Role: Predoctoral Trainee Sep 2018-Aug 2019

TEACHING EXPERIENCE

Invited Guest Lecturer, Department of Epidemiology
School of Public Health, Boston University, Boston, MA Sep 2021-present

Term	Course	Course Title	Lecture Title
Spring 2023	SPH EP 722	Data Collection Methods for Epidemiologic Research	Integrating Novel Spatial Data into Epidemiologic Research
Spring 2023	SPH EH 780	Chronic & Non-Communicable Disease: A Public Health Persp.	Quantifying Disease, Disability, and Death
Spring 2022; Spring 2023	SPH EH 730	Methods in Environmental Health Sciences	Multidimensional Hazards of the Oil & Gas Industry
Fall 2021	SPH EP 858	Design and Conduct of Cohort Studies	Recruitment, Retention, and Follow-up in Cohort Studies
Fall 2021	N/A	Doctoral Seminar in Epidemiology	Grant Writing for Early Career Epidemiologists (Panelist)

Adjunct Instructor, Department of Public Health and Community Medicine
School of Medicine, Tufts University, Boston, MA Jan 2022-Aug 2022

Term	Course	Course Title	Students	Credits	Role
Spring 2022	PH240	Environmental Epidemiology	8	3	Instructor (Online)
Summer 2022	PH240	Environmental Epidemiology	15	3	Instructor (Online)

Workshop Teaching Assistant, Skills for Health And Research Professionals (SHARP)
Mailman School of Public Health, Columbia University, New York, NY June 2021

Term	Course Title	Students	Role
Summer 2022	Google Earth Engine Boot Camp: Methods for Using Satellite and Geospatial Data for Environmental Exposure Science	16	Teaching Assistant
Summer 2021	Google Earth Engine Boot Camp: Methods for Using Satellite and Geospatial Data for Environmental Exposure Science	22	Teaching Assistant

Invited Guest Lecturer, Environmental Health Program
College of Public Health and Human Sciences, Oregon State University, Corvallis, OR Sept 2017-Sept 2020

Term	Course	Course Title	Lecture Title
Winter 2020	H512	Introduction to Environmental Health	Energy Production and Population Health

Winter 2020	H612	Doctoral Seminar in Public Health: Research and Practice	Predocutorial Grant Mechanisms, Writing Process, and Application Experiences
Spring 2019	H514	Environment, Safety, and Health	Impacts of Traffic-related Air Pollution Regulations on Infant Health
Winter 2019	H612	Doctoral Seminar in Public Health: Research and Practice	Time Management Strategies for Doctoral Students
Fall 2019	H480	Undergraduate Seminar in Environmental Health	Applications of Environmental Research in Consulting Positions/Internships
Fall 2018, Fall 2017	ALS199	Closing the Gap: Where Science Meets the Media	Shale Gas Development and Pediatric Asthma Hospitalizations

Graduate Teaching Assistant & Lab Instructor, Biostatistics & Global Health Programs
College of Public Health and Human Sciences, Oregon State University, Corvallis, OR

Sep 2016-Jun 2017

Term	Course	Course Title	Students	Credits	Role
Spring 2018	H581	Generalized Linear Modeling & Categorical Data Analysis	61	4	Lab Instructor
Winter 2018	H516	Research Methods in International Health	27	3	Teaching Assistant
Winter 2018	H580	Linear Regression & Analysis of Time to Event Data	26	4	Lab Instructor
Fall 2017	H524	Introduction to Biostatistics	22	4	Lab Instructor

STUDENT & TRAINEE MENTORSHIP

Graduate Level

- Sharonda Lovett, PhD in Epidemiology, Boston University
Project: A preconception cohort study of neighborhood change and fertility
F31 co-mentor (pending) 2023-present
- Laura Buckley, PhD in Environmental Health, Boston University
Project: The health and equity implications of alternative strategies to reduce transportation-related air pollution
Dissertation committee member 2022-present
- Toshiaki Komura, MPH in Epidemiology and Biostatistics, Boston University
Project: A difference-in-differences analysis of oil and gas development and total fertility rate in the United States
Research mentor 2022-present
- Martha Koenig, MPH in Epidemiology and Biostatistics, Boston University
Project: Associations among supermarket access, neighborhood income, and reported nutrient intake in a cohort of pregnancy planners (Poster at American Public Health Association)
Practicum advisor 2021-present

Undergraduate Level

- Evan Volkin, BS in Economics, Business Analytics, University of Rochester
Project: Spatial-temporal changes in traffic-related air pollution in 2020: A natural experiment using COVID-19 (Poster at International Society of Environmental Epidemiology)
Research mentor 2021-2022
- Erin Campbell, BS in Economics, Envi. Health, University of Rochester
Project: Associations between historical neighborhood disinvestment and modern asthma prevalence: A national study on the influence of redlining. (Thesis published in *Environ. Health Perspect.*)
Research mentor 2020-2021

SERVICE & COMMITTEES

External Appointments & Contributions

International Society for Environmental Epidemiology

- Committee Chair, Student and New Researchers Network Steering Committee 2020-2022
- Member, Communications Committee 2020-present
- Member, Fellows Selection Committee 2021-2022
- Member, International Scientific Committee for the Annual Conference 2021-2022
- Member, Scientific Planning Committee for the North American Regional Conference 2022-2023
- Session Chair/Co-chair, Annual Conference 2018, 2019, 2021, 2022
- Member, North America Regional Conference Organizing Committee 2022-2023

Science Communication Network

▪ Member, Oil & Gas Science Advisory Board	2021-present
The Straight Scoop on Shale, League of Women Voters of Pennsylvania Citizen Education Fund	
▪ Member, Technical Advisory Committee for the Annual Conference	2022-present
Reviewer, Harvard-NIOSH Early Career Researcher Pilot Award	2022
Internal Appointments	
Boston University	
▪ At-Large Member, Faculty Senate	2022-present
▪ Member, MPH Admissions Committee	2022-present
▪ MPH Integrative Learning Experience (ILE) Advisor, Department of Epidemiology	2023-present
▪ Member, Anti-Racism in Departmental Research Agenda, Department of Epidemiology	2023-present
▪ Reviewer, KL2 Applications, Clinical and Translational Science Institute	2023
Oregon State University	
▪ Member, Student Evaluation Committee for Promotion and Tenure	2017, 2019
▪ Member, Strategic Planning Task Force on Programmatic Relevance	2018

PEER-REVIEWED PUBLICATIONS

♦ Led by student or postdoctoral trainee

Published Articles

1. **Willis M**, Hill E, Ncube C, Campbell E, Harris H, Harleman M, Ritz B, Hystad P. Sociodemographic Disparities in Exposure to Traffic-related Air Pollution during Pregnancy and Exposure Changes over a 20 Year Period. Accepted at *JAMA Net. Open*.
2. Wesselink A, Lovett S, Weinberg J, Geller R, Wang T, Regan A, **Willis M**, Perkins R, Yland J, Koenig M, Rothman K, Hatch E, Wise L. A Prospective Study of COVID-19 Vaccination and Menstrual Cycle Characteristics. Accepted at *Vaccine*.
3. **Willis M**, Wesselink A, Kirwa K, Hystad P, Hatch E, Wise L. Associations between Residential Greenness and Fecundability in a North American Preconception Cohort Study. *Environ. Health Perspect.* 2023; 131(4):47012. DOI: 10.1289/EHP10648.
4. **Willis M**, Cushing L, Buonocore J, Deziel N, Casey J. It's Electric! A Public Health Life Course Perspective on our Energy Mix. *Environ. Epidemiol.* 2023; 7(2):e246. DOI: 10.1097/EE9.0000000000000246.
5. ♦ Campbell E, Hill E, Sims K, **Willis M**. Associations among Historical Neighborhood Disinvestment, Hazardous Air Pollution, and Current Adult Asthma Prevalence. *Environ. Health Perspect.* 2023; 131(3). DOI: 10.1289/EHP11371.
6. Harper T, Kuohung W, Sayres L, **Willis M**, Wise L. Optimizing Preconception Care and Interventions for Improved Population Health. *Fertil. Steril.* 2022; Dec(11). DOI: 10.1016/j.fertnstert.2022.12.014
7. **Willis M**, Carozza S, Hystad P. Congenital Anomalies Associated with Oil and Gas Wells, Resource Extraction, and Produced Water: A Population-Based Retrospective Cohort Study in Texas. *J. Expo. Sci. Environ. Epidemiol.* 2023; 33, 84-93. DOI: 10.1038/s41370-022-00505-x.
8. **Willis M**, Schrank D, Xu C, Harris H, Ritz B, Hill E, Hystad P. A Population-based Cohort Study of Traffic Congestion and Infant Growth using Connected Vehicle Data. *Sci. Adv.* 2022; 8(43). DOI: 10.1126/sciadv.abp8281
9. Geller R, Wesselink A, Upson K, Claus Henn B, Schildroth S, Wright R, Coleman C, **Willis M**, Bethea T, Williams P, Harmon Q, Baird D, Wegienka G, Wise L. Correlates of Blood Metal Levels among Reproductive-Aged Black Women. *J. Expo. Sci. Environ. Epidemiol.* 2022; Sep(14). DOI: 10.1038/s41370-022-00477-y
10. McKinnon C, Joglekar D, Hatch E, Rothman K, Wesselink A, **Willis M**, Wang T, Mikkelsen E, Eisenberg M, Wise L. Male Personal Heat Exposures and Fecundability: A Preconception Cohort Study. *Andrology* 2022; 10(8): 1511-1521. DOI: 10.1111/andr.13242
11. **Willis M**, Orta O, Ncube C, Wesselink A, Doan L, Kirwa K, Boynton-Jarrett R, Hatch E, Wise L. Analysis of Neighborhood Socioeconomic Disadvantage and Fertility. *JAMA Net. Open.* 2022; 5(6):e2218738. DOI: 10.1001/jamanetworkopen.2022.18738
12. Wesselink A, Hatch E, Rothman K, Wang T, **Willis M**, Willis S, Yland J, Crowe H, Perkins R, Levinson J, Regan A, Wise L. Associations among COVID-19 Vaccination, COVID-19 Infection, and Fecundability in a Preconception Cohort Study. *Am. J. Epidemiol.* 2022; 191(8): 1383-1395. DOI: 10.1093/aje/kwac011.
13. **Willis M**, Hill E, Kile M, Carozza S, Hystad P. Associations between Residential Proximity to Oil and Gas Extraction and Hypertensive Conditions during Pregnancy: A Difference-in-Differences Analysis in Texas, 1996-2009. *Int. J. Epidemiol.* 2022 Apr;51(2):525-536. DOI: 10.1093/ije/dyab246.

14. Wesselink AK, Wang TR, Ketzler M, Mikkelsen EM, Brandt J, Khan J, Hertel O, Laursen ASD, Johannesen BR, **Willis M**, Levy JI, Rothman KJ, Sørensen HT, Wise LA, Hatch EE. Air Pollution and Fecundability: Results from a Danish Preconception Cohort Study. *Paediatr. Perinat. Epidemiol.* 2022 Jan;36(1):57-67. DOI: 10.1111/ppe.12832
15. **Willis M**, Hill E, Boslett A, Kile M, Carozza S, Hystad P. Associations between Residential Proximity to Oil and Gas Drilling and Term Birth Weight and Small for Gestational Age Infants in Texas: A Difference-in-Differences Analysis. *Environ. Health Perspect.* 2021;129(7). DOI: 10.1289/EHP7678.
16. Denham A, **Willis M**, Croft D, Liu L, Hill E. Unconventional Natural Gas Development Associated with Acute Myocardial Infarction Hospitalizations and Mortality. *Environ. Res.* 2021: 195. DOI: 10.1016/j.envres.2021.110872.
17. **Willis M**, Hill E, Kile M, Carozza S, Hystad P. Assessing the Effectiveness of Vehicle Emission Regulations on Improving Perinatal Health: A Population-Based Accountability Study. *Int. J. Epidemiol.* 2021 Jan; 49(6): 1781-1791. DOI: 10.1093/ije/dyaa137.
18. **Willis M**, Hystad P, Denham A, Hill E. Natural Gas Development, Flaring Practices, and Pediatric Asthma Hospitalizations from 2000 to 2010 in Texas, USA. *Int. J. Epidemiol.* 2021 Jan; 49(6): 1883-1897. DOI: 10.1093/ije/dyaa115.
19. Thessen AE, Grondin CJ, Kulkarni RD, Brander S, Truong L, Vasilevsky NA, Callahan TJ, Chan LE, Westra B, **Willis M**, Rothenberg SE, Jarabek AM, Burgoon L, Korrick SA, Haendel MA. Community Approaches for Integrating Environmental Exposures into Human Models of Disease. *Environ. Health Perspect.* 2020 Dec; 28(12):e125002. DOI: 10.1289/EHP7215.
20. Denham A, **Willis M**, Zavez A, Hill E. Unconventional Natural Gas Development and Hospitalizations: Evidence from Pennsylvania, United States, 2003–2014. *Public Health.* 2019 Mar; 1(168):17–25. DOI: 10.1016/j.puhe.2018.11.020
21. **Willis M**, Hystad P. Hazardous Air Pollutants and Adverse Birth Outcomes in Portland, Oregon. *Environ Epidemiol.* 2019 Feb; 3(1):e034. DOI: 10.1097/EE9.0000000000000034.
22. **Willis M**, Jusko T, Halterman J, Hill E. Unconventional Natural Gas Development and Pediatric Asthma Hospitalizations in Pennsylvania. *Environ. Res.* 2018; 166: 402-408. DOI: 10.1016/j.envres.2018.06.022.

Manuscripts Submitted & Under Review

1. Bond J, Coleman C, Yland J, Wesselink A, Wang T, **Willis M**, Hatch E, Rothman K, Savitz D, Wise L. The Association between Preconception Sleep Duration and Non-Daytime Work and Spontaneous Abortion in a Prospective Cohort of Females, Males, and Couples. Revise and resubmit at *Hum. Reprod.*
2. Wise L, Wang T, Wesselink A, Wegienka G, Geller R, Coleman C, **Willis M**, Marsh E, Calafat A, Messerlian-Lambert G, Mikkelsen E, Hatch E. Perfluoroalkyl and Polyfluoroalkyl Substances and Anti-Müllerian Hormone Concentrations in Two Preconception Cohort Studies. Revise and resubmit at *Environ. Health Perspect.*
3. Harleman M, Harris L, **Willis M**, Ritz B, Hystad P, Hill E. Changes in Traffic Congestion and Air Pollution Due to Major Roadway Infrastructure Improvements in Texas. Revise and resubmit at *Sci. Total Environ.*
4. Sabbath E, **Willis M**, Wesselink A, McKinnon C, Wang T, Hatch E, Wise L. Association between job control and time to pregnancy in a preconception cohort. Under review at *Occup. Environ. Med.*
5. Wesselink A, Hystad P, Kirwa K, Kaufman J, **Willis M**, Wang T, Szpiro A, Levy J, Savitz D, Rothman K, Hatch E, Wise L. Air pollution and fecundability in a North American preconception cohort study. Under review at *Environ. Int.*

Selected Analyses in Progress

1. **Willis M**, Harris L, Ritz B, Hill E, Hystad P. Assessing the Influence of Electronic Tolling on Air Pollution, Traffic Congestion, and Infant Health in a Population-based Cohort Study
2. **Willis M**, Wise L, Kirwa K, Hystad P, Szpiro A, Kaufman J, Wang T, Joseph M, Yland J, Eisenberg M, Hatch E, Wesselink A. Associations between Residential Proximity to Major Roads and Semen Quality: Results from a North American Preconception Cohort Study.
3. **Willis M**, Selke S, Campbell E, Gradus J, Nilni Y, Deziel N, Casey J, Hatch E, Wesselink A, Wise L. Residential Proximity to Oil and Gas Development and Markers of Psychosocial Stress and Depression in a North American Preconception Cohort Study.
4. Larkin A, **Willis M**, Ritz B, Hill E, Hystad P. Living Downwind of High Traffic Roads and Adverse Birth Outcomes: An Instrumental Variable Analysis.
5. Hystad P, Hill E, Harris L, Molitor J, Ritz B, **Willis M**. Assessing the Effect of Decreased Tailpipe Emissions on Adverse Birth Outcomes: A 20-Year Retrospective Accountability Study.
6. Hill E, **Willis M**, Harleman M, Harris L, Ritz B, Hystad P. Impact of Highway Infrastructure Projects on Adverse Birth Outcomes.
7. ♦ Campbell E, Buonocore J, Polka E, Wesselink A, Wise L, **Willis M**. A Fossil Fuel Exposure Assessment in a North American Preconception Cohort Study.
8. ♦ Harris L, Harleman M, **Willis M**, Ritz B, Hystad P, Hill E. Limited Impact of Roadway Construction on Nearby Home Prices.
9. ♦ Volkin E, Campbell E, **Willis M**, Buonocore J, Hill E, Hystad P. Associations between Vehicle Miles Traveled and Ambient Air Pollution at Regulatory Monitoring Sites: A Natural Experiment Vehicle Telematics Data during the COVID-19 Shutdown.

10. Jimenez MP, Reimer C, Wesselink A, Hystad P, Hatch E, Kirwa K, Gradus J, Wise L, **Willis M**. Residential Proximity to Green Space and Markers of Psychosocial Stress and Depression in a Preconception Cohort.
11. Wesselink A, **Willis M**, Hystad P, Kirwa K, Pescador-Jimenez M, Hatch E, Wise L. Association between Residential Green Space and Menstrual Cycle Characteristics among North American Women.
12. ♦ Koenig M, **Willis M**, Bond J, Lovett S, Hatch E, Boyton-Jarrett R, Wise L, Wesselink A. Associations among Supermarket Access, Neighborhood Income, and Reported Nutrient Intake among a Cohort of Pregnancy Planners.
13. ♦ Reddy R, Asanad K, **Willis M**, Wesselink A, Blachmann R, Zizzo J, Israeli J, Webber A, Ramasamy R. Evaluating the Association Between Climate Change and Fertility Rates in the United States.

CONFERENCE & INVITED PRESENTATIONS

♦ *Led by student mentee*

* *Awarded best oral presentation*

Selected Oral Presentations

1. **Willis M**, Harris H, Campbell E, Chaskes M, Sawyer E, Ritz B, Hill E, Hystad P. Quantifying the potential co-benefits of electronic tolling for air pollution, traffic congestion, and infant health in a population-based cohort study. Annual Meeting of the North America Chapter of the International Society for Environmental Epidemiology, Corvallis, OR, June 19-21, 2023.
2. Pescador Jimenez M, Reimer C, Wesselink A, Hystad P, Hatch E, Kirwa K, Gradus J, Wise L, **Willis M**. Residential Proximity to Green Space and Mental Health in a Preconception Cohort. Annual Meeting of the North America Chapter of the International Society for Environmental Epidemiology, Corvallis, OR, June 19-21, 2023.
3. **Willis M**. Building an Energy Epidemiology Agenda for Health-Protective Policy Decisions. Institute for Global Sustainability, Boston University. Boston, MA, March 1, 2023.
4. **Willis M**. Influence of Oil and Gas Development on Pregnancy-related Hypertensive Disorders of Pregnancy. Annual Shale & Public Health Conference by the League of Women Voters of Pennsylvania, virtual due to COVID-19, November 15-16, 2022.
5. **Willis M**, Schrank D, Xu C, Harris H, Ritz B, Hill E, Hystad P. A Population-based Cohort study of Traffic Congestion and Term Birth Weight using Vehicle Telematics Data. Annual Meeting of the International Society for Environmental Epidemiology, Athens, Greece, September 18-21, 2022.
6. **Willis M**, Schrank D, Xu C, Harris H, Ritz B, Hill E, Hystad P. A Population-based Cohort study of Traffic Congestion and Term Birth Weight using Vehicle Telematics Data. Annual Meeting of the Society for Epidemiologic Research, Chicago, IL, June 15-17, 2022.
7. **Willis M**, Wesselink A, Gradus J, Nillni Y, Casey J, Hatch E, Wise L. Residential Proximity to Oil and Gas Development and Markers of Psychosocial Stress and Depression in a North American Preconception Cohort Study. Annual Meeting of the Society for Epidemiologic Research, Chicago, IL, June 15-17, 2022.
8. **Willis M**. Using Connected Vehicle and Device Data in a Population-based Cohort Study. Texas Transportation Institute, College Station, TX, April 6th, 2022.
9. **Willis M**. Reproductive Health and Shale Gas Development. Fracking and Health Seminar Series, Environmental Health Project, Pittsburgh, PA, April 27, 2022.
10. **Willis M**. Environmental Hazards and Reproductive Health: Applications of Policy-Relevant Epidemiology. Population Health Research Institute Seminar Series, Cleveland, OH, December 7th, 2021.
11. **Willis M**. Associations between Residential Proximity to Oil and Gas Drilling and Infant Health in Texas. Annual Shale & Public Health Conference by the League of Women Voters of Pennsylvania, virtual due to COVID-19, November 17-18, 2021.
12. ♦ Campbell E, Hill E, Sims K, **Willis M**. Associations among Historical Neighborhood Disinvestment, Hazardous Air Pollution, and Current Adult Asthma Prevalence. SERdigital, virtual, November 10, 2021.
13. **Willis M**, Wesselink A, Hatch E, Wise L. Air Pollution and Fecundability in Two Preconception Cohort Studies. Annual Meeting of the International Society for Environmental Epidemiology, virtual due to COVID-19, August 23-26, 2021.
14. **Willis M**, Wesselink A, Hystad P, Kirwa K, Hatch E, Wise L. Residential Green Space and Fecundability in a North American Preconception Cohort Study. Annual Meeting of the Society for Epidemiologic Research, virtual due to COVID-19, June 23-25, 2021.
15. **Willis M**, Wesselink A, Hystad P, Kirwa K, Hatch E, Wise L. Residential Green Space and Fecundability in a North American Preconception Cohort Study. Annual Meeting for the Pediatric and Perinatal Epidemiologic Research, virtual due to COVID-19, June 21-22, 2021.
16. Hystad P, **Willis M**, Hill E. The TRANSIT Accountability Study: Preliminary Results & Methods to Assess Impacts of Local Congestion Programs on Pregnant Women in Texas. CARTEEH Symposium on Transportation, Air Quality, and Health, virtual due to COVID-19, May 18-20, 2021.

17. **Willis M**, Hill E, Boslett A, Kile M, Carozza S, Hystad P. Impacts of Exposure to Oil and Gas Drilling during Pregnancy on Markers of Intrauterine Growth Restriction among Term Infants: A Difference-in-Differences Analysis. Annual Meeting of the Society for Epidemiologic Research, virtual due to COVID-19, December 15-18, 2020.
18. **Willis M**. Shale Gas Development and Pediatric Asthma-related Hospitalizations in Texas. Annual Shale & Public Health Conference by the League of Women Voters of Pennsylvania, virtual due to COVID-19, November 17-18, 2020.
19. ***Willis M**, Hill E, Boslett A, Kile M, Carozza S, Hystad P. Associations between Exposure to Oil and Gas Drilling during Pregnancy and Term Birth Weight: A Difference-in-Differences Analysis. Annual Cascadia Symposium on Occupational, Environmental, and Population Health, Abbotsford, BC, January 9-10, 2020.
20. **Willis M**, Hill E, Kile M, Carozza S, Hystad P. Impact of Oil and Gas Drilling Activities on Small-for-Gestational-Age Infants in Texas: A Difference-in-Differences Analysis. Annual Meeting of the International Society for Environmental Epidemiology, Utrecht, The Netherlands, August 25-28, 2019.
21. **Willis M**, Hill E, Kile M, Carozza S, Hystad P. Impact of Regulatory Improvements to Traffic-related Air Pollution on Infant Health: Has Policy Made a Difference? Annual Meeting of the International Society for Environmental Epidemiology, Utrecht, The Netherlands, August 25-28, 2019.
22. ***Willis M**, Hystad P. Cumulative Impact of Traffic-related Air Pollution Regulations on Term Birth Weight. CARTEEH Symposium on Transportation, Air Quality, and Health, Austin, TX, February 18-20, 2019.
23. **Willis M**. Impact of Traffic-related Air Pollution Regulations on Infant Health Outcomes. Annual Semiahmoo Symposium on Occupational, Environmental, and Population Health, Blaine, WA, January 10-11, 2019.
24. **Willis M**. Shale Gas Development and Pediatric Asthma-related Hospitalizations from 2000 to 2010 in Texas. Annual Cascadia Symposium on Occupational, Environmental, and Population Health, Abbotsford, BC, January 4-5, 2018.
25. ***Willis M**. Unconventional Natural Gas Development and Pediatric Asthma-related Hospitalizations from 2003 to 2014 in Pennsylvania. Annual Semiahmoo Symposium on Occupational, Environmental, and Population Health, Blaine, WA, January 5-6, 2017.

Selected Poster Presentations

1. **Willis M**, Campbell E, Buonocore J, Polka E, Wesselink A, Wise L. A fossil fuel exposure assessment in a North American preconception cohort study. Annual Meeting of the International Society for Exposure Science, Chicago, IL, August 27-31, 2023.
2. ♦ Campbell E, Wesselink A, Deziel N, Aschengrau A, Wise L, **Willis M**. Reconstructing Historical Exposures to Oil and Gas Development at Critical Windows of Exposure for Reproductive Outcomes in a Preconception Cohort Study. Annual Meeting of the International Society for Exposure Science, Chicago, IL, August 27-31, 2023.
3. **Willis M**, Hill E, Harris L, Ritz B, Hystad P. Assessing the Effect of Decreased Tailpipe Emissions on Adverse Birth Outcomes: A 20-Year Retrospective Accountability Study. Annual Meeting of the Society for Epidemiologic Research, Portland, OR, June 13-16, 2023.
4. **Willis M**, Wise L, Kirwa K, Hystad P, Szpiro A, Kaufman J, Wang T, Joseph M, Yland J, Eisenberg M, Hatch E, Wesselink A. Associations between Residential Proximity to Major Roads and Semen Quality: Results from a North American Preconception Cohort Study. Annual Meeting of the International Society for Environmental Epidemiology, Athens, Greece, September 18-22, 2022.
5. **Willis M**, Hill E, Ncube C, Campbell E, Harris H, Harleman M, Ritz B, Hystad P. Sociodemographic Disparities in Exposure to Traffic-related Air Pollution during Pregnancy and Exposure Changes over a 20 Year Period. Annual Meeting of the International Society for Environmental Epidemiology, Athens, Greece, September 18-22, 2022.
6. ♦ Koenig M, **Willis M**, Wise L, Wesselink A. Associations between Supermarket Access, Neighborhood Income, and Reported Nutrient Intake among a Cohort of Pregnancy Planners. Vital Village National Community Leadership Summit, virtual due to COVID-19, October 18 & 22, 2021.
7. **Willis M**, Orta O, Hatch E, Wesselink A, Kirwa K, Kaufman J, Rothman K, Wise L. A Prospective Cohort Study of Neighborhood Deprivation and Fecundability. Annual Meeting of the International Society for Environmental Epidemiology, virtual due to COVID-19, August 23-26, 2021.
8. **Willis M**, Wesselink A, Hystad P, Kirwa K, Hatch E, Wise L. Associations between Residential Green Space and Fertility in a North American Preconception Cohort Study. Annual Meeting of the International Society for Environmental Epidemiology, virtual due to COVID-19, August 23-26, 2021.
9. **Willis M**, Volkin E, Campbell E, Hill E, Hystad P. Associations between Vehicle Miles Traveled and Ambient Air Pollution at Regulatory Monitoring Sites: A Natural Experiment using the COVID-19 Shutdown. Annual Meeting of the International Society for Environmental Epidemiology, virtual due to COVID-19, August 23-26, 2021.
10. **Willis M**, Hill E, Kile M, Carozza S, Hystad P. Assessing the Effectiveness of Vehicle Emission Regulations on Improving Perinatal Health: A Population-Based Accountability Study. Annual Meeting of the Society for Epidemiologic Research, virtual due to COVID-19, December 15-18, 2020.

11. **Willis M**, Hill E, Kile M, Carozza S, Hystad P. Associations between Exposure to Oil and Gas Drilling and Hypertensive Conditions during Pregnancy: A Difference-in-Differences Analysis. Annual Meeting of the Society for Pediatric and Perinatal Epidemiologic Research, virtual due to COVID-19, December 15, 2020.
12. **Willis M**, Hill E, Kile M, Carozza S, Hystad P. Associations between Exposure to Oil and Gas Extraction and Pregnancy-Related Hypertension: A Difference-in-Differences Analysis. Annual Conference of the International Society for Environmental Epidemiology, virtual due to COVID-19, August 24-27, 2020.
13. **Willis M**, Kile M, Carozza S, Hystad P. Congenital Anomalies Associated with Oil and Gas Drilling, Resource Extraction, and Water Production: A Population-Based Retrospective Cohort Analysis. Annual Conference of the International Society for Environmental Epidemiology, virtual due to COVID-19, August 24-27, 2020.
14. Hystad P, **Willis M**, Hill E, Larkin A, Molitor J, Ritz B, Perkinson D, Shrank D. The TRANSIT Accountability Study: Assessing Impacts of Vehicle Emission Regulations and Local Congestion Policies on Birth Outcomes in Texas. Health Effects Institute Annual Conference, Boston, MA, April 5-7, 2020. (Canceled due to COVID-19.)
15. **Willis M**, Hill E, Boslett A, Kile M, Carozza S, Hystad P. Environmental Data Integration to Assess the Impacts of Oil and Gas Drilling on Perinatal Health. Annual Environmental and Molecular Toxicology Research Day, Corvallis, OR, January 30, 2020.
16. **Willis M**, Larkin A, Hystad P, and the PURE Study Investigators. Global Patterns of Environmental Inequities within the Prospective Urban and Rural Epidemiology Study. Annual Semiahmoo Symposium on Occupational, Environmental, and Population Health, Blaine, WA, January 10-11, 2019.
17. **Willis M**, Long D, Sonne D, Kile M, Hill E, Hystad P. Propensity Score Matching in Environmental Epidemiology: A Systematic Review and Reporting Recommendations. Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology, Ottawa, ON, August 26-30, 2018.
18. **Willis M**, Hystad P, Denham A, Hill E. Shale Gas Development, Natural Gas Flaring, and Pediatric Asthma Hospitalizations from 2000 to 2010 in Texas, USA. Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology, Ottawa, ON, August 26-30, 2018.
19. **Willis M**, Jusko T, Halterman J, Hill E. Unconventional Natural Gas Development & Pediatric Asthma Hospitalizations: Evidence from Pennsylvania, USA. Population Association of America Annual Meeting, Denver, CO, April 26-28, 2018.

AD HOC PEER REVIEW

Air Quality, Atmosphere, and Health
 American Journal of Epidemiology
 Energy Research and Social Science
 Environment International
 Environmental Research
 Environmental Research Letters
 Environmental Health Perspectives
 Fertility and Sterility
 Human Reproduction
 International Journal of Epidemiology
 International Journal of Hygiene and Environmental Health
 JAMA Network Open
 Journal of Exposure Science and Environmental Epidemiology
 Lancet Planetary Health
 Paediatric and Perinatal Epidemiology
 Science Advances

SELECTED PRESS

Associated with: **Willis M**, Schrank D, Xu C, Harris H, Ritz B, Hill E, Hystad P. A Population-based Cohort Study of Traffic Congestion and Infant Growth using Connected Vehicle Data.

- Calma J. "Traffic jams are tied to lower birth weights, study finds." *The Verge* [Washington, D.C.] 28 Oct 2022. <https://www.theverge.com/2022/10/28/23426970/birth-weight-infant-traffic-congestion-lower-health>
- Baisas L. "Highway and traffic pollution could be connected to low birthweight." *Popular Science* [New York] 28 Oct 2022. <https://www.popsci.com/science/traffic-congestion-low-birthweight/>

Associated with: **Willis M**, Orta O, Ncube C, Wesselink A, Đoàn L, Kirwa K, Boynton-Jarrett R, Hatch E, Wise L. Analysis of Neighborhood Socioeconomic Disadvantage and Fertility.

- Kronemyer B. "Neighborhood disadvantage and fertility rates" *Contemporary OB/GYN* [Washington, D.C.] 8 Aug 2022. <https://www.contemporaryobgyn.net/view/neighborhood-disadvantage-and-fertility-rates>

Associated with: **Willis M**, Hill E, Kile M, Carozza S, Hystad P. Associations between Residential Proximity to Oil and Gas Extraction and Hypertensive Conditions during Pregnancy: A Difference-in-Differences Analysis in Texas, 1996-2009.

- Cunningham, N. "Living Closer to Oil and Gas Drilling Linked to Higher Risk of Pregnancy Complications, New Study Finds" *DeSmog* [Seattle] 11 Jan 2022. <https://www.desmog.com/2022/01/11/proximity-oil-gas-drilling-hypertension-pregnancy-willis/>.
- Andrews E. "Fracking, abortion, and the challenge of raising a family in southwestern Pennsylvania" *Grist* [Seattle] 7 Nov 2022. <https://grist.org/health/fracking-abortion-and-the-challenge-of-raising-a-family-in-southwestern-pennsylvania/>

Associated with: **Willis M**, Hill E, Boslett A, Kile M, Carozza S, Hystad P. Associations between Residential Proximity to Oil and Gas Drilling and Term Birth Weight and Small for Gestational Age Infants in Texas: A Difference-in-Differences Analysis.

- Sadasivam N, Andrews E. "What overturning Roe v. Wade means for pregnant people living in pollution hot spots." *Salon* [Seattle] 10 Jul 2022. https://www.salon.com/2022/07/10/what-overturning-roe-v-wade-means-for-pregnant-people-in-pollution-hotspots_partner/

Associated with: **Willis M**, Hystad P, Denham A, Hill E. Natural Gas Development, Flaring Practices, and Pediatric Asthma Hospitalizations from 2000 to 2010 in Texas, USA.

- Shrogen, E. "In the Drill Zone, Children's Health Is Looking Bleak." *The Texas Observer* [Austin] 15 Jun 2021. <https://www.texasobserver.org/in-the-drill-zone-childrens-health-is-looking-bleak/>.